BRIDGE

Digitalization of the energy sector: the 'greening by design' paradigm

Minutes of the session

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EUW 2019 - Paris

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EUW 2019, Paris – EC Session on Digitalization
EU project zone – 13 November 2019, 9:30 – 12:15

The different PPT presentations of the morning are uploaded in the restricted area of the BRIDGE website. More information about the BRIDGE project presented can be found in the BRIDGE Brochure (https://www.h2020-bridge.eu/).

9:30-9:35	**Introduction by the Commission, *Patricia Arsene (DG CONNECT)***
	Presentation of the agenda and participants. The eight H2020 projects invited to the session were asked to answer in 5' the same questions (please see below):  Followed by a panel aiming to reply the following: 
9:35-9:45	**Policy context – Greening by design, a European Commission perspective, *Svetoslav Mihaylov (DG CONNECT)***
	Processing is focused on data centre. Green data centre addressed by the Commission is also important to make them more energy efficient. ICT footprint is a major topic. Factsheets for EU projects will be done.
9:45-11:05	**Presentations of projects (5' per project) and Q&A, *moderated by Olivier Genest (WG Data Management)***

MIGRATE Hannes Munzel	The MIGRATE project gathers 12 EU utilities, 12 Academic and 1 SME. The main objective of the project is to increase the share of power electronic devices and improve the power system stability. Example of results: develop prototype tool for visualising Power Electronic (PE) penetration and Power Quality (PQ) vizualisation tool that allow to show how large are the 5th harmonic on the Irish grid and substations. *Question: Did you consider the energy impact/consumption of the tools developed?* The first concern was the security of the grid, the greening by design paradigm could be an opportunity for the future of MIGRATE.
QUANTUM Stefan Plesser	The QUANTUM project focuses on a auality control loop between engineering, construction & operation. Quality Management is a third-party task which starts with setting targets, needs to be based on data (data must be made available) and can be applied digitally. Synavision company provides a software to host buildings data and evaluate buildings performance in a standardised way (based on the German technical monitoring report and the European Guidebook 'Quality management for buildings'). The COPILOT company certifies that this tool is used to evaluate the system. Certification schemes are provided for renovated and new buildings. *Question: Is the energy efficiency of the building ICT infrastructures evaluated?* Unfortunately not but quality management is green & favours sustainability.
Plan4RES Sandrine Charousset	The Plan4res project aims to contribute to the decarbonisation of Europe by optimizing the balance between new investments and optimum use of existing assets and by maximising the use of the flexibility that exists. Need to have an integrated modelling of the whole energy system which is necessary to simulate **green** energy system expansion and operation at lowest cost. A set of models has been design: an end-to-end modelling tool. Between 2020 to 2050, uncertainties, traditional plans, renewables plans, demand response, electric vehicles have been considered. The SMS++ tool have been developed: An end-to-end planning and operation tool, composed of a set of optimization models based on an integrated modelling of the pan-European Energy System. Three case studies will be studied, highlighting the tools adequacy and relevance. *Question: Did you consider the energy impact/consumption of the tools developed?* High level ICT tools and servers are used. The consumptions of power electronic devices are actually studied and should be considered in the modelling system. The model is generic so if energy consumption is represented as a cost it could be implemented in the modelling system.

FLEXCoop Roland Tual	The FLEXCoop project is about demand response tools for energy cooperatives: it is a complete demand response tool, supporting the stability of the grid, supporting the different services and prosumers. Based on citizen initiatives using cooperatives as aggregators and enabling consumers to support the grids. From the flex side, the key activities are to build up a complete demand response optimization framework, integrate smart home demand-response optimization. From the coop side: the key activities are to introduce the prosumer concept, create new and viable business models and secure the grid in a decarbonized energy system. A prosumer and aggregator market place to bridge the gap between citizens and system value was created. *Question: How the ICT tools help the consumer engagement?* In fact the question could be 'How this tool provides what the citizen wants?'. Cooperatives and trusted actors, where people are members and active participants, provide the tools/support what citizens want. Regarding the energy impact, the project aims at assessing the energy consumption of the ICT tool and data generated.
SPEAR Solon Athanasopoulos	The objective of the SPEAR project is to build an attack detection mechanism and promote resilience operations in smart grids. Critical infrastructures have to be secured and private. The main challenge is to detect cyberattacks using new technologies and capabilities. Three major components in the SPEAR platform are pointed out: - SPEAR SIEM: detect any intrusion on the grid and visualise all detections and anomalies; - SPEAR FRF: provide a legal framework; - Repository of incidents. During the design of the project the consortium had not the green paradigm in mind but then deep-learning technic and IoT devices with low energy consumption have been used to address this issue. *Question: Is it valuable to share the repository incidents?* The sharing platform is a very important tool and the SPEAR consortium works closely with EE-ISAC. There is some connexion to be made with the BRIDGE Task Force on Cybersecurity. New players are going to be invited by SPEAR and EE-ISAC. Discussions must be planned.
DOMINOES Jan Segerstam	The DOMINOES project aims to enable the use of more renewables by novel market design enabling local and wholesale market interaction. ICT solution will be implemented.
ENCOMPASS Piero Fraternali	In the ENCOMPASS project, household consumer data are managed through automated data meter. A mobile app allows to visualize the consumption, with own objectives to be fixed. It leads to energy savings, up to 10% in some cases.
FUNERGY Piero Fraternali	The FUNERGY project is about Gamification program with easy smart meter access, rewards, earning badges. It helps to engage millennials and kids. You play the game and you interact with the mobile app. An

	energy consumption reduction has been observed within the consumer community that used the system developed but if you can shift behaviour consumption with tools, it is not simple as there is the need to have the behaviour change overtime. *Question: How did you recruit the participants?* The recruitment of the trial participants was performed with random selection, calls, etc.
SOGNO Antonello Monti	The SOGNO project is about advanced sensors, AI and 5G for detailed visibility and control of both MV and LV. Two types of services provided: System awareness (state estimation, power quality, power control) and Autonomous self-healing (fault location and isolation, service restoration, load and generation forecasting). Field tests in Ireland (ESB), Romania and Germany (RWTH campus). Main impact is a faster reconnection of customers.
11:05-11:15	*Coffee break*
11:15-12:15	**Panel discussion**
	Key take-away from the session: • Greening by design is not a current approach and many times this is not at all in the thinking of the energy companies. The Transmission System Operators consider themselves "disconnected" from the consumers and exclusively responsible for the stability of the grid. • There is a need for stepping away from a monolithic approach, to increase a real cross-sector integration (mainly energy-digital). The energy and the ICT sectors are still speaking different languages. • Solutions should be developed (where appropriate) with the smart city perspective in mind. We all work for citizens and we have to bring them on board when designing the future solutions. There is a need to appropriately explain the link between digitalisation and sustainability.