

**Identification of main recommendations
from projects' presentations and
roundtables' discussions**

Day 2: 11h00-11h30

Petten 19-20 September

Session “Flexibility at the level of the network and for conventional generation technologies”

- Advanced flexibility schemes at Low-voltage level proved to be very effective; however there are significant barriers for a real-world implementation (regulatory, economic and technical). Moreover there is a limited willingness of consumers to participate (integration effort must be low)
- Interoperability and interfaces standardization, efficient monitoring are needed for integration. Community-scale ESS proved to be quite effective, while PV-BESS single consumer-scale are not economically viable
- There’s still a need of fossil-fired power generation, in the transition to low-carbon economy. The main character of the new and/or refurbished generation plants shall be the FLEXIBILITY (in terms of fuel, load, efficiency, lifetime)
- In particular, advanced gas turbine powered plants are the backbone of future low-carbon power system, thanks to their ability to use “green” fuels and their flexible operation

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- Thermal energy storage (TES) could help improving the generation plants flexibility, in particular as a cost-effective retrofit tool.
- However these TES application still lack profitability, due to high volatility electricity prices and regulation issues (i.e. flexibility “value”)
- VPP (Virtual Power Plant) could be a powerful and very cost-effective tool to locally optimize RES operation with benefit to the grid, taking into account community needs and constraints). An effective VPP type is obtained by combining variable RES (solar, wind) with hydro power plant
- New regulations are needed, to give appropriate value to congestion avoidance, load shifting etc., thus allowing the definition of suitable and effective business models
- Carbon emission reduction and, in general, circular economy initiatives will need ASAP a carbon price (at least at EU level), to assess the cost impact in all the involved sectors

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- “Blue” vs “Green” Hydrogen. If hydrogen should be the fuel after 2050, are RES generation sufficient to produce the (green) H₂ that will be needed? Could we realise a fully sustainable cycle for CO₂ before 2050?
- To ensure the transition toward a low carbon economy there’s a need of new infrastructures. The technical community shall therefore engage the public (citizen, opinion groups etc.) to share such a need and to agree on the solutions (both at local and central level)

Session “Digitisation of the electricity system and Customer participation”

- Lack of customer awareness is major barrier to roll-out of smart solutions. Level of awareness and engagement varies significantly across locations – needs further study & pilot programmes.
- Key to understand customers’ motivation: this will allow for more effective strategies to ‘nudge’ customers to implement changes.
- Information sharing between different stakeholders (e.g. energy, ICT, psychology/behavioural economics) is a big challenge. R&I projects need to bring these different perspectives together.
- End-to-end architecture & integrated decision-making with buy-in from range of stakeholders (customers, regulators, utilities, etc) is key to make these solutions work.

Session “Digitisation of the electricity system and Customer participation”

- Cybersecurity and data protection issues are important across all applications.
- Information sharing is very difficult in the digitalisation space; problem of competition prevents closer collaboration between stakeholders.
- There is a huge number of projects, but a large number of players involved, requirements for data exchange/security, range of different architectures → difficult to align and integrate into energy system at scale.