

RENEWABLE ENERGY SYSTEMS (RES) IN THE EU

ACHIEVING CLIMATE AND ENERGY GOALS



IEEE European Public Policy Committee Recommendations



Grid integration over multiple time zones - benefit from the inherent time shift between different power consumption profiles, with a beneficial effect on required local storage capacity.



Sector coupling & energy system integration - among energy sectors, including electricity, transportation and water/space Heating and Cooling (H&C), can help provide flexibility and price responsiveness that is required for integration of inherently variable RES.



Storage technologies - at different power scales, are instrumental in exploiting renewable energy not only for shaving peaks in power production.



Demand side flexibility - requires dedicated technology, regulation, markets and practices.

WHAT CAN BE DONE TO CUT GREENHOUSE GAS EMISSIONS AT LEAST 55% BY 2030 COMPARED TO 1990?

Grid integration over multiple time zones with no Member States lagging behind

Sector Coupling & Energy System Integration

Grid-scale energy storage

Demand side flexibility

To read the full document, go to: <https://www.ieee.org/about/ieee-europe/europe-energy.html>

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The effective integration among RES and storage systems with flexible load and grid interaction requires a high level of standardization among the industrial products, at the hardware level as well as at the communication and software level.



Achieving a valuable 'second life' for batteries from electric cars will be easier if there are common designs for battery packs in use.



A large amount of the materials in solar panels and windmills can be recycled, but composite blades are a difficulty. Based on current projections, tens of millions of tons of waste will be produced by 2050, so end-of-life planning is key.



With the further growth of RES and less structural demand for conventionally generated electrical energy being anticipated, the current compensation system may not be sufficient to keep enough back-up generation capacity "on-demand" for when it is needed.

WHAT ARE THE CHALLENGES FOR RENEWABLE ENERGY SYSTEMS?

Standardization for RES and storage systems integration

Second life battery exploitation

Recycling end-of-life solar panels and windmills

Maintaining back-up capacity "on-demand" for when needed

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