

Battery Charger Systems Efficiency Labeling

Pierre Delforge

Natural Resources Defense Council

October 11, 2010



An efficiency labeling scheme could facilitate battery chargers efficiency efforts

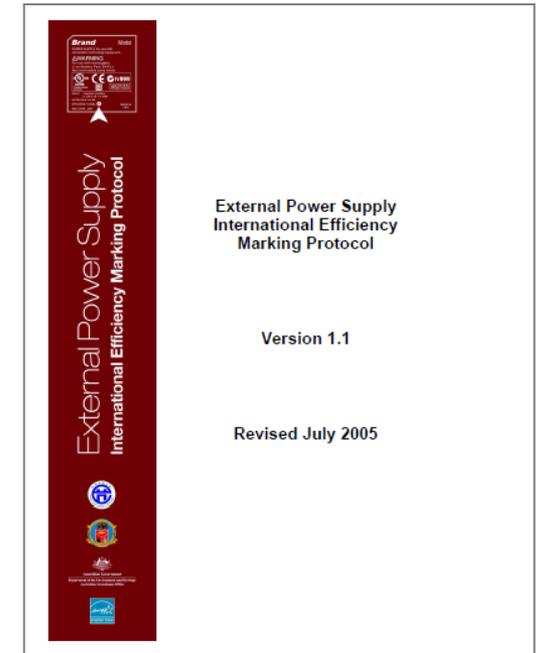
- What: an efficiency marking scheme using Roman numerals like EPS marking protocol
- Create an Ok/Better/Best type scheme
- Provide mechanism for easily identifying how efficient a product or component is (e.g. battery charger)
- Interested jurisdictions can require labeling per this scheme
- Future levels can be added as technology improves

Challenges with battery charger energy efficiency efforts

- Large number of small chargers, difficult to collect product data
- Jurisdictions not yet aligned on common efficiency metric
- Risk of diverging standards, increasing costs and slowing adoption
- Opportunity for California to lead the creation of another cutting edge international marking concept

A success story: the External Power Supply International Efficiency Marking Protocol

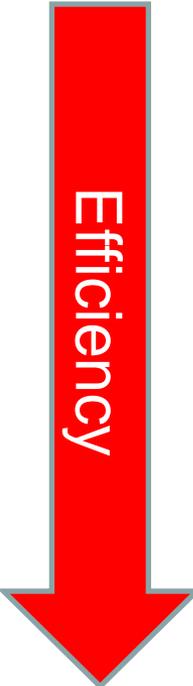
- Created in 2005 by California, Australia and China
- Broad US (DOE, EPA) and international adoption (Canada EU, NZ) since then
- Simple to use for manufacturers, utilities and regulators
- Was very effective at transforming the EPS market to high efficiency
 - Level IV now mandatory in US, Level V common.



Scope: highest priority to small chargers (residential and commercial)

- Small vs. Large definition
 - 3000Wh battery capacity
- Top priority: Small chargers
 - Residential AND commercial
 - Many types of small chargers, data collection challenge
 - Need to simplify compliance and verification
- Lower priority: Large chargers
 - Fewer large chargers, easier to collect product data

Proposed mark and efficiency levels



Level	Description	Metrics	
BC I	Least efficient	Less than level II	
BC II	Efficient	24-hr charge-and-maintenance energy:	$\leq 12\text{Wh} + 1.6 \text{Eb}$
		Maintenance power:	$\leq 0.5\text{W}$
		No Battery Power:	$\leq 0.3\text{W}$
		Power Factor:	$> 0.5/0.9$
BC III	Most efficient (for possible adoption by Energy Star and utility incentives)	To be defined	
BC IV	Future use		

- Anchor protocol with California proposed standard at level II
- Leave one level below California to allow jurisdictions to mandate labeling without minimum requirement

Open questions

- Exact criteria for all product classes
 - Small emergency exit signs, inductive, Large...
- Location of the mark? No existing label for battery chargers, contrary to EPS.
- Varied form factors: are they all suited to a mark?
- What mark?
 - Distinctive from EPS mark
 - Compact

Summary

- Efficiency marking protocol would facilitate transformation of battery charger market in California, and potentially worldwide
- Short window of opportunity to converge US protocols
- Easier and cheaper for industry and regulators
- Faster and broader adoption
- Flexibility: each jurisdiction can adopt own level