

Workshop 1: Safe operation of non-interconnected island grids integrating asynchronous RES generation

EU and national strategy, policy and regulation

EU Green Deal | Fit-for-55 | REPowerEU

Renewable energy Directive (2018/2001/EU), Electricity Market Directive (EU/2019/944), Regulation on internal market for electricity 2019/943

EU harmonized network codes and guidelines | Network code on requirements for grid connection of generators 2016/631

Planning and forecasting

- Scenarios for technology developments (demand & supply)
- Changes in operation practices
- Grid connection policies + grid codes (*Characteristics defined based on technical studies*) - *technical capacity needed*
- Need for better RES generation forecasting tools

Local compensation for RES with storage (Hybrid) economically optimal for the system?

Planning of distributed & centralized RES and storage

Security of supply as priority

Dispatch and balancing

- Agreed rules - codes
- Operational practices and hence limitations/rights
- Failure risk management - accepted risk, obligations and control
- Even more importance on good RES generation forecasting tools

Lack of historical measurements /trends of wind

Optimize load shedding plans based on criteria on frequency derivative

Need for updating the restoration process

RES regulation

- Auctions/site considerations
- Connection rules (testing + requirements)
- Operational requirements and rights (*Aligning existing RES plants*)
- Control of RES plants - distributed, existing, in case of grid support needs (active power after faults)
- End of life (replacement, materials)

Improving LVRT capability

Apparent Power requirement to limit V disturbances

Automatic frequency stabilization using load voltage flexibility

System flexibility

- Storage distributed & centralized seasonal & daily ownership (SO/3rd party)
- Demand side management industry Heat Pumps Electric Vehicles
- Flexibility services (market?)
- Sector coupling
- Resilience of the grid

DSM - how to incentivise with regulated price

Synchronous RES allows for flexibility

BESS and SC - high CAPEX solutions

BESS regulation (price signals) /incentives not fostering use

System services for 100% decarbonisation

- Upgrade and decarbonisation of existing systems
- Alternative solutions advanced distribution management system pumped hydro synchronous condensers & kinetic system inertia hydrogen (grid forming) BESS
- Digitization and visibility/controllability of the system

Financing of the needed systems

Connected islands might become non-interconnected - procedure for operation needed

Map/Dashboard of support schemes for grids in EU

https://energy.ec.europa.eu/topics/funding-and-financing/investors-dialogue-energy_en

Investment

Upgrade of the grids, digitalization and smart grids
 Upgrading of existing RES plants for flexible and more efficient operation and better control
 Choosing right technologies, locations and de-risking investment

Clean Energy for EU Islands



Examples presented

Canary islands (REE)
 La Gomera
 El Hierro

Madeira (EEM)
 Porto Santo
 Madeira

Azores (EDA)
 São Jorge
 Flores

French islands (EDF (SEI))
 French Guiana (electrical island/not an island)