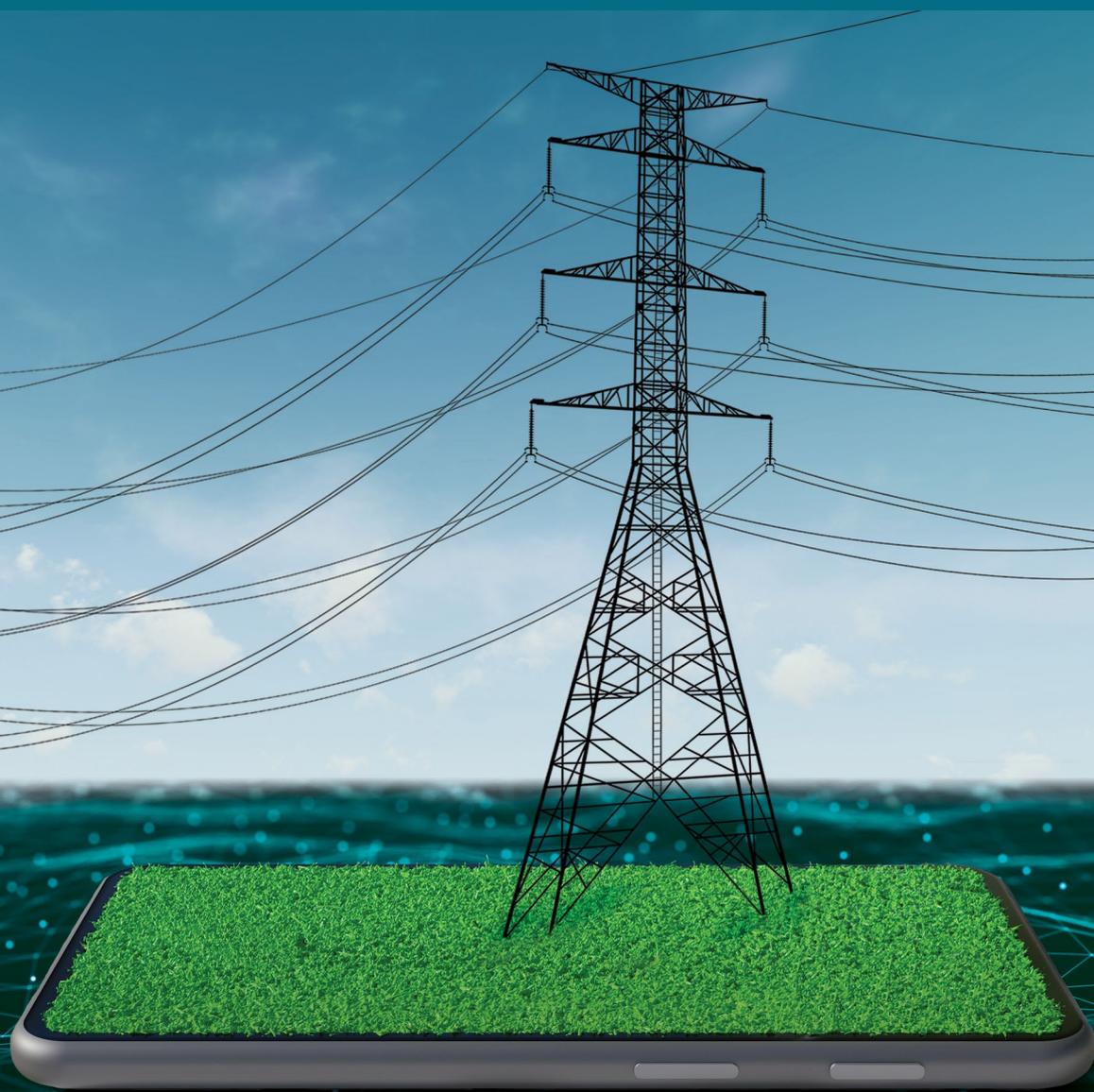




The digitalisation of the energy system

A green, efficient and affordable
energy system fit for the future



Digitalisation will transform the energy system by integrating more renewable energy sources and powering the transition to Net Zero. EU-funded research projects demonstrate the EU's commitment to creating a digitalised, green, and resilient energy system.

Research and
Innovation

NEW
EDITION

As society continues to transition from analogue to digital, organisation and use of data becomes easier, making our energy system more connected, intelligent, efficient, reliable, and sustainable. The use of digital technologies such as AI, cloud computing, blockchain and the Internet of Things will improve how we use energy and help find ways to decarbonise our energy systems.

15 EU-funded projects

The key areas covered by the projects in this results pack include the development of a Europe-wide data sharing infrastructure for new energy services, empowering consumers by increasing control over their energy use and bills through new digital participation tools. The research also addresses the increase in the uptake of new digital tools for the energy system and strengthening of cyber security and resilience throughout the energy system to meet real-time requirements.

BRIGHT

Boosting DR through increased community-level consumer engagement by combining Data-driven and blockchain technology Tools with social science approaches and multi-value service design Coordinated in Italy

BRIGHT worked towards enabling communities to take complete control of their local energy systems.



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domOS

Operating System for Smart Services in Buildings Coordinated in Switzerland

domOS developed an integrated energy management ecosystem for smart buildings.



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ebalance-plus

Energy balancing and resilience solutions to unlock the flexibility and increase market options for distribution grid Coordinated in Spain

ebalance-plus aimed to increase the energy flexibility of distribution grids.



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EdgeFLEX

Providing flexibility to the grid by enabling VPPs to offer both fast and slow dynamics control services Coordinated in Germany

EdgeFLEX developed a 5G application programming interface for power providers to connect and manage devices in the field.



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EUniversal

Market Enabling Interface to Unlock Flexibility Solutions for Cost-Effective Management of Smarter Distribution Grids Coordinated in Portugal

EUniversal produced a universal market enabling interface to foster interoperability across Europe for a sustainable, secure, and stable electricity supply.



© EUniversal

FLEXIGRID

Enabling Flexibility for Future Distribution Grid Coordinated in Sweden

FLEXIGRID built an integrated architecture to balance energy supply and demand.



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InterConnect

Interoperable Solutions Connecting Smart Homes, Buildings and Grids
Coordinated in Portugal

InterConnect conducted real-life testing of advanced solutions for connecting smart homes and buildings to the electricity network.



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MATRYCS

Modular Big Data Applications for Holistic Energy Services in Buildings
Coordinated in Italy

MATRYCS developed a new decision-making and data analytics solution for energy-efficient buildings.



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OneNet

One Network for Europe
Coordinated in Germany

OneNet worked towards enabling the European electrical system to operate as a single network, allowing stakeholder participation at every level.



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PARITY

Pro-consumer Aware, Transactive Markets for Valorization of Distributed flexibility enabled by Smart Energy Contracts
Coordinated in Greece

PARITY created a local flexibility market platform that integrates the Internet of Things and blockchain technologies.



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PHOENIX

Adapt-&-Play Holistic Cost-Effective and user-friendly Innovations with high replicability to upgrade smartness of existing buildings with legacy equipment
Coordinated in Spain

PHOENIX used AI and cloud computing technologies to transform existing buildings into smart buildings.



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PlatOne

Platform for Operation of distribution Networks
Coordinated in Germany

PlatOne used blockchain technology to meet the needs of modern DSOs, including data management.



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REDREAM

Real Consumer Engagement Through a New User-Centric Ecosystem Development for End-Users' Assets in a Multi-Market Scenario
Coordinated in Spain

REDREAM built a platform to help consumers and prosumers exploit the benefits of flexible energy consumption on demand using cloud services and AI.



© ReDREAM_graphics by ESCI

Smart4RES

Next Generation Modelling and Forecasting of Variable Renewable Generation for Large-scale Integration in Energy Systems and Markets
Coordinated in France

Smart4RES created next-generation tools to improve renewable energy forecasting performance.



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X-FLEX

Integrated energy solutions and new market mechanisms for an extended FLEXibility of the European grid
Coordinated in Spain

X-FLEX developed solutions for optimising decentralised flexible energy assets.



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Digital solutions pave the way for a Net Zero society

Digitalisation will contribute to the [European Green Deal](#) and [A Europe fit for the digital age](#) policy initiatives and support the objectives of the [Energy Union](#) by promoting connectivity, operability, and use of renewable energy. The aim is for sustainable, competitive, and affordable energy, and energy independence and security, which meets the EU 2030 and 2050 energy and climate targets for a low-carbon economy.

The need for more flexible electricity markets to match demand with supply from renewables, which can be intermittent and difficult to predict, is growing as renewables comprise a larger portion of Europe's energy supply.

In addition, modern power grids are moving away from centralised, infrastructure-heavy transmission system operators towards distribution system operators (DSOs) more capable of managing diverse renewable energy sources.

All this will require an infrastructure fit for the future, with common standards, gigabit networks and secure clouds of both current and next generations.

Such infrastructure will enable consumers to engage in the energy transition in a new way, while benefiting from better services based on digital innovations, and saving energy.

Learn more about

Digital Decade Policy Programme 2030: bit.ly/49nyMLc

The Digital Europe Programme: bit.ly/4bNbTm3

Smart Grids Task Force: bit.ly/3STZaVT

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