



European
Commission

JRC PORTFOLIO 02

SUSTAINABLE, CLEAN, INNOVATIVE AND COMPETITIVE ENERGY SOLUTIONS

The production and use of energy account for more than 75 % of the EU's greenhouse gas emissions. Its successful transition to carbon neutrality is key to delivering the EGD objectives and the associated policy targets as expressed in REPowerEU, Fit for 55, the European Climate Law, the updated RED directive and the Energy Union Governance regulation. Good solutions require a holistic understanding of the interlinked and sometimes conflicting issues that can arise in the deployment of climate-neutral energy solutions, energy market design, the introduction of new technologies, materials supply, and the planning of new infrastructure. Only an integrated approach allows us to help policymakers to anticipate future challenges and ensure the implementation of resource-efficient decarbonised pathways.

The portfolio aims to:

Deliver an integrated and holistic approach to address the multiple complex issues related to the energy transition

Anticipate the challenges and solutions for an EU society running largely on climate-neutral energy sources

Assess solutions for renewable energy deployment and system integration and evaluate the associated value chains and their socio-economic implications

Joint
Research
Centre

Delivering on anticipation, integration and impact of EU policies

- ▶ Evidence about the impact of the short-term emergency measures to be adopted in the energy markets,
- ▶ Support to the effective system integration of climate-neutral resources and storage and evaluation of the associated value chains and their socio-economic implications,
- ▶ Identification of the future energy infrastructure needed for the transition including a consideration of resource efficiency and systemic resilience,
- ▶ Promotion of EU leadership in low-carbon energy industries through innovation and competitiveness, as well as the resilience of the associated materials and components value chains,
- ▶ Help to ensure the security of electricity supply by developing frameworks and criteria for resilience.

Time frame

This portfolio will support policy initiatives under REPowerEU, Fit for 55, the European Climate Law and the Energy Union Governance regulation with a **time horizon up to 2030**, including the increase of the EU RES target to 50 %, and investments in adapted gas and electricity networks. In a **short run**, it will also monitor implementation through the annual Competitiveness Progress Report and report on the National Energy and Climate Plans.

Main partners

Partner DGs

CLIMA, COMP, DEFIS, EEAS, EMPL, ENER, ENV, GROW, MARE, MOVE, RTD

Selected stakeholders

ACER, CEN, CENELEC, ETSI, IEA, IEC/ISO, IRENA

Energy solutions

Energy markets

Energy storage

Electricity supply and demand

Clean energy solutions

Renewables

Photovoltaics

Climate-neutral energy sources

Resilience

Energy infrastructure

Low-carbon energy industries

Critical clean energy value chains

Energy security

Bioenergy

Clean Energy Competitiveness

National Energy and Climate Plans

Find out more



**SUSTAINABLE, CLEAN, INNOVATIVE
AND COMPETITIVE ENERGY SOLUTIONS**

<https://joint-research-centre.ec.europa.eu/jrc-research-portfolios/energy-solutions>

Science for policy

Joint Research Centre

joint-research-centre.ec.europa.eu

The Joint Research Centre provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society.

@EU_ScienceHub

@EU_ScienceHub

@EU_Science

EU Science, Research and Innovation

EU Science Hub - Joint Research Centre

PRINT
PDF

ISBN 978-92-76-99467-1
ISBN 978-92-76-99466-4

doi:10.2760/55302
doi: 10.2760/185174

KJ-04-23-202-EN-C
KJ-04-23-202-EN-N