

HOUSEHOLD APPLIANCES

REGULATORY PROPOSAL

PREPARED BY:

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BC MINISTRY OF ENERGY AND MINES

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JANUARY 2014

PLEASE SUBMIT COMMENTS BY MARCH 17, 2014

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SCOPE AND REQUIREMENTS¹

<p>TYPE OF DEVICE</p>	<p>Residential Clothes Washers</p> <p>Residential Refrigerators</p> <p>Residential Freezers</p> <p>Residential Dishwashers</p> <p>The proposed standards are fully harmonized with U.S. DOE standards. The Province of Ontario held consultations in summer 2013 to adopt the same standards for household appliances as proposed in this regulatory impact statement.</p>
<p>PROPOSED ENERGY PERFORMANCE STANDARD</p> <p>CLOTHES WASHERS</p>	<p>CLOTHES WASHERS:</p> <p>The proposed amendment would update test methods and increase energy efficiency standards for residential electric clothes washers. This would harmonize with the new ‘tier 1’ and ‘tier 2’ requirements for residential electric clothes washers that will come into force under the existing U.S. DOE regulation on March 7, 2015 and January 1, 2018 respectively. The proposed effective dates for BC are identical to the US dates.</p> <hr/> <p>CSA TEST STANDARD</p> <p>CAN/CSA C360-13: <i>Energy performance, water consumption and capacity of household clothes washers</i></p>

¹ This Regulatory Proposal is to be considered a “specified proposal” for the purposes of special treatment under section 4(1.4)(b) of the Demand Side Measures Regulation.

<p>PROPOSED ENERGY PERFORMANCE STANDARD</p> <p>REFRIGERATORS AND FREEZERS</p>	<p>REFRIGERATORS AND REFRIGERATOR-FREEZERS:</p> <p>The proposed amendment would update test methods and increase energy efficiency standards for residential refrigerators or refrigerator-freezers, with a maximum capacity of 1,100 litres. The standard would harmonize with the requirements for residential refrigerators or refrigerator-freezers that will come into force under the existing U.S. DOE regulation on September 15, 2014. The proposed effective date for BC is identical to the US date.</p> <hr/> <p>FREEZER:</p> <p>The proposed amendment would update test methods and increase energy efficiency standards for residential freezers. The new standard would harmonize with the requirements for residential freezers that that will come into force under the existing U.S. DOE regulation on September 14, 2014. The proposed effective date for BC is identical to the US date.</p> <hr/> <p>CSA TEST STANDARD</p> <ul style="list-style-type: none"> • CAN/CSA C300-08: <i>Energy Performance and Capacity of Household Refrigerators, Refrigerator-Freezers, Freezers, and Wine Chillers, or</i> • New DOE test procedure (10 CFR Part 430 Subpart B, Appendix A/B) including Technical Information Letter (TIL) CSA G-50, Interim Energy Efficiency Certification and Verification Requirements for Household Refrigerators, Refrigerator-Freezers and Freezers. <p>For more information on the G-50 TIL, please follow the link below: https://subscribe.csa.ca/iri/servlet/prt/portal/prtroot/csa.sap.km.cm.docs/certification/Service%20Quality/Notices%20Informs%20TIL/VerificationServiceEE64.pdf</p>									
<p>PROPOSED ENERGY PERFORMANCE STANDARD</p> <p>DISHWASHERS</p>	<p>DISHWASHERS</p> <p>The proposed amendment would update test methods and increase the energy efficiency standards for residential dishwashers to harmonize with the existing U.S. DOE regulation which became effective on May 30, 2013. The proposed compliance date is July 1, 2014.</p> <hr/> <p>CSA TEST STANDARD</p> <p>CAN/CSA C373-04: <i>Energy Consumption Test Methods and Limits for Household Dishwashers</i></p>									
<p>EFFECTIVE DATE</p>	<table border="1"> <thead> <tr> <th>Appliance</th> <th>Effective Date</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Clothes Washers</td> <td>March 15, 2015 (Tier 1)</td> </tr> <tr> <td>January 1, 2018 (Tier 2)</td> </tr> <tr> <td>Refrigerators</td> <td>September 15, 2014</td> </tr> <tr> <td>Freezers</td> <td>September 15, 2014</td> </tr> </tbody> </table>	Appliance	Effective Date	Clothes Washers	March 15, 2015 (Tier 1)	January 1, 2018 (Tier 2)	Refrigerators	September 15, 2014	Freezers	September 15, 2014
Appliance	Effective Date									
Clothes Washers	March 15, 2015 (Tier 1)									
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Refrigerators	September 15, 2014									
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	Dishwashers	July 1, 2014
CERTIFICATION	CSA certification as noted in the “Proposed Energy Performance Standard” for each regulation above will be used to determine compliance with the regulation.	
NEED FOR REGULATION	The proposed regulation supports the updated 66% electricity conservation target for BC Hydro by 2020, as set out in the <i>Clean Energy Act</i> . The proposed appliance efficiency standards align BC with a common North American standard on energy efficiency standards for household appliances. As part of the market transformation of the household appliance sector, utilities will no longer need to offer incentives for appliances that are included in the new efficiency standards, resulting in lower costs for utilities and consumers.	
TRANSPARENT REGULATION DEVELOPMENT	<p>Development of regulation involved the following procedure:</p> <ul style="list-style-type: none"> • Identified targeted equipment and a potential standard • Identified test procedure • Market analysis • Economic assessment • Regulatory assessment <p>A formal 45-day stakeholder consultation on the regulatory impact statement will take place in early 2014.</p>	
MARKET TRANSFORMATION STRATEGY	<p>From January 15, 2008 to June 31, 2010, BC Hydro Power Smart offered a \$50 incentive to purchase ENERGY STAR refrigerators and clothes washers and a \$25 incentive to purchase ENERGY STAR freezers.</p> <p>As of June 1, 2010, BC Hydro Power Smart has offered incentives on select appliances that are more efficient than ENERGY STAR, as the standard ENERGY STAR products have achieved strong market penetration in British Columbia.</p> <p>Incentives included \$25 on super-efficient ENERGY STAR dishwashers (until July 2013) and \$50 on super-efficient ENERGY STAR refrigerators and clothes washers. A \$25 incentive remains for all ENERGY STAR freezers. BC Hydro Power Smart has a refrigerator buy-back program, which will pick up fridges that are still in working condition. BC Hydro will pick up, recycle and give consumers \$30 for fridges that meet the program criteria.</p>	

ASSESSMENT FROM AN INDUSTRY PERSPECTIVE

RANGE OF PRODUCTS AFFECTED	See “Type of Device” heading for list of products covered by the proposed regulation.																
COMPETITIVE ANALYSIS	There are no manufacturers of the products covered by this regulation in British Columbia.																
MARKET SHARE	<p>British Columbians have been leaders in choosing high-efficiency ENERGY STAR models in their appliance purchases. Current ENERGY STAR market share for individual products are a good predictor of future demand for appliances meeting the proposed regulated standards. The percentages below represent the availability of in-store product that meets current ENERGY STAR standards, based on a BC Hydro market study on showroom presence completed in June 2013.</p> <table border="1"> <thead> <tr> <th>Appliance</th> <th>Showroom Presence of ENERGY STAR</th> </tr> </thead> <tbody> <tr> <td>Clothes Washers (Front Load)</td> <td>83 %</td> </tr> <tr> <td>Clothes Washers (Top Load)</td> <td>65 %</td> </tr> <tr> <td>Fridge (Top Freezer)</td> <td>66 %</td> </tr> <tr> <td>Fridge (Bottom Freezer)</td> <td>82 %</td> </tr> <tr> <td>Fridge (Side-by-Side Freezer)</td> <td>83 %</td> </tr> <tr> <td>Freezers (upright)</td> <td>48 %</td> </tr> <tr> <td>Dishwashers</td> <td>80 %</td> </tr> </tbody> </table> <p>Source: BC Hydro Power Smart Tracking Study: Showroom Presence Study of Appliances, June 2013</p>	Appliance	Showroom Presence of ENERGY STAR	Clothes Washers (Front Load)	83 %	Clothes Washers (Top Load)	65 %	Fridge (Top Freezer)	66 %	Fridge (Bottom Freezer)	82 %	Fridge (Side-by-Side Freezer)	83 %	Freezers (upright)	48 %	Dishwashers	80 %
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WASTE MANAGEMENT	<p>Effective July 1, 2012, the Ministry of Environment requires province-wide recycling programs for all large appliances covered by the proposed regulation. For more information on B.C. recycling standards, please visit:</p> <p>http://www.env.gov.bc.ca/epd/recycling/electronics/index.htm.</p>																

COST ASSESSMENT FROM A CONSUMER PERSPECTIVE
**CAPITAL /
PURCHASE COSTS**

The proposed standards could increase the purchase cost of various white goods appliances compared to current prices for less efficient models which will be prohibited by the regulation. However, as the BC proposed standards and timelines are harmonized with the US regulations, capital costs should be minimized due to competitive market pressures over time. Estimated incremental costs are as follows:

Appliance	Estimated incremental cost
Clothes Washers (front load)	\$86
Clothes Washers (top load)	\$190
Refrigerators	\$60
Freezers	\$64
Dishwashers	\$30

Source: BC Hydro Power Smart Tracking Study: Showroom Presence Study of Appliances, June 2013, online research

Note: The incremental costs are estimates based on average prices of household appliances. These averages are not further informed by appliance features that would also contribute to higher average prices and therefore represent a conservative estimate.

<p>COST-BENEFIT ANALYSIS</p> <p>ENERGY SAVINGS FOR EACH CONSUMER</p>	<p>The following financial analysis was based on current incremental capital costs and electricity/natural gas rates. All financial analysis is discounted at 8%.</p> <p>The results are as follows:</p> <hr/> <p>CLOTHES WASHERS:</p> <ul style="list-style-type: none"> • Up to 378 kWh/year electricity savings; up to 0.17 GJ/year gas savings (from water heating) • Front load washers: Net present value (NPV) of \$56.63 • Top load washers: Net present value (NPV) of \$154.83 <p>Simple Payback of 6.3 years (<i>note: the expected product life is 14 years</i>) (<i>front load washers</i>)</p> <p>Simple Payback of 5.7 years (<i>note: the expected product life is 14 years</i>) (<i>top load washers</i>)</p> <hr/> <p>REFRIGERATORS:</p> <ul style="list-style-type: none"> • 120 kWh/year electricity savings • NPV of \$57.54 • Simple Payback of 5.9 years (<i>note: the expected product life is 17 years</i>) <hr/> <p>FREEZERS:</p> <ul style="list-style-type: none"> • 88 kWh/year electricity savings • NPV of \$25.72 • Simple Payback of 8.4 years (<i>note: the expected product life is 17 years</i>) <hr/> <p>DISHWASHERS:</p> <ul style="list-style-type: none"> • 48 kWh/year electricity savings • Up to 0.03 GJ/year gas savings (from water heating) • NPV of \$13.34 • Simple Payback of 6.9 years (<i>note: the expected product life is 13 years</i>)
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ASSESSMENT FROM A PROVINCIAL GOVERNMENT PERSPECTIVE
**ECONOMIC
ASSESSMENT
FROM A
PROVINCIAL
PERSPECTIVE**

(Aggregate energy, emission and net cost savings)

The economic analysis considers the province-wide impact. In this case, the marginal cost of electricity supply was used, assumed to be 8.5 cents per kWh in 2013. The analysis is for the period between the proposed effective date and the duration of the lifetime of each of the white goods appliances. The incremental capital cost of products is the same as those noted in the consumer impact assessment section.

The net present values (discounted financial value) to the province of the proposed standards are shown below. They do not reflect expected cost reductions from continent-wide market transformation due to DOE standards for household appliances.

The accumulated electricity and cost savings achieved in 2020 as well as the provincial NPV are shown below:

Proposed Regulation	Cumulative Electricity and Cost Savings in 2020	Provincial NPV
Clothes Washers	108 GWh/yr / \$35.3 M	\$71.9 M
Refrigerators	46 GWh/yr / \$14.6 M	\$36.5 M
Freezers	15 GWh/yr / \$4.8 M	\$6.2 M
Dishwashers	14 GWh/yr / \$4.4M	\$5.1 M

The proposed regulations will result in cumulative greenhouse gas (GHG) emissions reductions. The cumulative emissions savings in 2020 because of each of the regulations are shown below, assuming an emissions factor of 28 tonnes per GWh for electricity until 2016 and 0.05 tonnes per GJ natural gas:

Proposed Regulation	Cumulative GHG Savings in 2020 (tonnes)
Clothes Washers	3,691
Refrigerators	282
Freezers	92
Dishwashers	930

Note that for clothes washers and dishwashers natural gas savings occur in households using natural gas for hot water supply. The impact on gas savings has been factored in to this analysis and results in significant GHG savings for clothes washers in particular.

**REGULATORY
REQUIREMENTS
AVOID OR**

The proposed regulation was developed in consultation with the province of Ontario and Natural Resources Canada over the past few years. NRCan may issue identical standards in the future.

ELIMINATE DUPLICATION WITH OTHER JURISDICTIONS	Ontario has recently completed public consultations on proposed regulatory standards for household appliances. If adopted, the Ontario appliance standards would be fully aligned with the US DOE rulemaking on those products.
ADMINISTRATIVE FEASIBILITY FOR COMPLIANCE AND ENFORCEMENT	<p>Compliance and enforcement approach under the <i>Energy Efficiency Act</i> is based on third-party verification, labelling of products and education of manufacturers, distributors, retailers and consumers with respect to energy efficiency standards and labelling requirements. All complaints of non-compliance are followed-up by Ministry staff, starting with industry education-oriented materials.</p> <p>As the proposed standards are harmonized with the US DOE standards, very high levels of compliance are expected with minimal resource requirements for enforcement.</p>

NOTES

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DATE	January 29 th , 2014