

Editorial

## Advancing technology and developing green energy solutions is crucial in achieving a sustainable future

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In an era characterised by unprecedented environmental challenges and the devastating impacts of climate change, our drive towards finding sustainable energy solutions is of paramount importance. There is a need to rapidly move away from fossil fuel use and a radical departure from conventional energy sources. The utilisation of renewable energy from solar, wind, marine and geothermal sources, and the exploitation of sustainable fuels, offer potential benefits from an environmental, societal, and economic perspective.

The urgency of this transition is increasingly acknowledged and cannot be realised without further research and innovation along the value chain, from conversion, storage, distribution, and end-use. The displacement of fossil fuels is extremely difficult because of their excellent volumetric and gravimetric energy density and their ease of use. The current renewable energy sources and alternatives fuels have challenges, for example with respect to cost, safety, security of supply and contribution to a resilient energy system. It is also clear that we need to strive to use our energy resources in the most efficient and effective ways possible, reducing energy demand in transport, industry, commerce, buildings, and every aspect of our activity.

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resource for researchers, technology developers, policy makers and all those who have a stake in green energy and its impact on sustainability.

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