

Space4Climate Market Breakthrough Funding

Uniting to lower the barriers to adoption of Satellite based climate services

Net-Zero 2: Energy

Transitioning to a sustainable energy system poses a massive challenge to communities, nations, and the global economy in the next decade and beyond. Actors across the energy system are grappling with options to limit the rise in global temperature to well below 2°C (and preferably 1.5°C) and achieve net-zero carbon dioxide (CO₂) emissions targets. Meeting these ambitious goals will require far-reaching energy transitions in electricity, transportation, buildings, and industry. A growing portfolio of satellite data products is available to support this transition. We know that satellite data are already being applied to a wide range of energy issues with varying information needs, from planning and operation of renewable energy projects, to tracking changing patterns in energy access and use, to monitoring environmental impacts and verifying the effectiveness of emissions reduction efforts. 2 key areas of untapped potential for Satellite climate services are -

Green Energy Transitions

Whilst the UK has seen a remarkable shift from traditional fossil fuels to renewable energy sources, the UK energy supply sector was still responsible for releasing 96.2 million tonnes of carbon dioxide (equivalent) into the atmosphere in 2021, accounting for 20% of the country's greenhouse gas emissions. Earth Observation (EO) technology is key to reducing these emissions, both in the UK and worldwide, to ensure the Paris agreement targets are met.

Our reliance on renewable energy sources makes Earth Observation data extremely valuable: from wind speed to solar radiation, EO is regularly used in weather forecasts - forecasts which can be used provide estimates of wind and solar energy generation. EO data can also help to determine the best locations for assets such as wind farms or solar panels. In developing countries, images of nighttime lights can help to build up a picture of rural electrification.

Built Environment

The built environment accounts for 40% of total direct and indirect CO₂ emissions globally, making it clear for the need to change how we construct and operate our buildings if we are to reach net zero.

Progress is being made to reduce emissions and fossil fuels with the use of more building codes. These include minimum energy efficiency standards (MEES) which require buildings to adhere to certain energy ratings, plus minimum energy performance standards (MEPS) for energy-using products like air conditioners and heat pumps.

