Amendment 19 to Canada's Energy Efficiency Regulations Pre-Consultation Comment Submissions - Consolidated

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c/o Carleton University

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Efficiency Canada
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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Computer Room Air Conditioners

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
Ottawa, ON, K1A 0E4

Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on Computer Room Air Conditioners (CRACs).

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.

We support the proposed introduction of CRACs as regulated energy-using products and the harmonization of energy efficiency and test standards with those of the United States.

The current U.S. standard came into effect May 28, 2024, and is equivalent to the American Society of Heating, Refrigerating and Air-Conditioning Engineers

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(ASHRAE) Standard 90.1-2019.[1] The standard also introduced a new cooling energy efficiency metric, the net sensible coefficient of performance (NSenCOP), which is expressed as the net sensible cooling capacity (KW) divided by the power input (KW).[2]

Stringent efficiency standards for CRACs are essential given the increasing number and size of data centres in Canada, due in part to the rise of cloud computing, artificial intelligence, and machine learning.[3]

Thank you for considering these comments.

Sincerely,

Sarah Riddell
Policy Research Associate
Efficiency Canada

[1] U.S. Department of Energy, "Energy Conservation Program: Standards for Computer Room Air Conditioners; Final Rule," Regulations.gov, June 2, 2023, https://www.regulations.gov/document/EERE-2020-BT-STD-0008-0015.

[2] "Computer Room Air Conditioners," ASAP | Appliance Standards Awareness Project, accessed July 8, 2024, https://appliance-standards.org/product/computer-room-air-conditioners.

[3] "Canada | Data Center Market Overview," Cloudscene, accessed July 8, 2024, https://cloudscene.com/market/data-centers-in-canada/all#; Business Wire, "Canada Data Center Market Investment Analysis Report 2024: Investments of $9.04 Billion by 2029, Growing at a CAGR of 10.26% during 2023-2029," Financial Post, March 1, 2024, https://financialpost.com/pmn/business-wire-news-releases-pmn/canada-data-center-market-investment-analysis-report-2024-investments-of-9-04-billion-by-2029-growing-at-a-cagr-of-10-26-during-2023-2029-researchandmarkets-com; Danny Kucharsky, "Canada's Data Centre Market to Grow 'in a Big Way': Cologix President," accessed July 8, 2024, https://renx.ca/canadas-data-centre-market-to-grow-in-a-big-way-cologix-president.

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Pool Heaters and Pool Pump Motors

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
Ottawa, ON, K1A 0E4

Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on Pool Heaters and Pool Pump Motors.

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.

We support the proposed introduction of pool heaters and pool pump motors as regulated energy-using products and the harmonization of energy efficiency and test standards with those of the United States.

Inefficient pool heaters and pumps can use a significant amount of energy, resulting in high utility bills. For example, ENERGY STAR® estimates that an average outdoor recreational pool (20 x 15 yards) consumes 117 GJ/year, often

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costing several thousand dollars to heat annually.[4] The U.S. DOE estimates that an average heat pump pool heater (at 85 F or 29.4 C) can save up to $400 per year in energy costs.[5]

Adoption of the proposed pool pump motor standards will help ensure replacement motors for pool pumps meet the same efficiency levels as those that are part of new pumps. Canada should introduce strong efficiency standards for these products to eliminate the least efficient models from the market.[6]

Additionally, NRCan should consider aligning with the U.S. Department of Energy's (DOE) current standard of 82 per cent minimum thermal efficiency for gas-fired pool heaters in 2026 and maintaining alignment in 2028 when the strengthened standards for gas and new standards for electric pool heaters come into force.

Thank you for considering these comments.

Sincerely,

Sarah Riddell
Policy Research Associate
Efficiency Canada

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[4] "Swimming Pools and the ENERGY STAR Score in the United States and Canada" (ENERGY STAR Portfolio Manager, August 2018), https://natural-resources.canada.ca/sites/nrcan/files/energy/pdf/benchmarking-rendement/18-00775%20Swimming_Pool_August_2018_EN_for_NRCan-nov_13.pdf; With the average electricity rate in Canada (excluding the territories) at $0.155/kWh, this translates to roughly $5,000 per pool per year, on average, if using an electric pool heater: Rylan Urban, "Electricity Prices in Canada 2023," energyhub.org (Rylan Urban, September 2023), https://www.energyhub.org/electricity-prices/.

[5] U.S. Department of Energy, "Heat Pump Swimming Pool Heaters," Energy.gov, accessed July 9, 2024, https://www.energy.gov/energysaver/heat-pump-swimming-pool-heaters.

[6] Natural Resources Canada, "Pool Pumps," Government Of Canada (Natural Resources Canada, April 4, 2019), https://natural-resources.canada.ca/energy/products/categories/other/pool-pump/14005; U.S. Department of Energy, "Heat Pump Swimming Pool Heaters."

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Uninterruptible Power Supplies

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
Ottawa, ON, K1A 0E4

Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on uninterruptible power supplies (UPS).

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.

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

The U.S. standards came into effect January 10, 2022, reducing the energy consumption of the most common types of UPS by 40-50 per cent.[7]

[7] "Uninterruptible Power Supplies," ASAP Appliance Standards Awareness Project, accessed July 9, 2024, https://appliance-standards.org/product/uninterruptible-power-supplies.

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Thank you for considering these comments.

Sincerely,

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Heat Pump Water Heaters

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
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Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on water heaters.

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.

While we support strong efficiency standards for water heaters, we do not support the proposal to create separate standards for heat pump water heaters (HPWHs).

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).[8] Strong efficiency standards for water heating are

[8] 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

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essential for reducing energy bills and emissions. HPWHs use up to 70 per cent less electricity than standard electric resistance water heaters.[9] Creating a separate, higher efficiency standard for HPWHs discourages the development of less expensive, mass-market HPWHs that would be affordable for more Canadians. Given the higher upfront equipment and installation costs of HPWHs and the discontinuation of the $1,000 rebate for ENERGY STAR® HPWHs through the Greener Homes Grant,[10] a minimum energy performance standard (MEPS) solely for HPWHs could eliminate the least expensive models from the market, hampering their adoption. At the same time, far less efficient oil, gas, and electric resistance water heaters would still be on the market.

Water heaters are one of the few categories of energy-using products for which NRCan is not proposing harmonizing with the United States, with Canada's colder climate, a common rationale.[11] The Northwest Energy Efficiency Alliance (NEEA) has developed a Cool Climate Efficiency Test Procedure for HPWHs as part of their Advanced Water Heating Specification, which ensures efficiency is maintained in "Northern" climates (Climate Zones 4 or colder).[12] NEEA maintains a qualified products list of HPWHs that meet these specifications, a significant number of which are available in Canada.[13]

United States," *Energy and Buildings* 231 (January 2021): 110594, https://doi.org/10.1016/j.enbuild.2020.110594.

[9] 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.

[10] Natural Resources Canada, "Eligible Retrofits and Grant Amounts," Government Of Canada (Natural Resources Canada, June 24, 2024), https://natural-resources.canada.ca/energy-efficiency/homes/canada-greener-homes-grant/start-your-energy-efficient-retrofits/plan-document-and-complete-your-home-retrofits/eligible-grants-for-my-home-retrofit/23504.

[11] 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.

[12] Northwest Energy Efficiency Alliance, "Advanced Water Heating Specification," Northwest Energy Efficiency Alliance (NEEA), July 15, 2024, https://neea.org/resources/advanced-water-heating-specification.

[13] Northwest Energy Efficiency Alliance, "Residential HPWH Qualified Product List for A Specification for Residential, Commercial - Multifamily, and Industrial Water Heaters and Heating

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Currently, in the United States, all electric storage water heaters over 55 gallons (208 litres) must employ heat pump technology, and from May 6, 2029, the threshold will be lowered to all electric storage water heaters over 35 gallons (76 litres), excluding those that are grid-enabled.[14] NRCan should align with the U.S. Department of Energy's (DOE) finalised 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.[15]

HPWHs are a highly efficient technology that should not be siloed from other ESWHs in Canada's Energy Efficiency Regulations.

Thank you for considering these comments.

Sincerely,

Sarah Riddell
Policy Research Associate
Efficiency Canada

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.

[14] 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.

[15] "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.

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Air Cleaners

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
Ottawa, ON, K1A 0E4

Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on Air Cleaners.

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.

We support the proposed introduction of air cleaners as regulated energy-using products and the harmonization of energy efficiency and test standards with those of the United States.

The U.S. standards for air cleaners were finalized in 2023 from a consensus agreement between energy advocates and manufacturers and represent energy savings of nine to 40 per cent, depending on the product category, relative to the least efficient models on the market when the standards were established.[16]

[16] "Air Cleaners," ASAP Appliance Standards Awareness Project, accessed July 8, 2024, https://appliance-standards.org/product/air-cleaners.

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As air cleaners have gained in popularity and necessity due to the COVID-19 pandemic and air pollution from increasing wildfires, introducing strong minimum energy performance standards (MEPS) for air cleaners in Canada is essential.

Thank you for considering these comments.

Sincerely,

Sarah Riddell
Policy Research Associate
Efficiency Canada

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Commercial Gas- and Oil-Fired Furnaces

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
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Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on commercial gas- and oil-fired furnaces.

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.

While we support aligning testing standards for commercial gas- and oil-fired furnaces with those of the U.S. Department of Energy (DOE), we urge NRCan to adopt more robust efficiency standards than the 81 per cent minimum thermal efficiency (MTE) for commercial gas furnaces and 82 per cent MTE for commercial oil furnaces proposed in the amendment.

Given Canada's colder climate, higher efficiency standards for space heating can generate impressive energy and cost savings and reduce greenhouse gas (GHG) emissions. We urge NRCan to show the leadership in commercial furnaces, which

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has been demonstrated in residential gas furnaces, with a minimum 95 per cent annualized fuel utilization efficiency (AFUE) for residential gas furnaces regulated in Canada almost a decade before the U.S.[17]

Condensing commercial gas furnaces offer considerable energy cost savings.[18] Based on our research and discussions with expert stakeholders, NRCan should consider requiring a minimum thermal efficiency of 90 per cent (condensing) for *non-rooftop* commercial gas furnaces and 85 per cent for all oil-fired commercial furnaces and *rooftop* commercial gas furnaces.

This is in line with Amendment 15 to the Energy Efficiency Regulations that requires new commercial gas boilers to have a MTE of 90 per cent from January 1, 2025.[19]

Despite the higher upfront cost of condensing rooftop units (RTUs), they generally have lifespans of 25-30 years, compared to the 15 years of standard RTUs, as they are constructed with more durable materials.[20]

We support the proposed incorporation of the new Thermal Efficiency Two (TE2) metric into the testing standard, which captures jacket losses and part-load

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[17] Natural Resources Canada, "Gas Furnaces - Energy Efficiency Regulations," Government Of Canada (Natural Resources Canada, December 12, 2019), https://natural-resources.canada.ca/energy-efficiency/energy-efficiency-regulations/guide-canadas-energy-efficiency-regulations/gas-furnaces/6879; U.S. Department of Energy, "DOE Finalizes Energy Efficiency Standards for Residential Furnaces to Save Americans $1.5 Billion In Annual Utility Bills," Energy.gov, September 29, 2023, https://www.energy.gov/articles/doe-finalizes-energy-efficiency-standards-residential-furnaces-save-americans-15-billion.

[18] Daniel Knapp, "Condensing Rooftop Units – A Canadian Cost-Benefit Study," in *eSim 2018, the 10th Conference of IBPSA-Canada* (Montreal, QC, 2018), https://publications.ibpsa.org/proceedings/esim/2018/papers/esim2018_1-3-B-4.pdf.

[19] Excluding those intended for low pressure steam systems: Government Of Canada, "Regulations Amending the Energy Efficiency Regulations, 2016 (Amendment 15): SOR/2019-164," Government Of Canada, June 3, 2019, https://www.gazette.gc.ca/rp-pr/p2/2019/2019-06-12/html/sor-dors164-eng.html.

[20] Knapp, "Condensing Rooftop Units – A Canadian Cost-Benefit Study."

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operation in addition to the flue losses that were solely considered by the previous metric.[21]

Outside of what is being proposed in Amendment 19, as more than 96 per cent of Canadian buildings' operating emissions are due to burning fossil fuels for space and water heating, the federal government must set a regulatory pathway for phasing out fossil fuels for space and water heating in accordance with Canada's net-zero by 2050 commitments.[22] For example, NRCan should consider requiring at least 100 per cent efficiency for space and hot water heating by 2030, as in British Columbia's proposed Highest Efficiency Equipment Standards Regulation,[23] rather than continuing to set separate efficiency standards for different heating system fuel types.

Thank you for considering these comments.

Sincerely,

Sarah Riddell
Policy Research Associate
Efficiency Canada

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[21] "Commercial Warm Air Furnaces," ASAP Appliance Standards Awareness Project, accessed August 16, 2024, https://appliance-standards.org/product/commercial-warm-air-furnaces#.

[22] Government Of Canada, "The Canada Green Buildings Strategy: Transforming Canada's Buildings Sector for a Net-Zero and Resilient Future," July 2024, https://natural-resources.canada.ca/transparency/reporting-and-accountability/plans-and-performance-reports/departmental-strategies/the-canada-green-buildings-strategy-transforming-canadas-buildings-sector-for-net-zer/26065; Environment and Climate Change Canada, "Net-Zero Emissions by 2050," Government Of Canada, May 17, 2024, https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/net-zero-emissions-2050.html.

[23] Clean BC, "Highest Efficiency Equipment Standards Regulatory Consultation," December 22, 2023, https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/electricity-alternative-energy/energy-efficiency/highest_efficiency_equipment_standards_-_consultation.pdf.

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Energy- and Heat-Recovery Ventilators

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
Ottawa, ON, K1A 0E4

Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on Heat-Recovery Ventilators (HRVs) and Energy-Recovery Ventilators (ERVs) (H/ERVs).

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.

We support the proposed energy efficiency and testing standards for H/ERVs.

H/ERVs provide fresh indoor air while recovering energy from outgoing stale air and are essential for airtight buildings to maintain indoor air quality.

Thank you for considering these comments.

Sincerely,

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Sarah Riddell
Policy Research Associate
Efficiency Canada

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Ground-Source Heat Pumps

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
Ottawa, ON, K1A 0E4

Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on ground-source heat pumps (GSHPs).

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.

GSHPs are a vital tool for decarbonizing heating and cooling in Canadian buildings. They have lower peak electrical demands than other electric heating sources.

We support NRCan's proposal to align federal energy efficiency and testing standards for water-to-water, water-to-air, and direct-exchange GSHPs with those of Ontario.

Thank you for considering these comments.

Sincerely,

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Sarah Riddell
Policy Research Associate
Efficiency Canada

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Manufactured Fenestration Products

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
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Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on manufactured fenestration products (windows, doors, and skylights).

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.

While we support the proposed introduction of labelling and reporting requirements and the proposed testing standards to be referenced, the regulation's lack of energy efficiency standards is highly disappointing.

Windows, doors and skylights are the source of up to 25 per cent of home energy losses.[24] There are also many benefits to high-performance windows, doors, and skylights beyond energy savings — greater comfort, noise reduction, improved

[24] Natural Resources Canada, "Windows, Doors and Skylights," Government Of Canada (Natural Resources Canada, February 20, 2023), https://natural-resources.canada.ca/energy-efficiency/products/windows-doors-and-skylights/13739.

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indoor air quality by reducing pollutants that can enter (increasingly essential with increased wildfires due to climate change) and reduced condensation - therefore lowering the risk of mould growth and the associated health impacts.[25]

Since 2000, more than 1200 Canadians have died due to overheating.[26] Windows, doors and skylights with a low solar heat gain coefficient (how much of the sun's heat passes through) can significantly reduce the risk of overheating.[27]

High-efficiency ENERGY STAR®-certified fenestration products make buildings more affordable to heat and cool and reduce peak heating and cooling demand, lowering the cost of electrification, a vital component of Canada reaching net-zero emissions by 2050.[28]

We urge NRCan to adopt the ENERGY STAR®-specification for manufactured fenestration products as a minimum energy performance standard (MEPS) for all categories of products for which ENERGY STAR certification exists.[29]

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[25] Natural Resources Canada, "Improving Window Energy Efficiency," Government Of Canada, 2011, https://natural-resources.canada.ca/sites/nrcan/files/energy/pdf/energystar/IWEE_EN.pdf; Michael Tobias, "How to Keep Wildfire Smoke out of Homes with HRV, ERV & Aircon," ecoHime, June 24, 2023, https://www.ecohome.net/guides/3409/how-to-stop-smoke-from-wildfires-getting-in-homes/.

[26] Matthew Quick, "The Impacts of Extreme Heat Events on Non-Accidental, Cardiovascular, and Respiratory Mortality: An Analysis of 12 Canadian Cities from 2000 to 2020," Health Reports (Statistics Canada, June 19, 2024), https://www.doi.org/10.25318/82-003-x202400600001-eng; Science and Innovation Canada, "Surviving the Heat: The Impacts of the 2021 Western Heat Dome in Canada," Government Of Canada (Innovation, Science and Economic Development Canada, June 26, 2022), https://science.gc.ca/site/science/en/blogs/science-health/surviving-heat-impacts-2021-western-heat-dome-canada.

[27] "Proposed Change 1823 to the National Building Code of Canada 2020," NBC20 Div.B 9.36.2.7. (first printing); NBC20 Div.B 9.36.5.3. (first printing); NBC20 Div.B 9.36.7.3. (first printing) § Fenestration (2023), https://cbhcc-cchcc.ca/eng/public-review/2023_2/pcfs/nbc20_divb_09.36.02.07._001823.html.

[28] Mike Specian, "Weatherization Is Key to Effective, Low-Cost Building Electrification," *ACEEE* (blog), June 14, 2023, https://www.aceee.org/blog-post/2023/06/weatherization-key-effective-low-cost-building-electrification; Canada Energy Regulator, "CER – Towards Net-Zero: Electricity Scenarios," Government Of Canada, November 29, 2023, https://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2021/towards-net-zero.html.

[29] Natural Resources Canada, "Ratings and Certification," Government Of Canada (Natural Resources Canada, April 8, 2022), https://natural-resources.canada.ca/energy-efficiency/products/windows-doors-and-skylights/rating-criteria-and-standards/13978; Natural Resources Canada, "Windows, Doors and Skylights – ENERGY STAR Canada Technical Specification," Government Of Canada (Natural Resources Canada, January 1, 2020), https://natural-resources.canada.ca/energy-efficiency/energy-star-canada/about/participant-

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ENERGY STAR also has a higher performance "Most Efficient" specification for windows and sliding glass doors that would still serve the purpose of the ENERGY STAR label of signalling more efficient products on the market.[30]

Given the urgency of addressing climate change and the long (20-50 year) lifespans of manufactured fenestration products, Canada cannot afford to wait to set MEPS for windows, doors, and skylights, let alone waiting until 2028 for enforcement of just the proposed labelling and reporting requirements.[31]

Thank you for considering these comments.

Sincerely,

Sarah Riddell
Policy Research Associate
Efficiency Canada

resources/technical-specifications/windows-doors-and-skylights-energy-starr-canada-proposed-technical-specification-draf/20950.

[30] Natural Resources Canada, "Most Efficient Criteria for Windows and Sliding Glass Doors 2024," Government Of Canada (Natural Resources Canada, January 22, 2024), https://natural-resources.canada.ca/energy-efficiency/energy-star-canada/about/energy-star-most-efficient/most-efficient-criteria-windows-sliding-glass-doors-2024/21209.

[31] "The Lifespan and Efficiency of Windows," JELD-WEN Windows & Doors, October 26, 2023, https://www.jeld-wen.ca/en-ca/blogs/the-lifespan-and-efficiency-of-windows; "Types of Windows and Their Lifespan," *HTR Windows and Doors* (blog), November 8, 2023, https://htrwindows.ca/types-of-windows-and-their-lifespan/.

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Electric Motors

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
Ottawa, ON, K1A 0E4

Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on electric motors.

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.

We support the proposed harmonization of energy efficiency and test standards for electric motors with those of the United States.[32] These proposed standards, however, could achieve far more significant energy savings by incorporating a requirement for variable frequency drives (VFDs) on electric motors.[33]

[32] The U.S. standards for electric motors were finalized by the DOE in 2023 from joint recommendations by efficiency advocates and motor manufacturers for June 1, 2027 compliance. See "Electric Motors," ASAP Appliance Standards Awareness Project, accessed July 9, 2024, https://appliance-standards.org/product/electric-motors.

[33] "Electric Motors."

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VFDs are a type of motor controller that can vary the frequency and voltage supplied to the motor.[34] The higher the frequency, the faster the motor operates. A VFD can ramp down the motor's speed to better match the needed output rather than always running at full speed.[35] The U.S. Lawrence Berkeley National Laboratory (LBNL) estimates that VFDs would reduce the energy consumption of motor systems by 11 per cent in the United States, with reductions as high as 29 per cent in pump applications.[36]

Since 2009, the European Union has required less efficient IE2 motors be paired with VFDs, as part of their Ecodesign regulations: "all motors with a rated output of 0.75-375 kW shall not be less efficient than the IE3 efficiency level [...] or meet the IE2 efficiency level [...] and be equipped with a variable speed drive."[37]

Given that, globally, motors represent 74 per cent of industrial electricity consumption, in addition to the proposed standards, NRCan could significantly advance industrial energy efficiency by requiring the use of a VFD when an electric motor is installed or replaced.[38]

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[34] Craig Hartman, "What Is a Variable Frequency Drive?," VFDs.com, March 20, 2014, https://vfds.com/blog/what-is-a-vfd/.

[35] Prakash Rao et al., "U.S. Industrial and Commercial Motor System Market Assessment Report. Volume 3: Energy Saving Opportunity" (Lawrence Berkeley National Lab. (LBNL), Berkeley, CA (United States), July 18, 2022), https://doi.org/10.2172/1876861.

[36] Alex Newkirk, Prakash Rao, and Paul Sheaffer, "U.S. Industrial and Commercial Motor System Market Assessment Report Volume 2: Advanced Motors and Drives Supply Chain Review" (Lawrence Berkeley National Lab. (LBNL), Berkeley, CA (United States), June 1, 2021), https://doi.org/10.2172/1822412.

[37] "Commission Regulation (EC) No 640/2009 of 22 July 2009 Implementing Directive 2005/32/EC of the European Parliament and of the Council with Regard to Ecodesign Requirements for Electric Motors (Text with EEA Relevance)," 191 OJ L § (2009), http://data.europa.eu/eli/reg/2009/640/oj/eng.

[38] Rita Werle, "International Energy Agency Technology Collaboration Programme 4E Energy Efficient End-Use Equipment EMSA Electric Motor Systems Annex" (IEA's 7th Annual Global Conference on Energy Efficiency Appliance Policy Event: Motor Systems, Sønderborg, Denmark, June 7, 2022), https://www.iea-4e.org/wp-content/uploads/2022/06/IEA_Global_EE_conf_2022_final.pdf.

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Thank you for considering these comments.

Sincerely,

Sarah Riddell
Policy Research Associate
Efficiency Canada

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations - Televisions

September 13, 2024

Dean Haslip
Natural Resources Canada
Office of Energy Efficiency
580 Booth Street
Ottawa, ON, K1A 0E4

Dear Mr. Haslip,

This letter constitutes Efficiency Canada's comments on the Natural Resources Canada (NRCan) May 2024 technical bulletin on televisions (TVs).

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.

While we support aligning test procedures for television energy efficiency with those of the United States (U.S.) Department of Energy (DOE), with increasingly bigger, higher-definition, internet-connected "smart" TVs on the Canadian market and the resulting higher energy consumption, we urge NRCan to set strong minimum energy performance standards (MEPS) for smart TVs in addition to mandatory EnerGuide labelling.

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Electricity consumption from plug-in consumer electronics, including TVs, increased by more than 200 per cent in Canada between 1990 and 2017.[39] According to a 2023 study, an estimated 61 per cent of Canadian adults have at least one connected or smart TV in their home.[40]

Several leading TV manufacturers have signed onto a voluntary agreement committing to at least 90 percent of TVs sold in Canada or the U.S., in each reporting period, to a standby mode power of less than or equal to 2.0 watts, from March 1st, 2026 onwards.[41] The voluntary agreement for the U.S. and Canada mirrors the European Union (EU) Ecodesign for Electronic Displays that has been in effect since 2021.[42]

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[39] Natural Resources Canada, "Electronics," Government Of Canada (Natural Resources Canada, August 21, 2024), https://natural-resources.canada.ca/energy-efficiency/products/electronics/13710.

[40] Patti Summerfield, "Streaming, Connected TV Ownership Continues to Rise," *Media in Canada* (blog), January 20, 2023, https://mediaincanada.com/2023/01/20/streaming-connected-tv-ownership-continues-to-rise/.

[41] Ed Frank and Laura Ambrosio, "TV Energy Efficiency Agreement," Consumer Technology Association, January 6, 2023, https://cdn.cta.tech/cta/media/media/advocacy/pdfs/tv-va-1-6-23-final.pdf; "VOLUNTARY AGREEMENT FOR ONGOING IMPROVEMENT TO THE ENERGY EFFICIENCY OF TELEVISIONS" (Consumer Technology Association, 2023), https://cdn.cta.tech/cta/media/media/advocacy/pdfs/tv-va-1-6-23-final.pdf?_gl=1*1yi2mo5*_gcl_au*MjA5Nzg0OTc5Ni4xNzI0MDcxMzMx*_ga*MTAzNTM2MDk1NC4xNzI0MDcxMzMx*_ga_5P7N8TBME7*MTcyNDM1OTQxNi4zLjEuMTcyNDM1OTU0Mi42MC4wLjA.&_ga=2.120504840.1484546217.1724359416-1035360954.1724071331.

[42] Table 2: European Commission, "Commission Regulation (EU) 2019/2021 of 1 October 2019 Laying down Ecodesign Requirements for Electronic Displays Pursuant to Directive 2009/125/EC of the European Parliament and of the Council, Amending Commission Regulation (EC) No 1275/2008 and Repealing Commission Regulation (EC) No 642/2009," *Official Journal of the European Union*, October 1, 2019.

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Power demand limits other than on-mode, in Watts	Off mode	Standby mode	Networked standby mode
Maximum Limits	0, 30	0, 50	2,00
Allowances for additional functions when present and enabled			
Status display	0, 0	0, 20	0, 20
Deactivation using room presence detection	0, 0	0, 50	0, 50
Touch functionality, if usable for activation	0, 0	1, 00	1, 00
HiNA function	0, 0	0, 0	4, 00
Total maximum power demand with all additional functions when present and enabled	*0, 30*	*2,20*	*7, 70*

Table 1. EU Ecodesign energy efficiency requirements for televisions.

Given the high, but not 100 percent, manufacturer signatory rate of the voluntary agreement,[43] and the necessity of strong efficiency standards for TVs, NRCan should consider aligning with the EU Ecodesign for electronic displays that have been in effect since 2021, for 2026 enforcement. This would ensure that all TVs sold in Canada are efficient, creating a level playing field for manufacturers who have or have not signed onto the voluntary agreement.

Outside the scope of this amendment, the 2021 EU Ecodesign for Electronic Displays regulations also include requirements that improve the repairability of TVs.[44] As part of the modernization of Canada's Energy Efficiency Act that was

[43] Industry experts we spoke to who are involved in the process estimated share of manufacturers that are currently signatories is 70-80%.

[44] EU Directorate-General for Energy, "TV and Electronic Displays - Ecodesign Requirements," European Commission, accessed August 22, 2024, https://energy-efficient-products.ec.europa.eu/ecodesign-and-energy-label/product-list/tv-and-electronic-displays_en.

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announced in the Canada Green Buildings Strategy,[45] NRCan should consider including repairability requirements for consumer appliances and equipment including TVs.

Thank you for considering these comments.

Sincerely,

Sarah Riddell
Policy Research Associate
Efficiency Canada

[45] Government Of Canada, "The Canada Green Buildings Strategy: Transforming Canada's Buildings Sector for a Net-Zero and Resilient Future," July 2024, https://natural-resources.canada.ca/transparency/reporting-and-accountability/plans-and-performance-reports/departmental-strategies/the-canada-green-buildings-strategy-transforming-canadas-buildings-sector-for-net-zer/26065.

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Re: Pre-Consultation for Amendment 19 to Canada's Energy Efficiency Regulations — Cooking Products

November 30, 2024

Ben Copp
Natural Resources Canada
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580 Booth Street
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Dear Mr. Copp,

This letter constitutes Efficiency Canada's comments on the November 2024 technical bulletin on cooking products issued by Natural Resources Canada (NRCan).

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.

While we support aligning with the U.S. Department of Energy's (DOE) energy efficiency standards for electric smooth element and gas cooktops and prohibiting linear power supplies for oven control systems, we do not support removing energy efficiency standards for electric coil cooktops or the EnerGuide label for electric cooktops and ovens.

As electric coil cooktops have the lowest upfront cost, they are common in rental and low-income housing. Omitting them from efficiency standards could, therefore, worsen energy burdens. NRCan should require electric coil cooktops to have the same minimum energy performance standard (MEPS) as smooth element models,

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207 kWh/year, to protect renters and low-income households — who are the most likely to have electric coil cooktops in their homes — from the high energy costs associated with inefficient appliances.

The EnerGuide label provides essential information for consumers to make informed purchasing decisions. NRCan should expand the categories of appliances and equipment for which the EnerGuide label is required and introduce digital labelling to reflect the growing number of appliances purchased online (where the EnerGuide label is presently not required). Removing the EnerGuide label from cooking products would make it more challenging for consumers to estimate the lifecycle costs of a major appliance, thereby increasing the likelihood of purchasing an inefficient model with a lower upfront cost but significantly higher costs over its 10+ year lifespan.

Given Canada's commitment to doubling annual energy efficiency improvements by 2030,[46] we urge NRCan to align only with the U.S. DOE appliance and equipment energy efficiency and labelling regulations when doing so strengthens Canadian standards. Furthermore, NRCan should set a 2030 deadline for new gas ranges, stoves and ovens to no longer be sold in Canada. This is particularly important, given the upwards of 20-year lifespan of these appliances, to align with Canada's net-zero emissions by 2050 commitments and gas cooking appliances' significant contribution to indoor air pollution.[47]

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[46] Environment and Climate Change Canada, "Canada Contributes to Historic Outcomes on Climate Ambition and Clean Energy at COP28," Government of Canada, December 13, 2023, https://www.canada.ca/en/environment-climate-change/news/2023/12/canada-contributes-to-historic-outcomes-on-climate-ambition-and-clean-energy-at-cop28.html.

[47] Lebel, E. D., C. J. Finnegan, Z. Ouyang, and R. B. Jackson. "Methane and NOx Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential Homes." Environmental Science & Technology 56, no. 4 (January 27, 2022): 2529–39. https://doi.org/10.1021/acs.est.1c04707; Seals, B. "Reality Check: Gas Stoves Are a Health and Climate Problem." RMI, February 15, 2023, https://rmi.org/gas-stoves-health-climate-asthma-risk; CLASP, and European Public Health Alliance. "Press Release: Gas Cookers Regularly Breach Air Pollution Limits." CLASP, April 10, 2023. https://www.clasp.ngo/updates/eu-gas-cooking-health/.

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Thank you for considering these comments.

Sincerely,

Sarah Riddell
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