

## DECARBONIZATION

*Decarbonization* refers to lowering the carbon intensity of global energy consumption. It is the process of reducing carbon dioxide (CO<sub>2</sub>) emissions generated by humans in order to mitigate the severe, life-threatening effects of global warming.

Climate Action represents the biggest challenge and opportunity, as stated by the United Nation Sustainable Development Goal (SDG) 13: Take urgent action to combat climate change and its impacts. The UN's Global Roadmap sets out milestones the world must reach to achieve net-zero emissions by 2050. Net-zero emissions is a balance between greenhouse gases (GHGs) emitted and removed from the atmosphere.

Climate change measures must be integrated into national policies, plans, and planning in order to achieve a sustainable society. It is critical to develop not only climate change mitigation education, awareness, and human and institutional ability, but also global resilience and adaptive capacities to the consequences of global warming.

Effective climate policy can be supported by advanced analysis models that can simulate earth and human system processes, tools that integrate huge amounts of earth observation data together with non-space data and can provide comprehensive and accurate information to decision makers.

Earth-observation satellites are at the forefront of monitoring atmospheric greenhouse gas emissions, deforestation, increasing sea levels, etc. They provide scientists crucial information to identify changes in the Earth's environment. Earth-observation satellites missions are, therefore, an essential instrument for tracking the effects of climate change on natural ecosystems since many climatic variables can only be assessed from space.

**UpToEarth** is able to provide knowledge of satellite technologies, so that the technical elements involved in the acquisition, processing and use of information produced by earth observation systems can be incorporated into the construction of analysis and simulation models. In this way, assessing the feasibility of potential decarbonisation solutions and related services can be supported by the opportunities that today's state-of-the-art earth observation technologies make available.