SUPER-EFFICIENT EQUIPMENT AND APPLIANCE DEPLOYMENT INITIATIVE

SEAD NETWORK STANDBY PROJECTS

IEA / 4E / SEAD Network Standby Workshop
8 March, Toronto, Canada

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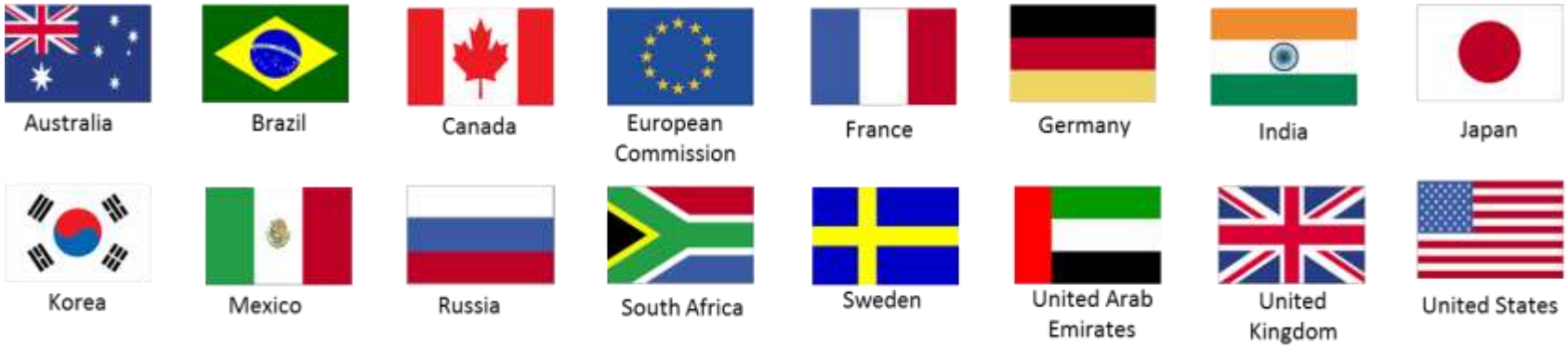
SEAD AT A GLANCE

- Launched by the Clean Energy Ministerial in July 2010
- To engage governments and private sector to accelerate market transformation to energy efficient equipment and appliances

16 SEAD Governments

*China is an Observer



SEAD Partnerships

clasp

Berkeley Lab

4E Efficient Electrical End-Use Equipment International Energy Agency

APEC Asia-Pacific Economic Cooperation

en.lighten

SEAD Goals

- Governments working together on voluntary activities to:
  - "raise the efficiency ceiling"
    - Awards, Incentives, Procurement
  - **"raise the efficiency floor"**
    - **Standards & Labelling → 7 Product Collaborations**
  - "strengthen the foundations"
    - Technical Analysis

Network Standby Product Collaboration

- Participating governments: Australia (Chair), Canada, Korea, Japan, UK, US + IEA 4E Standby Annex as observer
- Share and discuss upcoming policies and approaches to network standby
- SEAD projects intended to strengthen and inform policy development:
  - **Real World Usage of Networked Products**
  - **Standardised Definitions for Network Standby and Application to Televisions**

Real World Usage of Network Connected Products

Project Contractor - Intertek

- What?
  - Examine *how* and *when* the average (UK) household uses network-connected products in the 'real world' environment → emphasis on "always on" devices
- How?
  - Conduct field testing in volunteer households to examine network traffic patterns for devices in the home
  - Two phases:
    1. Market Research to Select Participating Households
    2. Field Data Collection Exercise
- Why?
  - Monitor usage patterns and type of data traffic to understand if there are common, regular periods of negligible traffic
  - Assess potential for energy savings → provide policy recommendations
  - Ensure the project methodology is transferable and reproducible in other countries

Phase 1: Preliminary Market Research & Recruitment
(By Ipsos MORI)

- Identify a nationally representative sample of the online population using services of 3 major ISPs
- Recruit 100 volunteer households willing to make necessary data available via their ISPs
- Develop questionnaire covering number of people in household, details of network-connected equipment available plus make and model, and how these products are used
- Certain considerations to facilitate recruitment:
  - Agreement and collaboration needed from the ISPs
  - Ensure households understand the data collection process and needs and receive suitable support
  - Provide an incentive scheme for participation

Phase 2: Field data collection

- Commitment from 3 major ISPs to monitor selected customer lines and return data to the project team
- Monitor household network traffic over 2 week period minimum
- Working with the ISPs to define the data to be collected and how (under NDAs)
- ISPs will collect information on flow of data on each participant's LAN to and from the internet (keeping contents of data packet private)
- Information collected will include:
  - volume and type of data packet transmitted (what they are doing from what applications – peer-to-peer, chatting, streaming, etc)
  - Product to modem / product to product
- Completed questionnaire will help inform which products the data is coming from (with assumptions and caveats!)

Data Analysis & Final Report

- Analyse the data by volume and type of traffic by time interval
- Observe any patterns which emerge (ex. periods of inactivity, unnecessary data packets, etc)
- Final report will include descriptions of the data collection approach and analysis methodology, results of the analysis and recommendations on how to incorporate the results in future energy efficiency policy measures

Final Report due July 2013

Preliminary findings show significant quiet periods of around 30-60% idle time on routers

SEAD Network Standby Standardized Definitions Project

- Needs no introduction or context….!
- Project goal:
  - Assess relevant existing definitions for "Network Standby" and related terms
  - Recommend set of standardized terminology suited to policy development in this area
  - Investigate how the resulting standardized definitions can be applied to improving test methods for televisions → current TV test procedures and energy efficiency policies do not adequately address energy consumption implications of network connectivity

PROJECT TASKS

- Compile existing related terms and definitions currently used in recognised standards and regulations across the globe, some of which already include consideration of *network standby*
- Identify relationships (similarities and differences) between different approaches and terms
- Interview 12 key stakeholders (policy & technical experts, industry representatives) to understand preferred approaches to the topic
- Present initial proposals, based on existing approaches and interviews, in Interim Report to **instigate feedback and discussion** (they succeeded…!)

→ <u>Final Report:</u> propose definitions for Network Standby and other relevant terminology suitable for use in the broadest of contexts across the widest range of product categories

MAIN INTERIM CONCLUSIONS

- Disagreements remain on terms to be defined, what the term should be, what context definitions are needed in, and what the definitions should be
- Need to progress the debate to a common, agreed terminology and take first step to develop an unambiguous, standardised definition of *network standby*
- Definition should be at a sufficiently high level to be product independent, but simultaneously applicable to a wide range of appliances and products that either already contain *network standby* functionality, or are likely to in the future
- Two key terms identified that need defining: *network standby* and *low power networked standby*.

→ the proposed terms and definitions not final, intended to fuel discussions to help inform the final proposals

Interim Stage – Proposed Definitions

- **Network Standby:** Any state where the energy using product is connected to a mains power source and at least one network function is activated (such as reactivation via network command or network integrity communication) but where the primary function is not active.

  → *suitable for HiNA products*

- **Low Power Networked Standby*:*** A condition where the equipment is connected to a power source, is also connected to an operational network and provides **only** the following functions, which may persist for an indefinite time:
  - a reactivation function, or reactivation function and only an indication of enabled reactivation function; and/or
  - information or status display;
  - maintenance of network integrity at the minimum level necessary to satisfy the protocols for the type of network used, but no data forming part of the product's primary or secondary functions is transmitted;
  - The ability to change the mode or to reactivate at least one of the primary functions of the product via an external signal sent from the network.

  → *Not suitable for HiNA products as the network connection is a main function*

KEY QUESTIONS

- "Networked" or "Network" - just semantics?
  - "Networked" applies more to data content than a product
  - "Network" means the whole infrastructure
- Is a more detailed term necessary or is existing 'network standby' term sufficient and widely recognised?
  - "NETWORKED product in STANDBY"; or
  - "product in NETWORK in STANDBY"; or
  - "NETWORK STANDBY"
- Should the report cover personal/portable devices (battery powered smart phones and tablets) which are now beginning to dominate internet usage via home gateways for information research and recreational communication as well as supplying "apps" for the control of other products in a local network?

For more information

- See websites:
  - www.Superefficient.org
  - www.cleanenergyministerial.org

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