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Scotland: A low-carbon energy hub in the making

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Scotland evokes notions of rugged landscapes, lush meadows and roaming Highland cattle. But it could soon become a key hub for low-carbon technologies, including renewable energies such as offshore wind[1], hydrogen and carbon dioxide capture, utilization and storage. […]

For close to two centuries, Scotland has been known not just for its natural beauty but also for its engineering, mining, steel and textiles industries. And for the better part of that time, they were all powered by coal. An enormous coal mining operation supported Scotland's industrialisation until well into the 1950s, when the energy focus shifted to offshore oil and gas. But coal continued to play a role, not least in power generation.

In December 2021, Scotland's last coal-fired power plant[2] was blown up[3], marking the end of coal power in the country. This was one high-profile symbol of the Scottish

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[1] *l'éolien offshore*

[2] *centrale éléctrique à charbon*

[3] destroyed

government's commitment[4] to the energy transition. […] Scotland is aiming to reach net zero by 2045.

In 2021, the last year the government has reported on, 85% of all electricity used and 88% of all electricity generated in Scotland was from low-carbon sources, including renewables. That is a significant advance from 2011, when renewables covered only 37% of national demand.

The energy transition is viewed not only as a must-have for stopping climate change. It is also seen as an opportunity to revive the local economy and apply Scotland's industrial heritage in a new way: the Energy Transition Zone (ETZ) in Aberdeen is expected to create 2,500 green jobs and 10,000 related roles.

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[4] *engagement*

Scotland generated record amount of renewable electricity in 2024

Scotland generated a record amount of renewable electricity in 2024, according to data published by the Scottish Government. Renewable sources such as onshore and offshore wind, hydropower and solar energy produced 38.4 terawatt hours (TWh) of electricity, up 13.2% from the previous year and above the previous record set in 2022.

Wind power remained by far the main source of renewable energy, generating 30.1 TWh. Hydropower produced 5.2 TWh, while solar energy accounted for 0.6 TWh. Other renewable sources generated 2.6 TWh.

The report also showed that Scotland continues to produce more electricity than it consumes. In 2024, it exported 19.7 TWh of electricity to other parts of the UK. In addition, the country’s renewable energy capacity has increased significantly over the past decade. In 2024 alone, installed capacity rose by 14.3%, reaching 17.6 gigawatts (GW).

At the end of the year, 904 additional electricity projects were being planned, representing a combined capacity of 65.4 GW. These projects include both renewable energy generation and electricity storage facilities.

Environmental organisation Friends of the Earth Scotland welcomed the figures, describing them as a sign of the country’s potential. However, campaigners stressed that the benefits of renewable energy should be shared more fairly with local communities and workers. They also argued that Scotland should invest more in energy storage and reducing energy demand rather than relying on new fossil-fuel infrastructure.

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