Overview of current and planned policies associated with Networked Devices

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United States – Current Policies (1)

- Department of Energy (DOE) Appliance Standards:
  - Implements Energy conservation standards and test procedures on a product-by-product basis
  - Promulgates, reviews, and updates energy conservation standards for the product types delineated by statue
    - Energy conservation standards for more than 60 categories of appliance and equipment types
  - Considers network functionality of regulated products by including test methods for standby energy consumption and including energy consumption in metrics.
  - DOE does not disaggregate products or components on a level that is incompatible with its statutory charge.

- DOE work on systems/intelligent efficiency:
  - Emergency Technology Research & Development groups on Sensors and Controls and Building-to Grid
  - Green Button Initiative provides utility customers with energy usage data and incentivize software developers and entrepreneurs to build innovative energy-saving applications)
  - National Renewal Energy Laboratory (NREL) Energy Systems Integration Facility: provides transformative capabilities to advance nation's energy systems into a cleaner, more intelligent infrastructure.
  - Efficiency goals within the Climate Action Plan and DOE's Quadrennial Energy Review
  - National Renewal Energy Laboratory (NREL) Energy Systems Integration Facility

United States – Current Policies (2)

- Impacts of Standards:
  - American consumers saved $63 billion on their utility bills in 2015 alone
  - Since 2009, DOE has issued 40 new or updated standards, which are projected to save consumers over $540 billion off their utility bills through 2030, and cut carbon dioxide emissions by 2.3 billion metric tons
  - By 2030, cumulative operating cost savings from all standards in effect since 1987 will reach nearly $2 trillion, with a cumulative reduction of about 7.3 billion tons of carbon dioxide emissions, equivalent to the annual greenhouse gas emissions of 1.5 billion automobiles
  - Products covered by standards represent about 90% of home energy use, 60% of commercial building use, and 30% of industrial energy use

United States – Current Policies (3)

- Environmental Protection Agency (EPA) work includes:
  - Systems Efficiency Joint Workshop between EPA and ITI
  - Incentive energy efficient network connectivity technologies and demand response in ENERGYSTAR specification
  - ENERGYSTAR specifications for connected thermostats and other networked products.

Canada – Policy Authority

Canada's *Energy Efficiency Act*:

- 1992, authority to eliminate inefficient energy-using products from the marketplace
- 2009, amended to allow regulations for products and classes which enabled horizontal standards for standby

Canada's *Energy Efficiency Regulations*:

- Establish energy efficiency standards, labelling, reporting and importing requirements for over 40 energy-using products
- 2010, Standby MEPS for TVs, Compact Audio and Video products
- Standby included for 2 more products (test procedures & MEPS)
- April 2016: Proposed Amendment 13 to Regulations was pre-published and Amendment 14 Notice of Intent was published.

Canada – Policy support

Commitment to energy efficiency standards:

- August 2014: NRCan and U.S. DOE established goal under Regulatory Cooperation Council of *aligning new and existing standards* and test methods, to the extent practicable and permitted by law
- March 2016: U.S – Canada Joint Statement on Climate Energy, and Arctic Leadership: Prime Minister Trudeau and President Obama pledge to better *align and further improve appliance and equipment efficiency standards by 2020* and expand cooperation on the ENERGY STAR program
- March 2016: Vancouver Declaration on clean growth and climate change: First Ministers agreed to advance the *harmonization of energy efficiency standards* and development of innovative approaches across Canada and with North American partners

Energy efficiency standards support government objectives:

- → Energy efficiency standards are a tool to address climate change targets
- → Energy Efficiency supports Canada's environmental and economic priorities
- → Momentum and engagement in IEA CDA and 4E can help Canada meet its commitments by informing its national process

Canada – Current and future Activity

- Studies done to:
  - 2014 Network Connected Standby study to gather information to inform a baseline and understand scope of issue in Canada as well as make some strategy recommendations to address issue
  - 2015-2016 Basket of products testing of printers, smart lighting, and game consoles
  - 2015 Game consoles technology assessment to gather information to inform a baseline and obtain a better understanding of technology and its energy use
- Planned:
  - Testing building on 2015-2016 study; more testing of smart lighting, smart TVs, smart audio/video, smart appliances, Computers, small network equipment
  - Looking to updating testing procedures to incorporate network standby – TVs and lighting

European Union – Current Policies

- Network standby
  - Ecodesign networked standby regulation (801/2013 amending 1275/2008)
  - Scope: products able to be reactivated over a network, typically IT and consumer electronics equipment
  - Requirements:

Networked product	Tier 1 (1-Jan-2015)	Tier 2 (1-Jan-2017)	Tier 3 (1-Jan-2019)
HiNA network products	12 W	8 W	8 W
Networked products with HiNA function(s) other networked products (LoNA)	6 W	3 W	2 W

Source: OJ L 225, 23.8.2013, p. 1-12.

European Union – Policies Being Planned

- Network standby
  - Mandate to CENELEC/ETSI for development of measurement methods
  - Preparatory study for limited review of standby regulation; first stakeholder meeting on 21 October 2015
- Smart appliances
  - EU Project "Semantics of Smart Appliances" - provide overview of available semantics assets for the interoperability of smart appliances
  - Preparatory study smart appliances
    - To analyse all technical, economic, environmental, market and societal aspects that are relevant for a broad market introduction of smart appliances.
    - Focus on Demand Response of household and commercial appliances

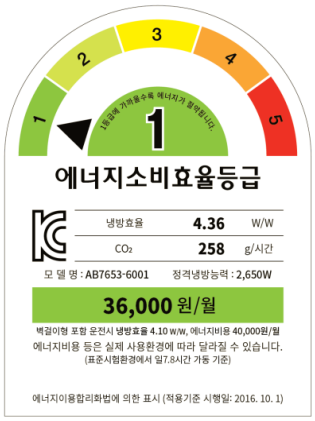
European Union – Longer Term Thinking

- Preparatory Study for revision of (network) standby regulation
  - Stakeholder meeting planned
- Longer term thinking is being done within the Smart Appliance Preparatory Study
  - Stakeholder meeting May 30

Korea – Current Policies

- 27 products currently in Korean MEPS
- Labelling: to meet energy label 1 or 2, networked products shall satisfy standby power standard

Product	Grade	Off-mode standby power	Products with functions using network
Air-conditioner	1st ~2nd	≤ 1W	≤ 1W (Off-mode) ≤ 3W (active-mode)
Washing machine	1st	≤ 0.5W	≤ 0.5W (Off-mode) ≤ 2W (active-mode)
Drum washing machine	1st	≤ 0.5W	≤ 0.5W (Off-mode) ≤ 2W (active-mode)
TV	1st	≤ 0.5W	≤ 0.5W (Off-mode) ≤ 2W (active-mode)
Rice Cooker	1st	≤ 1 or 2W	-
Air cleaner	1st	≤ 1w	-
Household gas boiler	1st	≤ 3w	-
Gas Water Heaters	1st	≤ 3w	-
Set-top box	Only MEPS	≤ 1w	≤ at least 5W or 6W with additional Watt.
Dehumidifier	1st	≤ 0.5w	-



Korea – Current Policies (2)

- Currently 21 products e-standby program
- e-standby program: in order to carry the e-Standby label, products must meet network standby power limits

Target devices	Power limits for network standby modes	Network functionality	Availability of network standby mode(s)
Computers	Total energy consumption including sleep mode, transition time and off mode	Available	Available (Wake-on-LAN mode)
Printers, fax machines, copiers, multi-function devices	Total energy consumption including sleep mode, transition time and off mode	Available	Available
Scanners	≤ 15 min (transition time) ≤ 5-10 W (standby mode) ≤ 0.5 W (off mode)	Available	Available
Building door phones, cord/cordless phones	≤ Various (standby mode)	Available	Available (backlight off control)
Modems	≤ 0.75 W (off mode) ≤ Various (standby mode)	Available	None
Home gateways	≤ 10 min (transition time) ≤ 10-20 W (sleep mode)	Available	None

Source: Adapted from Jung, S. (2013), "Korea's energy efficiency Program in terms of networked standby," presentation at the Networked Standby Policy Framework Workshop, IEA 4E/SEAD and Natural Resources Canada, Toronto, 7 March, www.iea.org/media/workshops/2013/networkedstandby/5Sangguk JUNGKoreasEnergyEfficiencyPrograms_TTA_130305.pdf.

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Korea – Policies Being Planned

- Research on standby power being undertaken in 2016
- Considering applying the general standard and definition of network devices into the e-standby program

United States – Links

DOE Appliance Standards:
http://energy.gov/eere/buildings/appliance-and-equipment-standards-program
Sensors and Controls:
http://energy.gov/eere/buildings/sensors-and-controls-rd
Building-to-grid:
http://energy.gov/eere/buildings/buildings-grid-integration
Green Button:
http://energy.gov/data/green-button
Climate Action Plan:
https://www.whitehouse.gov/share/climate-action-plan
Quadrennial Energy Review:
http://energy.gov/epsa/quadrennial-energy-review-qer
NREL's Energy Systems Integration Facility
http://www.nrel.gov/esif/

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