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

Day 1: 15h00-15h30

Petten 19-20 September

Session “Reliable, economic and efficient smart grid system”

- Projects should result in sustainable business models (in many cases subsidies are necessary)
- There are alternatives for massive undergrounding of medium voltage network in rural areas. Those alternatives shall be supported by the regulatory framework.
- The Role of PtX in the energy system integration depends on the definition of climate targets, the available biomass that is characterized as being sustainable, a well-functioning markets, future electricity prices and a proper and coherent regulatory framework
- Data availability and domain knowledge are crucial to replicate the power system operation realistically
- There is a strong need to quantify the real “value” of flexibility

Session “Reliable, economic and efficient smart grid system”

- Demonstration and Planning: the development of the grid shall be optimized in coordinated manner with development of many other independent actors and sectors: not only generation and load, but also new services and new interfaces
- System optimization depends strongly on the regulation
- National funded project could be the basis to launch EU funded project involving other countries and other stakeholders
- Pilot and/or sandboxes are needed to accelerate the energy transition and should not be related only on technological aspects but also on social/community issues

Session “Storage technologies and sector interfaces”

- A **lowest marginal-generation cost approach undervalues storage-based** flexibility technologies (Requirements: Time, **regionality, quantity)** to balance supply and demand.
- **Regulatory framework** (double taxes, grid fees, ownership, stacking of services) for storage needs to be updated
- Consider **long lead-times**: 10 years (invest now to use it after 2030)
- Utilize renewable, green electricity (grey in the transition) for carbon-neutral gases and liquids
- Capture CO2 from ambient air in order to guarantee a closed carbon cycle
- Scaling of carbon-neutral liquids and gases needs to have reduced CAPEX. But: OPEX = electricity costs + Carbon-pricing;
- “Democratisation” may have value to citizens (own carbon-neutral oil/fuels/gases)

Session “Storage technologies and sector interfaces”

- Polymer PCM heat storages work well (can be compounded; recyclable polymers)
  - Keep them at different hours at different temperatures = different levels of storage; Store heat as heat
  - Modularisation allows scaling up (50 … 1000 kWh/m3; 30 EUR/kWh … 200 EUR/kWh)
- Energy efficiency in industry requires a holistic approach (energy efficiency rethought; adapt processes!)
  - Efficient waste-heat concept used
- (fossil) Energy today is still too cheap (CO2-price/tax needed)
- Regulations and standards needed for business models for flexibility management (Flexibility operator as aggregator) by a platform;
- In flexibility business, focus on the end-user first (for a viable and economic flexibility regime; incentives)
  - Optimize their capacity (kW) or Time-Of-Use (ToU) tariffs.
  - Bundle flexibility with “something”: combine company car renting (during day) with private or tourist renting (after work)
- Put activities of DSO + BRP second (after critical mass of end-users needed; then negotiation (no battery ownership of DSO))

Session “Storage technologies and sector interfaces”

- Openness of project results (making data and programs public) is hard to realise due to non-European competition (China)
- It is better to store wind / renewable energy in other [inefficient] forms than loose/curtail it.
- Politicians need to be driven by motivated consumers (DSO are conservative; consumers want “new things”)
- Regulation must be unified among countries (example: pay 5000 EUR/EV; higher CO2-taxes everywhere)