



PROGRAMME OF  
THE EUROPEAN UNION

# AFFORDABLE & CLEAN **ENERGY** SUSTAINABLE DEVELOPMENT GOAL



The European Union is committed to implement the 2030 Agenda for Sustainable Development, both in its internal and external policies. Discover how the European satellite navigation and Earth Observation systems can contribute and support each SDG.

One in five people still lack access to modern electricity while three billion people rely on wood, coal, charcoal or animal waste for cooking and heating.

The EU Space Programme can make a difference and contribute to make progress on the way energy is produced and distributed. Copernicus and Galileo provide information that is already used to create more resilient and efficient energy infrastructure.

Space data is also improving the production of renewable energies, providing valuable insights about the energy potential of natural resources like sun and wind.



## SMART GRIDS AND ENERGY INFRASTRUCTURE

Smart grids improve overall energy efficiency and are essential to ensure synchronization and adjust demand to distribution across a wide geographical area. Galileo supports the implementation of smart grids and efficient energy transmission through its precise synchronization services.

- Galileo authentication services contribute to better synchronization and augment **power system monitoring**, control and protection functions.
- Galileo authentication services trigger the concept of authenticated timing, eliminating the danger of using inaccurate signals in such critical infrastructure.
- EU Space satellites enable signaling applications to provide increased safety and reduce the costs of energy infrastructure management and operations.
- Copernicus supports the resilience of the energy infrastructure in case of natural disasters by providing critical information that allow authorities to respond quickly to safeguard energy provision.
- Galileo supports precise grid measurements of electrical waves to determine the health of an electricity distribution system.



## RENEWABLE ENERGY PRODUCTION

The EU Space programme supports the implementation and operation of renewable energy infrastructure by ensuring efficient placement and predicting energy generation through weather forecasting and monitoring.



- By using Copernicus, companies **can improve the quality of forecasts by 30 per cent** while reducing costs by up to 50 per cent for one-day forecasts.
- EO companies transform Copernicus data into valuable information **sold to customers to better plan and safeguard renewable energy projects**, including the selection of suitable sites for onshore wind farm installations.
- Copernicus data **are used to simulate and calculate the energy potential** of photovoltaic (PV) rooftop projects.
- Copernicus and EGNSS can support biomass production monitoring and allow tracing of biomass along the value chain.

7



SUSTAINABLE  
DEVELOPMENT  
GOALS



## IMPROVING OIL & GAS PROVISION

Copernicus can contribute to making electricity more affordable by supporting the oil and gas industries. Satellite images are used, together with other data sources, by the oil and gas industry during early exploration and to monitor extraction sites. Satellite images enable large-scale prospecting in a much more efficient way for both onshore and offshore exploration.

- Copernicus improves oil exploration by enabling the detection of oil seeps from deep-water petroleum reservoirs.
- Copernicus helps monitoring Oil & Gas infrastructure by providing information about leaks and spill at the site of operation. Supervision combines this information with AI to improve gas infrastructure safety and provides customers with pipelines risk-assessment.



## ABOUT EU SPACE PROGRAMME

Space applications play key roles in our daily life activities. The EU space programme enables solutions to tackle global challenges such as sustainability and climate change, safety and security, emergencies and mobility. The EU's flagship space programmes foster innovative services that meet the needs of users worldwide.

**COPERNICUS** is the EU's Earth Observation system: free, full and open access satellite data used to provide services in six areas: land monitoring, marine environment monitoring, atmosphere monitoring, climate change, emergency management and security.

**GALILEO** is the EU's global navigation satellite system, providing accurate positioning and reliable timing information. Galileo services are widely used by people and businesses, for example in transport, agriculture, health, finance and energy networks, search and rescue and emergency response.

**EGNOS** is the EU's regional navigation system. EGNOS services are used in safety-critical applications in aviation, maritime and land-based uses in most of Europe.



PROGRAMME OF  
THE EUROPEAN UNION



#EUSpace #CopernicusEU #UseGalileo #EGNOS