

# Efficiency Canada's Comments on Canada Gazette, Part I, Volume 158, Number 25: Regulations Amending the Energy Efficiency Regulations, 2016 (Amendment 18)

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1125 Colonel By Drive

Ottawa, ON K1S 5B6

<https://www.energycanada.org>

**Facebook:** <https://facebook.com/EfficiencyCanada>

**LinkedIn:** <https://linkedin.com/company/efficiency-canada>

**Instagram:** <https://instagram.com/energycanada>

This submission constitutes Efficiency Canada's comments on Natural Resources Canada's (NRCan) June 2024 pre-publication consultation for Amendment 18 to Canada's Energy Efficiency Regulations.

Efficiency Canada is the national voice for an energy-efficient economy. Our mission is to create a sustainable environment and better life for all Canadians by making our country a global leader in energy efficiency policy, technology, and jobs. Efficiency Canada is housed at Carleton University's Sustainable Energy Research Centre, which is located on the traditional unceded territories of the Algonquin nation.

The following comments were submitted directly to the *Canada Gazette, Part I, Volume 158, Number 25: Regulations Amending the Energy Efficiency Regulations, 2016 (Amendment 18)* webpage during the 70-day consultation period ending August 31, 2024.

## General comments

The potential contribution of appliance and equipment energy performance standards to putting Canada on a path toward a net-zero economy by 2050 is often overlooked. Improving energy efficiency was recently identified in the IEA's *Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach* report as one of the four technologies available today that can deliver more than 80 per cent of the emissions reductions needed.<sup>1</sup> Given the timelines associated with proposing, consulting on, and finalizing new or amended standards, governments should be mindful not to waste any opportunity to move toward stronger energy efficiency standards.

With the proposed Amendment 18, Canada has missed an opportunity to strengthen important standards, particularly major home appliances, including dishwashers, refrigerator-freezers, clothes washers, and clothes dryers. Though

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<sup>1</sup> International Energy Agency, "Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach (2023 Update)," 2023, <https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach>.

NRCan proposed new minimum energy performance standards (MEPS) for those categories equivalent to 2019 ENERGY STAR® performance levels, as part of Amendment 17 for 2023 enforcement, they were removed from the amendment after industry push-back.<sup>2</sup> They were then included in the pre-consultation for Amendment 18 for 2024 enforcement.<sup>3</sup> However, due to NRCan aligning with the U.S. DOE for these categories, compliance dates for the updated efficiency standards vary from 2027 to 2030 (when the latest U.S. appliance standards take effect), depending on the appliance.<sup>4</sup> Canada should follow through on its 2019 commitment to making ENERGY STAR-level efficiency mandatory for all new major home appliances (dishwashers,<sup>5</sup> refrigerator-freezers, clothes washers and dryers) as an interim standard before harmonizing with the U.S. DOE's upcoming standards.<sup>6</sup> ENERGY STAR appliances already capture a significant market share, and ENERGY STAR-level efficiency standards could achieve substantial energy and consumer savings while acting as a stepping-stone to harmonizing with U.S. standards between 2027-2030.

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<sup>2</sup> Natural Resources Canada, "Proposed Approach to Regulating Home Appliances to ENERGY STAR Performance Levels - Pre-Consultations, Webinar #1"; "Higher Energy Efficiency Rules for Appliances Could Raise Costs, Industry Group Says," *The Globe and Mail*, May 19, 2021, <https://www.theglobeandmail.com/business/article-higher-energy-efficiency-rules-for-appliances-could-raise-costs/>.

<sup>3</sup> Public Works and Government Services Canada, "Canada Gazette, Part 1, Volume 157, Number 33: GOVERNMENT NOTICES," Government of Canada, August 19, 2023, <https://canadagazette.gc.ca/rp-pr/p1/2023/2023-08-19/html/notice-avis-eng.html>.

<sup>4</sup> U.S. Department of Energy, "2024-04-24 Energy Conservation Program: Energy Conservation Standards for Dishwashers; Direct Final Rule," *Regulations.gov*, April 24, 2024, <https://www.regulations.gov/document/EERE-2019-BT-STD-0039-0065>; U.S. Department of Energy, "Energy Conservation Program: Energy Conservation Standards for Refrigerators, Refrigerator-Freezers, and Freezers; Direct Final Rule," *Regulations.gov*, January 17, 2024, <https://www.regulations.gov/document/EERE-2017-BT-STD-0003-0116>.

<sup>5</sup> ENERGY STAR for residential dishwasher specification 7.0 that came into effect in 2023 has a higher MEPS than the U.S. DOE standard from 2027, so the previous ENERGY STAR dishwasher specification (6.0) would be an appropriate intermediate standard: U.S. Environmental Protection Agency, "Final Version 7.0 ENERGY STAR Residential Dishwasher Specification," July 18, 2022, <https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Version%207.0%20Residential%20Dishwasher%20Final%20Specification.pdf>; U.S. Department of Energy, "2024-04-24 Energy Conservation Program: Energy Conservation Standards for Dishwashers; Direct Final Rule"; ENERGY STAR, "Residential Dishwasher Specification Version 6.0," U.S. Department of Energy, April 29, 2015, [https://www.energystar.gov/products/spec/residential\\_dishwasher\\_specification\\_version\\_6\\_0\\_pd](https://www.energystar.gov/products/spec/residential_dishwasher_specification_version_6_0_pd).

<sup>6</sup> Justin Trudeau, "ARCHIVED - Minister of Natural Resources Mandate Letter," Prime Minister of Canada, December 12, 2019, <https://www.pm.gc.ca/en/mandate-letters/2019/12/13/archived-minister-natural-resources-mandate-letter>.

Additionally, we urge NRCan to strengthen the proposed efficiency standards for water heaters. The weak proposed standards for gas and oil water heaters are not compatible with the 40 to 45 per cent emissions reductions target in Canada's 2030 Emissions Reduction Plan.<sup>7</sup> Electric storage water heaters (ESWHs) is one of the only categories where NRCan has not proposed aligning with the U.S. DOE – This is a mistake. Since 2015, the U.S. has been a leader in ESWH efficiency standards, requiring all with a volume greater than 55 gallons (208 litres) employ heat pump technology, of which a typical model on the market can achieve efficiencies over 300 per cent.<sup>8</sup> Our colder climate has been a justification for Canada lagging on ESWH efficiency standards, however the Northwest Energy Efficiency Alliance (NEEA) has developed a “Northern” climate (Climate Zones 4 or colder) specification for heat pump water heaters to ensure efficiency is maintained at colder temperatures and maintains a qualified product list of models that work well in all climate zones of Canada.<sup>9</sup> NRCan should make aligning with the U.S. on ESWH efficiency standards a top priority.

In anticipation of Amendment 18 to Canada's Energy Efficiency Regulations, Efficiency Canada published the report [Advancing Canadian Appliance and Equipment Standards](#) in March 2024.<sup>10</sup>

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<sup>7</sup> Environment and Climate Change Canada, “2030 Emissions Reduction Plan: Canada's next Steps for Clean Air and a Strong Economy” (Ottawa, ON: Government of Canada, 2022), <https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/erp/Canada-2030-Emissions-Reduction-Plan-eng.pdf>.

<sup>8</sup> “Water Heaters,” ASAP Appliance Standards Awareness Project, accessed August 23, 2024, <https://appliance-standards.org/product/water-heaters>.

<sup>9</sup> Northwest Energy Efficiency Alliance, “Advanced Water Heating Specification,” Northwest Energy Efficiency Alliance (NEEA), July 15, 2024, <https://neea.org/resources/advanced-water-heating-specification>; Northwest Energy Efficiency Alliance, “Residential HPWH Qualified Product List for A Specification for Residential, Commercial - Multifamily, and Industrial Water Heaters and Heating Systems: Advanced Water Heating Specification (Version 8.1) Chapter 2: Residential Single Family (Unitary and Split-System) Water Heaters,” July 15, 2024, <https://neea.org/img/documents/residential-HPWH-qualified-products-list.pdf>.

<sup>10</sup> Sarah Riddell, “Advancing Canadian Appliance and Equipment Standards: A Comparison of Canadian, American and International Efficiency Standards in Anticipation of Amendment 18 to Canada's Energy Efficiency Regulations” (Ottawa, ON: Efficiency Canada, Carleton University, March 1, 2024), <https://www.energycanada.org/wp-content/uploads/2024/03/Advancing-Canadian-Appliance-and-Equipment-Standards-final.pdf>.

## Proposed amendments

(a) Introduce products into the regulations with associated requirements for energy efficiency standards, testing standards, verification, and provision of information

### Air compressors

We support the proposed introduction of air compressors as a regulated energy-using product and harmonizing energy efficiency and test standards with those of the United States.

### Faucets

We support the proposed harmonization of efficiency standards for metering faucets with current U.S. standards and with the state of California for non-metering faucets.

### Line-voltage thermostats

We support the proposed incorporation of the Canadian Standards Association (CSA) standard CSA C828-19 for line voltage thermostats.

### Pool pumps

We support the proposed harmonization with the current U.S. efficiency and testing standards for pool pumps.

### Showerheads

We support the proposed harmonization with California on showerhead efficiency standards and test procedures.



## (b) Expand the scope of some currently regulated products and introduce or update energy efficiency and testing standards

### Room air conditioners (Division 2, Subdivision A)

We support the proposed harmonization with the U.S. on efficiency standards and test procedures for room air conditioners.

Additionally, window (room) heat pumps are a nascent industry (particularly in Canada). Nevertheless, cold-climate window heat pumps that are now available in the U.S.<sup>11</sup> could be an essential energy and cost savings tool for Canadian renters, who would otherwise buy a window or portable air conditioner and/or have inefficient and costly oil or electric resistance heating that a cold-climate window heat pump unit could mostly offset. Policies supporting their manufacture in, or import into, Canada should be explored.

### Large air conditioners (Division 2, Subdivision B)

We support the proposed incorporation of the current U.S. testing standards and harmonization with tier 2 of the U.S. energy efficiency standards for large air conditioners.

### Single package central air conditioners (Division 2, Subdivisions D)

We support incorporating the new U.S. testing standard and new energy efficiency metrics for single-package central air conditioners.

Heat pumps are among the best technologies for reducing energy use and GHG emissions from space and water heating. A policy that could significantly increase heat pump adoption in Canada would be for the federal government to require

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<sup>11</sup> "Gradient Comfort | Window Air Conditioner with Heat Pump," Gradient, accessed August 6, 2024, <https://www.gradientcomfort.com/>.

every central air conditioner to be a heat pump.<sup>12</sup> The two appliances are fundamentally the same in that they transfer heat between indoor and outdoor spaces. With a couple of additional components, the heat pump can do so in both directions, providing heating and cooling.

A Vancouver, B.C. by-law requiring new central air conditioners in detached homes to also provide low-carbon heating (an electric heat pump) came into effect on January 1, 2023.<sup>13</sup> Given the slight price difference between equally efficient air conditioners and heat pumps and the impressive energy savings from the highly efficient heating in addition to the cooling provided, requiring air conditioners to provide both heating and cooling (a heat pump) is a quick win policy towards building decarbonization.

*The Cool Way to Heat Homes* report estimated that installing heat pumps instead of residential central air conditioners in Canada starting in 2025 would produce \$12.6 billion of net benefits by the end of 2035.

### Split system central air conditioners (Division 2, Subdivisions F)

While we support strengthening efficiency standards for split system central air conditioners, the proposed standards have higher minimum efficiency standards (measured in SEER2) for split system central heat pumps than central air conditioners for all product types. Due to the lower upfront cost of less efficient equipment, unequal standards for air conditioners and heat pumps further disadvantage heat pumps, an essential technology for decarbonizing Canada's buildings. NRCan should require that split system central conditioners and heat pumps with the same cooling capacity (Btu/hr) have the same minimum SEER2 requirements.

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<sup>12</sup> Alexander Gard-Murray et al., "The Cool Way to Heat Homes: Installing Heat Pumps Instead of Central Air Conditioners in Canada," *Building Decarbonization Alliance, Canadian Climate Institute, Efficiency Canada, Greenhouse Institute.*, August 2023.

<sup>13</sup> "Mechanical Permit," City of Vancouver, accessed August 6, 2024, <https://vancouver.ca/home-property-development/mechanical-permit.aspx>.



## Portable air conditioners (Division 2, Subdivision I)

We support the proposed introduction of efficiency standards for portable air conditioners and harmonization with the U.S. DOE for efficiency standards and test procedures.

## Large heat pumps (Division 3, Subdivision C)

We support the proposed harmonization with the U.S. testing and efficiency standards for large heat pumps.

## Single package central heat pumps (Division 3, Subdivisions E)

We support the proposed incorporation of the new U.S. testing standard, new energy efficiency metrics, and strengthened energy efficiency standards for single-package central heat pumps, aligning with the U.S.

## Split system central heat pumps (Division 3, Subdivisions G)

We support the proposed incorporation of the new U.S. testing standard, new energy efficiency metrics, and strengthened energy efficiency standards for split system central heat pumps, which align with the U.S.

## Gas furnaces (Division 4, Subdivision A)

We support the proposed addition of a definition for “space-constrained” to replace “through-the-wall” furnaces.

Space heating is the largest source of energy use and greenhouse gas emissions in Canadian buildings.<sup>14</sup>

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<sup>14</sup> Canada Energy Regulator, “Market Snapshot: Heat Pumps Could Significantly Reduce GHG Emissions from Canada’s Buildings,” Government Of Canada, May 17, 2024, <https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2023/market-snapshot-heat-pumps-could-significantly-reduce-ghg-emissions-from-canadas-buildings.html#>.



ENERGY STAR has proposed sunsetting certification for residential furnaces and air conditioners effective December 30, 2024.<sup>15</sup> The letter to stakeholders detailing the proposal states “the need for the ENERGY STAR label to serve as a market signal moving [...] towards energy efficient heat pumps”.

The federal government could also follow British Columbia’s lead by requiring a minimum efficiency of 100 per cent for space and hot water heating in 2030.<sup>16</sup> The 2030 timeline is important given the 15-20 year lifespan of furnaces and boilers, along with Canada’s net-zero by 2050 commitment.<sup>17</sup>

### Electric water heaters (Division 6, Subdivision A)

In Canada, water heating is second only to space heating in terms of residential energy use (17.2 per cent vs. 63.6 per cent) and greenhouse gas (GHG) emissions (21 per cent vs. 62 per cent).<sup>18</sup> Strong efficiency standards for water heating are essential for reducing energy bills and emissions. HPWHs use up to 70 per cent less electricity than standard electric resistance water heaters.<sup>19</sup>

Water heaters are one of the few categories of energy-using products for which NRCan is not proposing harmonizing with the United States,<sup>20</sup> with Canada’s colder climate, a common rationale. The Northwest Energy Efficiency Alliance (NEEA) has developed a Cool Climate Efficiency Test Procedure for HPWHs as part of their

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<sup>15</sup> Ann Bailey, “Letter to ENERGY STAR® Residential Heating and Cooling Equipment Partner or Other Interested Stakeholder,” May 18, 2023, Washington, D.C.: U.S. EPA, <https://www.energystar.gov/sites/default/files/asset/document/HVAC%20Sunset%20Letter.pdf>.

<sup>16</sup> Clean BC, “Highest Efficiency Equipment Standards Regulatory Consultation.”

<sup>17</sup> Environment and Climate Change Canada, “Net-Zero Emissions by 2050.”

<sup>18</sup> Natural Resources Canada, “Water Heaters,” Government Of Canada (Natural Resources Canada, June 6, 2022), <https://natural-resources.canada.ca/energy-efficiency/products/water-heaters/13735>; Calene Treichel and Cynthia A. Cruickshank, “Greenhouse Gas Emissions Analysis of Heat Pump Water Heaters Coupled with Air-Based Solar Thermal Collectors in Canada and the United States,” *Energy and Buildings* 231 (January 2021): 110594, <https://doi.org/10.1016/j.enbuild.2020.110594>.

<sup>19</sup> Natural Resources Canada, “Heat Pump Water Heaters,” Government Of Canada (Natural Resources Canada, January 17, 2024), <https://natural-resources.canada.ca/energy-efficiency/products/water-heaters/heat-pump-water-heaters/14556>.

<sup>20</sup> Natural Resources Canada, “Amendments to the Energy Efficiency Regulations, 2016,” Government of Canada, July 5, 2024, <https://natural-resources.canada.ca/transparency/acts-and-regulations/forward-regulatory-plan/amendments-the-energy-efficiency-regulations-2016/21709>.

Advanced Water Heating Specification, which ensures efficiency is maintained in “Northern” climates (Climate Zones 4 or colder).<sup>21</sup> NEEA maintains a qualified products list of HPWHs that meet these specifications, a significant number of which are available in Canada.<sup>22</sup>

Currently, in the United States, every new electric storage water heater over 55 gallons (208 litres) must employ heat pump technology, and from May 6, 2029, the threshold will be lowered to every electric storage water heater over 35 gallons (76 litres), excluding those that are grid-enabled.<sup>23</sup> NRCan should align with the U.S. Department of Energy’s (DOE) finalized efficiency standards for all electric storage heaters when they take effect in 2029. According to the U.S. DOE, replacing an electric resistance water heater with a HPWH meeting the new standards would save consumers, on average, approximately \$1,800 USD (~\$2400 CAD) on utility bills over the lifespan of the appliance.<sup>24</sup>

We support the introduction of the uniform energy factor (UEF) efficiency metric for electric water heaters.

### Gas-fired storage water heaters (Division 6, Subdivision B)

We support incorporating the current U.S. testing standard and updating the energy efficiency metric for gas-fired storage water heaters. However, it is disappointing that the proposed MEPS remain unchanged, given the significant contribution of water heating to residential energy use and GHG emissions. For a

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<sup>21</sup> Northwest Energy Efficiency Alliance, “Advanced Water Heating Specification.”

<sup>22</sup> Northwest Energy Efficiency Alliance, “Residential HPWH Qualified Product List for A Specification for Residential, Commercial - Multifamily, and Industrial Water Heaters and Heating Systems: Advanced Water Heating Specification (Version 8.1) Chapter 2: Residential Single Family (Unitary and Split-System) Water Heaters.”

<sup>23</sup> U.S Department of Energy, “Title 10 Chapter II Subchapter D Part 430 Subpart C § 430.32 Energy and Water Conservation Standards and Their Compliance Dates” (Code of Federal Regulations), accessed July 19, 2024, <https://www.ecfr.gov/current/title-10/chapter-II/subchapter-D/part-430/subpart-C/section-430.32>.

<sup>24</sup> “DOE Finalizes Efficiency Standards for Water Heaters to Save Americans Over \$7 Billion on Household Utility Bills Annually,” Energy.gov, April 30, 2024, <https://www.energy.gov/articles/doe-finalizes-efficiency-standards-water-heaters-save-americans-over-7-billion-household>.

fifty-gallon gas storage water heater, the proposed regulations would require a minimum uniform energy factor (UEF) of .56 (56 per cent efficiency).<sup>25</sup>

Gas storage water heaters can achieve an approximately 10 per cent efficiency improvement with inexpensive improvements such as adding flue dampers.<sup>26</sup>

ENERGY STAR requires a UEF of 0.81 for a 50-gallon capacity gas storage water heater, achievable with condensing technology.<sup>27</sup> There are currently 26 ENERGY STAR-certified gas storage water heater models currently available on the Canadian market.<sup>28</sup>

The federal government should require ENERGY STAR efficiency levels for gas storage water heaters as soon as possible and follow British Columbia's lead by requiring a minimum efficiency of 100 per cent for water heating by 2030, essential for meeting Canada's net-zero by 2050 targets.

### Oil-fired water heaters (Division 6, Subdivision C)

Fuel oil is Canada's highest emitting and most expensive water heating source. With clear cost and emissions savings from switching off oil, NRCan should set a date when new and replacement oil-fired water heaters can no longer be sold and installed in Canada. Given the high financial and environmental costs of fuel oil and the many alternatives, particularly heat pump water heaters, oil water heating should be phased out before 2030.

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<sup>25</sup> For a medium draw pattern: Natural Resources Canada, "Gas-Fired Storage Water Heaters - Technical Bulletin on Amending the Standards," Government Of Canada (Natural Resources Canada, July 2022), <https://natural-resources.canada.ca/energy-efficiency/energy-efficiency-regulations/gas-fired-storage-water-heaters/24411>.

<sup>26</sup> U.S Department of Energy, "Energy Conservation Program: Energy Conservation Standards for Consumer Water Heaters," *Federal Register* 89 (May 6, 2024): 37778–946.

<sup>27</sup> For a medium draw pattern: ENERGY STAR, "Water Heater Key Product Criteria," U.S. Environmental Protection Agency, accessed August 7, 2024, [https://www.energystar.gov/products/water\\_heaters/residential\\_water\\_heaters\\_key\\_product\\_criteria](https://www.energystar.gov/products/water_heaters/residential_water_heaters_key_product_criteria).

<sup>28</sup> ENERGY STAR, "Product Finder – ENERGY STAR Certified Gas Water Heaters," U.S. Environmental Protection Agency, accessed August 7, 2024, [https://www.energystar.gov/productfinder/product/certified-gas-water-heaters/results?page\\_number=0](https://www.energystar.gov/productfinder/product/certified-gas-water-heaters/results?page_number=0).

## Gas-fired instantaneous water heaters (Division 6, Subdivision D)

We support the proposed incorporation of the current U.S. testing standard for gas-fired instantaneous water heaters.

Instantaneous gas water heaters are about 30 per cent more energy efficient than gas storage water heaters, as storage water heaters must maintain the temperature of the water they store.<sup>29</sup> However, instantaneous gas water heaters emit significant unburnt methane, a potent GHG and indoor air pollutant, as their burners turn on and off every time hot water is consumed.<sup>30</sup> NRCan should introduce limits to the unburnt methane that an instantaneous water heater can emit to reduce GHG emissions and protect occupant health.

## General service lamps (Division 7, Subdivision B)

We support the proposed strengthening of minimum energy performance standards (MEPS) for general service lamps (GSL) to 45 lumens/watt (lm/W), aligned with the current U.S. standard, as well as consolidating existing regulatory categories of general service incandescent, modified spectrum incandescent, compact fluorescent (CFL), and general service incandescent reflector lamps into the broader GSL category.

However, it is disappointing that Canada is adopting the 45 lm/W standard at least three years after the U.S. did so in 2022.<sup>31</sup> The U.S. has issued a final rule on energy conservation standards for GSL ranging from 83.3 - 195.4 lm/W for common lumen lamps, depending on the product class, with compliance starting July 25, 2028.<sup>32</sup> The U.S. DOE estimates the new standards represent a 17 per cent

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<sup>29</sup> Natural Resources Canada, "Tankless Water Heaters," Government of Canada (Natural Resources Canada, May 11, 2018), <https://natural-resources.canada.ca/energy-efficiency/products/water-heaters/tankless/14541>.

<sup>30</sup> Pierre Delforge, "The Methane Math for Gas Tankless Water Heaters," NRDC, September 24, 2020, <https://www.nrdc.org/bio/pierre-delforge/methane-math-gas-tankless-water-heaters>.

<sup>31</sup> "Biden Administration Implements New Cost-Saving Energy Efficiency Standards for Light Bulbs," Energy.gov, April 26, 2022, <https://www.energy.gov/articles/biden-administration-implements-new-cost-saving-energy-efficiency-standards-light-bulbs>.

<sup>32</sup> U.S Department of Energy, "Energy Conservation Program: Energy Conservation Standards for General Service Lamps," 6450-01-P, April 9, 2024, <https://www.energy.gov/sites/default/files/2024-04/gsl-fr-newd.pdf>.

energy savings relative to the current U.S. MEPS. NRCan should align with the U.S. DOE standards for GSLs in 2028.

