The different facets of resilience:
How to face the increasing threats to the energy system?

Interactive discussion among IEA TCPs and outstanding projects
web meeting – 30/03/2022 11.00 - 14.30 Central European Time

Framework

This web meeting is organized in the frame of the Integrated Electricity System Coordination Group (IESCG) of the End-Use Working Party (EUWP) of the IEA. The Coordination Group supervises the activities of three electricity-related TCPs and aims at fostering interaction across the entire TCP community, to identify and develop synergies and collaborations around subjects of common interest. Of particular interest for the IESCG is the integration between the power system and the other energy vectors to enhance stability, efficiency, resilience and circularity. Recent times are showing signals of increasing threats for the technical, economical, environmental and societal performances of the energy system: climate change and its associated extreme events endangers the system integrity, Covid-19 has dramatically affected all system parameters (e.g. load levels and profiles), delicate geopolitical situations are affecting the security of supply and cyber-attacks are multiplying the risk of disruptions. Several possible ways to cope with these emerging and increasing threats can be envisaged and several IEA TCPs are addressing the different pathways according to their specific expertise and point of view, contributing to the definition of the different facets of system resilience.

Discussion background

Energy system resilience is defined by CIGRE (International Council on Large Electric Systems) as *"The ability to limit the extent, severity, and duration of system degradation following an extreme event."* This system characteristic is achieved through a set of key actionable measures to be taken before (anticipation and preparation), during (absorption) and after (sustainment of critical system operations, rapid recovery and adaptation) the event.

Now, depending on the threat considered, resilience can show many different facets: from generation mix transformation to limit geopolitical threats to infrastructure reinforcement to prevent line failures in case of extreme weather events, to deep decentralization to alleviate transmission system congestions fostering local resources and subsidiarity, to grid codes changes to limit cyber-threats or consumer empowerment to enhance a bottom-up mitigation approach.

The IEA has published in 2021 three reports under the heading of "Electricity security 2021" dedicated respectively to the power sector, climate change and to cybersecurity. Several IEA TCPs have addressed resilience in their recent work programs, following their specific approach (e.g. ISGAN Flexibility for Resilience, USERS TCP Social License to Automate and motivation for individuals to invest in distributed generation and storage, ECES flexible sector coupling etc.).

The meeting aims at exchanging experiences among TCPs about the increasing concerns related to threats and resilience. Starting from a scene setter by Mission Innovation, the discussion will involve several TCPs to debate about the different approaches to resilience in their respective domain of activities, identifying the main challenges and opportunities for joint activities and collaboration.
Living experience from projects will also be discussed. A keynote speech will be delivered by a world expert from JRC of the European Commission.

Programme

WEDNESDAY 30 MARCH 2022
11.00 – 14.30 CENTRAL EUROPEAN TIME
WEB PLATFORM

11.00 – 11.10	Introduction and workshop objectives • Michele de Nigris – EUWP VC
11.10 – 11.30	Keynote speech: • Marcelo Masera - Head of Unit of "Energy Security" - Institute for Energy of the Joint Research Centre. (JRC), European Commission
11.30 - 11.45	Scenario setting: • Luciano Martini – Director Mission Innovation Green Powered Mission
11.45 – 13.15	Guided discussion among TCPs around several crosscutting topics • Enhancing energy security under geopolitical uncertainties • Mitigating the effects of climate change • Risks and opportunities of digitalisation • Flexibility measures to increase resilience • Energy efficiency and resilience: conflicting and synergic issues • Users empowerment: Trust and grid defection Interventions from TCPS: • ISGAN • HTS • USERS • ES TCP • IETS • EBC • HPT
13. 15 – 14.00	The experience from ongoing projects: • Project 1 – The RSE-TERNA transmission system resilience enhancement (E. Ciapessoni) • Project 2 – REACT – Renewable Energy for Self-sustainable Island Communities • Project 3 – CCB – Confort Climate Box
14.00 – 14.15	Key lessons learned and impact

- Registrations: To participate use the following link:
https://us02web.zoom.us/webinar/register/WN_rsZlH1yvTXyqJWOBIQsH2A

An initiative in the framework of the EUWP of the IEA International Energy Agency