# High-Level Meeting

## "Interoperability to create the Internet of Energy"

## Information Note[1]

### Support for interoperability – Overview of the standardisation work at EU level

The European Commission has been working towards interoperability of solutions and standardisation for smart energy grids, smart homes and smart meters in order to ensure that expected benefits in terms of system and market operation are realised.

Since the issuing of standardisation mandates for smart meters (M/441) and smart grids (M/490) to ESOs (European Standards Organisations - ESOs: CEN-CLC-ETSI), which have successfully delivered at the end of 2014 the respective standards, the Commission has been looking more intensively into issues of interoperability of different interfaces. This was done inter alia within the expert groups of its policy advisory platform of the Smart Grids Task Force (SGTF), by exploring how best to deliver smart networks and especially smart homes.

With the participation of a broad representation of stakeholders the Commission has fostered the creation of a "common language" (interoperability language) called

SAREF (Smart Appliances REFerence ontology), which became a standard of ETSI and OneM2M (the Global initiative for Internet of Things standardisation) in 2015. SAREF allows any appliance in the smart home to communicate to any energy management system thus enabling the flexibility of homes and buildings and facilitating the demand-response (flexible demand-side) mechanism of the smart grids. SAREF was demonstrated in commercial products (such as washing machines, tumble dryers, PV systems,

[1] This note is prepared by the European Commission services as background information for the High-Level Meeting of 11 May 'Interoperability for the Internet of Energy'. It doesn't present an official position of the European Commission.

etc.) at the IFA in Berlin in September 2016. The ETSI/OneM2M standard has evolved to a second version in which SAREF was modified to become modular and ready to incorporate multiple sectors such as Energy, Environment and Buildings (already standardised) as well as Automotive, Smart Cities, AgriFood, Health, Water, etc.

In order to fully enable, on a technical interoperability level, the smart grid and its demand-response mechanism the European Commission launched a study on 'Ensuring interoperability for enabling demand side flexibility'. It is currently working towards the aligning of SAREF with all other involved main standards in the Smart Grid architecture (as defined by the SGTF) and will enable the most important use cases of the demand-response. The theoretical work of the study will be finalised by this summer and a working demo with commercially available products will be demonstrated at the European Utility Week on from 3 to 5 October 2017 in Amsterdam.

Within the framework of the Ecodesign Directive2, an Ecodesign Preparatory Study on Smart Appliances is ongoing. It aims to complement the work on SAREF by analysing the technical, economic, market and societal aspects with a view to a broad introduction of smart appliances and to develop adequate policy approaches supporting such uptake.

For the purpose of this preparatory study, a smart appliance is defined as an appliance that supports Demand Side Flexibility (DSF), i.e.:

- It is able to automatically respond to external stimuli e.g. price information, direct control signals, and/or local measurements (mainly voltage and frequency);
- The response is a change of the appliance's electricity consumption pattern. These changes to the consumption pattern define the 'flexibility' of the smart appliance.

A first phase of the study was completed at the end of 2016, resulting in identifying the most promising appliances in terms of flexibility, assessing environmental and economic aspects on the energy system and the end users, and proposing preliminary principles for policy options. The ongoing second phase of the study aims to refine and present fully-fledged policy options.[3]

Moreover, within the general framework of the Internet of Things and 5G, the European Commission is looking at cross-cutting aspects related to interoperability, standardisation, security and privacy to take advantage of Smart Energy in cross-vertical application areas such as mobility, building automation, smart living and smart cities, and support the use of interoperable solutions in real-life.

The European Commission services (DG CONNECT and DG ENER) are currently preparing a joint initiative in support of the 'Digitising European Industry' (DEI) strategy and of the Clean Energy for All Europeans package, to fully seize the opportunities offered by digital technologies to the energy sector, with the aim

[2] Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products

[3] More information is available at http://www.eco-smartappliances.eu/Pages/welcome.aspx

to contribute to achieving the Digital Single Market4 and the Energy Union objectives. This will be materialised, in the form of an Internet of Things large scale pilot, focusing on smart homes and smart grids. It will address uptake and investment barriers, and promote synergies across sectors, knowledge transfer and common technological developments and standards. Under WP2018-20 the DEI strategy is supported through the new Focus Area on Digitisation under which about 300 Million € will be spent for pilots and platforms. The objective of the DEI strategy is to establish European leadership in Digital Industrial Platforms with a focus on a cross-sectoral approach. The new calls will support platforms and applications across sectors by joining and aligning with the already running large scale IoT pilots in Smart Cities, Transport, Health & Well-being, Wearables, Farming and Manufacturing.

[4] See https://ec.europa.eu/digital-single-market/en/news/communication-digitising-european-industry-reaping-full-benefits-digital-single-market