Flexibility for a sustainable energy system

IEA EUWP Workshop

20 March 2019

Auditorium GSE - Viale Maresciallo Pilsudski 92 - 00197 Rome – Italy

Flexibility is the new keyword when we speak about a decarbonised energy system. It represents one of the most important requirements when we want to integrate variable renewables in the electricity networks without jeopardising its stability, and is a key element fostering the interaction among the different energy vectors (i.e electricity, gas, heat, water, etc.) towards an optimised overall balanced and resilient system. Understanding and implementing flexibility along the entire energy value chain is such a big challenge that international collaboration is vital to coordinate efforts and join forces and resources to accelerate the development and deployment of the adequate technology portfolios in time for the climate changes mitigation. The IEA, through its Energy Technology Network, is a key actor in this framework, leveraging the engagement and competences developed within its Technology Collaboration Programmes (TCPs).

Back to back to one of the IEA coordination meetings (namely that of the End-Use Working Party, in charge of the supervision of 14 TCPs), this workshop will present the state of the art and the progress of technologies and solutions to address and enhance the flexibility in sustainable energy systems, highlighting national initiatives and programmes and the contribution of Italian research and industrial activities within international collaborations.

Although duly focussed on measures and technologies pertaining to the use of energy, the discussion will include the flexibility measures to be implemented taking into account the interaction with supply systems with special regards to renewables. Technologies considered range from smart grids, to all forms of energy storage and demand side management (e.g. the use of electric vehicles for storing excess electricity and providing grid support services, advanced batteries, heat pump strategies within DSM, power-to-heat (P2H), power-to-gas (P2G) and power-to-hydrogen (P2H2).

Each technical session will at first address the RD&I activities in the specific field of interest, at the light of global (IEA TCPs), European (Set Plan initiatives) and/or national projects (e.g. Italian RdS and other projects). Presentations will be given by Italian experts participating in the different research contexts, complemented and supported by CEM or IEA TCPs international representatives. The discussions will include also round tables, involving representatives from industrial stakeholders, showcasing ongoing projects, research needs and the potential interests and involvement in the TCPs activities and exploitation of key results.

PROGRAMME	
09.30 – 10.00	Registration and welcome coffee
10.00 – 10.15	Welcome address • Roberto Moneta – CEO GSE • Min. Giampaolo Cutillo – Ministry Foreign Affairs (MAECI) • Sebastiano Del Monte – Ministry Sustainable Development (MiSE) • Alicia Mignone – IEA CERT – Chair
10.15 – 11.00	**Defining flexibility – Moderator: Alicia Mignone IEA CERT - Chair** • Perspectives on flexibility for a sustainable energy system – P.A. Widell – IEA • Integrated energy systems and flexibility: the European perspective – A. Iliceto – ETIP SNET • Italian RD&I perspectives in the frame of European and international contexts – M. Capra – MiSE
11.00 – 11.30	Coffee break
11.30 – 13.30	**Session 1: ENERGY VECTORS INTEGRATION, STORAGE and MOBILITY** **Moderator – M. de Nigris – RSE – vice-chair IEA EUWP** • RD&I activities on smart grids and vectors integration – (I. Gianinoni, S. Maran – RSE), and on systems and technologies for storage and mobility – (F. Vellucci, P. P. Prosini – ENEA) **Round Table** with national and international level industrial/research participants • Flexibility from generation: ○ CEM Campaign – Flexibility of conventional generation – L. Mazzocchi ○ ENEL – A. Camponeschi ○ Ansaldo Energia – A. Giacchino • Flexibility from the network and storage: ○ ISGAN TCP – K. Widegren ○ ECES TCP – T. Bokhoven ○ eDistribuzione – J. Ortiz Noval ○ ABB – M. S. Nargi • Flexibility from the load: ○ DSM TCP – D. Shipworth ○ Regalgrid – D. Spotti ○ Evolvere – D. Cimmino
13.30 – 14.30	Lunch
14.30 – 16.30	**Session 2: BUILDINGS AND INDUSTRY** **Moderator – S. Maggiore – RSE – Italian alternate - IEA DSM TCP** • Introduction by ENEA (G. Puglisi) and RSE (S. Maggiore) **Round Table** with national and international level industrial/research participants • Overarching aspects: research, standardisation, education, promotion ○ EURAC – R. Lollini ○ ASSOTERMICA – F. Musazzi ○ AICARR – L. de Santoli • Industry and markets: ○ IETS TCP – T. Berntsson ○ I-Com – F. D'Amore ○ Engineering – M. Bertoncini ○ PROSUME – M. De Vecchi • Technologies: ○ SIEMENS – D. Pennati ○ DANFOSS – D. Rudellin ○ SOLIDpower – S. Modena
16.30 – 17.00	Tea break
17.00 – 17.30	Wrap-up and takeaways – M. de Nigris and E. Costanzo
19.00 – 22.00	Networking dinner (EUWP and TCPs)