UK Operational Insight Report

EICAssetMap Report

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Executive summary

The ending of COVID-related restrictions and growing economic productivity in 2021 resulted in a sudden spike in global demand for both hydrocarbons and power. The situation in the energy market was made more uncertain when Russia, one of the leading producers of fossil fuels, invaded Eastern Ukraine in early 2022. Western sanctions swiftly followed, curtailing Europe's and Russia's energy interdependence, as many European countries searched for alternatives to Russian gas with the expectation that Moscow would halt gas supplies at any moment. Because of growing concerns over the unpredictable nature of oil and gas prices, as well as the influence undemocratic governments have over the fossil fuels industry, Western countries are once again focussing on energy security, referring to the reliable supply of affordable energy with minimal risk of that supply being impacted by external forces. On top of the environmental and economic incentives of investing in renewable energy, there is now a strategic incentive for countries to maximise their installed capacity of domestically sourced power, whether that be from wind farms, solar plants, or many other types of low-carbon power producing methods.

In the UK, political and economic uncertainty gripped the Conservative Government throughout 2022, undergoing two transitions of power, from Boris Johnson to Liz Truss, and then from Liz Truss to Rishi Sunak. The unprecedented spike in wholesale gas prices in early 2022 led to the failure of 29 energy suppliers in the UK and a rise in Ofgem's price cap, contributing to a cost-of-living crisis. In response to this, the Government released the British Energy Security Strategy in April 2022, which set out the UK's long-term plan to reduce its dependence on Russian oil and gas, achieve net zero by 2050 and maximise the country's energy independence. The strategy received a mixed response from the energy industry, with many in the offshore wind, solar, hydrogen and nuclear sectors praising the Government's ambition to focus

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on these sectors in achieving net zero. Others stated that the strategy raised more questions than answers in relation to energy efficiency, inward investment, and supply chain capabilities. Further questions were raised as to what this meant for onshore wind, energy storage, and bioenergy sectors, which the government has shown an interest in expanding but still require clear government policies and plans for investment. A lot of attention has been placed on the nuclear aspect of the strategy, with many stating that 24GW of installed nuclear capacity by 2050 is unrealistic and underestimates the challenges in the nuclear power sector surrounding skills, development costs and supply-chain capabilities.

Most of the UK's renewable capacity installed in 2022 came from offshore wind, with 3.2GW installed across three offshore wind farms, including the Moray Firth East (950MW), Hornsea Two (1386MW) and Triton Knoll (860MW) projects. Approximately 347MW of onshore wind capacity was installed across seven small-scale wind farms, five of which were in Scotland with a combined capacity of 275MW and two were in Northern Ireland with combined capacity of 72MW. No onshore wind farms were installed in England or Wales in 2022. Voltalia's 50MW South Farm Solar PV Project was the only commercial-scale solar park to come online in the UK in 2022. Three small-scale energy from waste projects came online in 2022 with a combined capacity of 20MW, two of which were in Scotland and one in England. The Dundee (9MW) and Lerwick (5MW) projects are based in Scotland and the Surrey Eco Park (3.6MW) is based in England. Whilst no biomass or hydroelectric projects came online 2022, the 299MW Tees Renewable Energy Plant (REP) in the Port of Teesside - one of the world's largest biomass plants once fully operational - is expected to come online in 2023 after experiencing several delays due to COVID.

In terms of where this leaves the UK's energy mix, there are now 44 operational offshore wind farms in UK waters with a combined capacity of 14.5GW, with approximately 2,679 wind turbines currently producing energy. There are also more than 550 operational onshore wind farms in the UK with a combined capacity of 15.2GW. Approximately 60% of this capacity is in Scotland, with the rest being spread across England, Wales, and Northern Ireland. The UK's installed solar capacity is now up to 13.7GW, across over 620 projects, approximately 46% of this installed capacity comes from projects in England, with the country having an installed capacity of 6.3GW across 559 operational solar plants. The UK's installed capacity of energy from waste is now at 2.7GW spread across 106 operational assets, 93 of which are in England with the remaining 13 situated in Scotland (eight projects), Wales (four projects), and Northern Ireland (one project). The UK has an installed biomass capacity of 5GW spread across 53 biomass plants, 2.6GW of which comes from Drax's Power Station in North Yorkshire.

The UK's installed capacity of nuclear power has been declining gradually over the past two years with the decommissioning of the two Dungeness B reactors in 2021, followed by the decommissioning of the Hunterston B and Hinkley Point B reactors in 2022. The shutdown of these three plants, which had a combined capacity of 3.2GW, brought UK's installed nuclear capacity down from 9.1GW in 2020 to 5.9GW at the end of 2022. Between June and September 2022, the UK government extended the life of five coal-fired units into 2023 and 2024 due to concerns over energy availability over winter, including the West Burton A, North Yorkshire, and Ratcliffe Coal-fired power plants. The extended operations of these three power plants means the UK now has approximately 42.7GW of conventional power available across 93 power plants. Around 82% of this power is gas-fired, with the remaining 18% coming from coal, oil, and diesel power plants.

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