SMALL BATTERY CHARGING SYSTEMS

REGULATORY PROPOSAL

PREPARED BY:

ENERGY EFFICIENCY BRANCH,

BC MINISTRY OF ENERGY AND MINES

HTTP://WWW.EMPR.GOV.BC.CA/EEC/STRATEGY/EEA/PAGES/DEFAULT.ASPX

JANUARY 2014

PLEASE SUBMIT COMMENTS BY MARCH 17, 2014

Contents:

BRITISH COLUMBIA

SCOPE AND REQUIREMENTS – REGULATORY PROPOSAL[1]

<table>
<tr><td>TYPE OF DEVICE</td><td>Small battery charging system - a commercially available product designed to replenish the electric charge of a rechargeable battery.

Included devices could take the form of a stand-alone charging port connected to a wall outlet (such as common AA-cell or power tool battery chargers) or built into the device itself as encountered in modern day electronics (such as laptops, cell phones, tablets, personal grooming devices, and power tools).

Included:
• Products consuming less than 2kW peak power

Not included:
• Products consuming greater than or equal to 2kW peak power</td></tr>
<tr><td>TEST STANDARD</td><td>The product must be tested using either of the following methods:

CAN / CSA 381.2-14 – Test method for determining the energy efficiency of battery-charging systems. This test method is expected to be published in early 2014, and will be identical to the United States Department of Energy (US DOE) method below.

10 CFR 430.23(aa) (DOE) – Test Procedure for Battery Chargers and External Power Supplies.</td></tr>
<tr><td>PROPOSED ENERGY PERFORMANCE STANDARD</td><td>
<table>
<tr><th>Performance Parameter</th><th>Capacity Range (E_b)*</th><th>Standard*</th></tr>
<tr><td rowspan="4">Maximum 24-hour charge and maintenance energy (W·h)</td><td>≤ 2.5 W·h</td><td>$16 \times N$</td></tr>
<tr><td>> 2.5 W·h to 100 W·h</td><td>$12 \times N + 1.6 \times E_b$</td></tr>
<tr><td>> 100 W·h to 1000 W·h</td><td>$22 \times N + 1.5 \times E_b$</td></tr>
<tr><td>> 1000 W·h</td><td>$36.4 \times N + 1.486 \times E_b$</td></tr>
<tr><td>Maintenance Mode Power P_M, and No-Battery Mode Power P_0 (W)</td><td></td><td>$P_M + P_0 \leq N + 0.0021 \times E_b$</td></tr>
</table>
*E_b = capacity of all batteries in ports, N = number of charger ports

Devices that meet the California Code of Regulations Title 20, Sections 1601-1608 on Battery Charger Systems, as indicated by the California compliance label, are considered to be compliant with this standard.</td></tr>
<tr><td>EFFECTIVE DATE</td><td>Products manufactured after July 1, 2014</td></tr>
</table>

[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.

CERTIFICATION	All manufactured products must be tested and adhere to the proposed energy performance standard using the proposed test standard. Testing and verification must be performed by Certification Organizations accredited by the Standards Council of Canada or, if using the US DOE test method, by a certification organization approved by the US DOE.
NEED FOR REGULATION	The regulation is identical to the level adopted in the states of California and Oregon, and will help fulfill commitments made under the Pacific Coast Collaborative to "develop regional energy efficiency standards for appliances and equipment to lead by example". An identical regulation in BC will also prevent inferior products being sold into the province by way of the supply chain both nationally and internationally. The proposed regulation reduces energy bills for consumers. It will make an important contribution towards achievement of the targets set out in the Energy Efficient Buildings Strategy—to reduce average energy demand per home by 20% by 2020, and to reduce energy demand at work by 9% per square metre by 2020. The proposed regulation supports the updated 66% electricity conservation target by 2020 for BC Hydro, as set out in the *Clean Energy Act*. It also supports the BC's greenhouse gas (GHG) reduction targets as stated in the *Greenhouse Gas Reduction Targets Act* of 2007.
TRANSPARENT REGULATION DEVELOPMENT	Development of the regulation has included: • Economic assessment • Regulatory assessment The regulatory impact statement will be posted for written comment over a 45-day formal public consultation period.
MARKET TRANSFORMATION STRATEGY	***Availability***: Battery charging system manufacturing is largely based in Asia. The distribution network that supplies products to the California market is similar throughout western North America. Compliant products will be readily shipped into the province as a result. ***Awareness***: ENERGY STAR® specifications for battery chargers helped raise the profile for energy efficient products in this category. At its inception (version 1.0) the product scope was somewhat limited and did not address active mode power consumption. Version 2.0 is currently under development and will likely address these shortcomings. ***Accessibility***: At present, a host of retail outlets stock products that comply with the proposed regulation due to the distribution network originating from California. ***Affordability***: Since the incremental cost for most items is expected to be marginal, the proposed regulation is not expected to affect the affordability of battery charging systems adversely. Moreover, electricity bill savings as a result of more energy efficient battery chargers will increase family disposable income. ***Acceptability***: The California regulation became effective on February 1st, 2013 and there has not been any negative consumer reaction to date. Ministry staff will continue to closely monitor consumer feedback until the proposed effective date of July 1st, 2014.

ASSESSMENT FROM AN INDUSTRY PERSPECTIVE

RANGE OF PRODUCTS AFFECTED	Any battery charging systems with a peak power draw of less than 2kW are covered under the proposed regulation. These products include battery charging systems for laptops, tablets, cell phones, power tools, personal grooming devices, mobility aid devices, golf carts, personal audio electronics and auto/marine systems. The preceding list is not exhaustive.
COST IMPACT	The incremental cost of additional technology is expected to be less than one dollar for most products.
COMPETITIVE ANALYSIS AND HARMONIZATION	California adopted an identical standard which became effective in February 1st, 2013; Oregon has recently adopted the same standard which became effective January 1st, 2014. Washington state has expressed the intention to adopt a battery charging standard in previous legislative cycles; however, the bill was rejected due to unrelated issues surrounding water efficiency standards. Staff in Washington expects the battery charging system standard to be adopted in 2014 once decoupled from proposed water efficiency standards. The province of Ontario has recently undergone public consultation to adopt this standard, with a proposed effective date of July 1st, 2014. There are no BC-based manufacturers of battery charging systems. Marketing and distribution of battery charging systems is carried out on a continental basis, with the large majority of products manufactured in Asia. When the California standard became effective, the supply chain from overseas adjusted its products accordingly. An identical standard in other jurisdictions is expected to be a simple transition due to the volume of products shipped to California.

ASSESSMENT FROM A CONSUMER PERSPECTIVE

COST-BENEFIT ANALYSIS

ENERGY SAVINGS FOR EACH CONSUMER

The following table summarizes a consumer-based analysis for the proposed regulation. In all cases, the cost-benefit analysis shows net positive benefits for consumers.

Category	Incremental Cost	First Year Cost Savings	Simple Payback (yrs)	Design Life (yrs)	NPV	Electricity Savings (kWh/yr)
Auto/Marine/RV	$ 10.00	$ 26.77	0.4	10	$ 197.86	305.6
Cell Phones	$ -	$ 0.04	0.0	2	$ 0.07	0.4
Cordless Phones	$ 0.40	$ 1.14	0.4	5	$ 4.60	13
Personal Audio Electronics	$ -	$ 0.04	0.0	3	$ 0.11	0.5
Emergency Systems	$ 3.00	$ 1.35	2.2	7	$ 5.10	15.5
Laptops	$ 0.50	$ 1.43	0.3	4	$ 4.63	16.4
Personal Care	$ 0.40	$ 0.15	2.6	5	$ 0.30	1.8
Personal Electric Vehicles	$ 12.00	$ 45.78	0.3	9.7	$ 315.45	522.7
Portable Electronics	$ 0.40	$ 0.15	2.7	5.2	$ 0.26	1.7
Portable Lighting	$ 0.40	$ 0.74	0.5	10	$ 5.32	8.4
Power Tools	$ 0.55	$ 1.27	0.4	6.5	$ 6.00	14.6
Universal Battery Chargers	$ 0.40	$ 0.34	1.2	8	$ 1.81	3.8
Golf/Electric Carts	$ 200.00	$ 68.87	2.9	10	$ 347.69	786.3
Emergency Backup Lighting	$ 3.00	$ 0.73	4.1	10	$ 2.87	8.3
Handheld Barcode Scanners	$ 0.50	$ 1.68	0.3	8	$ 10.44	19.2
Two-Way Radios	$ 0.50	$ 0.76	0.7	8	$ 4.44	8.6

ASSESSMENT FROM A PROVINCIAL GOVERNMENT PERSPECTIVE

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<tr>
<td>ECONOMIC ASSESSMENT FROM A PROVINCIAL PERSPECTIVE

(Aggregate energy, emission and net cost savings)</td>
<td>The following three metrics illustrate the benefit of the regulation from an energy, emissions, and cost perspective:

<table>
<tr><td>Annual Electricity Savings (GWh/yr) in 2020</td><td>142</td></tr>
<tr><td>Annual GHG Savings (t CO_2e/yr) in 2020</td><td>1,155</td></tr>
<tr><td>Provincial NPV</td><td>$80 M</td></tr>
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In summary, British Columbians as a whole will see 142 GWh/yr of electricity savings in 2020 and will save $80 million over and above incremental capital costs in the long term. In addition, greenhouse gas reductions of 1,155 tonnes will be achieved in 2020.</td>
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<td>ADMINISTRATIVE FEASIBILITY FOR COMPLIANCE AND ENFORCEMENT</td>
<td>Compliance and enforcement approach under the Energy Efficiency Act is based on random inspections and response to compliance complaints, primarily at the retail level.</td>
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NOTES

REGULATORY ASSESSMENT COMPLETED BY	Voytek Gretka, M.Eng, EIT, EMIT Tel: (250) 952-0626 E-mail: Voytek.Gretka@gov.bc.ca
DATE	January 29th, 2014