



PLAN.  
INNOVATE.  
ENGAGE.

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

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

- Supercritical CO<sub>2</sub> cycle could beneficiate several markets, i.e., Heat recovery (due to the small size of the cycle), Decentralized small/medium power generation (10 - 500Mwe), Concentrated solar powerplant, Thermal powerplant (coal and gas), Biomass powerplant, thermal power plant.
- Combined cycle plant (for example a fast cycle heat pump and thermal energy storage) can increase part-load efficiency, reduce the minimum environmental load and increase power ramp rates, enhancing the flexibility of the system
- A robust legal framework that ensures fair market access for aggregators is crucial. Aggregators shall be among the parties that are able to access the data of final customers
- Aggregators are important market players when it comes to the market participation of consumers and energy communities and to facilitate the flexibility of the market!
- Local energy communities have to be entitled to share electricity from generation assets within the community based on market principles using ICT services
- The public acceptance will arrive with the good education starting from school. More meeting with locals are needed to push for better acceptance of new infrastructures.
- New technologies shall be supported by significant funding that need enlarged partnerships.
- Hydrogen could be a vector for the future transition: blue hydrogen can be used within existing infrastructure or could stimulate adaptation of technologies to use hydrogen.



# Session “Digit[al]isation of the electricity system and Customer participation”

- (System Stability) Inertia can be directly measured.
  - This enables grid operators, and countries, to operate the system in a secure way while deliver on their decarbonization targets (by more RES).
  - Use Load banks to inject a power signal to the grid to stimulate minimal power changes lead to frequency changes (modulated frequency approach) which can be measured to estimate the Inertia in real-world systems.
- (Pan-European wholesale market) By aggregated DR&DG units, the project achieved (mostly in simulation mode)
  - Fast, reliable and technically and economically competitive aFRR (automatic Frequency Restoration Reserve) service for the energy market (energy and cost savings 30% of demand)
  - ACE quality performance indicator can be improved by regional cooperation
  - Regional market get increased market liquidity compared to several fragmented local markets. They can increase price convergence even between the different countries (25% price reduction)
  - Cross-border balancing market setup is not always the best solution; not to be done on total available capacity; better: late Flow-based capacity recalculation for the needs of balancing (PTDF) can be better, but is case-dependent (CZ)
  - Investment cost of 75'000 EU/MW is low compared to a Tesla battery 100 MW: 660'000 EUR/MW
- (System stability – Local markets)
  - 50% Self-Consumption (SC) is possible by management with 1 Minute time interval modelling
  - 70% SC can be reached by the right stationary battery and hot water tank Storage + Electric vehicle charging
  - Right SC can decrease Electricity Bill (excludes investments??) by 20% and leads to 20% less CO2 emissions/year (but depends on CO2-emissions beforehand)



# Session “Digit[al]isation of the electricity system and Customer participation”

- Is digital tech (eg Blockchain) ready for energy transition – how to scale up: Do we need regulation? Ind partners to come together
- learn from Telco – reuse pace of telcom evolution
- ‘plug and play’ solutions for mass markets
- autonomous microgrids as the future approach?
- Platforms: Centralised or decentralised? Control? Access?