# Korea's Energy Efficiency Program

# in terms of Networked Standby

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● Definition of "networked standby" in this presentation

**"Networked standby modes are conditions, in which the equipment provides reduced functionality, but retains the capability to resume applications through a remotely initiated trigger via network connection.**

**Networked standby modes may distinguish different levels of network availability and by that different resume-times-to-application as well as power consumption." (Source : EuP Preparatory Studies, Lot 26)**

- Include : Sleep mode(Computer domain), Idle mode(Operation system domain),
  Active standby mode, Standby mode
- Exclude : Passive standby mode(only waiting for remote controller)
  Sleep mode(wake up by touch sensor, such as bidet)

● This presentation focuses on networked devices(e.g., TVs, Set-top boxes, Computer, etc) rather than network devices(e.g., switch, router, etc)

# Power Reduction Programs in Korea

## Energy efficiency labeling  program

- Implementation('92)
- Mandatory labeling, applying MEPS
- 35 items included

## High efficiency  certification program

- Implementation('96)
- Voluntary
- 41 items included

## e-Standby program

- Implementation('96)
- Voluntary
- 22 items included

Certification of high efficiency equipment (support market entry)

energy efficiency labeling program (support the market consolidation)

lowest energy efficiency standard ( throw out the low-energy efficiency appliances)

# Energy Efficiency Labeling Program

- 7 Target Products have networked standby power limits.
  - Air conditioners, washing machines, drum washing machines, dish washers, household gas boilers, gas water heaters, TVs.



- Other 28 products have efficiency level, off mode and passive standby mode power limits.

# Energy Efficiency Labeling Program

- Summary of 7 Target Products

| Target Product | Networked Standby Mode Power Limits | Network Function | Networked Standby Mode |
|---|---|---|---|
| Air Conditioners | ≤ 1W (Passive Standby) ≤ 3W (Active Standby) | Available (some) | On/Off Control |
| Gas Boilers | ≤ 3W (Sleep Mode) | Available (majority) | On/Off Control |
| Water Heaters | ≤ 3W (Sleep Mode) | Available (majority) | On/Off Control |
| Washing Machines | ≤ 2W (Active Standby) | Not available | – |
| Drum Washing Machines | ≤ 2W (Active Standby) | Not available | – |
| Dish Washers | ≤ 3W (Active Standby) | Not available | – |
| TVs (Effective July 1 in 2012) | ≤ 1W (Passive Standby) ≤ 2W (Active Standby) | Available (majority) | None |

# e-Standby Program

- 12 target products have networked standby power limits.

  - Computers, Printers, Fax machines, Copiers, Scanners,
    Multi-function devices, Set-Top Boxes, Door Phones,
    Cord/Cordless Phones, Modem, Home gateways,

- Other 10 products have passive standby and idle mode power limits.

# e-Standby Program

● Summary of 12 Target Products

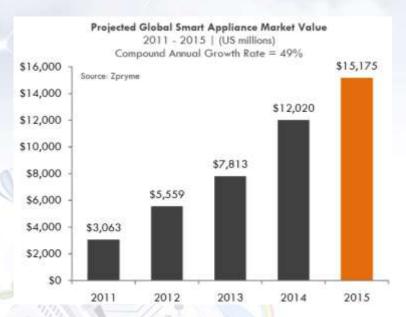| Target Product | Networked Standby Mode Power Limits | Network Function | Networked Standby Mode |
|---|---|---|---|
| Computers (Effective July 1 in 2012) | TEC including sleep mode | Available (majority) | Wake On LAN mode |
| Printers, Fax Machines, Copiers, Scanners, Multifuction devices | Various on Off Mode and Sleep Mode | Available (majority) | On/Off control |
| Door Phones, Cord/Cordless Phones | ≤ Various (Standby Mode) | Available | Backlight off control |
| Set-Top Boxes | ≤ 1W (Optional, Passive Standby) ≤ 10~20W (Active Standby) | Available | None |
| Modem | ≤ 0.75W (Off Mode) ≤ Various (Standby Mode) | Available | None |
| Home Gateways | ≤ 10~20W (Sleep Mode) | Available | None |

# Other Approaches

- Networked Standby at Home network Level



**Gas Valve**

**Door Lock**

**Built in Air conditioner Lobby Phone**

**Sub Phone**

**Home Gateway**

KOCOM

**Boiler**

**Wallpad**
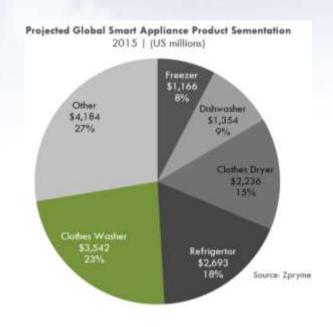
**Light Controller**

**Curtain Controller**

# Other Approaches

🔵 Smart Household Appliances Trend



🔵 Smart Convergence Household Appliances Forum launched in 2011

- Formed by major electronics companies, schools and R&D labs.
- Suggests standard platform and protocols to communicate with different vender.
- Considers easier user interface and interoperability guarantee.

> Once the problems are solved, the smart household appliances expand rapidly, then get into the home network system.

# Conclusions

- Networked standby modes are implemented only on 11 of 57 target products. (Energy efficiency labeling program + e-Standby program)
  - 8 of them have on/off control (air conditioners, gas boilers, water heaters, printers, fax machines, copiers, scanners, multifuction devices)
  - 2 of them have backlight off control (door phones, cord/cordless phones)
  - 1 of them have wake on LAN mode (computers)

- Need clearer definition of "networked standby"
  - Harmonize words such as "passive standby", "active standby", "sleep", "idle", etc
  - Classification of networked device and network devices
  - Cooperate with international standard bodies

- Consider convergence of smart household appliances and home network
  - Guidelines for house level power requirement

# Thank you.

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