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ENERGY EFFICIENCY ACT

Regulations Amending the Energy Efficiency Regulations

P.C. 2011-930 September 22, 2011

Whereas, pursuant to section 26 of the *Energy Efficiency Act* (see footnote a), a copy of the proposed *Regulations Amending the Energy Efficiency Regulations*, substantially in the annexed form, was published in the *Canada Gazette*, Part □, on June 12, 2010;

Therefore, His Excellency the Governor General in Council, on the recommendation of the Minister of Natural Resources, pursuant to sections 20 (see footnote b) and 25 of the *Energy Efficiency Act* (see footnote c), hereby makes the annexed *Regulations Amending the Energy Efficiency Regulations*.

REGULATIONS AMENDING THE ENERGY EFFICIENCY REGULATIONS

AMENDMENTS

1. (1) The definitions "ANSI C78.5", "autotransformer", "BR lamp", "drive (isolation) transformer", "encapsulated transformer", "ER lamp", "furnace transformer", "instrument transformer", "non-ventilated transformer", "rectifier transformer", "sealed transformer", "testing transformer" and "welding transformer" in subsection 2(1) of the *Energy Efficiency Regulations* (see footnote 1) are repealed.

(2) The definitions "general service incandescent reflector lamp", "large air-conditioner", "large heat pump", "model number", "motor", "room air-conditioner", "single package central air-conditioner", "single package heat pump", "split-system central air-conditioner", "split-system heat pump" and "standby mode" in subsection 2(1) of the Regulations are replaced by the following:

"general service incandescent reflector lamp" means an incandescent reflector lamp with a bulb shape as described in ANSI C79.1 or similar shape that has

(*a*) an E26/24 single contact or E26/50 × 39 skirted, medium screw base,

(*b*) a nominal voltage or voltage range that lies at least partially between 100 V and 130 V,

(*c*) a diameter greater than 57 mm, and

(*d*) a nominal power of not less than 40 W and not more than 205 W;

but does not include

(*e*) a coloured lamp,

(*f*) a BR30 lamp or BR40 lamp with a nominal power of up to 50 W, or 65 W,

(*g*) a R20 lamp with a nominal power of not more than 45 W,

(*h*) a silver bowl lamp, or

(*i*) a lamp for heat-sensitive applications; (*lampe-réflecteur à incandescence standard*)

"large air-conditioner" means a commercial or industrial unitary air-conditioner with a cooling capacity of 19 kW (65 000 Btu/h) or more, but does not include a single package vertical air-conditioner; (*climatiseur de grande puissance*)

"large heat pump" means a commercial or industrial unitary heat pump intended for air-conditioning and space-heating applications with a cooling capacity of 19 kW (65 000 Btu/h) or more, but does not include a single package vertical heat pump; (*thermopompe de grande puissance*)

"model number" means, in respect of any model of an energy-using product, the designator that is assigned to that model for the purposes of these Regulations and that distinguishes it from similar models; (*numéro du modèle*)

"motor" means, except with respect to gas furnaces for the purposes of paragraph 12(2)(*f*), a machine that converts electrical power into rotational mechanical power, including any of those machines that is incorporated into another product — whether or not that other product is an energy-using product and that

(*a*) is rated for continuous duty operation,

(*b*) is a design type that is

(i) an electric three-phase induction design,

(ii) a cage or squirrel-cage design, and

(iii) a NEMA design A, B or C with NEMA T or U frame dimensions, or IEC design N or H,

(*c*) is designed to operate at a single speed,

(*d*) has a nominal output power of not less than 0.746 kW (1 HP) and not more than 375 kW (500 HP),

(*e*) has a nominal voltage of not more than 600 V AC,

(*f*) has a nominal frequency of 50/60 Hz or 60 Hz,

(*g*) has a two, four, six or eight pole construction,

(*h*) has an IP code from 00 to 66,

(*i*) is of open or enclosed construction,

(*j*) is of foot-mounted construction or flange-mounted construction, and

(*k*) has a standard shaft, R-shaft or S-shaft, or is a close-coupled pump motor or a vertically-mounted solid shaft normal thrust motor;

but does not include a NEMA design A or C motor of more than 150 kW (200 HP) and not more than 375 kW (500 HP) or an IEC design H motor of more than 150 kW (200 HP) and not more than 375 kW (500 HP); (*moteur*)

"room air-conditioner" means a single-phase electric air-conditioner that has a cooling capacity of 10.55 kW (36 000 Btu/h) or less, but does not include a packaged terminal air-conditioner, a

portable air-conditioner or a single package vertical air-conditioner; (*climatiseur individuel*)

"single package central air-conditioner" means a single-phase or three-phase central air-conditioner that is a single package unit and that has a cooling capacity of less than 19 kW (65 000 Btu/h), but does not include a single package vertical air-conditioner; (*climatiseur central monobloc*)

"single package heat pump" means a single-phase or three-phase air-to-air heat pump that is a centrally ducted, single package unit and that has a cooling or heating capacity of less than 19 kW (65 000 Btu/h), but does not include a single package vertical heat pump; (*thermopompe monobloc*)

"split-system central air-conditioner" means a single-phase or three-phase central air-conditioner that is a split-system and that has a cooling capacity of less than 19 kW (65 000 Btu/h); (*climatiseur central bibloc*)

"split-system heat pump" means a single-phase or three-phase air-to-air heat pump that is a centrally ducted, split-system and that has a cooling or heating capacity of less than 19 kW (65 000 Btu/h); (*thermopompe bibloc*)

"standby mode" in respect of

(*a*) a refrigerated beverage vending machine or a snack and refrigerated beverage vending machine means a mode into which the appliance automatically enters during a period of extended inactivity that is capable of reducing the energy consumption of the appliance by means of the following power states:

(i) a refrigeration power state in which the average temperature of the refrigerated beverages is allowed to rise to 4.4°C, and

(ii) if the appliance is equipped with lights,

(A) a lighting power state in which the lights are turned off, and

(B) a machine power state in which the reduced power states referred in subparagraph (i) and clause (A) are both in operation at the same time,

(*b*) a television means the mode in which the appliance, while connected to mains power, cannot produce either sound or picture or provide any mechanical function, but can be switched into another mode with a remote control unit, an internal signal or an internal timer,

(*c*) a video product means the mode in which the appliance, while connected to mains power, cannot produce either video or audio output signals or provide any mechanical function, but can be switched into another mode with a remote control unit, an internal signal or an internal timer,

(*d*) a compact audio product means the mode in which the appliance, while connected to mains power, cannot produce sound or provide any mechanical function, but can be switched into another mode with a remote control unit, an internal signal or an internal timer, and

(*e*) a digital television adapter means the mode in which the appliance, while connected to mains power, is at the lowest power consumption level without the user being able to switch it off and with the capacity of lasting for an indefinite time; (*mode Veille*)

(3) Paragraph (*f*) of the definition "dry-type transformer" in subsection 2(1) of the Regulations is replaced by the following:

(*f*) a grounding transformer,

(4) The definition "dry-type transformer" in subsection 2(1) of the Regulations is replaced by the following:

(*m*) a special impedance transformer,

(*n*) a transformer with a nominal low-voltage line current of 4000 A or more,

(*o*) an on-load regulating transformer, or

(*p*) a resistance grounding transformer; (*transformateur à sec*)

(5) Paragraph (*p*) of the definition "general service lamp" in subsection 2(1) of the Regulations is replaced by the following:

(*p*) a silver bowl lamp,

(6) Paragraph (*b*) of the definition "life" in subsection 2(1) of the Regulations is replaced by the following:

(*b*) general service incandescent reflector lamps, the nominal life in hours as calculated in accordance with CSA C862-09, and

(7) Paragraph (*b*) of the definition "luminous flux" in subsection 2(1) of the Regulations is replaced by the following:

(*b*) for general service incandescent reflector lamps, the lumen output determined according to CSA C862-09,

(8) Subparagraph (*a*)(i) of the definition "self-contained commercial refrigerator" in subsection 2(1) of the Regulations is replaced by the following:

(i) has at least one compartment for the storage of food, beverages or flowers at temperatures above 0°C,

(9) Paragraph (*f*) of the definition "type" in subsection 2(1) of the Regulations is replaced by the following:

(*f*) room air-conditioners that are

(i) 120 V louvred with reverse cycle,

(ii) 120 V louvred without reverse cycle,

(iii) 120 V non-louvred with reverse cycle,

(iv) 120 V non-louvred without reverse cycle,

(v) 120 V casement-only,

(vi) 120 V casement-slider,

(vii) 240 V louvred with reverse cycle,

(viii) 240 V louvred without reverse cycle,

(ix) 240 V non-louvred with reverse cycle,

(x) 240 V non-louvred without reverse cycle,

(xi) 240 V casement-only, or

(xii) 240 V casement slider, and

(10) Paragraph (*b*) of the definition "unique motor identifier" in subsection 2(1) of the Regulations is replaced by the following:

(*b*) with respect to a motor that is

(i) a NEMA design type described in the definition "motor", the power in HP, and

(ii) an IEC design type described in the definition "motor", the power in kW,

(11) Subsection 2(1) of the Regulations is amended by adding the following in alphabetical order:

"AHRI" means the Air-Conditioning, Heating and Refrigeration Institute; (*AHRI*)

"AHRI 340/360" means the AHRI standard ANSI/AHRI 340/360-2007 entitled *Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment*; (*AHRI 340/360*)

"AHRI 1200" means the AHRI standard 1200-2008 entitled *Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets*; (*AHRI 1200*)

"ASHRAE 103" means the ANSI/ASHRAE standard 103-2007 entitled *Method of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers*; (*ASHRAE 103*)

"automatic water temperature adjustment device" means, with respect to a gas boiler, an oil-fired boiler and an electric boiler, a device required under section 4.7; (*dispositif automatique de réglage de la température de l'eau*)

"BIL" means, with respect to a dry-type transformer, the basic impulse insulation level indicating the ability of the transformer to withstand high voltages; (*TTC*)

"compact audio product" means an amplifier and terrestrial tuner encased in a single housing, with attached or separable speakers — including one that can produce sound from another media — that uses mains power as at least one means of power; (*produit audio compact*)

"CSA C380" means the CSA standard CAN/CSA-C380-08 entitled *Test Procedure for the Measurement of Energy Consumption of Set-Top Boxes (STBs)*; (*CSA C380*)

"CSA C381.1" means the CSA standard CAN/CSA-C381.1-08 entitled *Test method for calculating the energy efficiency of single-voltage external ac-dc and ac-ac power supplies*; (*CSA C381.1*)

"CSA C390-10" means the CSA standard CSA-C390-10 entitled *Test methods, marking requirements, and energy efficiency levels for three-phase induction motors*; (*CSA C390-10*)

"CSA C742-08" means the CSA standard CAN/CSA-C742-08 entitled *Energy performance of automatic icemakers and ice storage bins*; (*CSA C742-08*)

"CSA C746-06" means the CSA standard CAN/CSA-C746-06 entitled *Performance Standard for Rating Large and Single Packaged Vertical Air Conditioners and Heat Pumps*; (*CSA C746-06*)

"CSA C802.2-06" means the CSA standard CAN/CSA-C802.2-06 entitled *Minimum Efficiency Values for Dry-Type Transformers*; (*CSA C802.2-06*)

"CSA C862-09" means the CSA standard CAN/CSA-C862-09 entitled *Performance of incandescent reflector lamps*; (*CSA C862-09*)

"CSA C62301" means the CSA standard CAN/CSA-C62301-07 entitled *Household Electrical Appliances – Measurement of Standby Power*; (*CSA C62301*)

"detachable battery pack" means a battery that is contained in a separate enclosure from an end-use product designed to be removed or disconnected from the end-use product for recharging; (*bloc-batterie amovible*)

"digital television adapter" means a device that is a type of terrestrial set-top box whose primary function is to receive an Advanced Television Systems Committee terrestrial television broadcast and to demodulate, decode and convert it into an analog television format; (*adaptateur de téléviseur numérique*)

"electric boiler" means a boiler that uses electric energy as a source of heat and that is intended for application in a hot water central heating system having an input rate of less than 88 kW (300 000 Btu/h) and is not equipped with tankless domestic water heating coils; (*chaudière électrique*)

"external power supply" means a power supply device that

(*a*) is designed to convert line voltage ac input into lower voltage dc or ac output,

(*b*) is able to convert to only one dc or ac output voltage at a time,

(*c*) is designed to be used with a household or office end-use product that constitutes the primary load,

(*d*) is encased in an enclosure separated from that end-use product and is connected to that product by an electrical connection, and

(*e*) has a nominal output power of 250 W or less,

but does not include a device

(*f*) that powers the charger of a detachable battery pack of an end-use product,

(*g*) that charges the battery of an end-use product that is fully or primarily motor operated,

(*h*) that is an accessory to a medical device as defined in section 1 of the *Medical Devices Regulations*, or

(*i*) that is a power sourcing equipment as defined in IEEE 802.3-2008 Standard entitled *Standard for Information Technology — Telecommunications and Information Exchange Between Systems — Specific requirements Part 3*; (*bloc d'alimentation externe*)

"grounding transformer" means a three-phase transformer intended to provide a neutral point for system grounding purposes, either by means of

(*a*) a wye primary winding with a neutral connected to ground and a delta secondary winding, or

(*b*) a transformer with its primary winding in a zig-zag winding arrangement, and no secondary winding; (*transformateur de mise à la terre*)

"information and status display" means a device, including a clock, providing visual alphanumeric or graphical information or the status of the equipment; (*affichage*)

"integrated energy efficiency ratio" means a single number cooling part-load efficiency metric calculated for large air-conditioners and large heat pumps in AHRI 340/360; (*taux d'efficacité énergétique intégré*)

"mains power" means an alternating current electric power source in a building that is less than or equal to nominal 240 volt single-phase supply; (*alimentation principale*)

"off mode" in respect of

(*a*) a television means the mode in which the appliance, while connected to mains power, cannot produce either sound or picture or provide any mechanical function and cannot be switched into another mode with a remote control unit, a timer or another source,

(*b*) a video product means the mode in which the appliance, while connected to mains power, cannot provide any mechanical function and cannot be switched into another mode with a remote control unit, a timer or another source, and

(*c*) a compact audio product means the mode in which the appliance, while connected to mains power, cannot produce sound or provide any mechanical function and cannot be switched into another mode with a remote control unit, a timer or another source; (*mode Arrêt*)

"on-load regulating transformer" means a transformer that varies the voltage or the phase angle, or both, of an output circuit and compensates for fluctuation of load and input voltage or phase angle or both voltage and phase angle; (*transformateur de réglage en charge*)

"portable air-conditioner" means a single package air-conditioner unit that

(*a*) is represented by the configurations as shown in Table 1 of CSA C370,

(*b*) is typically mounted on wheels for the purpose of moving the unit, and

(*c*) has a cooling capacity of less than 19 kW (65 000 Btu/h); (*climatiseur portatif*)

"pull-down temperature reduction capability" means, with respect to a self-contained commercial refrigerator, the capability of the refrigerator, when fully loaded in an area having an ambient temperature of 32.22°C with 355 ml beverage cans that at the time of loading have reached a temperature of 32.22°C, to cool those cans to a stable integrated product temperature of 3.33°C in 12 hours or less; (*capacité d'abaisser la température*)

"replacement external power supply" means an external power supply that

(*a*) is marked for replacement for a specified end-use product that was manufactured before July 1, 2010, and

(*b*) is imported or shipped in quantities of less than 50 units; (*bloc d'alimentation externe de remplacement*)

"resistance grounding transformer" means a transformer that is designed for grounding the neutral of a three-phase electrical system, a three-phase transformer or a generator; (*transformateur de mise à la terre résistif*)

"security external power supply" means an external power supply manufactured before July 1, 2017 that

(*a*) is designed to convert line voltage ac input into lower voltage ac output,

(*b*) has a nominal output power of 20 W or more, and

(*c*) is designed for and marketed with equipment that operates continuously in on mode to perform any of the following principal functions:

(i) monitor, detect, record or provide notification of any intrusion on or access to real property or physical assets or notification of threats to personal safety resulting from that intrusion or access,

(ii) deter or control access to real property or physical assets or prevent the unauthorized removal of physical assets, or

(iii) monitor, detect, record or provide notification of any physical threats to real property, physical assets or personal safety, including fire, gas, smoke and flooding.

It does not include an external power supply for equipment that is designed and marketed with a built-in alarm or theft-deterrent feature if the equipment's principal functions are not any of the functions mentioned in subparagraph (i),(ii) or (iii); (*bloc d'alimentation externe de sécurité*)

"silver bowl lamp" means a lamp that has a reflective coating applied directly to the part of the bulb surface that reflects light toward the lamp base and that is marketed as a silver bowl lamp; (*lampe à calotte argentée*)

"single package vertical air-conditioner" means a single package commercial air-conditioner that is air-cooled and encased, with or without heating capability but not a heat pump, the major components of which are arranged vertically and that is intended for mounting through, or on either side of, an exterior wall; (*climatiseur vertical monobloc*)

"single package vertical heat pump" means a single package commercial heat pump that is air-cooled, encased and uses reverse cycle refrigeration as its primary heat source, the major components of which are arranged vertically and that is intended for mounting through, or on either side of, an exterior wall; (*thermopompe verticale monobloc*)

"special impedance transformer" means any dry-type transformer built to operate at an impedance outside of the normal range for that transformer's nominal power in kVA as shown in the table of normal impedance ranges set out in Part 6 of Schedule I; (*transformateur d'impédance particulière*)

"television" means an analog or digital device designed primarily for the display and reception of a terrestrial, satellite, cable, Internet Protocol TV (IPTV) or other broadcast or recorded transmission of analog or digital video and audio signals and includes

(*a*) a household television monitor, namely a device without an internal tuner, receiver or playback device,

(*b*) a combination television, namely a system in which a television and an additional device or devices, including a DVD player or VCR are combined into a single unit in which the additional device is included in the television casing, and

(*c*) a component television, namely a television composed of two or more separate components marketed and sold as a television under one model or system designation,

but does not include a computer monitor, namely, an analog or digital device designed primarily for the display of computer generated signals and that is not marketed for use as a television; (*téléviseur*)

"transparent" means, with respect to a self-contained commercial refrigerator, self-contained commercial refrigerator-freezer or self-contained commercial freezer, that its glass area covers at least 75% of the principal display face; (*transparent*)

"20 CCR" means the California Code of Regulations, Title 20, Division 2, Chapter 4, Sections

1601 to 1608; (*20 CCR*)

"video product" means a household electronic device that is encased in a single housing, has an integral power supply, is connected to a mains power, and is designed primarily to produce or record, or both, audio and video signals, to or from digital or analogue media, but does not include a camera; (*appareil vidéo*)

2. (1) The portion of subsection 3(1) of the Regulations before paragraph (*a*) is replaced by the following:

3. (1) Subject to subsections (2) to (29), the following products are prescribed as energy-using products:

(2) Paragraphs 3(1)(*j.3*) and (*j.4*) of the Regulations are repealed.

(3) Subsection 3(1) of the Regulations is amended by striking out "and" at the end of paragraph (*z.2*) and by adding the following after paragraph (*z.3*):

(*z.4*) compact audio products;

(*z.5*) televisions;

(*z.6*) video products;

(*z.7*) digital television adapters;

(*z.8*) external power supplies;

(*z.9*) single package vertical air-conditioners;

(*z.91*) single package vertical heat pumps; and

(*z.92*) electric boilers;

(4) Subsection 3(5.1) of the Regulations is replaced by the following:

(5.1) A product referred to in paragraph (1)(*j.2*) shall not be considered to be an energy-using product

(*a*) for the purposes of Part unless, if it is a general service incandescent reflector lamp that is an ER lamp or BR lamp, its manufacturing process is completed on or after January 1, 2003;

(*b*) for the purposes of Part , unless its manufacturing process is completed on or after September 1, 2008; or

(*c*) for the purposes of Part V, unless its manufacturing process is completed on or after December 31, 1996.

(5) Subsection 3(6) of the Regulations is replaced by the following:

(6) For the purposes of Parts to V, a product referred to in paragraph (1)(*n*) shall not be considered to be an energy-using product

(*a*) unless its manufacturing process is completed on or after November 27, 1999 and it is

(i) an explosion-proof motor, or

(ii) a motor that is contained within an integral gear assembly; or

(*b*) unless its manufacturing process is completed on or after January 1, 2011 and it has one of the following characteristics:

(i) it has an eight pole construction,

(ii) it is a NEMA U frame or equivalent IEC dimensions,

(iii) it is a NEMA design C or IEC design H,

(iv) it is a close-coupled pump motor,

(v) it is a vertically-mounted solid shaft normal thrust motor,

(vi) it is a fire pump motor with a nominal output power of greater than 150 kW (200 HP) and not more than 375 kW (500 HP),

(vii) it is not a foot-mounting, a type C face-mounting or a type D flange-mounting motor, or

(viii) it is a two, four, six or eight pole, NEMA design B motor with an output power of greater than 150 kW (200 HP) and not more than 375 kW (500 HP) or is a two, four, six or eight pole IEC design N motor with an output power of greater than 150 kW and not more than 375 kW.

(6) Subsection 3(10) of the Regulations is repealed.

(7) Section 3 of the Regulations is amended by adding the following after subsection (25):

(26) For the purposes of Parts to V, a product referred to in paragraph (1)(*z.7*) shall not be considered an energy-using product unless its manufacturing process is completed on or after January 1, 2010.

(27) For the purposes of Parts to V, a product referred to in any of paragraphs (1)(*z.4*) to (*z.6*) shall not be considered an energy-using product unless its manufacturing process is completed on or after May 1, 2011.

(28) For the purposes of Parts to V, a product referred to in paragraph (1)(*z.8*) shall not be considered an energy-using product unless its manufacturing process is completed on or after July 1, 2010.

(29) For the purposes of Parts to V, a product referred to in paragraph (1)(*z.92*) shall not be considered an energy-using product unless its manufacturing process is completed on or after September 1, 2012.

3. (1) The portion of subsection 4(1) of the Regulations before paragraph (*c*) is replaced by the following:

4. (1) Subject to subsections (1.1) and (1.2),

(*a*) for an energy-using product referred to in any of paragraphs 3(1)(*a*) to (*h.1*), (*h.3*), (*i*), (*j*), (*j.2*), (*j.5*), (*j.7*) to (*m.3*), (*n.1*) to (*s*), (*w*) and (*y*) to (*z.92*), an energy efficiency standard set out in column III of Part 1 of Schedule I applies to the product set out in column I if the manufacturing process of the product is completed during the period set out in column IV;

(*b*) for an energy-using product referred to in any of paragraphs 3(1)(*j.1*), (*t*), (*u*) and (*x*), an energy efficiency standard set out in column III of Part 1 of Schedule I applies to the product set out in column I;

(2) Subparagraphs 4(1)(*c*)(ii) to (iv) of the Regulations are replaced by the following:

(ii) if the manufacturing process of the product is completed on or after November 27, 1997 and before January 1, 2011

(A) an energy efficiency standard set out in column II of Part 2 of Schedule I applies to any product the power of which is set out in column I if the product is a NEMA motor as described in subparagraph (*b*)(iii) of the definition "motor" in subsection 2(1), or

(B) an energy efficiency standard set out in column II of Part 3 of Schedule I applies to any product the power of which is set out in column I if the product is an IEC motor as described in subparagraph (*b*)(iii) of the definition "motor" in subsection 2(1),

(iii) for the purposes of clause (ii)(A), if the power of a product described in subparagraph (*b*)(iii) of the definition "motor" in subsection 2(1) is not set out in Part 2 of Schedule I, the power of that product is deemed to be the power set out in that Part that is both

(A) lower than the actual power of the product, and

(B) closest to the actual power of the product,

(iv) for the purposes of clause (ii)(B), if the power of a product described in subparagraph (*b*)(iii) of the definition "motor" in subsection 2(1) is not set out in Part 3 of Schedule I, the power of that product is deemed to be the power set out in that Part that is both

(A) lower than the actual power of the product, and

(B) closest to the actual power of the product,

(v) if the manufacturing process of the product is completed on or after January 1, 2011 and the product is one described in the definition "motor" in subsection 2(1) and is not part of an integral gear assembly, is not a fire pump motor, has an output power of not less than 0.746 kW (1 HP) and not more than 150 kW (200 HP), has two, four or six poles, is NEMA T frame or IEC frame number of 90 or above, has a NEMA design A or B or IEC design N, has a standard shaft, R-shaft or S-shaft and has foot-mounting or C-face mounting with feet or detachable feet or D-flange mounting with feet or detachable feet, an energy efficiency standard set out in Table 3 of CSA C390-10 tested at 100% of nominal full load applies to the product, and

(vi) if the manufacturing process of the product is completed on or after January 1, 2011, and the product is one described in the definition "motor" in subsection 2(1) other than a motor referred to in subparagraph (v), an energy efficiency standard set out in Table 2 of CSA C390-10 tested at 100% of nominal full load applies to the product; and

(3) Subsection 4(1) of the Regulations is amended by adding the following after paragraph (*c*):

(*d*) for an energy-using product referred to in paragraph 3(1)(*v*),

(i) if the manufacturing process of the product is completed on or after January 1, 2005 and the product is 1.2 kV class, an energy efficiency standard set out in column III of Part 1 of Schedule I applies to the product set out in column I if the manufacturing process of the product is completed during the period set out in column IV,

(ii) if the manufacturing process of the product is completed on or after

January 1, 2005 and before January 1, 2010 and the product has a BIL of between 20 kV and 150 kV, an energy efficiency standard set out in column III of Part 1 of Schedule I applies to the product set out in column I if the manufacturing process of the product is completed during the period set out in column IV,

(iii) if the manufacturing process of the product is completed on or after January 1, 2010 and the product is single-phase with a BIL of between 20 kV and 199 kV, an energy efficiency standard set out in column II of Part 4 of Schedule I applies to the product having a kVA rating set out in column I,

(iv) if the manufacturing process of the product is completed on or after January 1, 2010 and the product is three-phase with a BIL of between 20 kV and 199 kV, an energy efficiency standard set out in column II of Part 5 of Schedule I applies to the product having a kVA rating set out in column I,

(v) if the kVA rating of the product falls between the kVA ratings set out in column 1 of Part 4 or 5 of Schedule I, its minimum energy efficiency standard is an interpolation of the corresponding minimum efficiency standards specified for those ratings in column II, and

(vi) if the product is a three-phase transformer having multiple high-voltage windings and a voltage ratio other than 2:1, the minimum energy efficiency standard specified in column II of Part 5 of Schedule I or interpolated in accordance with subparagraph (v) is reduced by 0.11.

(4) Section 4 of the Regulations is amended by adding the following after subsection (1.1):

(1.2) During the period beginning on July 1, 2010 and ending on June 30, 2013, if an energy-using product referred to in paragraph 3(1)(*z.8*) is a replacement external power supply and its manufacturing process is completed during that period, there is no energy efficiency standard applicable to the product.

(5) Section 4 of the Regulations is amended by adding the following after subsection (3):

(3.1) An energy-using product referred to in paragraph 3(1)(*v*), the kVA rating of which is set out in column I of Part 4 or 5 of Schedule I, complies with the energy efficiency standard referred to in subsection (1) only if the product meets the standard when tested in accordance with the testing procedure established by CSA C802.2-06.

(6) Subsection 4(4) of the Regulations is replaced by the following:

(4) A reference to a CSA standard set out in column III of Part 1 of Schedule I shall be read as a reference to that standard as it read on August 31, 2010.

4. The portion of section 4.1 of the Regulations before paragraph (*a*) is replaced by the following:

4.1 In respect of an energy-using product referred to in any of paragraphs 3(1)(*y*) to (*z.1*) that is manufactured before January 1, 2010, compliance with the energy efficiency standard referred to in subsection 4(1) shall be determined in accordance with the testing procedures established by ASHRAE 117 that are applicable to the product defined in these Regulations, except that

5. The Regulations are amended by adding the following after section 4.4:

4.5 In respect of an energy-using product referred to in any of paragraphs 3(1)(*y*) to (*z.1*) that is manufactured on or after January 1, 2010, compliance with the energy efficiency standard referred to in subsection 4(1) shall be determined in accordance with the testing

procedures established by AHRI 1200 that are applicable to the product defined in these Regulations, except that

(*a*) all standard factory-installed accessories, such as lighting, perimeter heat and pan heater, shall be in the "on" position if manually controlled;

(*b*) all accessories, such as electric condensate pans, that are included as standard with the equipment but are not factory-installed, shall be installed and in the "on" position;

(*c*) the power management device shall be disabled unless the device cannot change to a new integrated average product temperature after the test has been concluded;

(*d*) the testing shall be conducted at one or more of the following integrated average temperatures

(i) for a product intended for ice cream temperature applications, -26.1°C ± 1.1°C,

(ii) for a product intended for low temperature applications, -17.8°C ± 1.1°C,

(iii) for a product intended for medium temperature applications, 3.3°C ± 1.1°C,

(iv) for a product intended for wine chiller or floral storage temperature applications, or both, 7.2°C ± 1.1°C, and

(v) for a product that cannot maintain any of the temperatures set out in subparagraphs (i) to (iv), the lowest temperature setting; and

(*e*) the refrigerated volume shall be calculated in accordance with clause 4 of CSA C300-08.

4.6 In respect of an energy-using product referred to in paragraph 3(1)(*p*) that is manufactured on or after January 1, 2008, compliance with the energy efficiency standard referred to in subsection 4(1) shall be determined in accordance with the testing procedures established by CSA C300-08 that are applicable to the product defined in these Regulations, except that the adjustments prior to testing regarding the operability of the automatic icemaker are as follows:

(*a*) the icemaker shall be on but not in the process of freeing or removing ice pieces;

(*b*) no ice shall be in the ice storage bin;

(*c*) the level indicating arm shall be mechanically fixed in the ice full position or, if the icemaker does not have a level indicating arm, it may be disabled by another means that only prevents it from freeing or removing ice pieces;

(*d*) all other components shall be activated in the same manner as when the icemaker is on but not in the process of freeing or removing ice pieces;

(*e*) the ice storage bin shall be maintained at a temperature consistent with normal operation of the equipment in the home when the icemaker is on but not in the process of freeing or removing ice pieces from the icemaker; and

(*f*) if the ice storage bin has a consumer-adjustable setting for multiple ice storage temperatures, it shall be set at the lowest temperature setting.

4.7 In respect of an energy-using product referred to in any of paragraphs 3(1)(*h*), (*n.1*) and (*z.92*), compliance with the energy efficiency standard referred to in paragraph 4(1)(*a*) shall be determined in accordance with the following requirements, as applicable to the product defined in these Regulations:

(*a*) gas boilers, oil-fired boilers and electric boilers shall have an automatic water temperature adjustment device that adjusts the temperature of the water supplied by the boiler to ensure that an incremental change in inferred heat load produces a corresponding incremental change in the temperature of the water supplied;

(*b*) for boilers that fire at a single power, the requirement set out in paragraph (*a*) is met if the device automatically allows the burner or heating element to fire only when the device has determined that the inferred heat load cannot be met by the residual heat of the water in the system;

(*c*) for hot water boilers with no inferred heat load, the device shall limit the water temperature in the boiler to not more than 60°C; and

(*d*) a boiler for which the device is required shall operate only when the device is installed.

4.8 In respect of an energy-using product referred to in any of paragraphs 3(1)(*z.4*) to (*z.6*), compliance with the energy efficiency standard referred to in subsection 4(1) shall be determined in accordance with the testing procedures established by CSA C62301 that are applicable to the product, except that it must be tested at 115 V regardless of its nominal voltage.

6. The heading of Part of the Regulations is replaced by the following:

LABELLING

7. Sections 6 and 7 of the Regulations are replaced by the following:

6. The form of labelling an energy-using product is set out in Schedule II for products listed in paragraphs 5(*a*) to (*g*) and in Schedule III for room air-conditioners.

7. The manner of labelling an energy-using product is by attaching an adhesive tag, a flap tag or a hang tag to the product in such a manner that the tag is readily visible when the product is viewed from the front.

8. Paragraphs 10.1(*b*) and (*c*) of the Regulations are repealed.

9. Paragraph 10.2(1)(*a*) of the Regulations is replaced by the following:

(*a*) except in the case of the energy-using products referred to in paragraph 10.1(*a*) that are BR lamps or ER lamps, the words "Light Output / Flux lumineux", followed by the product's luminous flux and the word "Lumens";

10. Subsection 11(3) of the Regulations is replaced by the following:

(3) An energy using product referred to in paragraph 3(1)(*z.8*) need not be labelled in accordance with subsection (2) if

(*a*) a mark that is clearly and permanently applied to the product in accordance with the *International Efficiency Marking Protocol for External Power Supplies* of ENERGY STAR®;

(*b*) the product's energy performance has been verified by a certification body; and

(*c*) a model number is clearly marked on the product that can be traced to the certification body's energy performance verification.

(4) The verification mark shall be affixed to a surface of the energy-using product so that the mark is readily visible. However, in the case of an energy-using product referred to in any of paragraphs 3(1)(*j.1*), (*j.2*) and (*j.6*), the verification mark may be affixed to the exterior of the

product's package.

11. The heading of Part V of the Regulations is replaced by the following:

PROVISION OF INFORMATION

12. (1) The portion of subsection 12(1) of the Regulations before paragraph (a) is replaced by the following:

12. (1) The information required to be provided to the Minister under subsection 5(1) of the Act shall be filed with the Minister

(2) The portion of subsection 12(2) of the Regulations before paragraph (*a*) is replaced by the following:

(2) The information provided under subsection (1) in respect of the energy-using product shall include

13. Section 17.1 of the Regulations is replaced by the following:

17.1 If the information referred to in section 5 of the Act has been provided in respect of a particular motor, all other motors that have the same unique motor identifier as that motor and that are at least as energy efficient as that motor are exempt from the application of that section.

14. Schedule I to the Regulations is amended by replacing "*(Section 4)*" after the heading "SCHEDULE I" with "*(Subsection 2(1) and section 4)*".

15. The portion of item 8.1 of Part 1 of Schedule I to the Regulations in column III is replaced by the following:

	Column III
Item	**Energy Efficiency Standard**
8.1	CSA C749-07 Table 1

16. The portion of item 46 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
46.	on or after December 31, 1998 until August 31, 2010

17. Part 1 of Schedule I to the Regulations is amended by adding the following after item 46:

	Column I	**Column II**	**Column III**	**Column IV**
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
46.1	Gas boilers intended for low pressure steam systems	CSA P.2	Annual fuel utilization efficiency ≥ 80%	on or after September 1, 2010

			No continuously burning pilot light	

18. The portion of item 47 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
47.	on or after December 31, 1998 until August 31, 2010

19. Part 1 of Schedule I to the Regulations is amended by adding the following after item 47:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
47.01	Gas boilers intended for hot water systems	CSA P.2	Annual fuel utilization efficiency ≥ 82% No continuously burning pilot light	on or after September 1, 2010 until August 31, 2012
47.02	Gas boilers intended for hot water systems not equipped with tankless domestic water heating coils	CSA P.2 Section 4.7	Annual fuel utilization efficiency ≥ 82% Must be equipped with an automatic water temperature adjustment device No continuously burning pilot light	on or after September 1, 2012
47.03	Gas boilers intended for hot water systems with tankless domestic water heating coils	CSA P.2	Annual fuel utilization efficiency ≥ 82% No continuously burning pilot light	on or after September 1, 2012

20. Items 56 to 59 of Part 1 of Schedule I to the Regulations are replaced by the following:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
56.	General service incandescent reflector lamps that are BR lamps	CSA C862-01	CSA C862-01 Table 1 second column	on or after January 1, 2003 until May 31, 2009
57.	General service incandescent reflector lamps that are ER lamps with a nominal power other than 50 W, 75 W or 120 W	CSA C862-01	CSA C862-01 Table 1 second column	on or after January 1, 2003 until May 31, 2009

58.	General service incandescent reflector lamps that are ER lamps with a nominal power of 50 W, 75 W or 120 W	CSA C862-01	CSA C862-01 Table 2 second column	on or after January 1, 2003 until May 31, 2009
59.	General service incandescent reflector lamps other than BR or ER lamps	CSA C862-01	CSA C862-01 Table 1 second column	before June 1, 2009
59.1	General service incandescent reflector lamps that are ER30 or ER40 lamps with a nominal power of ≤ 50 W or ER40 lamps with a nominal power = 65 W	CSA C862-09	CSA C862-01 Table 1 and Table 2 second column	on or after June 1, 2009
59.2	General service incandescent reflector lamps other than those that are ER30 or ER40 lamps with a nominal power of ≤ 50 W or ER40 lamps with a nominal power = 65 W	CSA C862-09	CSA C862-09 Table 1 second column	on or after June 1, 2009

21. Items 64.1 to 64.94 of Part 1 of Schedule I to the Regulations are replaced by the following:

	Column I	Column II	Column III	Column IV
Item	Energy Using Product	Standard/ Legislative Provision	Energy Efficiency Standard	Completion Period
64.1	Ice-makers that produce ice in a batch process	CSA C742-08	CSA C742-08, Table 2 and Table 3	on or after January 1, 2008

22. The portion of item 74 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	Completion Period
74.	on or after September 1, 2005 until December 31, 2009

23. Part 1 of Schedule I to the Regulations is amended by adding the following after item 74:

	Column I	Column II	Column III	Column IV
Item	Energy-using Product	Standard/ Legislative Provision	Energy Efficiency Standard	Completion Period
74.1	Large air-conditioners that are cooled by air, have a cooling capacity of ≥ 19 kW and < 40 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio AHRI 340/360 for integrated energy efficiency ratio (IEER)	energy efficiency ratio = 11.2 integrated energy efficiency ratio (IEER) = 11.4	on or after January 1, 2010

24. The portion of item 75 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
75.	on or after September 1, 2005 until December 31, 2009

25. Part 1 of Schedule I to the Regulations is amended by adding the following after item 75:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
75.1	Large air-conditioners that are cooled by air, have a cooling capacity of ≥ 40 kW and < 70 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 11.0	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 11.2	
75.2	Large air-conditioners that are cooled by air, have a cooling capacity of ≥ 70 kW and < 223 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 10.0	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 10.1	
75.3	Large air-conditioners that are cooled by air, have a cooling capacity of ≥ 223 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 9.7	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 9.8	

26. The portion of item 76 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
76.	on or after September 1, 2005 until December 31, 2009

27. Part 1 of Schedule I to the Regulations is amended by adding the following after item 76:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**

76.1	Large air-conditioners that are cooled by air, have a cooling capacity of ≥ 19 kW and < 40 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 11.0	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio	integrated energy efficiency ratio (IEER) = 11.2	

28. The portion of item 77 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
77.	on or after September 1, 2005 until December 31, 2009

29. Part 1 of Schedule I to the Regulations is amended by adding the following after item 77:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
77.1	Large air-conditioners that are cooled by air, have a cooling capacity of ≥ 40 kW and < 70 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 10.8	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 11.0	
77.2	Large air-conditioners that are cooled by air, have a cooling capacity of ≥ 70 kW and < 223 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 9.8	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 9.9	
77.3	Large air-conditioners that are cooled by air, have a cooling capacity of ≥ 223 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 9.5	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 9.6	

30. The portion of item 78 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
78.	on or after September 1, 2005 until December 31, 2009

31. Part 1 of Schedule I to the Regulations is amended by adding the following after item 78:

	Column I	Column II	Column III	Column IV
Item	Energy-using Product	Standard/ Legislative Provision	Energy Efficiency Standard	Completion Period
78.1	Large air-conditioners that are cooled by water or evaporation, have a cooling capacity of ≥ 19 kW and < 40 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 11.5	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 11.7	

32. The portion of item 79 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	Completion Period
79.	on or after September 1, 2005 until December 31, 2009

33. Part 1 of Schedule I to the Regulations is amended by adding the following after item 79:

	Column I	Column II	Column III	Column IV
Item	Energy-using Product	Standard/ Legislative Provision	Energy Efficiency Standard	Completion Period
79.1	Large air-conditioners that are cooled by water or evaporation, have a cooling capacity of ≥ 40 kW and < 70 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 11.0	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 11.2	
79.2	Large air-conditioners that are cooled by water or evaporation, have a cooling capacity of ≥ 70 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio	energy efficiency ratio = 11.0	on or after January 1, 2010
		AHRI 340/360 for integrated energy efficiency ratio (IEER)	integrated energy efficiency ratio (IEER) = 11.1	

34. The portion of item 80 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	Completion Period
80.	on or after September 1, 2005 until December 31, 2009

35. Part 1 of Schedule I to the Regulations is amended by adding the following after item 80:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Energy Efficiency Standard	Column IV Completion Period
80.1	Large air-conditioners that are cooled by water or evaporation, have a cooling capacity of ≥ 19 kW and < 40 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio AHRI 340/360 for integrated energy efficiency ratio (IEER)	energy efficiency ratio = 11.3 integrated energy efficiency ratio (IEER) = 11.5	on or after January 1, 2010

36. The portion of item 81 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

Item	Column IV Completion Period
81.	on or after September 1, 2005 until December 31, 2009

37. Part 1 of Schedule I to the Regulations is amended by adding the following after item 81:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Energy Efficiency Standard	Column IV Completion Period
81.1	Large air-conditioners that are cooled by water or evaporation, have a cooling capacity of ≥ 40 kW and < 70 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio AHRI 340/360 for integrated energy efficiency ratio (IEER)	energy efficiency ratio = 10.8 integrated energy efficiency ratio (IEER) = 11.0	on or after January 1, 2010
81.2	Large air-conditioners that are cooled by water or evaporation, have a cooling capacity of ≥ 70 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio AHRI 340/360 for integrated energy efficiency ratio (IEER)	energy efficiency ratio = 10.8 integrated energy efficiency ratio (IEER) = 10.9	on or after January 1, 2010

38. The portion of item 86 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
86.	on or after September 1, 2005 until December 31, 2009

39. Part 1 of Schedule I to the Regulations is amended by adding the following after item 86:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
86.1	Large heat pumps that have a cooling capacity of ≥ 19 kW and < 40 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio and heating coefficient of performance AHRI 340/360 for integrated energy efficiency ratio (IEER)	energy efficiency ratio = 11.0 heating coefficient of performance ≥ 3.3 with inlet air temperature at 8.3° C and ≥ 2.25 with inlet air temperature at -8.3°C integrated energy efficiency ratio (IEER) = 11.2	on or after January 1, 2010

40. The portion of item 87 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
87.	on or after September 1, 2005 until December 31, 2009

41. Part 1 of Schedule I to the Regulations is amended by adding the following after item 87:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
87.1	Large heat pumps that have a cooling capacity of ≥ 40 kW and < 70 kW and either no heating section or an electric heating section	CSA C746-06 for energy efficiency ratio and heating coefficient of performance AHRI 340/360 for integrated energy efficiency ratio (IEER)	energy efficiency ratio = 10.6 heating coefficient of performance ≥ 3.2 with inlet air temperature at 8.3° C and ≥ 2.05 with inlet air temperature at -8.3°C integrated energy efficiency ratio (IEER) = 10.7	on or after January 1, 2010
87.2	Large heat pumps	CSA C746-06	energy efficiency	on or after

that have a cooling capacity of ≥ 70 kW and either no heating section or an electric heating section	for energy efficiency ratio and heating coefficient of performance	ratio = 9.5 heating coefficient of performance ≥ 3.2 with inlet air temperature at 8.3° C and ≥ 2.05 with inlet	January 1, 2010
	AHRI 340/360 for integrated energy efficiency ratio (IEER)	air temperature at -8.3°C integrated energy efficiency ratio (IEER) = 9.6	

42. The portion of item 88 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
88.	on or after September 1, 2005 until December 31, 2009

43. Part 1 of Schedule I to the Regulations is amended by adding the following after item 88:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
88.1	Large heat pumps that have a cooling capacity of ≥ 19 kW and < 40 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio and heating coefficient of performance AHRI 340/360 for integrated energy efficiency ratio (IEER)	energy efficiency ratio = 10.8 heating coefficient of performance ≥ 3.3 with inlet air temperature at 8.3° C and ≥ 2.25 with inlet air temperature at -8.3°C integrated energy efficiency ratio (IEER) = 11.0	on or after January 1, 2010

44. The portion of item 89 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
89.	on or after September 1, 2005 until December 31, 2009

45. Part 1 of Schedule I to the Regulations is amended by adding the following after item 89:

Column I	Column II	Column III	Column IV

Item	Energy-using Product	Standard/ Legislative Provision	Energy Efficiency Standard	Completion Period
89.1	Large heat pumps that have a cooling capacity of ≥ 40 kW and < 70 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio and heating coefficient of performance AHRI 340/360 for integrated energy efficiency ratio	energy efficiency ratio = 10.4 heating coefficient of performance ≥ 3.2 with inlet air temperature at 8.3° C and ≥ 2.05 with inlet air temperature at -8.3°C integrated energy efficiency ratio = 10.5	on or after January 1, 2010
89.2	Large heat pumps that have a cooling capacity of ≥ 70 kW and a heating section other than an electric heating section	CSA C746-06 for energy efficiency ratio and heating coefficient of performance AHRI 340/360 for integrated energy efficiency ratio (IEER)	energy efficiency ratio = 9.3 heating coefficient of performance ≥ 3.2 with inlet air temperature at 8.3° C and ≥ 2.05 with inlet air temperature at -8.3°C integrated energy efficiency ratio (IEER) = 9.4	on or after January 1, 2010

46. The portion of item 90 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
90.	on or after December 31, 1998 until August 31, 2010

47. Part 1 of Schedule I to the Regulations is amended by adding the following after item 90:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
90.1	Oil-fired boilers intended for low pressure steam systems	ASHRAE 103	Annual fuel utilization efficiency ≥ 82%	on or after September 1, 2010
90.2	Oil-fired boilers intended for hot water systems	ASHRAE 103	Annual fuel utilization efficiency ≥ 84%	on or after September 1, 2010 until August 31, 2012
90.3	Oil-fired boilers intended for hot	ASHRAE 103	Annual fuel utilization efficiency	on or after September 1,

	water systems not equipped with tankless domestic water heating coils	Section 4.7	≥ 84% Must be equipped with an automatic water temperature adjustment device	2012
90.4	Oil-fired boilers intended for hot water systems, equipped with tankless domestic water heating coils	ASHRAE 103	Annual fuel utilization efficiency ≥ 84%	on or after September 1, 2012

48. The portion of item 102.1 of Part 1 of Schedule I to the Regulations in column II is replaced by the following:

	Column II
Item	**Standard/ Legislative Provision**
102.1	Section 4.6

49. The portion of item 115 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
115.	on or after January 1, 2005 until December 31, 2009

50. Part 1 of Schedule I to the Regulations is amended by adding the following after item 115:

	Column I	**Column II**	**Column III**	**Column IV**
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
115.1	Dry-type transformers, single-phase, 1.2 kV class	CSA C802.2-06	CSA C802.2-0 clause 8 and Table 1, second column	on or after January 1, 2010

51. The portion of items 116 and 117 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
116.	on or after January 1, 2005 until December 31, 2009
117.	on or after January 1, 2005 until December 31, 2009

52. Part 1 of Schedule I to the Regulations is amended by adding the following after item 117:

	Column I	**Column II**	**Column III**	**Column IV**

Item	Energy-using Product	Standard/ Legislative Provision	Energy Efficiency Standard	Completion Period
117.1	Dry-type transformers, three-phase, 1.2 kV class	CSA C802.2-06	CSA 802.2-06 clause 8 and Table 1, sixth column	on or after January 1, 2010

53. The portion of item 118 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
118.	on or after January 1, 2005 until December 31, 2009

54. Part 1 of Schedule I to the Regulations is amended by adding the following after item 118:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
118.1	Dry-type transformers, BIL 20-199 kV	CSA C802.2-06	Subparagraphs 4(1)(*d*)(ii) to (v)	on or after January 1, 2010

55. The portion of item 126 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
126.	on or after January 1, 2008 until December 31, 2009

56. Part 1 of Schedule I to the Regulations is amended by adding the following after item 126:

	Column I	Column II	Column III	Column IV
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Energy Efficiency Standard**	**Completion Period**
126.1	Self-contained commercial refrigerators that are not transparent	Section 4.5	$E_{daily} = 0.00353\ V + 2.04$	on or after January 1, 2010

57. The portion of item 128 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

	Column IV
Item	**Completion Period**
128.	on or after January 1, 2008 until December 31, 2009

58. Part 1 of Schedule I to the Regulations is amended by adding the following after item 128:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Energy Efficiency Standard	Column IV Completion Period
128.1	Transparent self-contained commercial refrigerators without pull-down temperature reduction capability	Section 4.5	E_{daily} = 0.00424 V + 3.34	on or after January 1, 2010
128.2	Transparent self-contained commercial refrigerators with pull-down temperature reduction capability	Section 4.5	E_{daily} = 0.00445 V + 3.51	on or after January 1, 2010

59. The portion of items 131 and 132 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

Item	Column IV Completion Period
131.	on or after January 1, 2008 until December 31, 2009
132.	on or after January 1, 2008 until December 31, 2009

60. Part 1 of Schedule I to the Regulations is amended by adding the following after item 132:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Energy Efficiency Standard	Column IV Completion Period
132.1	Self-contained commercial freezers that are not transparent	Section 4.5	E_{daily} = 0.01413 V + 1.38	on or after January 1, 2010

61. The portion of item 133 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

Item	Column IV Completion Period
133.	on or after April 1, 2007 until December 31, 2009

62. Part 1 of Schedule I to the Regulations is amended by adding the following after item 133:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Energy Efficiency Standard	Column IV Completion Period
133.1	Transparent self-contained commercial freezers	Section 4.5	E_{daily} = 0.02649 V + 4.10	on or after January 1, 2010

63. The portion of item 135 of Part 1 of Schedule I to the Regulations in column IV is replaced by the following:

Item	Column IV Completion Period
135.	on or after January 1, 2008 until December 31, 2009

64. Part 1 of Schedule I to the Regulations is amended by adding the following after item 135:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Energy Efficiency Standard	Column IV Completion Period
135.1	Self-contained commercial refrigerator-freezers that are not transparent	Section 4.5	E_{daily} = greater of either (0.00953 AV – 0.71) or 0.70	on or after January 1, 2010

65. Part 1 of Schedule I to the Regulations is amended by adding the following after item 154:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Energy Efficiency Standard	Column IV Completion Period
155.	Compact audio products	Section 4.8	Must be capable of entering one of the following modes, or more if applicable: (*a*) a standby mode with a power consumption ≤ 3 W, with information or status display active; (*b*) a standby mode with a power consumption ≤ 3 W, without	on or after May 1, 2011 until December 31, 2012

			information or status display; or (*c*) an off mode with a power consumption ≤ 1 W.	
156.	Compact audio products that are not clock radios	Section 4.8	Must be capable of entering one of the following modes, or more if applicable: (*a*) a standby mode with a power consumption ≤ 1 W, with information or status display active; (*b*) a standby mode with a power consumption ≤ 0.5 W, with information or status display inactive; (*c*) a standby mode with a power consumption ≤ 0.5 W, without information or status display; or (*d*) an off mode with a power consumption ≤ 0.5 W.	on or after January 1, 2013
157.	Compact audio products that are clock radios	Section 4.8	Must be capable of entering one of the following modes, or more if applicable: (*a*) a standby mode with a power consumption ≤ 2 W, with information or status display active; (*b*) an off mode with a power	on or after January 1, 2013

			consumption ≤ 1 W.	
158.	Televisions	Section 4.8	Must be capable of entering one of the following modes, or more if applicable: (*a*) a standby mode with a power consumption ≤ 4 W, with information or status display active; (*b*) a standby mode with a power consumption ≤ 4 W, without information or status display; or (*c*) an off mode with a power consumption ≤ 1 W.	on or after May 1, 2011 until December 31, 2012
159.	Televisions	Section 4.8	Must be capable of entering one of the following modes, or more if applicable: (*a*) a standby mode with a power consumption ≤ 1 W, with information or status display active; (*b*) a standby mode with a power consumption ≤ 0.5 W, with inactive information or status display; (*c*) a standby mode with a power consumption ≤ 0.5 W, without information or status display; or	on or after January 1, 2013

			(*d*) an off mode with a power consumption ≤ 0.5 W.	
160.	Video products	Section 4.8	Must be capable of entering one of the following modes, or more if applicable: (*a*) a standby mode with a power consumption ≤ 3 W, with information or status display active; (*b*) a standby mode with a power consumption ≤ 3 W, without information or status display; or (*c*) an off mode with a power consumption ≤ 1 W.	on or after May 1, 2011 until December 31, 2012
161.	Video products	Section 4.8	Must be capable of entering one of the following modes, or more if applicable: (*a*) a standby mode with a power consumption ≤ 1 W, with information or status display active; (*b*) a standby mode with a power consumption ≤ 0.5 W, with information or status display inactive; (*c*) a standby mode with a power consumption ≤ 0.5 W, without	on or after January 1, 2013

			information or status display; or (*d*) an off mode with a power consumption ≤ 0.5 W.	
162.	Digital television adapters	CSA C380	Must be capable of automatically entering standby mode and must be capable of entering the following modes: (*a*) an on mode with a power consumption ≤ 8 W; and (*b*) a standby mode with a power consumption ≤ 1 W.	on or after January 1, 2010
163.	External power supplies	CSA C381.1	Minimum average efficiency at the highest and lowest nominal output power setting: (*a*) if the nominal output power is < 1 W, 0.5 × that power; (*b*) if the nominal output power is ≥ 1 W and ≤ 51 W, 0.09 × ln (that power) + 0.5; (*c*) if the nominal output power is > 51 W, 0.85; and (*d*) if the unit is not a security external power supply, no load power ≤ 0.5 W.	on or after July 1, 2010
164.	Single package vertical air-conditioners with a cooling capacity of < 19 kW (65,000 Btu/h)	CSA C746-06	Energy efficiency ratio = 9.0	on or after January 1, 2011

165.	Single package vertical air-conditioners with a cooling capacity of ≥ 19 kW (65,000 Btu/h) and < 39.5 kW (135,000 Btu/h)	CSA C746-06	Energy efficiency ratio = 8.9	on or after January 1, 2011
166.	Single package vertical air-conditioners with a cooling capacity of ≥ 39.5 kW (135,000 Btu/h)	CSA C746-06	Energy efficiency ratio = 8.6	on or after January 1, 2011
167.	Single package vertical heat pumps with a cooling capacity of < 19 kW (65,000 Btu/h)	CSA C746-06	Energy efficiency ratio = 9.0 Heating coefficient of performance = 3.0	on or after January 1, 2011
168.	Single package vertical heat pumps with a cooling capacity of ≥ 19 kW (65,000 Btu/h) and < 39.5 kW (135,000 Btu/h)	CSA C746-06	Energy efficiency ratio = 8.9 Heating coefficient of performance = 3.0	on or after January 1, 2011
169.	Single package vertical heat pumps with a cooling capacity of ≥ 39.5 kW (135,000 Btu/h)	CSA C746-06	Energy efficiency ratio = 8.6 Heating coefficient of performance = 2.9	on or after January 1, 2011
170.	Electric boilers	ASHRAE 103 Section 4.7	Must be equipped with an automatic water temperature adjustment device	on or after September 1, 2012

66. Schedule I to the Regulations is amended by adding the following after Part 3:

PART 4

Item	Column I	Column II		
	Single-phase kVA rating	Minimum Energy Efficiency Standards (percentage at 50% nominal load)		
		20–45 kV BIL	>45–95 kV BIL	> 95–199 kV BIL
1.	15	98.10	97.86	97.60
2.	25	98.33	98.12	97.90
3.	37.5	98.49	98.30	98.10
4.	50	98.60	98.42	98.20
5.	75	98.73	98.57	98.53
6.	100	98.82	98.67	98.63
7.	167	98.96	98.83	98.80
8.	250	99.07	98.95	98.91
9.	333	99.14	99.03	98.99
10.	500	99.22	99.12	99.09
11.	667	99.27	99.18	99.15
12.	833	99.31	99.23	99.20

PART 5

Item	Column I	Column II		
	Three-phase kVA rating	Minimum Energy Efficiency Standard (percentage at 50% nominal load)		
		20–45 kV BIL	>45–95 kV BIL	> 95–199 kV BIL
1.	15	97.50	97.18	96.80
2.	30	97.90	97.63	97.30
3.	45	98.10	97.86	97.60
4.	75	98.33	98.12	97.90
5.	112.5	98.49	98.30	98.10
6.	150	98.60	98.42	98.20
7.	225	98.73	98.57	98.53
8.	300	98.82	98.67	98.63
9.	500	98.96	98.83	98.80
10.	750	99.07	98.95	98.91
11.	1 000	99.14	99.03	98.99
12.	1 500	99.22	99.12	99.09
13.	2 000	99.27	99.18	99.15
14.	2 500	99.31	99.23	99.20
15.	3 000	99.34	99.26	99.24
16.	3 750	99.38	99.30	99.28
17.	5 000	99.42	99.35	99.33
18.	7 500	99.48	99.41	99.39

PART 6

Item	Column I	Column II	Column III	Column IV
		Single-phase Dry-Type		Three-phase Dry-Type
	kVA	Normal Impedance Range (%)*	kVA	Normal Impedance Range (%)*
1.	15	1.5–10.0	15	1.5–10.0
2.	25	1.5–10.0	30	1.5–10.0
3.	37.5	1.5–10.0	45	1.5–10.0
4.	50	1.5–10.0	75	1.5–10.0
5.	75	2.0–10.0	112.5	1.5–10.0
6.	100	2.0–10.0	150	1.5–10.0
7.	167	2.5–10.0	225	2.5–10.0
8.	250	3.5–10.0	300	2.5–10.0
9.	333	3.5–10.0	500	3.5–11.0
10.	500	3.5–11.0	750	3.5–11.0
11.	667	3.5–11.0	1000	3.5–11.0
12.	833	3.5–11.0	1500	3.5–11.0
13.			2000	3.5–12.0
14.			2,500	3.5–12.0
15.			3000	4.5–12.0
16.			3750	5.0–13.0

17.			5000	5.0–13.0
18.			7500	5.0–13.0
* Linear interpolations shall be used to define the normal impedance range for transformers with kVA ratings not shown in the table.				

67. Schedule IV to the Regulations is amended by replacing " *(Subsection 12(2) and paragraph 15(2)(b))* " after the heading "SCHEDULE IV" with " *(Paragraph 12(2)(f))* ".

68. Item 4.1 of Schedule IV to the Regulations is replaced by the following:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Information
4.1	Dry-type transformers	CSA C802.2-06	(*a*) kVA rating; (*b*) single-phase or three-phase; (*c*) low voltage winding rating in volts; (*d*) high voltage winding rating in volts; (*e*) whether it is 1.2 kV class; (*f*) BIL rating; (*g*) tested efficiency in per cent; (*h*) loss, in watts, when under load (load loss); (*i*) loss, in watts, when not under load (no-load loss); (*j*) whether it is three-phase with high-voltage windings and a voltage ratio that, between the highest and lowest of their nominal voltages, is other than 2:1; and (*k*) percentage impedance.

69. The portion of item 10.1 of Schedule IV to the Regulations in column I is replaced by the following:

Item	Column I Energy-using Product
10.1	Gas boilers manufactured on or after December 31, 1998 and before August 31, 2010

70. Schedule IV to the Regulations is amended by adding the following after item 10.1:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Information
10.2	Gas boilers manufactured on or after September 1, 2010 until August 31, 2012	CSA P.2	(*a*) which of the following fuels the product uses: (i) propane, or (ii) natural gas; (*b*) for which of the following systems the product is intended: (i) low pressure steam, or (ii) hot water; (*c*) maximum heat input and output nominal capacities, in kW; (*d*) power burner motor's consumption (PE), in kW; (*e*) water pump electrical energy input rate (BE), in kW; (*f*) average annual electrical energy consumption (E_{AE}), in kWh; and (*g*) annual fuel utilization efficiency.
10.3	Gas boilers manufactured on or after September 1, 2012	CSA P.2	(*a*) which of the following fuels the product uses: (i) propane, or (ii) natural gas; (*b*) for which of the following systems the product is intended: (i) low pressure steam, or (ii) hot water; (*c*) maximum heat input and output nominal capacities, in kW; (*d*) power burner motor's consumption (PE), in kW; (*e*) water pump electrical

		energy input rate (BE), in kW; (*f*) average annual electrical energy consumption (E_{AE}), in kWh; and (*g*) annual fuel utilization efficiency. (*h*) whether equipped with tankless domestic water heating coils; and (*i*) type of automatic water temperature adjustment device the product uses, if any.

71. The portion of item 15.3 of Schedule IV to the Regulations in columns I and II is replaced by the following:

	Column I	**Column II**
Item	**Energy-using Product**	**Standard/ Legislative Provision**
15.3	General service incandescent reflector lamps manufactured before June 1, 2009	CSA C862-01

72. Items 15.4 and 15.5 of Schedule IV to the Regulations are replaced by the following:

	Column I	**Column II**	**Column III**
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Information**
15.4	General service incandescent reflector lamps manufactured on or after June 1, 2009	CSA C862-09	(*a*) lamp description; (*b*) nominal power; (*c*) lamp class as specified in ANSI C78.21 Table 1 of Part □; (*d*) average lamp efficacy; (*e*) life; and (*f*) luminous flux.

73. The portion of item 16.4 of Schedule IV to the Regulations in column II is replaced by the following:

	Column II
Item	**Standard/Legislative Provision**

16.4	CSA C742-98 for ice-makers that produce ice in a continuous process and CSA C742-08 for ice-makers that produce ice in a batch process

74. The portion of item 18.3 of Schedule IV to the Regulations in column I is replaced by the following:

	Column I
Item	**Energy-using Product**
18.3	Large air-conditioners manufactured on or after September 1, 2005 and before January 1, 2011

75. Schedule IV to the Regulations is amended by adding the following after item 18.3:

	Column I	**Column II**	**Column III**
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Information**
18.31	Large air-conditioners manufactured on or after January 1, 2011	CSA C746-06 AHRI 340/360 for the integrated energy efficiency ratio (IEER)	(*a*) AHRI classification; (*b*) cooling capacity in kW (Btu/h); (*c*) energy efficiency ratio; and (*d*) integrated energy efficiency ratio (IEER).

76. The portion of item 18.7 of Schedule IV to the Regulations in column I is replaced by the following:

	Column I
Item	**Energy-using Product**
18.7	Large heat pumps manufactured on or after September 1, 2005 and before January 1, 2011

77. Schedule IV to the Regulations is amended by adding the following after item 18.7:

	Column I	**Column II**	**Column III**
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Information**
18.8	Large heat pumps manufactured on or after January 1, 2011	CSA C746-06 AHRI 340/360 for the integrated energy efficiency ratio (IEER)	(*a*) AHRI classification; (*b*) cooling capacity in kW (Btu/h); (*c*) heating capacity in kW (Btu/h); (*d*) energy efficiency ratio;

			(*e*) heating coefficient of performance at 8.3°C; (*f*) heating coefficient of performance at -8.3°C; (*g*) which of the following heating sections, if any, the product features: (i) electric, or (ii) gas; and (*h*) integrated energy efficiency ratio (IEER).

78. The portion of item 19.1 of Schedule IV to the Regulations in column I is replaced by the following:

	Column I
Item	**Energy-using Product**
19.1	Motors manufactured on or after November 27, 1997 and before January 1, 2011

79. Schedule IV to the Regulations is amended by adding the following after item 19.1:

Column I	**Column II**	**Column III**
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Information**
19.11	Motors manufactured on or after January 1, 2011	CSA C390-10	(*a*) nominal efficiency value; (*b*) output power in kW or HP; (*c*) motor design, if NEMA, A, B or C or if IEC, N or H; (*d*) number of poles; (*e*) whether the motor is of open or enclosed construction; (*f*) frame type, whether T-Frame, U-frame or IEC frame; (*g*) whether it is a close-coupled pump, vertically-mounted solid shaft normal thrust or fire pump motor; (*h*) whether it is an integral gear assembly;

			(*i*) shaft type, whether standard shaft, R-shaft or S-shaft; (*j*) mounting type; and (*k*) whether the motor is footless, has feet or has detachable feet.

80. The portion of item 19.2 of Schedule IV to the Regulations in column I is replaced by the following:

	Column I
Item	**Energy-using Product**
19.2	Oil-fired boilers manufactured on or after December 31, 1998 and before August 31, 2010

81. Schedule IV to the Regulations is amended by adding the following after item 19.2:

Item	**Column I** **Energy-using Product**	**Column II** **Standard/ Legislative Provision**	**Column III** **Information**
19.21	Oil-fired boilers manufactured on or after September 1, 2010 and before September 1, 2012	ASHRAE 103	(*a*) for which of the following systems the product is intended: (i) low pressure steam, or (ii) hot water; (*b*) maximum heat input and output nominal capacities, in kW (in Btu/h); (*c*) power burner motor's consumption (PE), in kW; (*d*) water pump electrical energy input rate (BE), in kW; (*e*) average annual electrical energy consumption (E_{AE}) in KWh; and (*f*) annual fuel utilization efficiency.
19.22	Oil-fired boilers manufactured on or after September 1, 2012	ASHRAE 103	(*a*) for which of the following systems the product is intended: (i) low pressure steam, or

		(ii) hot water;
		(*b*) maximum heat input and output nominal capacities, in kW (in Btu/h);
		(*c*) power burner motor's consumption (PE), in kW;
		(*d*) water pump electrical energy input rate (BE), in kW;
		(*e*) average annual electrical energy consumption (E_{AE}), in kWh; and
		(*f*) annual fuel utilization efficiency.
		(*g*) whether equipped with tankless domestic water heating coils; and
		(*h*) type of automatic water temperature adjustment device the product uses, if any.

82. The portion of item 21.2 of Schedule IV to the Regulations in column II is replaced by the following:

	Column II
Item	**Standard/Legislative Provision**
21.2	Section 4.6

83. The portion of items 30 and 31 of Schedule IV to the Regulations in column I is replaced by the following:

	Column I
Item	**Energy-using Product**
30.	Self-contained commercial refrigerators, with cabinet drawers or cabinet doors, that are manufactured on or after April 1, 2007 and before January 1, 2010
31.	Self-contained commercial refrigerators, without cabinet drawers or cabinet doors, that are manufactured on or after April 1, 2007 and before January 1, 2010

84. Schedule IV to the Regulations is amended by adding the following after item 31:

	Column I	**Column II**	**Column III**
Item	**Energy-using Product**	**Standard/ Legislative Provision**	**Information**

31.1	Self-contained commercial refrigerators manufactured on or after January 1, 2010	Section 4.5	(*a*) E_{daily}; (*b*) which of the following cabinet styles the product features: (i) reach-in, (ii) pass-through, (iii) roll-through, or (iv) roll-in; (*c*) whether the product has a worktop surface; (*d*) whether the product is designed for installation under a counter; (*e*) whether the product is designed for the cooling and storage of wine or flowers; (*f*) whether the product has pull-down temperature reduction capability; (*g*) number and type of doors and drawers, if any; (*h*) glass area of the principal display face, in cm2; (*i*) area of the principal display face, in cm2; (*j*) in litres, the volume of the refrigerator compartment; (*k*) in litres, the volume of the freezer compartment, if any; and (*l*) integrated average temperature at the lowest temperature setting in Celsius, if testing is required at the lowest temperature setting.

85. The portion of items 32 and 33 of Schedule IV to the Regulations in column I is replaced by the following:

	Column I
Item	**Energy-using Product**
32.	Self-contained commercial freezers, with cabinet doors, that are manufactured on or after April 1, 2007 and before January 1, 2010
33.	Self-contained commercial freezers, without cabinet doors, that are manufactured on or after April 1, 2007 and before January 1, 2010

86. Schedule IV to the Regulations is amended by adding the following after item 33:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Information
33.1	Self-contained commercial freezers manufactured on or after January 1, 2010	Section 4.5	(*a*) E_{daily}; (*b*) which of the following cabinet styles the product features: (i) reach-in, (ii) pass-through, (iii) roll-through, or (iv) roll-in; (*c*) whether the product has a worktop surface; (*d*) whether the product is designed for installation under a counter; (*e*) whether the product is designed for the cooling and storage of ice cream or similar foods; (*f*) number and type of doors and drawers, if any; (*g*) glass area of the principal display face, in cm^2; (*h*) area of the principal display face, in cm^2; (*i*) volume of the freezer compartment, in litres; and (*j*) integrated average temperature at the lowest temperature setting in Celsius, if testing is required at the lowest temperature setting.

87. The portion of item 34 of Schedule IV to the Regulations in column I is replaced by the following:

Item	Column I Energy-using Product
34.	Self-contained commercial refrigerator-freezers manufactured on or after

	April 1, 2007 and before January 1, 2010		

88. Schedule IV to the Regulations is amended by adding the following after item 34:

Item	Column I Energy-using Product	Column II Standard/ Legislative Provision	Column III Information
35.	Self-contained commercial refrigerator-freezers manufactured on or after January 1, 2010	Section 4.5	(*a*) E_{daily}; (*b*) which of the following cabinet styles the product features: (i) reach-in, (ii) pass-through, (iii) roll-through, or (iv) roll-in; (*c*) whether the product has a worktop surface; (*d*) whether the product is designed for installation under a counter; (*e*) number and type of doors and drawers, if any; (*f*) glass area of the principal display face, in cm^2; (*g*) area of the principal display face, in cm^2; (*h*) volume, in litres, of the refrigerator compartment; (*i*) volume, in litres, of the freezer compartment; (*j*) adjusted volume (AV), in litres; and (*k*) integrated average temperature at the lowest temperature setting in Celsius, if testing is required at the lowest temperature setting.
36.	Compact audio products manufactured on or after May 1, 2011 and before January	Section 4.8	(*a*) power consumption, in watts, in standby mode with information or status display active;

	1, 2013		(*b*) power consumption, in watts, in standby mode without information or status display; (*c*) period of time, in minutes, between enabling the standby mode and completing the measurement of power consumption in standby mode; (*d*) power consumption, in watts, in off mode; and (*e*) type of audio product.
37.	Compact audio products manufactured on or after January 1, 2013	Section 4.8	(*a*) power consumption, in watts, in standby mode with information or status display active; (*b*) power consumption, in watts, in standby mode with information or status display inactive; (*c*) power consumption, in watts, in standby mode without information or status display; (*d*) period of time, in minutes, between enabling the standby mode and completing the measurement of power consumption in standby mode; (*e*) power consumption, in watts, in off mode; and (*f*) type of audio product.
38.	Televisions manufactured on or after May 1, 2011	Section 4.8 for standby and off modes 20 CCR sections 1602 and 1604 for the functions and characteristics listed in paragraphs (*e*) to (*m*) in column III	(*a*) power consumption, in watts, in standby mode with information or status display active; (*b*) power consumption, in watts, in standby mode with information or status display inactive; (*c*) power consumption, in watts, in standby mode without information or status display; (*d*) period of time, in minutes, between enabling the standby mode and completing the measurement of power consumption in

			standby mode; (*e*) power consumption, in watts, in off mode; (*f*) power consumption, in watts, in on mode; (*g*) power consumption, in watts, in on mode for products with an automatic brightness control enabled by default (i) with 0 lux entering the light sensor of the automatic brightness control, and (ii) with 300 lux entering the light sensor of the automatic brightness control; (*h*) whether the television has a forced menu; (*i*) power consumption, in watts, with the television set to retail mode, namely, the on mode at the most power consuming level available in a forced menu; (*j*) luminance L_{home} in candela/m^2; (*k*) luminance L_{high} in candela/m^2; (*l*) screen size in cm (inches); (*m*) aspect ratio; and (*n*) type of picture technology.
39.	Video products manufactured on or after May 1, 2011 and before January 1, 2013	Section 4.8	(*a*) power consumption, in watts, in standby mode with information or status display active; (*b*) power consumption, in watts, in standby mode without information or status display; (*c*) period of time, in

			minutes, between enabling the standby mode and completing the measurement of power consumption in standby mode; (*d*) power consumption, in watts, in off mode; and (*e*) type of playback or recording technology capability.
40.	Video products manufactured on or after January 1, 2013	Section 4.8	(*a*) power consumption, in watts, in standby mode with information or status display active; (*b*) power consumption, in watts, in standby mode with information or status display inactive; (*c*) power consumption, in watts, in standby mode without information or status display; (*d*) period of time, in minutes, between enabling the standby mode and completing the measurement of power consumption in standby mode; (*e*) power consumption, in watts, in off mode; and (*f*) type of playback or recording technology capability.
41.	Digital television adaptors	CSA C380	(*a*) power consumption, in watts, in on mode; (*b*) power consumption, in watts, in standby mode; and (*c*) whether the product can automatically enter into standby mode.
42.	External power supplies	CSA C381.1	(*a*) nominal output voltage, at highest and lowest setting; (*b*) nominal output power, in watts, at highest and lowest setting, if applicable; (*c*) whether the output voltage is ac or dc; (*d*) average efficiency at highest and lowest power

			setting; (*e*) no load power, in watts; (*f*) Roman numeral mark, if applicable; (*g*) whether the product bears a verification mark; (*h*) certification body referred to in paragraph 11 (3)(*b*) of these Regulations, if applicable; (*i*) whether it is a replacement external power supply or a security external power supply; and (*j*) if it is a replacement external power supply or a security external power supply, the end-use product and brand and model number of that product.
43.	Single package vertical air-conditioners	CSA C746-06	(*a*) AHRI classification; (*b*) cooling capacity, in kW (Btu/h); and (*c*) energy efficiency ratio.
44.	Single package vertical heat pump	CSA C746-06	(*a*) AHRI classification; (*b*) cooling capacity, in kW (Btu/h); (*c*) heating capacity, in kW (Btu/h); (*d*) energy efficiency ratio; and (*e*) heating coefficient of performance.
45.	Electric boilers	ASHRAE 103	(*a*) input rate, in kW; and (*b*) type of automatic water temperature adjustment device the product uses.

COMING INTO FORCE

89. These Regulations come into force on the day that is six months after the day on which they are published in the *Canada Gazette*, Part .

REGULATORY IMPACT ANALYSIS STATEMENT

(*This statement is not part of the Regulations.*)

Executive summary

Issue: Regulatory action is one way that the Government of Canada can address harmful greenhouse gas emissions (GHGs) and air pollutants. In Canada and globally, the use of minimum energy performance standards and complementary market stimulation activities to promote research and development, energy conservation practices and market penetration of the most energy efficient products results in ongoing market transformation, energy savings and associated GHG reductions. The *Energy Efficiency Regulations* (the Regulations) are regularly amended to add new products, increase the stringency of minimum energy performance requirements, and update testing methodologies or labelling requirements.

Description: This amendment is the second of three proposals to deliver greenhouse gas and related emissions reductions as per Canada's Clean Air Regulatory Agenda (CARA) and which is undertaken in a climate of harmonized North American standards. It will

- Increase the stringency and/or scope of existing minimum energy performance standards (MEPS) for seven currently regulated products:
    - Electric motors
    - Residential gas boilers
    - Residential oil boilers
    - Dry-type transformers
    - Large air-conditioners and heat pumps
    - Commercial self-contained refrigeration
    - General service incandescent reflector lamps
- Introduce new MEPS and associated reporting and compliance requirements for five products:
    - Standby for electronic products
        - Compact audio products
        - Television (TV) and TV combination units (and reporting only of TV on mode)
        - Video products
    - External power supplies
    - Digital TV adaptors
    - Electric boilers
- Single package vertical air-conditioners and heat pumps
- Update the Regulations to reflect minor changes stemming from a recent amendment to the *Energy Efficiency Act* and other relevant standard updates.

Cost-benefit statement: As a result of this amendment, the net present value of benefits for all Canadians is estimated to be $1.89 billion over the service life of products shipped by 2020.

Other benefits include aggregate annual energy savings of 4.73 petajoules in 2015, increasing to 7.20 petajoules in 2020 and GHG emission reductions of approximately 0.61 megatonnes in 2015, increasing to approximately 0.92 megatonnes in 2020.

Business and consumer impacts: The use of harmonized standards and a nationally recognized conformity assessment regime through the National Standards System (NSS) reduces the burden on stakeholders. Test standards developed through the NSS are often incorporated by reference in the Regulations as well as by provinces with active energy efficiency regulations. The requirement for third party verified energy efficiency performance, aligned with electrical safety and fuel burning safety certifications, results in a transparent and level playing field for all manufacturers and consumer confidence in energy savings resulting from the use of product complying with the standard.

Domestic and international coordination and cooperation: As an importer of most of these products, Canada has generally harmonized standards with provinces and other major trading partners such as the United States.

Performance measurement and evaluation plan: Performance measures and estimated impacts for the Regulations have been established. Progress towards meeting the energy efficiency regulatory goals of CARA will be found in departmental business plans, reports on plans and priorities, and the Report to Parliament under the *Energy Efficiency Act*. A formal evaluation of the Energy Efficiency Standards and Labelling program was completed by Natural Resources Canada evaluation authorities in 2010.

Issue

Pursuant to the *Energy Efficiency Act* (the Act), the *Energy Efficiency Regulations* (the Regulations) encourage the efficient and economic use of energy. The Act and its accompanying Regulations contribute to the competitiveness of Canada's economy and help Canada to address national and international climate change goals.

Carbon dioxide (CO_2), a by-product of fossil fuel consumption, has been identified as the most significant greenhouse gas (GHG) contributing to climate change. In recent years, as economic growth has given rise to higher energy use in Canada and throughout the world, the use of fossil fuels has intensified and CO_2 emissions have increased.

Since a general shift to alternative energy sources is years away, the most practical and immediate approach to limiting CO_2 emissions is to improve energy efficiency.

Background

In 1992, Parliament passed Canada's *Energy Efficiency Act* and amended it in 2009. The Act provides for the making and enforcement of regulations requiring energy-using products to meet minimum energy-performance standards (MEPS), for product labelling and for the promotion of energy efficiency and alternative energy use including the collection of data and statistics on energy use.

The *Energy Efficiency Regulations* have been in effect since 1995. To date, they have been amended 10 times to incorporate new MEPS for additional products or to increase the stringency of existing MEPS.

The purpose of the MEPS implemented under the *Energy Efficiency Regulations* is to eliminate shipment of inefficient, energy-using products that for the purpose of sale or lease are either imported into Canada, or transported between provinces. Since most energy-using products must cross provincial or international borders to reach their markets, national energy performance standards are an effective tool to raise the level of energy efficiency throughout Canada. MEPS are necessary where voluntary market forces are unable to overcome barriers that prevent consumers from making more efficient choices.

Natural Resources Canada (NRCan or the Department) has calculated that, in 2010, the MEPS put into effect by the *Energy Efficiency Regulations* (since 1995) including the first of three Clean Air Regulatory Agenda (CARA) amendments will have achieved a reduction in GHG emissions of 26 megatonnes (Mt) per year. This amendment is the second of the three planned CARA amendments that collectively were estimated to deliver an annual, aggregate impact of

- energy reductions between 13.37 and 14.85 petajoules (PJ) per year in 2010–2011 and rising to 66.626 PJ in 2020–2021;
- GHG reductions between 1.4 and 1.6 Mt per year in 2010–2011 and rising to 5.2 and 5.8 Mt in 2020–2021; and
- air pollutant reductions, the most significant of which are 725–1 002 tonnes (t) of nitrous oxides (NO_x), 837–3 446 t of sulphur dioxide (SO_2) and 204–1 155 t of particulate matter (PM_{10}) per year in 2010–2011 and rising to reductions of 2 932–3 827 t of NO_x; 2 388 to 9 820 t SO_2; 647–3 368 t PM_{10} 10 years later.

The MEPS contained in this amendment when combined with those in the previous CARA amendment, will account for 0.47 Mt in 2010, rising to 10.59 Mt in 2020. No estimates for the reduction of other emissions are provided due to uncertainties in calculation for the limited number of products.

NRCan participates in standards development and conformity assessment through the National Standards System (NSS). The use of harmonized standards and a nationally recognized conformity assessment regime reduces the burden on stakeholders. Other participants in this system include provincial regulators, utilities and manufacturers. Test standards developed through the NSS are often incorporated by reference in the *Energy Efficiency Regulations* as well as by provinces with active energy efficiency regulations. These provinces are British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario and Quebec. Provincial legislation governs transactions in internal provincial markets.

As a participant in a global marketplace, NRCan seeks, where possible, to harmonize standards with those of other jurisdictions. In addition to provincial requirements, in the development of energy efficiency standards NRCan considers energy efficiency regulations at the United States (U.S.), federal and state levels. Significant standards activities in the U.S. include the *Energy Policy Act of 2005* (EPAct), the *Energy Independence and Security Act of 2007* (EISA), and the *California Code of Regulations, Title 20: Appliance Efficiency Regulations* administered by the California Energy Commission (CEC). It is also important to harmonize with other jurisdictions and trading partners such as the European Union (E.U.) and Asia. Unique Canadian conditions, such as a colder climate, will sometimes support standards differing from those of other jurisdictions.

The risk of not acting now is outlined in the government's *Clean Air Regulatory Framework* document. If Canada did not continue to increase the energy efficiency of products on the market, Canada would be limiting its contribution to the global effort to reduce greenhouse gas emissions and air pollutants and would be at a competitive disadvantage in terms of productivity related to higher energy use overheads per capita.

Objectives

Reducing greenhouse gas emissions and air pollution is a high priority for the Government. This amendment will contribute to the goal of clean energy and a clean environment for all Canadians. The specific objectives of this amendment to the *Energy Efficiency Regulations* are

- to reduce Canada's greenhouse gas emissions and associated harmful air pollutants through the elimination of the least efficient products by
    - increasing the stringency and/or scope of existing MEPS for seven currently regulated products;
    - introducing MEPS and associated reporting and compliance requirements for five new products; and
- to ensure Canada remains competitive and a harmonized leader in reaping the benefits of energy efficiency stock improvements and associated energy savings for all Canadians.

Description

Increase the stringency and/or scope of existing MEPS for seven currently regulated products

<u>Electric motors</u>

NRCan has prescribed energy efficiency requirements for electric motors since 1995.

The Regulations will, for products manufactured as of January 1, 2011,

- increase the stringency of many of the existing efficiency requirements for 1 to 200 horsepower (HP) [0.75 to 150 kilowatts (kW)] motors to premium efficiency levels;
- eliminate most of the exclusions for 1 to 200 HP (0.75 to 150 kW) motors, requiring them to meet existing efficiency levels; and

- expand the scope requiring some 201 to 500 HP (151 kW to 375 kW) motors to meet existing efficiency levels.

The Regulations harmonize with EISA minimum energy performance levels set for December 19, 2010, as well as with regulations for electric motors in place in British Columbia effective January 1, 2011.

Residential gas and oil-fired boilers

Gas and oil-fired boilers have been regulated since 1998.

The Regulations will, for products manufactured as of September 1, 2010,

- increase the stringency of the current MEPS for residential gas and oil-fired boilers (input not exceeding 88 kW) by a 2–5% increase in the annual fuel utilization efficiency (AFUE);
- prohibit the use of constant burning pilots for all gas boilers; and
- require reporting of electrical consumption for gas and oil-fired boilers.

The Regulations will, for product manufactured as of September 1, 2012,

- require a means of automatically adjusting water temperature, with the exception of boilers equipped with tankless domestic water heating coils.

The MEPS are harmonized with a recent U.S. Department of Energy (DOE) Final Rule in 2007 and technical amendment in 2008 but some of the provisions apply to products manufactured two years earlier than in the U.S. as proposed by Canadian industry. The majority of residential gas and oil boilers already meet the new minimum AFUE requirement. NRCan will continue to investigate moving to condensing level MEPS for these products.

Dry-type transformers

NRCan has prescribed energy efficiency requirements for dry-type transformers since 2005.

The Regulations will, for products manufactured as of January 1, 2010,

- increase existing MEPS for single and three phase dry-type transformers with a BIL (Basic Impulse Insulation Level) of 20–150 kilovolts (kV);
- increase the scope to include transformers with a BIL up to 199 kV;
- remove the exclusion for instrument transformers; and
- provide new exemptions for special impedance transformers, grounding transformers, resistance grounding transformers and on-load regulating transformers.

The MEPS are harmonized with EPAct and DOE rulemaking requirements for medium voltage dry-type transformers that came into effect January 1, 2010. There are some slight differences in scope as a result of consultations with Canadian stakeholders.

Commercial self-contained refrigeration

Self-contained commercial refrigerators, freezers and refrigerator-freezers with doors or drawers that are used for storing product, food and beverages have been regulated since 2007.

The Regulations will, for products manufactured as of January 1, 2010,

- increase the efficiency for these units.

The MEPS are harmonized with EPAct.

Large air-conditioners and heat pumps

Large air-conditioners and heat pumps are used for space conditioning of commercial and large buildings. Units with a capacity of 19 kW to 73 kW (65 000 to 250 000 Btu/h [British thermal units per hour]) units have been regulated since 1998.

The Regulations will, for products manufactured as of January 1, 2010,

- extend the scope to include units with a capacity as high as 223 kW (760 000 Btu/h).

The Regulations are harmonized with ASHRAE 90.1-2007, the standard from the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE), which is already in force in the U.S.

General service incandescent reflector lamps

General service incandescent reflector lamps have been regulated since 1996.

The Regulations will

- introduce MEPS for some previously exempted products;
- set higher performance levels for some lamps already covered by the Regulations; and
- consolidate all reflector type lamps into one category called general service incandescent reflector lamp which includes R, PAR, ER and BR reflector lamps.

The MEPS are harmonized with EISA.

Introduce new MEPS and associated reporting and compliance requirements for five products

Standby for electronic products

In broad terms, standby power is consumed when a product is not performing its main function, but is considered to be turned off by the user. In 2007, the Government of Canada announced its intent to limit the standby power consumption of products to the "1-Watt initiative" promoted by the International Energy Agency and endorsed at Gleneagles by the G8 leaders in 2005. Although the standby power of a single product may be small, the vast numbers of affected products on the market creates a large demand on the electrical grid.

The Regulations will, for products manufactured as of May 1, 2011,

- introduce MEPS for compact audio products, TV and TV combination units and Video products that consume energy in standby mode,
    - establish maximum limits to standby mode power consumption and off mode;
    - set a first tier standard, to take effect on May 1, 2011, at levels between 3 and 4 watts (W);
    - set a second tier standard, to come into effect on January 1, 2013, at a level of 0.5 W with a 0.5 W allowance for additional functionality; and
- require the reporting of energy consumption in on-mode for TVs.

The first tier MEPS are comparable to requirements in California and the limits for off mode are in line with E.U. regulations. The second tier MEPS align with similar activities in the E.U. in terms of timing and required power levels.

External power supplies (EPS)

External power supplies are small external plug-in devices that convert AC 120V line voltage to a lower voltage either alternating current (AC) or direct current (DC) to power various small products. Often called power adaptors, they are commonly sold with portable or electronic end-use products such as portable or mobile phones, modems, camcorders, portable monitors, notebooks, etc. The opportunities to reduce energy consumption for this common household and office product with ratings up to 250 watts exist and have been recognized and acted upon

by ENERGY STAR, E.U., CEC, and U.S. with EISA.

The Regulations will, for products manufactured as of July 1, 2010,

- set MEPS for both active mode and no-load power consumption.

The Regulations are harmonized with EISA MEPS that came into effect in the U.S. on July 1, 2008. The Regulations, by including external power supplies for household and office products, have a scope that is functionally similar to both EISA and the E.U.

Digital TV adaptors

Most of Canada's TV transmission will be digital as required by the Canadian Radio-Television and Telecommunications Commission on August 31, 2011. The expected influx of digital TV adaptors is expected to increase electrical consumptions. Consumers who do not subscribe to satellite or cable and rely solely on over-the-air TV broadcasts for their television broadcast will need to purchase either a television with a built-in digital TV signal tuner or a digital television adaptor (also termed digital-to-analog converter) to convert digital broadcast signals to analog signals.

The Regulations will, for products manufactured as of January 1, 2010,

- prescribe MEPS for both on mode and standby mode; and
- provide for an auto-power down feature.

The MEPS are harmonized with ENERGY STAR levels and are consistent with commonly sold efficiencies in the U.S.

Electric boilers

The Regulations will, for products manufactured as of September 1, 2012,

- establish a requirement for temperature controls for electric boilers.

The requirement is harmonized with EISA and matches a similar requirement for gas and oil boilers.

Single package vertical air-conditioners and heat pumps

Vertical air-conditioners and heat pumps are relatively new specialized single package units. They are similar to package terminal air-conditioners and heat pumps, but with a vertical orientation.

The Regulations will, for products manufactured as of January 1, 2011,

- establish MEPS.

The MEPS are harmonized with ASHRAE 90.1-2007 and EISA.

Update the Regulations to reflect minor changes stemming from a recent amendment to the Energy Efficiency Act *and other relevant standard updates*

The amendment includes, in addition to necessary changes stemming from the September 2009 changes to the Act, updates to referenced standards as a result of ongoing participation and monitoring of standards development work in Canada and in North America.

The main standard change is with respect to the Canadian Standards Association (CSA) standard CAN/CSA/C300-08 for residential refrigerators with automatic icemakers for which issues have been raised in a number of fora since 2008. The change aims to ensure that these

units are tested for energy consumption in a way that reflects how the product performs in the home.

The Regulations will

- clarify that the test procedure for these products is to be interpreted consistent with the interpretation currently in force in the U.S.

Regulatory and non-regulatory options considered

Maintaining the status quo

If the amendment were not implemented, Canada would lose a cost-effective opportunity to reduce its GHG and other atmospheric emissions, e.g. smog pre-cursors, which are associated with energy use.

As described above, most of these new standards have equivalents in effect or proposed in the United States. To not implement similar standards would increase the risk of attracting inefficient products that are not allowed to be sold in the United States.

Canada's other trading partners are making rapid energy efficiency improvements. The standards contained in this amendment will help to maintain and improve Canada's competitive position in supplying products to international and domestic markets.

Without the national standards contained in the amendment and complementary provincial requirements (where authorized under provincial legislation), inefficient energy-using equipment could be sold in provinces or territories that do not have performance requirements. This would hinder the Government of Canada's objectives of reducing CO_2 emissions and achieving cost savings for energy users.

Voluntary program

NRCan uses awareness and information programs such as ENERGY STAR to increase acceptance of energy efficient equipment. The voluntary programs support the mandatory regulations. As markets for efficient products grow, MEPS can effectively eliminate the least efficient products. As MEPS are introduced, criteria for ENERGY STAR are updated to continue to recognize the top-performing products on the market. As administrator of the ENERGY STAR program in Canada, NRCan ensures that the program requirements are maintained, that products meet the stated requirements, and that specifications are updated to reflect improvements in product offerings — all in an effort to maintain the credibility of the program. Voluntary measures, on their own, do not guarantee market transformation.

Regulatory action

Without these amending Regulations, cooperation from all industry members could not be guaranteed, especially in the case of imported goods. Consequently, firms generally support the use of MEPS to ensure a level playing field.

Benefits and costs

The benefits and costs of increasing the minimum energy performance standards for these products are evaluated in four parts:

(*a*) *Benefits and costs to society*. A quantitative analysis measuring the economic attractiveness to society was conducted for the products specified in the proposed amendment.

(*b*) *Energy/GHG analysis.* A description of the analysis of aggregate energy savings and associated reductions in GHG emissions, resulting from the proposed amendment.

(*c*) *Benefits and cost to business.* A qualitative discussion of the impact of the proposed amendment on affected manufacturers and dealers.

(*d*) *Benefits and cost to government*. A qualitative discussion of the impact of the proposed amendment to Government.

Benefits and costs to society

NRCan undertook a quantitative analysis of the net benefits to society to determine the economic attractiveness of improving the energy efficiency of the products and the impact on Canadian society. The analysis examines the impact of the Regulations compared to a non-regulatory environment. The net benefits from the regulatory option are incremental over the non-regulatory option.

The analysis was conducted for units that would not meet the minimum energy performance standard and that are considered to be the least efficient of their class.

Results of the analysis are presented for a single unit within each product class. This presentation methodology enables Canadians who purchase a product covered under the *Energy Efficiency Regulations* to know whether they can expect a positive or negative economic impact over the service life of the product as a result of the energy efficiency improvement.

Methodology and assumptions

NRCan analyzed the economic attractiveness of the minimum energy performance standards and the impact on Canadian society within a cost-benefit analysis framework, using the incremental cost and energy savings data associated with the various technologies that increase the energy efficiency of the benchmark products. Benchmark products are often characterized as the least efficient products available for sale in Canada.

A cost-benefit analysis framework allows for the net present value of a stream of costs and benefits to serve as the indicator of economic attractiveness. The net present value is calculated by subtracting the present value of incremental costs from the present value of incremental benefits, over the service life of the product. The incremental costs are differentials between a benchmark product price, and the cost of that product with levels of efficiency that meet or exceed those specified in the amendment. The incremental benefits are the present value of energy savings and reductions in GHG emissions associated with the efficiency improvement.

A negative net present value indicates that the efficiency improvement is not economically attractive (costs exceed benefits); whereas a net present value greater than zero indicates the efficiency improvement is economically attractive (benefits exceed costs). A net present value equal to zero indicates that society would be indifferent.

Assumptions for base case analysis

The economic analysis consisted of a base case analysis and a sensitivity analysis. Key assumptions for the base case scenario include the following:

- Benefits and costs are measured in real 2008 dollars (i.e. year 2008 prices);
- A 7% real discount rate; (see footnote 2)
- Canadian average energy prices, based on Natural Resources Canada's official energy supply and demand forecast (*Canada's Energy Outlook: The Reference Case 2006*);
- Product specific effective dates for estimating impacts are based on best available information at the time of the analysis and NRCan will estimate actual impacts in future evaluations; and
- Valuation of the GHG emissions incorporated into the analysis at $30 per tonne. (see footnote 3)

Product-specific assumptions

Product-specific assumptions are based on product-specific market analysis reports, testing reports, industry data, engineering studies, experience in other regulating jurisdictions, stakeholder consultation, and other data sources.

Electric motors

- Effective date: January 1, 2011
- Service life:
    - 5 horsepower — 17 years
    - 15 horsepower — 19 years
    - 30 horsepower — 22 years
    - 75 horsepower — 22 years
    - 150 horsepower — 28 years
    - 300 horsepower — 29 years
- The baseline models used were
    - Electric motors
        - 5 horsepower — 87.5% (Table I)
        - 5 horsepower — 88.2% (Table II)
        - 15 horsepower — 91.0% (Table I)
        - 15 horsepower — 91.44% (Table II)
        - 30 horsepower — 92.4% (Table I)
        - 30 horsepower — 93.33% (Table II)
        - 75 horsepower — 94.1% (Table I)
        - 75 horsepower — 94.53% (Table II)
        - 150 horsepower — 95.0% (Table I)
        - 150 horsepower — 95.3% (Table II)
        - 300 horsepower — 94.1% (Table I)
        - 300 horsepower — 94.2% (Table II)
    - Typical usage:
        - 5 horsepower — 2 600 hours per year
        - 15 horsepower — 3 150 hours per year
        - 30 horsepower — 3 650 hours per year
        - 75 horsepower — 4 660 hours per year
        - 150 horsepower — 4 735 hours per year
        - 300 horsepower — 5 444 hours per year
    - All motors have a load factor of 60%.

Residential gas and oil boilers

- Effective date: September 1, 2010
- Service life: 30 years
- Boiler installations are based on furnace input capacity in Btu per hour (Btu/h)
- Type of installations:
    - 60% retrofit
    - 40% new
- Regional benchmarks were based on the duty cycles from Calgary, Montreal, Toronto and Vancouver.
- Each benchmarked boiler was assumed to operate in the corresponding size home:
    - 75 000 Btu/h — 1 200 ft^2 townhouse
    - 100 000 Btu/h — 1 800 ft^2 two-storey detached house
    - 150 000 Btu/h — 3 000 ft^2 two-storey detached house
    - 250 000 Btu/h — 5 000 ft^2 two-storey detached (see footnote 4)
- The baseline models used were

Gas-fired water boilers

- Input 75 000 Btu/h AFUE 80% (Table I)
- Input 75 000 Btu/h AFUE 81% (Table II)
- Input 100 000 Btu/h AFUE 80% (Table I)
- Input 100 000 Btu/h AFUE 81% (Table II)
- Input 150 000 Btu/h AFUE 80% (Table I)

- Input 150 000 Btu/h AFUE 81% (Table II)
- Input 250 000 Btu/h AFUE 80% (Table I)
- Input 250 000 Btu/h AFUE 81% (Table II)

Oil-fired water boilers

- Input 75 000 Btu/h AFUE 80% (Table I)
- Input 75 000 Btu/h AFUE 82% (Table II)
- Input 100 000 Btu/h AFUE 80% (Table I)
- Input 100 000 Btu/h AFUE 82% (Table II)
- Input 150 000 Btu/h AFUE 80% (Table I)
- Input 150 000 Btu/h AFUE 82% (Table II)
- Input 250 000 Btu/h AFUE 80% (Table I)
- Input 250 000 Btu/h AFUE 82% (Table II)

Oil-fired steam boilers

- Input 150 000 Btu/h AFUE 80% (Table I)
- Input 150 000 Btu/h AFUE 81% (Table II)
- Input 250 000 Btu/h AFUE 80% (Table I)
- Input 250 000 Btu/h AFUE 81% (Table II)
- No analysis performed on 75 000 Btu/h and 100 000 Btu/h oil-fired steam and all gas-fired steam boilers since all models meet the proposed 2010 MEPS.

Dry-type transformers

- Effective date: January 1, 2010
- Service life: 32 years
- Typical usage: 8 760 hours per year at 50% root-mean-square loading
- Three-phase dry-type transformers baseline models include:
    - 300 kilovolt-amperes (kVA) at 98.50%
    - 1 500 kVA at 99.00%
    - 2 000 kVA at 99.00%

Large air-conditioners and heat pumps

- Effective date: January 1, 2010
- Service life: 15 years
- The baseline size designation:
    - Medium air-conditioners — between 19.0 kW and 39.6 kW (between 65 kBtu/h and 135 kBtu/h)
    - Large air-conditioners — between 39.6 kW and 70.3 kW (between 135 kBtu/h and 240 kBtu/h)
    - Very large air-conditioners — between 70.3 kW and 223 kW (between 240 kBtu/h and 760 kBtu/h)
    - Large heat pump with capacity equal to or greater than 19.0 kW (65 kBtu/h)
- Equivalent full-load hours used for Canada (based on full load hours for Calgary, Montreal, Toronto and Vancouver):
    - Medium air-conditioner — 1 021
    - Large air-conditioners — 1 039
    - Very large air-conditioners — 1 042
    - Heat pump (heating and cooling) — 1 860 (838 + 1 022)
- Includes energy savings from resulting heating efficiency gains for heat pumps.

Commercial self-contained refrigeration

- Effective date: January 1, 2010
- Service life of commercial self-contained refrigeration: 10 years
- No analysis performed on transparent and opaque refrigerators-freezers since all models meet the proposed 2010 MEPS.
- Heat-loss factor: the heat-loss factor was assumed to be zero.

- The baseline models used were
    - Refrigerator with opaque doors — volume of 648 litres
    - Refrigerator with a transparent doors — volume of 847 litres
    - Freezer with transparent doors — volume of 370 litres
    - Freezer with opaque doors — volume of 591 litres
    - Ice-cream type freezer with opaque doors — volume of 388 litres
    - Ice-cream type freezer with transparent doors — volume of 617 litres

General service incandescent reflector lamps

- Effective date: June 1, 2009
- Typical usage:
    - residential use — 840 hours per year
    - commercial and industrial use — 3 550 hours per year
- Service life:
    - Residential
        - 85 watt BR30 (2 000 hour service life) replaced by a 60 watt PAR30 (3 000 hour service life) residential use — 3.57 years
        - 75 watt BR38 (2 000 hour service life) replaced by a 50 watt PAR38 (2 500 hour service life): residential use — 2.98 years
        - 120 watt BR40 (2 000 hour service life) replaced by a 90 watt PAR38 (2 500 hour service life): residential use — 2.98 years
        - 75 watt ER30 (2 000 hour service life) replaced by a 50 watt ER30 (2 000 hour service life): residential use — 2.38 years
        - 120 watt ER40 (2 000 hour service life) replaced by a 90 watt PAR38 (2 500 hour service life): residential use — 2.98 years
    - Commercial
        - 85 watt BR30 (2 000 hour service life) replaced by a 60 watt PAR30 (3 000 hour service life) commercial use — 0.84 years
        - 75 watt BR38 (2 000 hour service life) replaced by a 50 watt PAR38 (2 500 hour service life): commercial use — 0.70 years
        - 120 watt BR40 (2 000 hour service life) replaced by a 90 watt PAR38 (2 500 hour service life): commercial use — 0.70 years
        - 75 watt ER30 (2 000 hour service life) replaced by a 50 watt ER30 (2 000 hour service life): commercial use — 0.56 years
        - 120 watt ER40 (2 000 hour service life) replaced by a 90 watt PAR38 (2 500 hour service life): commercial use — 0.70 years
- BR lamps were estimated to be used 63% in residential and 37% in commercial sectors.
- ER lamps were estimated to be used 100% in commercial sector.
- Incandescent to halogen lamp replacement: a general heat-loss factor of 14% for residential use. Commercial heat-loss is zero.

Standby for electronic products

- Tier one effective date: May 1, 2011
- Tier two effective date: January 1, 2013
- The baseline models used for

Compact audio products

- Service life of integrated audio: 6.5 years
- Service life of portable audio: 4 years
- Service life of portable clock radio: 4 years
- The baseline models used:
- Integrated stereo with monochrome display and remote
- Portable audio with monochrome display
- Portable clock radio with monochrome display
- Typical usage:
- Integrated stereo — 93% of time in standby
- Portable audio — 92% of time in standby
- Clock radio — 59% of time in standby

TV and TV combination units

- Service life of televisions: 7 years
- The baseline models used: LCD television with remote
- Typical usage: 84% of time in standby

Video products

- Service life of non-recording video players: 5 years
- Service life of recording video players: 5 years
- The baseline models used:
- Non-recording video players: DVD player with built-in VCR with a remote
- Recording video players: DVD player with a DVD recorder and a remote
- Typical usage:
- Non-recording video players — 88% of time in standby
- Recording video — 73% of time in standby

External power supplies

- Effective date: July 1, 2010
- External power supplies were defined to have two modes, no load mode and active mode. Active mode is a reference to the state of the external power supply and not the product it is attached to.
    - No load mode is the condition in which the input of a power supply is connected to an AC source consistent with the power supply's nameplate AC input voltage, but the output is not connected to an end-use product or any other load.
    - Active mode (see footnote 5) is the condition in which the input of a power supply is connected to line voltage AC and the output is connected to an AC or a DC load (end-use product) drawing a fraction of the power supply's nameplate power output greater than zero.
- Product or combination of products used to estimate costs and energy savings for each wattage bin
- The baseline models used were (see footnote 6)
    - Less than 1 watt bin:
        - Service life: (see footnote 7)
            - Low-wattage mobile phone — 2 years
        - Typical usage (see footnote 8) (power modes the EPS is required to supply)
            - Low-wattage mobile phone
                - No load mode: 7 446 hours per year
                - Active mode: 613 (438 hours per year high power level, 175 hours per year low power level)
    - The 1 to 5 watt bin:
        - Service life:
            - Mobile phones — 2 years
        - Typical usage (power modes the EPS is required to supply):
            - Mobile phones
                - No load mode: 7 446 hours per year
                - Active mode: 613 (438 hours per year high power level, 175 hours per year low power level)
    - The 5 to 10 watt bin:
        - Service life:
            - Cordless phones — 3 years
        - Typical usage (power modes the EPS is required to supply):
            - Cordless phones
                - No load mode: 0 hours per year
                - Active mode: 8 760 (3 592 hours per year high power level, 1 489 hours per year mid power level, 3 679 hours per year low power level)
    - The 10 to 20 watt bin:
        - Service life:
            - Modem — 5 years

        - Portable video player — 5 years
        - Camcorder — 5 years
    - Typical usage (power modes the EPS is required to supply):
        - Modem
            - No load mode: 0 hours per year
            - Active mode: 8 760 per year (8 760 hours per year high power level)
        - Portable video player
            - No load mode: 0 hours per year
            - Active mode: 1 460 hours per year (73 hours per year high power level, 1 387 hours per year low power level)
        - Camcorder
            - No load mode: 110 hours per year
            - Active mode: 99 hours per year (44 hours per year high power level, 55 hours per year low power level)
- The 20 to 50 watt bin:
    - Service life:
        - Portable printer — 5 years
        - Small flat panel TV — 5 years
    - Typical usage (power modes the EPS is required to supply):
        - Portable printer
            - No load mode: 0 hours per year
            - Active mode: 8 760 hours per year (88 hours per year high power level, 8 672 hours per year low power level)
        - Small flat panel TV
            - No load mode: 0 hours per year
            - Active mode: 8 760 (1 139 hours per year high power level, 7 621 hours per year low power level)
- The 51 to 100 watt bin:
    - Service life:
        - Flat panel monitor — 5 years
        - Notebook — 5 years
    - Typical usage (power modes the EPS is required to supply):
        - Flat panel monitor
            - No load mode: 0 hours per year
            - Active mode: 8 760 (3 139 hours per year high power level, 3 431 hours per year mid power level, 2 190 hours per year low power level)
        - Notebook
            - No load mode: 0 hours per year
            - Active mode: 8 059 (2 978 hours per year high power level, 964 hours per year mid power level, 4 117 hours per year low power level)
- The greater than 100 watt bin:
    - Service life:
        - High wattage notebook — 5 years
    - Typical usage (power modes the EPS is required to supply):
        - High wattage notebook
            - No load mode: 0 hours per year
            - Active mode: 8 059 (2 978 hours per year high power level, 964 hours per year mid power level, 4 117 hours per year low power level)

Digital television adapters

- Effective date: January 1, 2010
- Service life: 5 years
- Typical usage:
    - 16.4 hours per day on mode
    - 7.6 hours per day standby mode
- The baseline model:
    - consumes 17 watts in on mode and 2 watts in standby mode

Single package vertical air-conditioners and heat pumps

- Effective date: January 1, 2011
- Service life: 15 years
- The baseline models used
    - Single package vertical air-conditioner — 36 000 Btu/h
    - Single package vertical heat pump — 36 000 Btu/h
- Equivalent full-load hours used (based on a cooling hours from Calgary, Montreal, Toronto and Vancouver):
    - Single package vertical air-conditioner — 711 hours
    - Single package vertical heat pump — 1 782 hours
- Includes energy savings from resulting heating efficiency gains for heat pumps.

Assumptions for sensitivity analysis

In addition to the base case analysis, sensitivity analyses were carried out on the discount rate, energy prices and combinations of the two. All sensitivity analyses were calculated from the base case.

- For the discount rate sensitivity, the base case was re-evaluated using real discount rates of 5% and 10%.
- For the energy price sensitivity analysis, Canadian average prices were substituted with high and low regional energy prices, according to *Canada's Energy Outlook: The Reference Case 2006.*
- In the combined energy price/discount rate sensitivity analysis, the base case was re-evaluated under two scenarios. The first scenario combined high energy prices with the low discount rate (5%). The second scenario combined low energy prices with the high discount rate (10%). This approach broadens the range of economic attractiveness presented in the discount rate sensitivity analysis and the energy price sensitivity analysis.

Expected results

Table I summarizes the net benefits from the proposed MEPS. The figures for each product in Table I reflect one design option yielding an efficiency improvement that meets the efficiency standards contained in this amendment.

Table I: Summary of net benefits analysis

Products class	**Annual energy savings**	**Net present value of benefits $ 2008**
Electric motors	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
5 horsepower	133	34
15 horsepower	325	95
30 horsepower	637	209
75 horsepower	2 161	873
150 horsepower	2 677	1,273
300 horsepower	8 536	6,596
Gas-fired water boilers	**Incremental natural gas saved (GJ/yr/unit)**	**($/unit)**
Input 75 000 Btu/h	1	(118) (see footnote 9)
Input 100 000 Btu/h	2	87
Input 150 000 Btu/h	4	345
Input 250 000 Btu/h	6	788
	Incremental oil saved	

Oil-fired water boilers	**(GJ/yr/unit)**	**($/unit)**
Input 75 000 Btu/h	1	(152) (see footnote 10)
Input 100 000 Btu/h	1	(32) (see footnote 11)
Input 150 000 Btu/h	1	120
Input 250 000 Btu/h	3	167
Oil-fired steam boilers	**Incremental oil saved (GJ/yr/unit)**	**($/unit)**
Input 150 000 Btu/h	1	36
Input 250 000 Btu/h	1	167
Dry-type transformers	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
300 kVA	4 320	2,497
1 500 kVA	8 034	3,824
2 000 kVA	13 387	9,245
Large air-conditioners and heat pumps	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
Medium air-conditioner	717	227
Large air-conditioner	2 279	1,004
Very large air-conditioner	1 975	845
Large heat pump	2 871	1,089
Commercial self-contained refrigeration	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
Opaque refrigerator	481	275
Transparent refrigerator	1 089	623
Opaque freezer	329	188
Transparent freezer	1 270	727
Opaque ice-cream type freezer	576	330
Transparent ice-cream type freezer	2 215	1,268
General service incandescent reflector lamps	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
Residential		
85 watt BR30 — residential	18	4
75 watt BR38 — residential	18	2
120 watt BR40 — residential	22	3
75 watt ER30 — residential	18	2
120 watt ER40 — residential	22	4
Commercial		
85 watt BR30 — commercial	89	5
75 watt BR38 — commercial	89	2
120 watt BR40 — commercial	107	3
75 watt ER30 — commercial	89	1
120 watt ER40 — commercial	107	5
Standby power electronic products	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
Integrated stereo	199	101
Portable audio	15	4
Clock radio	44	15

Televisions	80	35
Non-recording video player	71	31
Recording video player	112	43
External power supplies for	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
Low-wattage mobile phone — less than 1 watt	8	1
Mobile phones — 1 to 5 watts	7	1
Cordless phones — 5 to 10 watts	18	5
Modem — 11 to 20 watts	12	5
Portable video player — 11 to 20 watts	2	1
Camcorder — 11 to 20 watts	0.2	0
Portable printer — 21 to 50 watts	20	9
Small flat panel TV — 21 to 50 watts	15	6
Flat panel monitor — 51 to 100 watts	9	4
Notebook — 51 to 100 watts	23	10
High wattage notebook — greater than 100 watts	2	1
Digital television adapters	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
Digital television adapter unit	30	11
Single package vertical air-conditioners and heat pumps	**Incremental electricity saved (kWh/yr/unit)**	**($/unit)**
Single package vertical air-conditioner	132	(154) (see footnote 12)
Single package vertical heat pump	552	155

Summary: costs and benefits to society

The results of the analysis show that there are positive net economic benefits to Canada from adopting the MEPS contained in this proposed amendment. The sensitivity analysis indicates that the results are fairly robust for a wide range of assumptions. The benefits will vary by individual user depending on end-use sector, geographical location and/or operational practices.

Based on the results in Table I and product shipment trends, the estimated net present value of benefits for all Canadians would be approximately $1.07 billion over the service life of products shipped by 2015 and would increase to $1.89 billion over the service life of products shipped by 2020.

Energy/GHG analysis

Methodology and assumptions

The energy savings impacts associated with the Regulations were obtained by comparing

- the business-as-usual case (i.e. excluding the Regulations); with
- the impact case (i.e. the business-as-usual scenario including the Regulations).

The energy savings associated with residential boilers, external power supplies, digital television adaptors and standby power for electronic products occur in the residential sector.

The energy savings associated with large air-conditioners and heat pumps, single package vertical air-conditioners and heat pumps and commercial self-contained refrigeration occur in the commercial sector.

The energy savings associated with dry-type transformers occur in the residential, commercial and industrial sectors.

The energy savings associated with general service incandescent reflector lamps occur in the residential and commercial sectors.

The energy savings associated with electric motors occurs in both the commercial and industrial sectors.

The analysis was conducted for units that would not meet the MEPS and that are considered to be the most popular or average of their class.

The reductions in GHG emissions were calculated by applying emissions factors consistent with those published by Environment Canada. (see footnote 13) In the case of reductions attributable to diminished electricity consumption, the reductions were calculated by applying the emission factors associated with the marginal fuels used to generate the electricity that would be saved through the amendment.

Expected results

The estimated energy savings impact of the amendment is presented in Table II. The results are presented for the years 2015, 2020, 2025 and 2030. Energy savings would begin to accrue with the implementation of the standard. Total energy savings associated with this amendment would be 4.73 petajoules annually in 2015, increasing to 10.59 petajoules annually in 2030 as the sale of more efficient equipment steadily replaces the pre-regulation stock.

Table II: Energy savings (petajoules)

	2015	2020	2025	2030
Residential	3.21	4.32	4.74	5.17
Commercial	1.02	1.81	2.53	3.10
Industrial	0.51	1.07	1.70	2.31
Total	4.73	7.20	8.97	10.59

*Numbers may not add up because of rounding.

The estimated annual reductions in GHG emissions resulting from the aggregate energy savings are presented in Table III. Reductions in GHG emissions are estimated at approximately 0.61 megatonnes annually in 2015, increasing to approximately 1.35 megatonnes annually in 2030.

Table III: Reduction in greenhouse gas emissions (megatonnes)

	2015	2020	2025	2030
Residential	0.41	0.55	0.60	0.65
Commercial	0.13	0.23	0.33	0.40
Industrial	0.07	0.14	0.22	0.30
Total	0.61	0.92	1.14	1.35

*Numbers may not add up because of rounding.

Cost and benefits to business

The Regulations would bring about changes in the types of products sold in Canada. It would also generate costs and benefits to business and industry. Employment has not been an issue, owing to the limited production of the regulated products in Canada. NRCan works to minimize any negative impacts by consulting in advance and recognizing industry concerns, by referencing industry recognized standards and harmonized MEPS, and through outreach, education and streamlining of administrative requirements.

Industry support

Industry has been consulted in the development of the Regulations including reviewing and commenting on the costs used during the analysis. NRCan has taken industry's comments into consideration and made modifications, where appropriate, to the Regulations. (See Consultation section.)

North American harmonization

Industry prefers North American harmonization in test methods, effective dates and performance level(s). This facilitates international trade, reduces the risk of non-compliance and potential dumping of inefficient stock, and reduces industry's transitional production costs. NRCan strives to harmonize except for individual cases that may vary for policy, climatic or technical reasons as detailed in the product-specific consultation sections.

Costs to industry

Incremental costs for more efficient technology and compliance are passed on to consumers and are justified by the energy savings. The increased cost per unit usually drops as sales volumes increase to meet demand and the standard product becomes commoditized. Higher margins applied to new-generation, high-efficiency products often replace this revenue. The high-efficiency products benefit from labelling and promotion programs that are associated with the standards regime.

Minimizing administrative burden

To ensure a level playing field for compliance and enforcement, the Regulations have administrative provisions to reduce the risk of non-compliance: third-party energy efficiency verification, energy efficiency reporting prior to import or inter-provincial transport, and import reporting (as detailed in the Compliance section below).

- *Third-party energy efficiency verification.* These verification programs contribute to product quality assurance by facilitating interpretation and training on testing procedures, providing public-verified ratings and efficiency marking of verified units, and systematic challenge mechanisms. For industry, these costs are typically less than 1% of the unit cost.
- *Submitting energy efficiency reports prior to import or interprovincial transport.* This is a one-time activity per model (facilitated by electronic reporting forms supplied by NRCan) and is generally based upon the industry's internal inventory management systems. The burden of complying with this requirement is minimal.
- *Import reporting requirements.* These are minimal and are currently an integral part of the customs process due to NRCan's early participation in the Canada Border Services Agency's (CBSA) electronic Single Window initiative. The details required to be reported are few and often typically included with the commercial import documentation already required by CBSA.

Additional benefit

NRCan's compliance and enforcement also adds value to business in the promotion and sale of standard and high-efficiency products. Verified performance ratings are posted to the NRCan Web site (see footnote 14) and provide readily accessible information to individuals or businesses looking to make energy efficiency purchases as well as for provincial and utility programs engaged in promoting energy efficiency.

Costs and benefits to the Government of Canada

The Energy Efficiency Standards and Labelling Program is funded at $32 million over four years which supports

- the development of this amendment along with two others, one completed and one planned;
- compliance and maintenance of the existing regulations; and
- labelling programs for equipment.

Analytical support is provided through the Department's core human resources and is estimated at one full-time equivalent employee per year.

Rationale

The cost-benefit and environmental analysis confirms that the MEPS for all products would, due to energy savings, generate important net monetary benefits to Canadians while contributing to GHG emission reduction targets.

The impact of the MEPS from this amendment on Canadian society is summarized in Table IV. The table presents the aggregated annual totals for 2010 and 2020, the cumulative total up to 2020 and the average from 2009 to 2020.

Table IV: Summary of benefits and costs to Canadians

		Aggregate Annual Totals			Total Cumulative	Average Annual
Costs, benefits & distribution (Discounted to 2009)		**2010**	**2015**	**2020**	**by 2020**	
A. Quantified impacts $ (millions in 2008 prices) *						
Benefits	Canadians	$107	$311	$355	2,248$	$187
Costs	Canadians	$24	$47	$60	$360	$30
Net benefits					$1,888	$157
B. Quantified impacts in non $ **						
Positive impacts on Canadians	Energy savings (petajoules)	0.55	4.73	7.20	47.96	4.00
	GHG emissions reductions (megatonnes)	0.07	0.61	0.92	6.15	0.51

* Section A represents the estimated present value of benefits and costs for all Canadians over the service life of products shipped by 2020 based on product shipment trends. Benefits consist of energy savings and reductions in GHG emissions. Costs consist of differentials between a benchmark product price, and the cost of that product with levels of efficiency that meet or exceed those specified in the amendment.

** Section B represents the estimated energy savings and reductions in GHG emissions for all Canadians.

***Numbers may not add up because of rounding.

The Regulations represent a balanced approach that considers market forces, industry concerns, product availability and affordability in a global and North American context. Tools that are used include detailed market assessments, consultation and the impact analyses.

The MEPS ensure Canadians an adequate supply of more efficient product options that meet the objective of reducing Canada's greenhouse gas and air pollution emissions through the accelerated introduction of more energy efficient products into Canada's equipment stock.

Consultation

General commentary

NRCan follows general consultation practices for individual products as follows:

- *National Standards System*. The relevant Canadian Standards Association Steering Committees, Technical Committees and Technical Subcommittees, assembled from stakeholders (including manufacturers, industry associations and other interested groups), provided input, and reviewed and voted upon changes to the test standard. For some products, the minimum efficiency requirements have been incorporated by consensus into the test procedure standards.
- *Bulletins*. Bulletins were distributed to interested stakeholders. Distribution lists targeted key market channel stakeholders, key federal and provincial stakeholders, and general interest groups (advocacy groups, international regulators). Many of these individuals and organizations in turn forwarded the bulletins to provide access to a larger audience of stakeholders. Bulletins are e-mailed and posted on the *Energy Efficiency Regulations* Web site (NRCan Web site) at http://oee.nrcan.gc.ca/regulations.
- *Workshops and webinars*. Workshops and post bulletin webinars were held to provide stakeholders with a public forum to have the proposed requirements explained and review comments and invite additional input as required especially where there were significant issues raised that were best addressed as a group in conjunction with the bulletin process. Invitations were sent out to identified stakeholders. In some cases, bilateral discussions were held with stakeholders with sub-product specific issues. The meeting notes and presentation materials were forwarded to webinar participants.

Consultation prior to pre-publication

NRCan consulted directly with stakeholders for approximately 18 months in advance of pre-publication. Concerns and suggestions from stakeholders provided valuable input and were addressed in the pre-published Regulations. Consultation and market analysis also occurred through relevant CSA committees. Issues raised by manufacturers and dealers typically dealt with ensuring a level playing field, product definition, test procedures, performance levels, and related verification and labelling requirements, harmonization, and transitioning production, marketing and costs. For additional details, refer to the Consultation section of the Regulatory Impact Analysis Statement as pre-published. (see footnote 15)

Result of pre-publication

The Regulations were pre-published in the *Canada Gazette*, Part □, on June 12, 2010, for a 75-day period ending August 26, 2010. A notice inviting comment was sent by email to over 3 700 industry stakeholders and interested parties and posted to the NRCan Web site. Product bulletins were updated and also posted on the Web site.

During the 75-day comment period, NRCan received comments and requests for clarifications from a total of more than 100 stakeholders. Of these, substantial comments came from manufacturers (32), industry associations (12), utilities (1) and countries (2). These comments were directed to products as follows:

- Electric motors — manufacturers (1), countries (1)
- Residential gas, oil and electric boilers — industry association (1)
- Dry-type transformers — manufacturers (2)
- Large air conditioners and heat pumps — manufacturers (2), countries (1)
- Room air conditioners — manufacturers (3), industry associations (2), countries (1)
- General service incandescent reflector lamps — manufacturer (1)
- Standby for electronic products — manufacturers (15), industry associations (3), countries (1);

- External power supplies — manufacturers (8), industry associations (9)
- Portable air conditioners — manufacturers (3), industry associations (2), countries (1)
- Clarification test method refrigerators — manufacturer (1)
- Single package vertical air conditioners and heat pumps — no comments
- Digital television adaptors — no comments
- Commercial self-contained refrigeration — no comments, countries (1)

With regard to external power supplies and standby for electronic products, NRCan received many comments from industry associations addressing issues common to these product categories. These included a joint submission from Electro-Federation Canada's Consumer Electronics Marketing Council and Consumer Electronics Association, Canadian Association of Importers and Exporters Inc.; a joint submission from Canadian Security Association/L'association canadienne de la sécurité and Security Industry Association; Digital Europe, Information Technology Association of Canada/Association canadienne de la technologie de l'information; Information Technology Industry Council; and Tech America.

Other industry associations submitted comments: the Air-conditioning, Heating, and Refrigeration Institute in regard to residential gas and oil boilers and jointly the Association of Home Appliance Manufacturers (AHAM) and Canadian Appliance Manufacturers Association in regard to room air-conditioners and portable air-conditioners.

It is worth noting that significant early consultation has allowed NRCan to address the majority of issues prior to pre-publication in the *Canada Gazette*, Part □.

The following comments were received, considered and addressed.

General comments

(*a*) Coming into force

The WTO/TBT (World Trade Organization/Technical Barriers to Trade) National Notification & Inquiry Centre for the People's Republic of China and the Republic of Korea each submitted comments to Notification G/TBT/N/CAN/317 regarding the pre-published amendment. Both requested that there be adequate market preparation and transition time. Korea specifically mentioned that certification bodies in other regions would need extra time. In accordance with the WTO/TBT agreement to provide reasonable notice, the coming into force date of this amendment is six months after publication in the *Canada Gazette*, Part □.

(*b*) Harmonization

The comments from the People's Republic of China related to clarifying the nature of the requirements and degree-level of North American harmonization of test methods and/or MEPS (standards) for portable air conditioners, large air conditioners and heat pumps, motors, standby power products; the use of metric vs. imperial units for self-contained commercial refrigeration, and use of best practice in market monitoring and compliance determinations. These comments are addressed in the product-specific sections where applicable.

(*c*) Clarification notice

NRCan issued a clarification notice in July in response to comments and questions received from stakeholders regarding effective dates and contact information for certification bodies.

(*d*) General support

BC Hydro indicated support for timely publication to assist the utility in achieving the provincial energy conservation targets of the 2007 British Columbia Energy Plan and the 2010 British Columbia *Clean Energy Act*.

(*e*) Delay for room air conditioners and portable air conditioners

NRCan received joint comments on room air conditioners from Canadian and U.S. industry associations suggesting that NRCan harmonize with efficiency levels in an agreement between U.S. energy efficiency advocates and industry. In April 2011, the U.S. DOE published a final rule based on that agreement that is open for comments until August 2011. NRCan has recommended that the implementation of the room air conditioner standard be delayed to improve alignment with U.S. policy direction once it is finalized.

NRCan received joint comments from the Canadian and U.S. industry associations, as well as China and one manufacturer, on portable air conditioners. NRCan has recommended delaying the implementation of standards for this product until consensus is reached in the industry on the test procedures.

Electric motors

In addition to the general consultation activities NRCan was invited to make two presentations on the amendment to industry meetings.

NRCan received comments from a manufacturer requesting that International Electro-technical Commission (IEC) 8-pole motors and IEC 100 frame size motors be exempt from the Regulations due to small market share, high redesign costs and technical difficulties. NRCan has not exempted IEC 8-pole motors as equivalent National Electrical Manufacturers Association (NEMA) 8-pole motors have to meet the requirements. In regard to 100 frame size motors, the existing Canadian Regulations include IEC motors of frame size 90 and above. Providing an exemption could result in higher energy consumption if the mandatory energy performance standard was removed. NRCan consulted with manufacturers and found that some intend to redesign their 8-pole and 100 frame size motors to meet the new and higher efficiency levels proposed. Therefore there will be sufficient supply to the market. As well, the U.S. DOE has recently proposed similar legislation for IEC 100 frame size motors in that country.

Another manufacturer commented that there was insufficient time given to implement the new and higher efficiency standards for products not harmonized with the U.S. regulation, such as 575 volt motors. Canada’s date of manufacture of January 1, 2011, was chosen to harmonize with that of the U.S. All stakeholders have six months after publication of this amendment, before it comes into force, to meet the requirements of the standards.

Residential gas, oil and electric boilers

NRCan received comments from a manufacturer and a U.S. industry association requesting clarification on whether there would be a new effective date. NRCan clarified that the industry had agreed to the date well before prepublication and that this had been communicated to all stakeholders through wide distribution of industry communications, bulletins in May and July 2009, along with a webinar in June 2009. The date of manufacture of September 1, 2010, has been retained to respect this agreement and market expectations.

A U.S. industry association requested removal of the requirement to report pump electrical energy consumption as some boilers are not sold with pumps, but are field specified and installed. NRCan clarified that if a boiler is not sold with a pump, the default value in the test method can be used. Given that the pump electrical consumption is measured as part of the test method and affects energy consumption, reporting this discrete value has been retained.

Dry-type transformers

In addition to the general consultation activities, NRCan was invited to make a presentation on the proposed amendment at an industry meeting.

NRCan received comments regarding the requirement for reporting of no-load losses. A manufacturer suggested that the reporting of no-load losses is of limited use unless there are defined maximum loss limits imposed. Another suggested that the information is used to determine overall efficiency and the data by itself was of little use and should not be reported. NRCan is committed to reducing standby losses in all products, including transformers, and reporting of losses is one such means to accomplish this. These losses are also used for

calculating energy savings and payback for purchasers and end-users. NRCan had consulted with stakeholders prior to the 75-day comment period at a meeting to discuss the proposed Regulations. At that time there was limited opposition to the collection of this data that is already collected during testing. Therefore, NRCan did not make changes to this requirement.

One manufacturer questioned why previously excluded epoxy encapsulated transformers were now included while sealed and non-ventilated transformers were excluded, and recommended either including or excluding all three types as they perform similar functions. Due to previous stakeholder commentary, NRCan had removed encapsulated transformers from the list of exemptions. Additional investigation has determined that these are considered non-ventilated transformers and therefore epoxy encapsulated transformers are exempted by definition.

A stakeholder suggested a six-month delay for the coming into force date to accommodate previously contracted orders. Canada's date of manufacture of January 1, 2010, was chosen to harmonize with that in the U.S. All stakeholders have six months after publication of this amendment, before it comes into force, to meet the requirements of the standards.

General service incandescent reflector lamps

One manufacturer commented regarding the proposed date of manufacture of June 1, 2009. Canada's date of manufacture of June 1, 2009, was chosen to harmonize with that in the U.S. All stakeholders have six months after publication of this amendment, before it comes into force, to meet the requirements of the standards.

Standby for electronic products

Regarding standby power of consumer electronics products — compact audio product, televisions, and video products — many more stakeholders provided comments or requested clarification following prepublication than following the previous three consultation bulletins issued in 2009.

Issues identified

(*a*) Effective date

Stakeholders expressed concern with the proposed date of manufacture being prior to the planned coming into force of the amendment. Equipment would be entering the country without a verification mark. Upon coming into force, this product would then have to be marked if it crossed provincial borders. NRCan has delayed the date of manufacture to May 1, 2011. A notice of this change was issued in October 2010. All stakeholders will have six months after publication of this amendment, before it comes into force, to meet the requirements of the standards.

(*b*) Third-party verification

Many of the stakeholders required clarification as to the third-party verification and requested more time to comply with marking requirements. A notice of clarification was issued in July to explain the process, and the above October notice of delay in the effective date will ensure all products have time to be verified and marked.

(*c*) Scope

NRCan received many requests from stakeholders seeking to clarify whether their product fell within the scope of the proposed Regulations, as well as specific requests for some product classes to be exempted from regulation.

Clarifications

- Home theatre in a box (HTiB). HTiBs are considered to be within the scope of compact audio if the radio tuner and amplifier are contained in a single housing.

- Battery-powered products. NRCan clarified that products that plug in or connect to mains power, irrespective of whether they can be battery powered or have built-in rechargeable batteries, are within the scope. This harmonizes with the E.U. regulations. The test procedure is clear that standby power is measured with the battery fully charged and when the product has reached a stable power level.
- Meaning of "integral" power supplies for video equipment. Some stakeholders interpreted integral to mean "integrated" power supply, as in an internal power supply. However, the term "integral" in this context means "essential to completeness." Thus, products that rely directly on mains power to operate (whether through an internal or external power supply plugged into mains) are covered in the Regulations. Products that obtain power through another product (such as an external hard drive that connects to a USB port) are not covered in the scope of video equipment.
- Clarification for information and status displays. NRCan pre-published to harmonize with the E.U. by requiring products in standby mode, with an active display, to consume 1 W. It was pointed out that the E.U. considered a display to be a continuous function. If a display remains temporarily active for a defined period of time after activating the standby mode, the product only has to meet the standby power limits with the display off. NRCan agrees with this position. As some products may take more than 10 minutes to reach the declared standby power level, the time taken under test conditions for the product to enter standby must also be reported.

Changes

- Several manufacturers and trade associations requested that "professional" products be removed from the scope of the Regulations. Some of these products included video products and monitors used in medical applications (which have strict rules for design revisions) and in television production studios (where products are either custom-designed or require a quick start-up time to record video on demand). NRCan has modified the definitions of video products and television monitors to include household products only.
- A manufacturer indicated that for some large clock radios, the 2013 standby limit of 1 W for a permanently active display was too stringent. A 2 W limit was recommended. Some testing indicates that a 2 W limit for standby with an active display would be appropriate and NRCan has made the change in the Regulations.
- NRCan has amended the definition of compact audio to explicitly refer to a terrestrial tuner. This exempts Internet radio products from the Regulations. NRCan will consider expanding the scope in future amendments so as to include the increasingly popular compact audio with Internet radio.
- NRCan has amended the definition of video products to explicitly exclude cameras from the scope.

(*d*) Test method

One stakeholder asked for confirmation of the test voltage. Since the test method is not clear, the Regulations now clarify that the test method is CSA 62301 at 115 volts.

Stakeholders noted that some compact audio products may have powered speakers, along with the central amplifier/tuner enclosure. For compact audio in particular, NRCan considers standby to be the power consumed by the amplifier/tuner enclosure only; all other powered components would be connected and operating under normal conditions, but not measured for standby power at a separate plug. NRCan will consider revisions to this policy in future amendments.

One stakeholder asked how units with powered antennae are to be tested. NRCan clarified that, according to the definition of standby and the referenced test procedure that if the powered antennae can be shut down by the consumer, the model can be tested in this mode; however, if there is no shut off capability, they must be tested with the power on.

(*e*) Standby definition

Stakeholders raised concerns that the standby definitions proposed in the Regulations may

not align with those in an upcoming version of the IEC 62301. NRCan confirms that the standby and off-mode definitions align with the IEC 62087 passive-standby and off-mode definitions which are specific to the standby products and, as written, would be tested without consideration of the other possible modes, i.e. standby–low and standby–high, which would require networking functions to be tested.

(*f*) Harmonization

Several issues about harmonization were brought up by industry associations. One association suggested that NRCan should dismiss regulations, and rely strictly on the voluntary ENERGY STAR program to ensure that products use less standby power. In California, which currently regulates similar products, standby power consumption products continue to use as much as 3 W to 4 W in standby power. This is in spite of the fact that ENERGY STAR levels have been 1 W for many years now. This is far higher than the 1 W that is currently required in the E.U. and the 0.5 W limit that will be required by 2013. NRCan values ENERGY STAR as a key to market transformation; however, regulation is required to ensure all products use the most effective designs and technologies readily available to produce cost-effective and energy-efficient products.

Another industry association suggested that NRCan should harmonize with the E.U. regulation, and allow manufacturers exemptions for certain products, if it can be technically shown that the Regulations are inappropriate "for the intended use of the product." The Act does not provide the Minister with the authority to grant exemptions to the Regulations. Exemptions must be identified in the Regulations.

(*g*) Data analysis

A joint submission from two industry associations expressed concerns with the data analysis in the RIAS. NRCan revised the benchmarks to address the concerns and found that the outcome of the analysis was still positive. The industry associations also questioned the validity of NRCan's data. NRCan used the most recent data available, using a methodology that is accepted by many nations throughout the world and is generally consistent with industry data.

External power supplies

NRCan received many comments from both industry associations and manufacturers identifying issues. There were also some 55 enquiries from a range of manufacturers, certification bodies, laboratories and a retailer seeking clarifications primarily regarding the logistics of meeting the regulatory requirements.

Issues identified

(*a*) Effective dates

Stakeholders raised concerns regarding having to report verified efficiency values for their external power supplies immediately upon publication of the amendment. The amendment will now come into force six months after publication in the *Canada Gazette*, Part □. Note that as external power supplies have been subject to the same MEPS in the U.S. since July 1, 2008, NRCan has kept the pre-published July 1, 2010, effective date of manufacture.

(*b*) Third party verification

Many stakeholders raised objections to third party oversight into whether their product met the MEPS. The stakeholders cited higher costs and proposed alternatives such as internationally recognized mutual recognition agreements, or ISO (International Organization for Standardization) 17025 recognized laboratories, and self-declaration. NRCan considered all of the alternatives proposed by the stakeholders. NRCan concluded that there is no convincing argument to change the proposed verification regime (used for regulated products in Canada) and notes that the third party certification regime does not *per se* exclude acceptance by a certification body of testing done in a manufacturer's or other laboratory. This system ensures a

level playing field for all stakeholders that limits the risk of non-compliance and does not impose undue burden on Canadians as well as on the industry. The test is based on a simple international test with a streamlined sampling plan. The recent moves towards third party testing by EPA, as a result of surveillance monitoring of products by DOE, strengthens the need for third party oversight.

Some stakeholders argued for deletion of the reporting requirements due to the administrative burden. Since the scope of the products has been reduced and now focuses on common high volume products, NRCan believes that the reporting requirements have been considerably reduced. The reporting is needed to ensure imported product is compliant and to limit the risk of importing non-compliant product by importers/dealers.

(*c*) Scope — Commercial, industrial, life safety

Various stakeholders requested exemption for external power supplies for industrial and professional, life and security end-use products. NRCan considered all of these products and has reduced the scope to cover only external power supplies designed for household and office products.

In addition, NRCan has extended the date for compliance to July 1, 2017, for products identified as life safety products. The revised scope of products now harmonizes more closely with both the U.S. and the E.U.

(*d*) Scope — Spares

A number of stakeholders asked for spares to be exempted from regulation for a period ranging from one to seven years. The Regulations now provide for an exemption from the MEPS only that extends to June 30, 2013, for external power supplies marked for replacement of a specified end-use product that was manufactured before July 1, 2010.

Similarly, the proposed five-year delay for spares for cradled emergency communication equipment has been removed because this equipment no longer falls within the product scope.

Clarification test method — refrigerators with ice-makers

A manufacturer noted a discrepancy in the modification to the test procedure for refrigerators with automatic ice-makers from the initial consultation bulletin in September 2009. The manufacturer also commented on the effective date. Bulletins are provided to stakeholders to give them the opportunity to comment in advance of pre-publication. The regulatory language was strengthened to clarify that the ice bin should be empty during the test due to concerns that there could be inconsistent results if this were to be discretionary. NRCan maintains the manufactured date of January 1, 2008, although it will not come into force until six months after the date of publication.

Implementation, enforcement and service standards

It is expected that the compliance and enforcement procedures already in place for all products regulated under the *Energy Efficiency Regulations* will continue to serve well for these products.

The main features of this system are as follows.

Verification marking and energy efficiency reporting

For products prescribed under the Regulations, NRCan employs a third-party verification system using the services of certification bodies accredited by the Standards Council of Canada. Verified energy performance data will be submitted to NRCan by the dealer in an energy efficiency report as specified in Part V and Schedule IV of the Regulations. This is only required once for each model, before importation or interprovincial shipment.

For external power supplies, the Regulations prescribe alternatives to the use of the energy efficiency verification mark while requiring that the product be verified by a third party certification organisation. NRCan will also be increasing its market surveillance for this product to reduce the risk of non-compliance.

Customs reporting and monitoring

NRCan's procedures for commercial imports of prescribed products will apply to products prescribed under the Regulations.

This involves cross-checking data received from customs release documents with the energy efficiency reports that dealers submit to NRCan. This cross-checking ensures that NRCan can verify the compliance of imports clearing customs.

The Regulations will require importations of prescribed product to provide in their customs release documents, the minimal information needed for customs monitoring.

NRCan will work with CBSA as well as customs broker and import associations to communicate the changes and facilitate import reporting in particular for the electronic product market in regard to new regulations for external power supplies and products affected by the standby power consumption requirements.

Direct fieldwork: Market survey and product testing

In addition to ongoing compliance marketplace monitoring activities, NRCan has developed a plan for surveying and testing products in the context of monitoring compliance outcomes with product specific compliance audits. Depending upon the product, NRCan will conduct in-store or procurement surveys as well as product tests. NRCan will also conduct product testing on a complaint-driven basis. The market is highly competitive and suppliers are cognizant of performance claims made by their competitors. Challenge procedures by which performance claims can be questioned exist in all verification programs.

Strategic environmental assessment

In accordance with the *Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals*, a Preliminary Strategic Environmental Assessment (SEA) was conducted for the proposed Regulations. Elements of this amendment have undergone environmental analysis via a previous detailed SEA in 2008 — Bill to Amend the *Energy Efficiency Act*. Moreover, the analysis of environmental impacts is ongoing and inherent to the program. Expected outcomes, including greenhouse gas reductions and associated environmental impacts, are detailed in the Benefits and costs section of this document.

Conclusion

An appropriate level of compliance with the Regulations will result from support by North American manufacturers, third-party verification, customs monitoring, cooperation with regulating provinces, communication activities, market surveys, and product testing as required.

Performance measurement and evaluation

As noted, these Regulations are the second of those announced as part of the Energy Efficiency Standards and Labelling component of CARA. As such, they will be subject to the performance management strategy as outlined in the CARA Treasury Board submission and the Horizontal Results-based Management Accountability Framework prepared for CARA.

Detailed accounts of progress towards this objective will be found in departmental business plans, reports on plans and priorities, and the Report to Parliament under the *Energy Efficiency Act*.

Performance measurement and evaluation plans have been established for the Energy Efficiency Standards and Labelling program as a whole: key activities and outputs are identified, expectations quantified, ongoing data collection from program files maintained and appropriate targets defined. Feedback on the status of all activities is provided to the program on a continual basis.

A formal evaluation of the Standards and Labelling program was completed by a third party for Natural Resources Canada in July 2010.

A Performance Measurement and Evaluation Plan (PMEP) as specified under the *Cabinet Directive on the Streamlining of Regulations* specific to this amendment has been developed.

The PMEP outlines how, initially, to implement and administer Amendment 11, technology and market barriers are assessed to determine distribution channels, to establish new test procedures, to develop cost-benefits and environment impacts of establishing the new or more stringent MEPS.

The regulated entities for this amendment are Canadian dealers of seven existing products and five new products. To achieve the regulatory outcomes, dealers/manufacturers must not only be aware of the new MEPS, but they must also ensure that their product offerings will comply when the Regulations come into force. Regulated products must meet MEPS and bear an energy efficiency verification mark from a certification body accredited by the Standards Council of Canada. Dealers are also required to provide an energy efficiency report for a product prior to the first import or interprovincial shipment, and provide, upon import, information that links back to the energy efficiency report.

Dealer awareness, understanding and technical capacity to comply with the newly introduced MEPS are facilitated through the development of national standards and stakeholder consultations well before the introduction of proposed regulations. Once regulations are implemented, NRCan facilitates the reporting of new requirements by providing all manufacturer/dealers of these products with standardized energy efficiency report forms and works with CBSA to clearly communicate to customs brokers and dealers that new product now triggers an electronic submittal option to facilitate import reporting.

As an immediate outcome, it is anticipated that within a short period after a product's effective date for new or higher MEPS that dealers comply with this amendment by verifying, marking and reporting to NRCan the energy performance of regulated products. With respect to an intermediate outcome, over time, it is anticipated that the amendment will begin to affect the efficiency of products that are in use in Canada, leading to a growth of products that meet new MEPS. The final outcome would result in energy savings and associated GHG emissions reductions.

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Footnote a
S.C. 1992, c. 36

Footnote b
S.C. 2009, c. 8, s. 5

Footnote c
S.C. 1992, c. 36

Footnote 1
SORS/94-651

Footnote 2
The Treasury Board (of Canada) recommends a cost-benefit analysis to be conducted using an 8% real discount rate with lower rates used for real social discounting. Research conducted by Natural Resources Canada has identified 7% as the appropriate real social discount rate for this analysis.

Footnote 3
Valuation of GHG emissions is based on marginal mitigation costs of CO_2 emissions. The foundation of this valuation comes from consultation with other Government of Canada federal departments and emissions credit trading systems such as the Clean Development Mechanism and European Trading System. A sensitivity analysis was carried out on the valuation of GHG emissions using $15, $30 and $50 per tonne. The expected results from the base case of $30 per tonne are reported in Table I. Valuation of GHG emissions is assumed to be constant over the duration of the analysis. These valuations will be reviewed periodically.

Footnote 4
The energy requirement for the 250 000 Btu/h unit was determined by multiplying the energy requirement for 150 000 Btu/h unit by 1.66666 which equals 250 000 Btu/h divided by 150 000 Btu/h.

Footnote 5
Active mode has three power levels: high power level, mid power level and low power level. Not all products had all levels.

Footnote 6
For external power supplies (EPS) the baseline model refers to the product that the EPS is supplying power to because that product dictates the amount of power that will be passed through the EPS.

Footnote 7
The service life for the product is assumed to be the same as the EPS because products are sold with an EPS.

Footnote 8
Any time a product is connected to an EPS it is actively supplying power to that product even if the product is not active. An EPS that is plugged in to a wall socket but is not connected to a product is in no-load mode.

Footnote 9
Negatively affected gas-fired water boilers represent 3% of all gas-fired water boilers.

Footnote 10
Negatively affected oil-fired water boilers represent 6% of all oil-fired water boilers.

Footnote 11
Negatively affected oil-fired water boilers represent 6% of all oil-fired water boilers.

Footnote 12
Negatively affected single package vertical air-conditioners and heat pumps represent 78% of the single package vertical air-conditioner and heat pump market.

Footnote 13
www.ec.gc.ca/ges-ghg/default.asp?lang=En&n=DDCA72D0-1 or www.ec.gc.ca/ges-ghg/default.asp?lang=Fr&n=DDCA72D0-1

Footnote 14
www.oee.nrcan.gc.ca/regulations

Footnote 15
www.gazette.gc.ca/rp-pr/p1/2008/2008-03-29/html/reg4-eng.html

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