4E

Energy Efficient End-use Equipment
International Energy Agency

ENERGY EFFICIENCY POLICY BRIEF

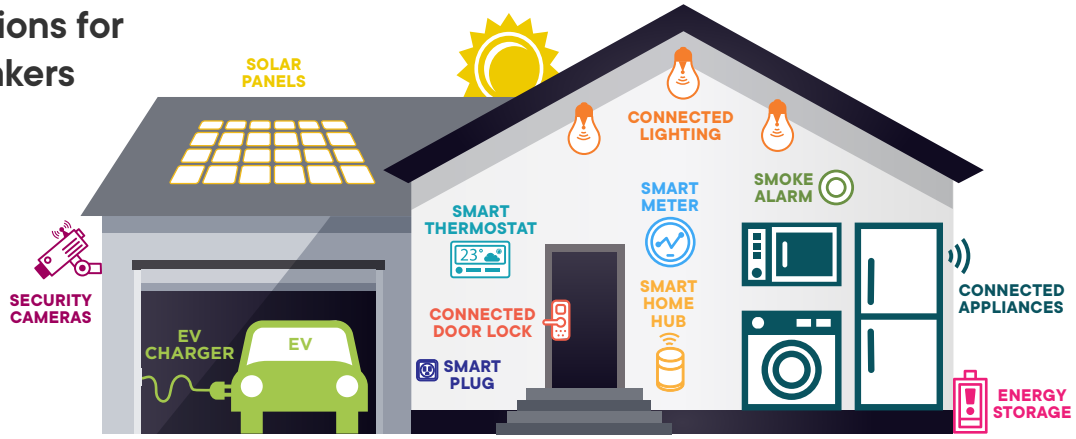
Policy Guidance for Energy Smart Digital Devices

EDNA10

The 4E Electronic Devices and Networks Annex (EDNA) provides policy guidance to members and other governments aimed at improving the energy efficiency of *connected devices* and the *systems* in which they operate. EDNA is focussed on the increased energy consumption that results from devices becoming connected to the internet, and on the optimal operation of *systems of devices* to save energy.

This policy brief summarises the key findings of the EDNA report *Policy Guidance for Smart, Energy-Saving Consumer Devices.* Devices are increasingly being sold with the ability to connect to the internet. However, not all connected devices are 'smart' and not all can harness their connectivity to save energy and provide demand flexibility to the broader energy system. The objective of the EDNA report is to provide policy guidance for encouraging the development of consumer devices which are capable of these functions - 'Energy smart digital devices'.

Observations for Policy Makers



- A digitalised energy system should allow systems of devices to provide demand flexibility and also to save energy ('intelligent efficiency').
- Many so-called smart devices marketed today are not able to deliver either demand flexibility or intelligent efficiency.
- Energy smart digital devices should have the capability to receive external inputs, process those inputs and independently take action, for the purpose of one or more of: demand flexibility, intelligent efficiency or status reporting (of energy consumption, fault conditions, etc.).
- There are already product policies which encourage energy smart digital devices, such as the 'ENERGY STAR® connected' criteria, the 'German Smart Grid Ready heat pump label' and the 'Australian demand response label'.

SG Ready Smart Heat Pumps

- Potential policy types which could be used to encourage energy smart digital devices include mandating the required energy functionalities (e.g. for all devices or perhaps only for internet-connected devices), consumer labelling (e.g. ENERGY STAR® connected criteria), financial incentives and requiring the use of open communications protocols.
- The EDNA report deals only with end-use devices. Other policies are required to ensure that a digital energy system is able to maximises the opportunities to increase efficiency.

MORE INFORMATION

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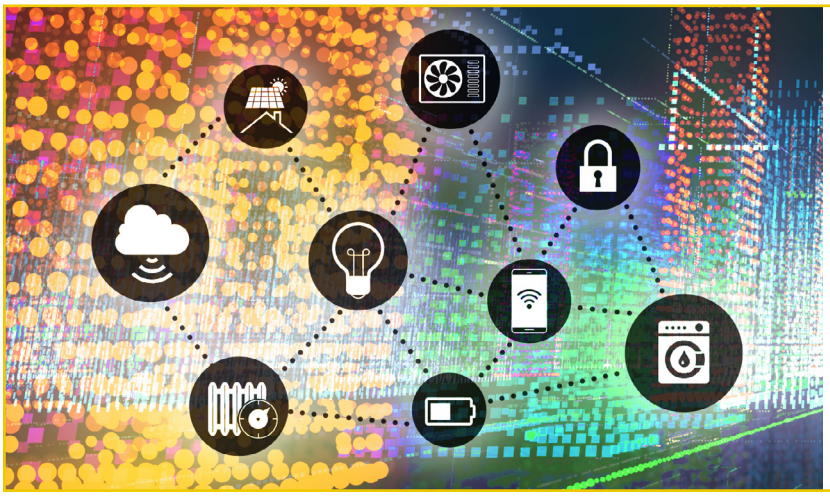
The EDNA report and further information is available from the **EDNA website** and by contacting the EDNA operating agent at **steve@beletich.com.au**

Key Findings

Priority devices

The most appropriate devices to target with energy smart digital policies are those with high energy consumption, such as air conditioners/ thermostats, water heaters, energy storage devices, vehicle chargers and large appliances.

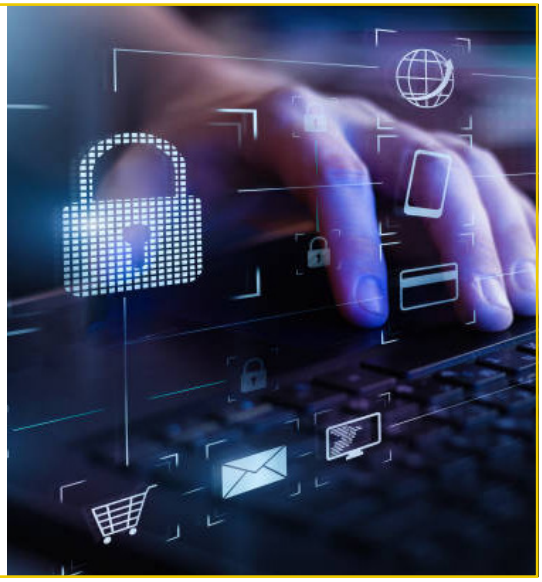


Communications protocols play a key role

Currently, for commercial reasons many devices used proprietary protocols to communicate. For a fully interoperable, digitalised energy system, devices need to 'speak the same language' which means they should use open communications protocols.

Consumer concerns need addressing

- The uptake of energy smart digital devices will be limited if consumers' concerns about how their data is stored, accessed and utilised are not adequately addressed. Governments and manufacturers need to take active steps to implement effective policies and cybersecurity protocols to secure devices and protect data.
- Energy smart digital devices should be easy to setup and use, and consumers should have the ability to over-ride any autonomous device functions.
- Test methodologies are required to substantiate claims to provide demand flexibility and/or energy savings.



Connecting devices to the internet can waste energy

The total energy used by billions of devices to connect to the internet can be significant. By 2030 it is estimated that 300 TWh per annum could be wasted globally, which is the same as the current electricity consumption of the UK. This energy can be limited by placing requirements on the 'network standby power' used by devices, without affecting device functionality.