

Computers Energy Efficiency - the California Debate Industry Perspective

CalPlug Workshop, May 12, 2015

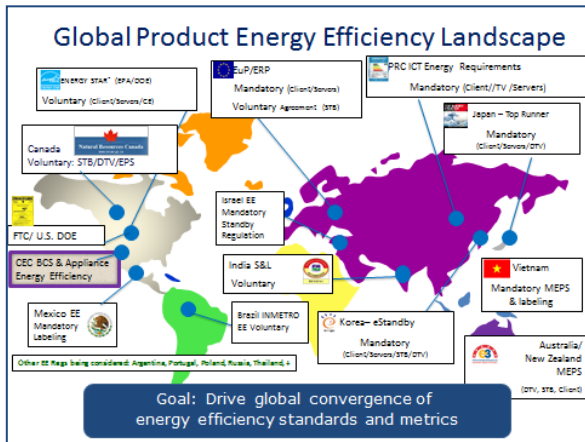
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Agenda

- Industry principles on Computers MEPs standards (global perspective)
- CEC staff proposal concerns/our commitment to finding solutions
- Additional recommendations (beyond current pre-rulemaking)
- Wrap/Q&A

Industry perspective on MEPs standards



ITI - Product EE Convergence Framework (PC Example)

	Voluntary Program	Mandatory Program	Comments
Client Methodology	Ecma-383/IEC 62623		
Server Methodology			
Framework/Scope	ENERGY STAR® based		Both Client and Server
Client Metric	TEC + Adders (based on i.e. product capability)		Compute and visual
Product Categories	Based on market segment		Product categories may vary by region (Japan vs. US)
Product Pass/Fail Target setting	25 percentile (Best in Class)	75-90 percentile (MEPS)	MEPS should focus on excluding worst 10-25% (not using E* limits)
Conformity Assessment	Based on single globally accepted standard (by IT segment)		

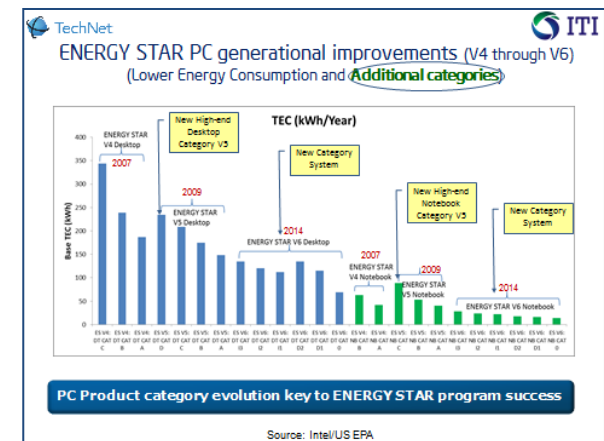
Vision: Converge on a consistent set of methodologies

TechNet Global PC Energy Programs - global alignment

Global PC Energy Programs	Desktops/AIO Categories	Notebooks Categories	Duty Cycle (Mode weighting)	Voluntary/MEPs	Status/Est. Effective date
ENERGY STAR® VS.2 Categories (Baseline); TEC/adder framework	CAT A CAT B CAT C CAT D	CAT A CAT B CAT C	Energy Star VS.2 (based on MSP7 study - No IEC Std.)	Voluntary	Effective July 2009
EU (ERP Lot 3) - TEC plus modal power targets	✓	✓	✓	MEPs	Phase 1: July 2013 Phase 2: Tier 1 July 2014; Tier 2 Jan. 2016
China	✓	✓	✓	Voluntary/MEPs	Multi-grade/ 2012
South Korea	✓	✓	✓	MEPs	Effective July 2012
Australia	✓	✓	✓	MEPs	Effective Oct. 2013
India	✓	✓	✓	Voluntary	NB implemented 2012; Awaiting DT
Brazil	✓	✓	✓	Voluntary	Effective April 2012
ENERGY STAR V6.1	6 DT/AIO	6 NB	Based on Ecma 383/IEC std.	Voluntary	Effective Sep. 2014
*California - CEC Appliance EE	Single category	Single category	✓	MEPs	Effective: 2017 (Est.)
*Japan - new Top Runner	In Dev	In Dev	In Dev	MEPs	Effective: 2016 (Est.)

Categorization reflects PC market segmentation and is critical to global harmonization

- Industry designs and manufactures computers for global markets (key focus on innovation, energy efficiency, and customer choice)
- PCs are complex – with hundreds of configurations across many consumer and corporate segments (different applications, capabilities and power profiles)
- Industry works with global regulators to drive convergence on voluntary and mandatory programs.
- **MEPs Focus:** Data collection, categorization, TEC framework, Int'l standards, targets/adders, exemptions
- **Key considerations:** Technical/cost barriers, lead-time, regulatory impact (energy savings, innovation, cost, economic, product exclusions, etc.)



Goal: Driving global convergence on EE framework and standards

CEC Staff Proposal – Concerns & Opportunities

- One size-fits-all approach not reflective of international standards, and globally accepted PC category approach (comparing like products within a product category)
- CEC targets not based on all shipping system data; it's based on cost effectiveness and technical feasibility. Key issues:
 - Cost effectiveness and technical feasibility assessment data not available; outcome not reflective of PC technical barriers, industry economics and PC ecosystem impact
 - Proposed targets/adders more stringent than voluntary ENERGY STAR v6.1 (~50% reduction in idle power for all Desktop/AIO PCs) – 88% of desktops PCs and 70% of AIO PCs that are ENERGY STAR qualified, fail CEC targets
 - Disproportionate impact on higher-end desktops and notebooks PCs
- Industry is committed to finding solutions working with CEC and other stakeholders.
 - Industry has requested specific data CEC used in drafting the staff proposal for computers and displays
 - Agreed on technical deep dive/demo meetings between industry, CEC staff and other stakeholders. Industry hosting a 2-day event early June. Such engagements should help build a fact-based technical foundation for moving forward.

Industry is committed to working with CEC and other stakeholders

Additional Recommendations

- Follow-up on key findings from Computer Power Management Survey and a limited monitoring study (119 Office Desktop PCs).
 - Industry's focus has been on computers system innovation and energy efficiency improvements (including total system power reductions via lower power consuming modes, power management enabling as shipped) from silicon to sub-system to system level (Figures 1-5)
 - However, user behavior matters in traditional power management enabling. Further research warranted into user behavior (including IT management practices).
 - ITI and TechNet are ready to work with CEC and UCI teams to further understand the user behavior issues
- Partner on Intelligent Efficiency (IE)
 - Key opportunity for increased CA energy savings and emission reductions
 - Need help in establishing protocols for measuring the benefits of specific IE applications

BACK-UP

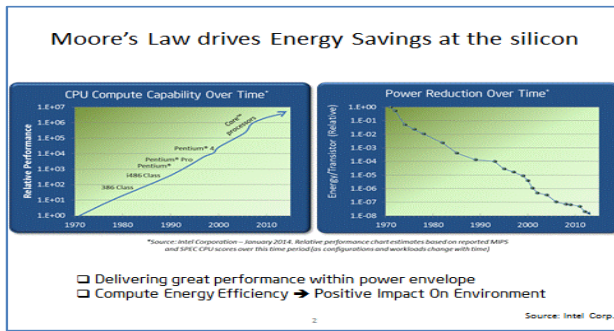


Figure 1

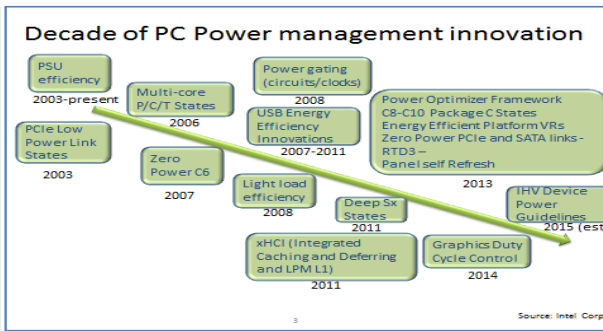


Figure 2

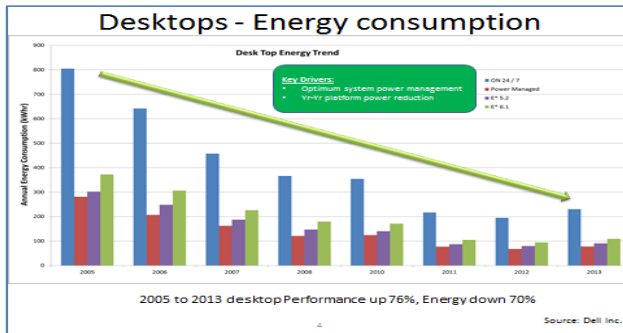


Figure 3

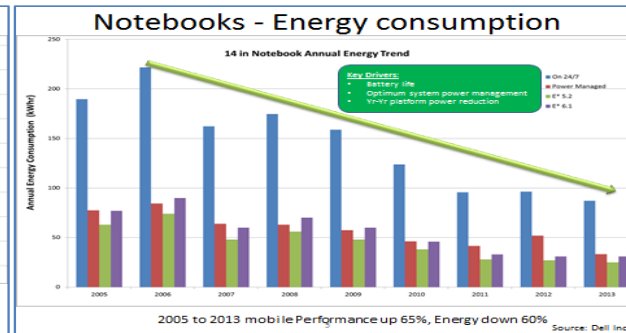


Figure 4

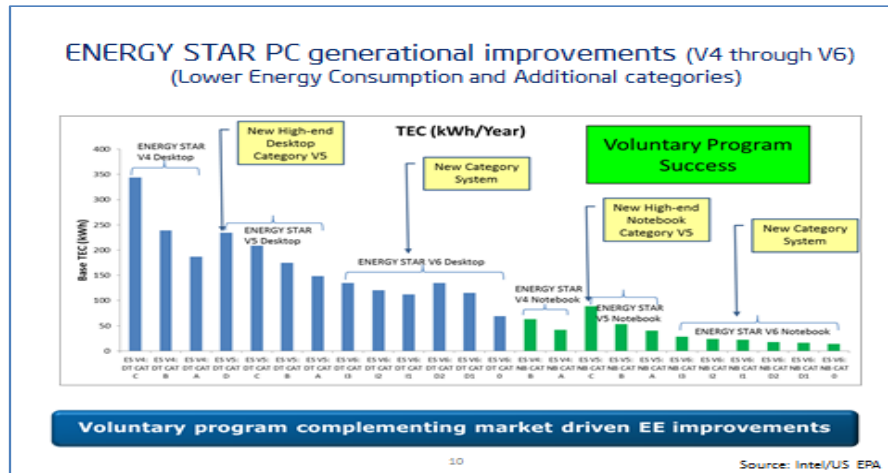


Figure 5