Information Technology Industry Council

DIGITALEUROPE

IEA Networked Standby Conference
Industry perspectives on global policy framework

Industry Presenters

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Agenda Outline

- Industry principles on global energy efficiency convergence
- Scope: Policy focus and approach
- Definitions: Ensuring use of consistent terminology
- Measurement and data collection
- Standardization
- Current Policy Issues and Options
- Summary

Key principles on global energy efficiency convergence

IEA/Industry Alignment

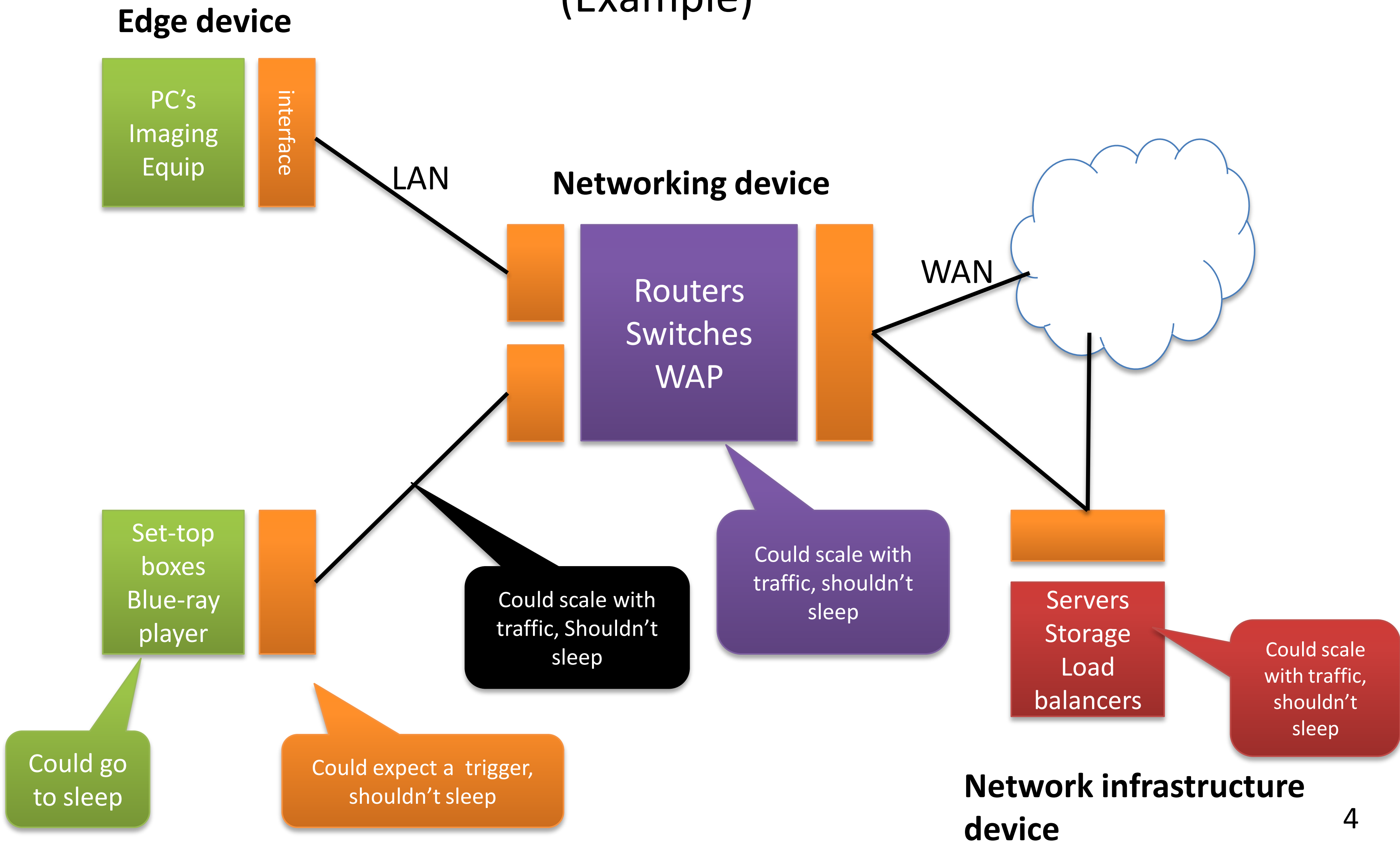
- Ensure energy efficiency programs for ICT products help promote, and not impede, energy efficient economic growth and innovation.
- Ensure energy efficiency programs for ICT products are based on accurate data and sound analysis.
- Adopt international standards and metrics in energy efficiency programs for ICT products.
- Ensure transparency and stakeholder participation in the regulatory process for energy efficient ICT products

Additional Industry Principles

- Use proven successful voluntary and mandatory energy efficiency programs for ICT products as a basis for regulatory convergence and product energy efficiency gains
- Avoid using voluntary energy efficiency program metrics as minimum energy performance standards (MEPS) for market access of ICT products
- Adopt minimally trade-restrictive conformity assessment requirements in energy efficiency programs for ICT products
- Align to ENERGY STAR® framework (voluntary) supported by international standards

Industry advocates voluntary programs to drive energy efficiency and innovation

The Big Picture
(Example)



Scope for network standby policy

- Consider the network elements (networking devices, networked infrastructure devices, edge devices) in their entirety before considering efficiency requirements for each device class separately
- Horizontal approach not workable, the power and energy profiles and energy efficiency opportunities vary considerably between device classes- Horizontal approach leads to significant inefficiencies
- Vertical approach preferred and should identify product scope ensuring comprehensive studies (incl effect on network) are concluded,
  - Identify product category specific requirements that may include separate limits, adjustments (adders) etc
  - Minimises need for exemptions and avoids limits that are set too high and maximises efficiency savings

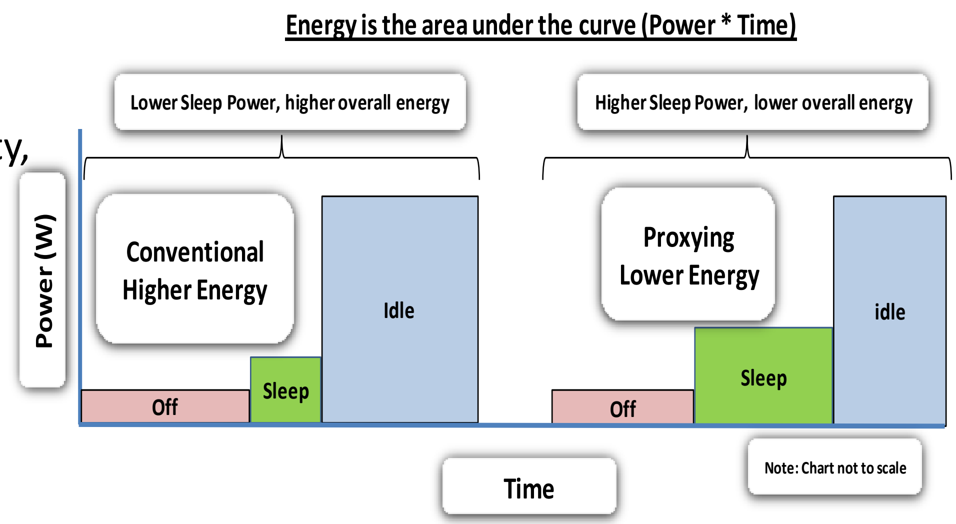
Definitions for network standby technologies

- Standardized definitions and terminology an advantage
- Clear and unambiguous terminology that comprehend network technology trends
  - Recent development of IEC 62542 demonstrated that a generic terminology can create difficulties due to differing technologies
  - Collaboration with Industry is essential to avoid inappropriate definitions
- Avoid use of generic terminology such as HiNA as used by ERP Lot 26
  - Providing examples can assist in the description of a definition
- Alignment to other more established and wide stakeholder involvement initiatives such as ENERGY STAR
  - Reducing conflicting terminology and minimizing confusion
- Regular and comprehensive government/Industry collaboration

Definitions need to reflect the technologies in scope

Measurement & Data Collection

- Market Studies need to be;
  - Clear with identification of scope (inc product and activities)
  - Identify transformation target
  - Less reliant on previous study data which may not be applicable or relevant
- In-Country/Regional studies based on local infrastructure and specific drivers (energy sources, cost, grid capacity etc)
- Comprehensive study of impact to the network and activity
- Specific goals and recognized metrics : Energy vs. Power
  - Higher modal power could still result in low energy, and vice versa
  - Network introduces added complexity, don't simplify approach without regard of up/downstream effects



Comprehensive studies to consider network interactions and effects on energy consumption

Standardization

- International Standards
  - avoiding duplicative and conflicting requirements
  - Wider stakeholder engagement and acceptance
- Standardized test methodology (e.g. IEC 62623)
  - Product focused
  - Measurement framework
  - Uniform data
  - Conformity assessment
  - Exemptions
- Transportability of data enabling global acceptance
  - Minimizes need for additional testing (In-Country) and certification
- Interoperability standards (e.g. 802.3az) can facilitate Energy Efficiency
- Advancing technology

Global approach to test once ship everywhere

Policy Issues and Options

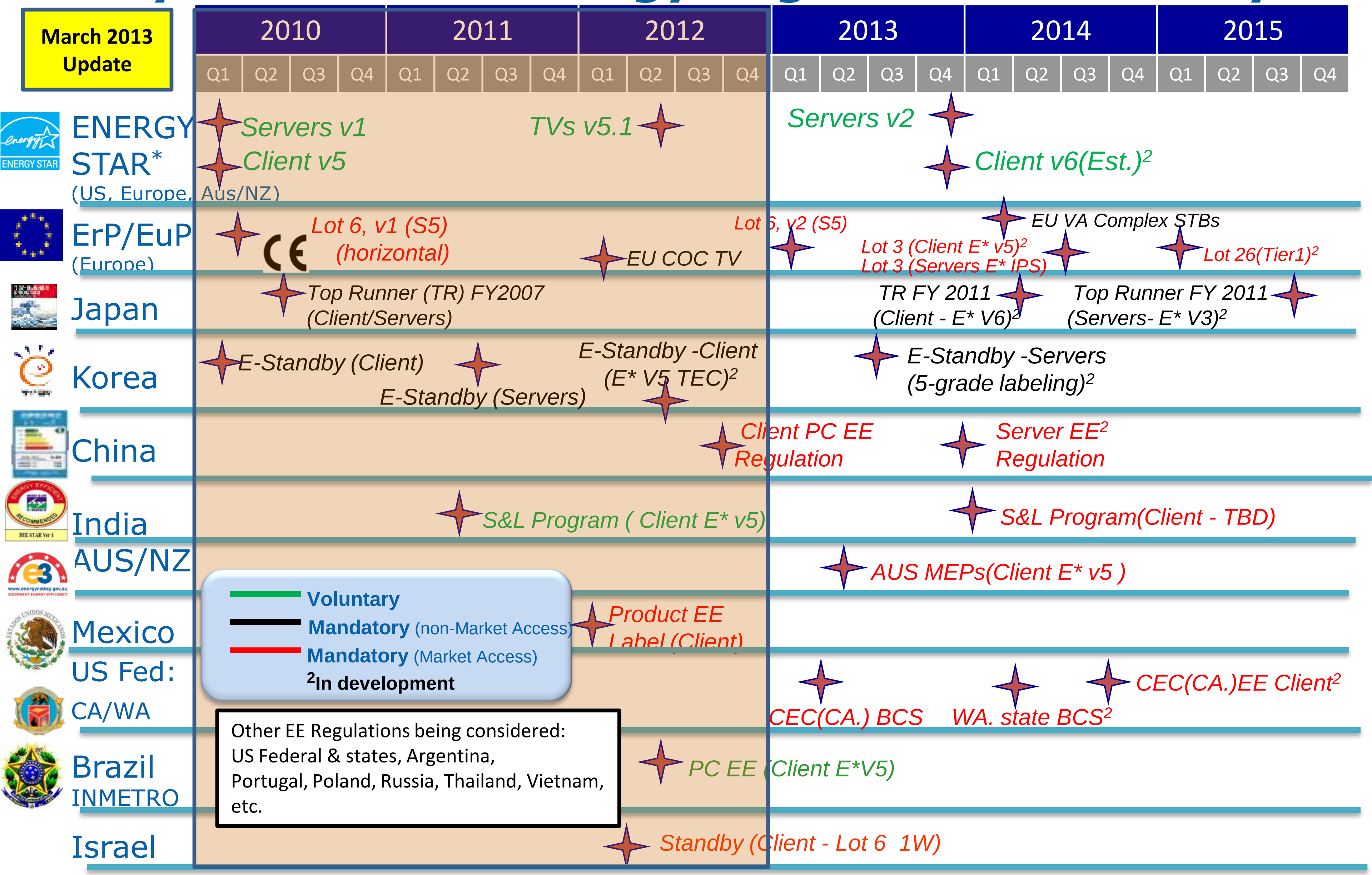
- Key learning from Lot 26 experience made available for other policy makers
- Regulations must be balanced reflecting market incentives to avoid stifling innovation
- Data driven, prioritized vertical segment approach with greatest energy savings gains taking into consideration, dependencies, costs, and potential "unintended consequences". Where similarities exist – leveraging regional device level data could be shared
- Policy makers must evaluate current policy tools (Voluntary, MEPs, COC, labeling) and work with Industry to agree on the approach
  - Even the voluntary labeling programs (ENERGY STAR) work, since the market forces continue to drive technology innovation, competitive cost, and consumer choice
- Address justifiable exemptions , trade-off between creating extra niche product categories and exempt such products with no material impact to CFF goals
- Conflicting policies and requirements
- Long term approach (Defining end-state; MEPs to voluntary; end of regulation). This is key – as there comes a point of diminishing return for any incremental effort.
  - Multi-tiered regulatory approach with an intention to spur future innovation, could be counter productive and in fact stifle innovation (since the future target setting is largely arbitrary)

Summary – Key Issues From an Industry Perspective

- Energy, not power
- Holistic approach
- Vertical product focus
- Voluntary
- Global objective
- Lot 26 (Horizontal approach) should not be a precedent

Back-up

Key ICT Product Energy Regulations Summary[1]



[1]Dates subject to change

Goal: Drive global convergence of energy efficiency standards and metrics

Scope for network standby policy

- Edge device primarily interacts with end user
  - Some devices are not expected to be activated by the network – no need for NW Standby, use normal standby mode
  - Some devices activated by the network – opportunity for reduced power while maintaining network connection
- Networking devices provide connectivity to edge devices
  - Benefit from mechanisms that scale energy consumption with traffic intensity
  - Linkage to edge device becoming less dependent, so less opportunity to benefit from low traffic conditions
- Networked infrastructure devices manage and manipulate the data within the network and service application requests from edge devices
  - Efficiency addressed through management utilities and/or virtualization features to coordinate a power and performance policy
- Energy Efficiency of the network should be assessed in traffic conditions that match normal usage - *scale, should not sleep*
  - assessment not just based on edge device but the overall effect on the network
  - Relevant efficiency dependent on device performance under worst case load vs. typical load – will depend on use profile of each device

Majority Profile Enterprise PC

Majority profile is based on enterprise users (people using computers in small to large businesses primarily focused on office productivity applications). A profile study on enterprise users was conducted on over 500 computers, involving large enterprises from Intel, Lenovo, Lexmark and Sony conducted geographically across China, Japan, Europe and the USA

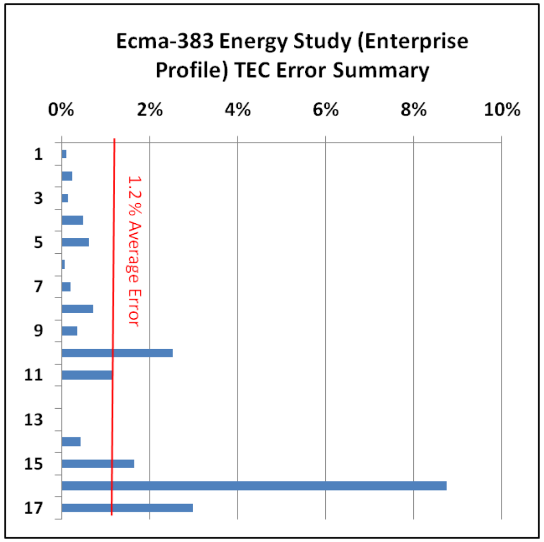
An additional energy study was performed on 17 machines which conclusively showed that no active workload is needed for the Enterprise profile, as the average TEC error across all machines averaged to be about 1.2% which is well below the 15% error criteria for requiring an active workload:

Duty cycle attributes for the Enterprise majority profile duty cycle study:

	Desktop Computer	Notebook Computer
T_{off}	45%	25%
$T_{sleep} + T_{WoL sleep}$	5%	35%
T_{idle}	15%	10%
T_{sidle}	35%	30%
T_{work}	0%	0%

Summary of the Enterprise Energy Study

	Measured AC power					TEC Error Calculation		
Users	Active	Short idle	Long idle	Sleep	Off	TECact	TECcalc	% Error
1	42.8	42.7	36.7	1.5	0.5	160	160	0.1%
2	32.1	32.0	26.0	1.5	0.5	120	120	0.3%
3	33.8	33.9	23.9	1.5	0.5	123	123	0.2%
4	36.2	35.7	29.7	1.5	0.5	134	134	0.5%
5	21.2	21.0	15.0	1.5	0.5	79	78	0.6%
6	33.2	33.2	25.6	1.5	0.5	123	123	0.1%
7	35.1	35.0	26.1	1.5	0.5	128	128	0.2%
8	22.2	21.9	20.5	1.5	0.5	87	87	0.7%
9	40.4	39.7	33.7	1.5	0.5	149	149	0.4%
10	44.4	42.6	37.7	1.5	0.5	165	161	2.5%
11	28.4	27.9	17.7	1.5	0.5	101	100	1.2%
12	25.3	25.3	18.6	1.5	0.5	94	94	0.0%
13	22.1	22.1	10.8	1.5	0.5	77	77	0.0%
14	19.9	18.6	17.8	1.5	0.5	75	75	0.4%
15	30.4	29.6	21.8	1.5	0.5	111	109	1.7%
16	12.0	9.0	9.0	1.5	0.5	43	39	8.7%
17	72.4	35.9	29.9	1.5	0.5	139	134	3.0%
							Avg. Error =	1.2%



Energy vs. Power example
Printer

Consider an Inkjet MFP that meets the EU regulation, but only supports 1 user. The network standby (Sleep mode) is 1.5 W with a typical electricity consumption of 0.5 kwh/week. If there is a group of 20 workers, each worker needs 1 Inkjet MFP - So the total network draw is 30 W in network standby with a TEC equivalent of 10 kwh/week.

Now compare this against a current ENERGY STAR qualified Colour Laser MFD; It has sleep power of 8.1 W and a TEC of 3.3 kwh. In this case the regulation would make the Laser MFP illegal while forcing the customer to purchase lower featured products.

So a quick comparison:

20 Inkjet - 30 W on the network / 1 Laser MFP - 8.1 W on the network

20 Inkjet - 10 kwh/week / 1 Laser MFP - 3.3. kwh/week

20 Inkjets - Cost 20 x $100/each = $2000/1 Colour Laser MFP - $1200

Networked Laser MFD can do the work of 20 x Inkjet MFPs and at the fraction of the total energy