



U.S. DOE EPS Efficiency Proposal

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European Code of Conduct Meeting
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DOE March 2012 EPS/BCS NOPR

§ Tightens efficiency & expands the range of current EISA2007 limits

- Class A expanded to seven EPS product classifications
- Adds multiple output, low voltage and high power classes
- Distinction between EPS “direct” and “indirect” operation

§ Roman numeral VI marking

Product Class	Product Class Description	
B	DC Output, Basic-Voltage	2.5 W (0-10.25 W)
		18 W (10.25-39 W)
		60 W (39-90 W)
		120 W (91-250 W)
C	DC Output, Low-Voltage	
D	AC Output, Basic-Voltage	
E	AC Output, Low-Voltage	
X	Multiple-Voltage	
H	High-Power	
N	Indirect Operation	

(Source: U.S. DoE March 2012 BCS EPS NOPR)

AC-DC Proposed Efficiency Requirements

§ Product Classes B, C, H

AC-DC, Basic-Voltage External Power Supply		
Nameplate Output Power (P_{out})	Minimum Average Efficiency in Active Mode (expressed as a decimal)	Maximum Power in No-Load Mode [W]
0 to \leq 1 watt	$\geq 0.5 * P_{out} + 0.16$	≤ 0.100
> 1 to ≤ 49 watts	$\geq 0.071 * \ln(P_{out}) - 0.0014 * P_{out} + 0.67$	≤ 0.100
> 49 watts to ≤ 250 watts	≥ 0.880	≤ 0.210
> 250 watts	≥ 0.875	≤ 0.500
AC-DC, Low-Voltage External Power Supply		
Nameplate Output Power (P_{out})	Minimum Average Efficiency in Active Mode (expressed as a decimal)	Maximum Power in No-Load Mode [W]
0 to \leq 1 watt	$\geq 0.517 * P_{out} + 0.087$	≤ 0.100
> 1 to ≤ 49 watts	$\geq 0.0834 * \ln(P_{out}) - 0.0014 * P_{out} + 0.609$	≤ 0.100
> 49 watts to ≤ 250 watts	≥ 0.870	≤ 0.210
> 250 watts	≥ 0.875	≤ 0.500

Classes D, E, H

Max No-Load (W)

• 0.210



• 0.500

• 0.210



• 0.500

Note: Low-voltage EPS defined as < 6 volts and $\bullet 550$ mA output

Comparing 2012 NOPR with Ecodesign Tier 2

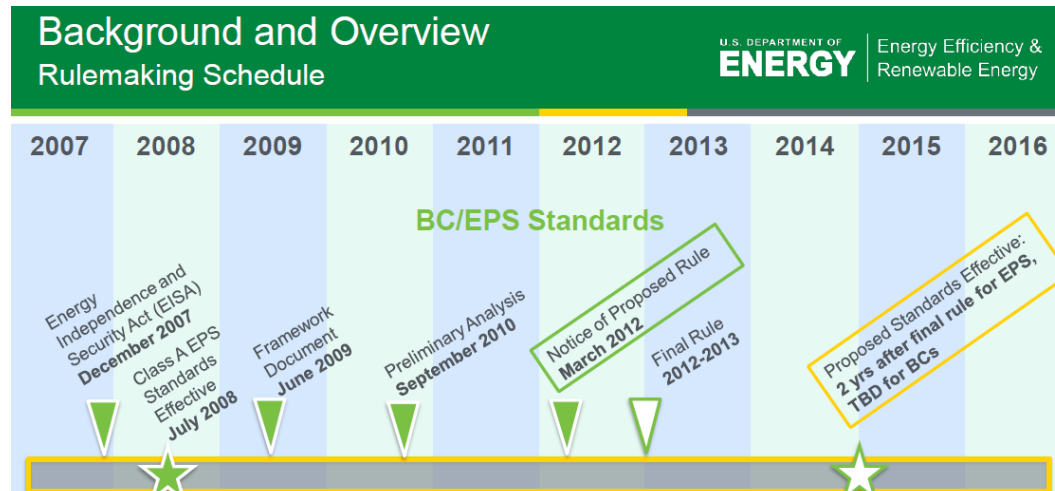
§ NOPR proposes tighter active mode efficiency and no-load power consumption (Classes B,C)

Nameplate Output Power (P _{no})	U.S. DoE March 2012 NOPR (Proposed)	EC Ecodesign Directive Tier 2 (In effect – 2011)
	Active Mode Efficiency (Ave.)	Active Mode Efficiency (Ave.)
1 W (standard voltage)	66%	62%
1 W (low voltage)	60.4%	56.4%
5 W (standard voltage)	77.7%	72.3%
5 W (low voltage)	73.6%	68.2%
20 W (standard voltage)	85.5%	81%
60 W (standard voltage)	88.0%	87.0%
	No-load power consumption	No-load power consumption
< 50 W	• 0.1 W	• 0.3 W
• 50 to • 250 W	• 0.210 W	• 0.5 W

May Stakeholder Meeting Observations

§ Rulemaking Schedule calls for 2015 EPS effective date

- Strong desire by some stakeholders to have BCS rule effective in 2013 to pre-empt CA standard



Source: DOE May 2012 stakeholder meeting presentation

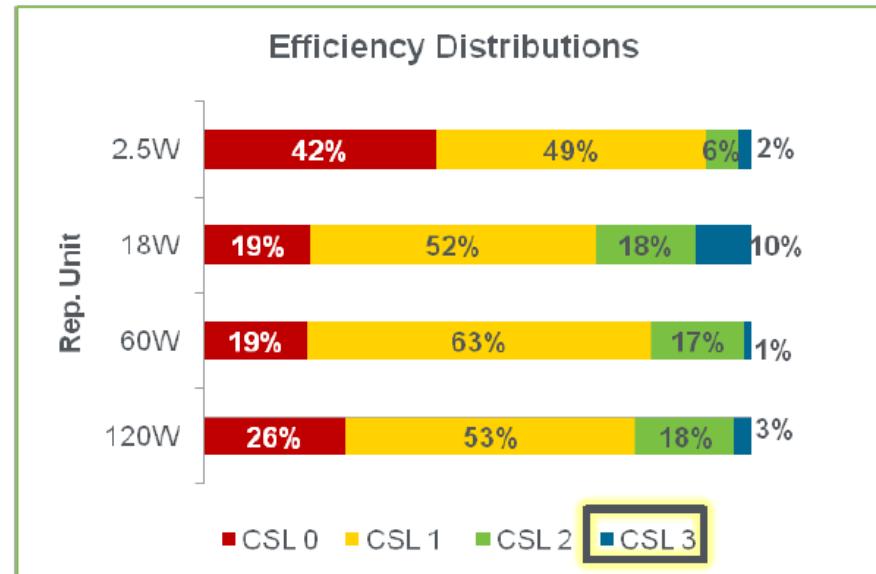
§ Review of indirect operation definition to prevent “gaming” the standard to override EPS requirements?

- Increase operational time delay from 5 seconds to ?

May Stakeholder Meeting Observations

§ Possible relaxation of active mode efficiency requirements?

CSL	Reference
0	EISA 2007
1	Energy Star 2.0
2	Intermediate
3	Best in Market
4	Max Tech

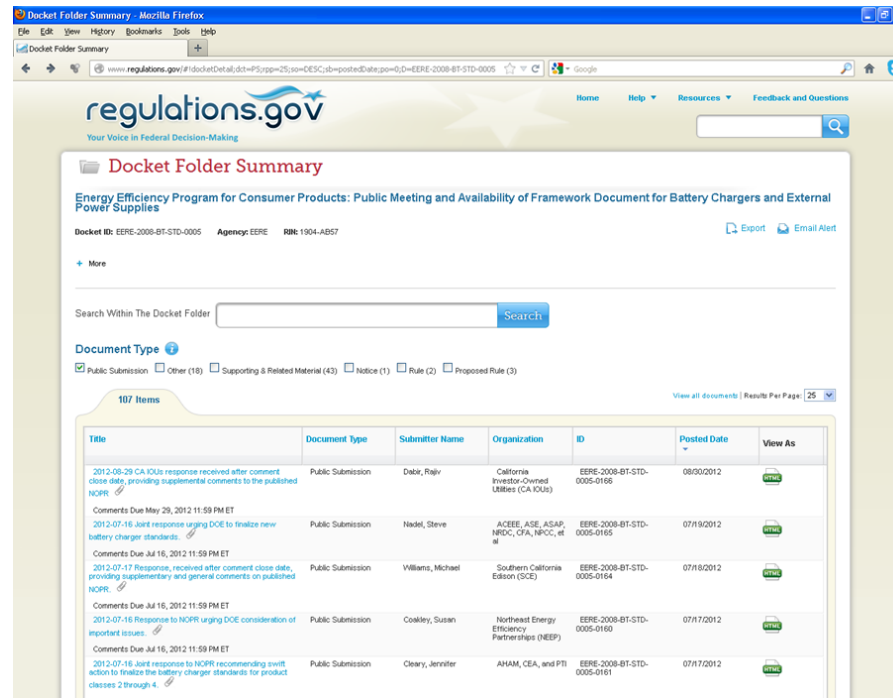


Source: DOE May 2012 stakeholder meeting presentation

CSL = Candidate Standard Level used in EPS characterization – include efficiency and no-load equations

Sept 4, 2012 Status - DOE EPS/BCS Standard

§ Review of stakeholder comments continues (>70)



The screenshot shows the 'regulations.gov' website interface. The main heading is 'Docket Folder Summary' for the 'Energy Efficiency Program for Consumer Products: Public Meeting and Availability of Framework Document for Battery Chargers and External Power Supplies'. The docket ID is EERE-2008-BT-STD-0005. Below the heading is a search bar and a 'Document Type' filter section. The filter is set to 'Public Submission' (checked), with other options including 'Other (18)', 'Supporting & Related Material (43)', 'Notice (1)', 'Rule (2)', and 'Proposed Rule (3)'. A table of 107 items is displayed, with the following columns: Title, Document Type, Submitter Name, Organization, ID, Posted Date, and View As. The table contains several rows of public submissions and responses, including one from California Investor-Owned Utilities (CA IOUs) and another from AHAM, CEA, and PTI.

Title	Document Type	Submitter Name	Organization	ID	Posted Date	View As
2012-08-28 CA IOUs response received after comment close date, providing supplemental comments to the published NOPR	Public Submission	Debir, Rajiv	California Investor-Owned Utilities (CA IOUs)	EERE-2008-BT-STD-0005-0166	08/30/2012	View As
Comments Due May 29, 2012 11:59 PM ET						
2012-07-16 J&E response urging DOE to finalize new battery charger standards.	Public Submission	Nadel, Steve	ACEEE, ASE, ASAP, NRDC, CFA, NPCC, et al	EERE-2008-BT-STD-0005-0165	07/19/2012	View As
Comments Due Jul 16, 2012 11:59 PM ET						
2012-07-17 Response, received after comment close date, providing supplementary and general comments on published NOPR	Public Submission	Wilkens, Michael	Southern California Edison (SCE)	EERE-2008-BT-STD-0005-0164	07/19/2012	View As
Comments Due Jul 16, 2012 11:59 PM ET						
2012-07-16 Response to NOPR urging DOE consideration of important issues.	Public Submission	Coakley, Susan	Northeast Energy Efficiency Partnerships (NEEP)	EERE-2008-BT-STD-0005-0160	07/17/2012	View As
Comments Due Jul 16, 2012 11:59 PM ET						
2012-07-18 J&E response to NOPR recommending swift actions to finalize the battery charger standards for product classes 2 through 4.	Public Submission	Cleary, Jennifer	AHAM, CEA, and PTI	EERE-2008-BT-STD-0005-0161	07/17/2012	View As

§ Hope to finalize standard by year end with Jan 2015 effective date

- Any additional analysis required could cause delay

For More Information

§ DOE EPS/BCS Program Manager

- Jeremy Dommu; Email: jeremy.dommu@ee.doe.gov, PH: 202-586-9870

§ Link to the DOE EPS/BCS webpage (NOPR & TSD):

- http://www1.eere.energy.gov/buildings/appliance_standards/residential/battery_external_nopr.html

§ Link to May 2012 meeting slides

- http://www1.eere.energy.gov/buildings/appliance_standards/pdfs/bceps_nopr_public_meeting_slides.pdf

§ Link to stakeholder comments page:

- <http://www.regulations.gov/#!docketDetail;dct=PS;rpp=25;po=0;D=EERE-2008-BT-STD-0005>

Backup Slides

Direct vs. Indirect EPS Operation

- § Direct Operation EPS – EPS that can operate consumer product that isn't a battery charger without assistance of the battery
- § Indirect Operation EPS – EPS that can't operate a consumer product that isn't a battery charger without assistance of a battery determined by the following:
 - 1) Charge battery in app via EPS
 - 2) Disconnect EPS, turn app on, record time to operational (5 s incr.)
 - 3) Operate app until battery discharged
 - 4) Attach EPS to app, record time to become operational (5 s incr.)
 - If time recorded in 4) is • time recorded in 2) plus 5s, then Direct Operation EPS

Major EPS Specs/Standards Comparison

	EC CoC v4, EC ErP Tier 2 (2011), China YD/T 1591-2009 ⁵ , ENERGY STAR EPS v2,		EISA 2007
	Standard Voltage PS ³	Low Voltage PS ³	
Nameplate Output Power (Pno)	Minimum Average Efficiency, Active Mode	Minimum Average Efficiency, Active Mode	Minimum Average Efficiency, Active Mode
• 1 watt	• $0.480 * Pno + 0.140$	• $0.497 * Pno + 0.067$	$0.5 * Pno$
> 1 to • 49 watts	• $[0.0626 * \ln (Pno)] + 0.622$	• $[0.0750 * \ln (Pno)] + 0.561$	
> 1 to • 51 watts	• $[0.0626 * \ln (Pno)] + 0.622$ (EcoDesign only)		• $[0.09 * \ln (Pno)] + 0.5$
> 49 watts	• 0.870	• 0.860	
> 51 watts	• 0.870 (EcoDesign only)		• 0.850
	No-Load Power ^{1, 2, 4}	No-Load Power ^{2, 4}	No-Load Power
< 50 watts	0.3 watts / 0.15 watts	0.3 watts / 0.15 watts	0.5 watts
• 50 to • 250 watts	0.5 watts	0.5 watts	0.5 watts

Notes:

1. AC-AC is • 0.5 W for all power levels, 2. CoC and YD/T - No-load spec for mobile handheld battery powered apps = < 0.15 W, 3. Standard voltage power supply excludes low voltage power supplies which are defined as < 6 volts and • 550 mA, 4. For Ecodesign, power levels are • 51 watts and > 51 watts, 5. YD/T standard covers only EPS with USB output of 5 V, 500mA to 1500 MA.