UK oil and gas output fell in 2020 due to low oil prices and restrictions associated with the pandemic, and another fall is likely this year due to extensive deferred maintenance. Workforce levels are down sharply, in-fill drilling has been postponed, and new project developments delayed. Norway has fared better due to strong government support, along with the start-up of the giant Johan Sverdrup field—which has exceeded output expectations by 60,000 bpd, reaching 500,000 bpd. Recent price rises have bolstered sentiment, and new investors, entrants and projects in both Norway and the United Kingdom are expected to lead to higher output in 2022, helped by well-developed infrastructure and recent successful cost reductions—although green power solutions now look to be essential.

The Covid-19 pandemic has had a significant impact on oil and gas production in the North Sea, although Norway still managed to increase output (see below). UKCS output fell 6% over the first 9 months of 2020 to 1.05 mn bpd, and the low prices saw decommissioning brought forward at some late-life fields. By November, crude output was down 15% on the year (see Figure 1), and levels averaged just 931,000 bpd over the September-November period, according to government statistics. Preliminary full year figures available in February suggested oil output fell 8% overall in 2020 to about 102,000 bpd, while workforce numbers were down about 20%, according to trade body Oil and Gas UK, with drilling severely impacted by pandemic restrictions and spending cuts.

This year, there is likely to be significant disruption from deferred maintenance, including at the 40s pipeline, which carries a third of UK crude output. Consequently, the International Energy Agency expects UK oil production will drop to 1mn bpd in 2021 from (a now optimistic) 1.05 mn bpd in 2020. Gas production could also be hit—Westwood Energy forecasts a slight overall fall in total oil and gas output to 1.64 mn boe/d in 2021.¹ The UKCS’ largest independent, Chrysaor, which is currently merging with Premier Oil, said it expects its full-year 2021 output to be down by about 15% due to heavy maintenance in the first half of the year, and recently deferred drilling. In contrast, Shell, which is expected to bring new projects on stream, expects little change in 2021. Production is then expected to rise again in 2022 to above 1.7 mn boe/d after 10 new fields are brought online this year. Beyond that, S&P Platts expects UK oil output to drop 24% to around 830,000 bpd by 2025.

Spending on UK field developments will rise to $4 bn in 2021 from $3.8 bn in 2020 partly due to deferred work, notably at Premier Oil’s Tolmount and Zennor’s Finlaggan projects. Shell’s revamped Shearwater gas hub is also expected to come on stream in 2021. Shell is also considering two West of Shetland projects—the 800mn bbl Cambo prospect, and the next stage of the Clair heavy oil development, Clair South, where BP is operator. Independent Siccar Point Energy hopes to approve Cambo in 2021, after it secured an extension of its reserves-based lending facility in December, but it needs Shell and BP’s approval to move forward. There is also a project to boost production from the CNOOC-operated Buzzard field.

1 | NORWAY RISING

Norway has also been affected by pandemic restrictions, but oil output still increased 17% to 2 mn bpd in 2020, according to the Norwegian Petroleum Directorate (NPD), as the giant Johan Sverdrup field ramped up. Of this, crude oil accounted for 1.69 mn bpd. As in the United Kingdom, output could take a hit in the first half of 2021 due to reduced drilling and deferred maintenance, but the removal of OPEC-plus quotas should see output rise anyway. Production from Johan Sverdrup could rise beyond first-phase levels of 500,000 bpd by the middle of this year thanks to increased water injection. Total output is expected to rise to about 4.18 mn boe/d this year as OPEC-plus quotas are removed, and slightly more in 2022 as more new projects come onstream or reach full production levels. Several smaller projects were approved as a result of tax breaks last year, which provided some $11 bn in relief to operators to encourage them to approve new projects by the end of 2022. It is estimated to have lowered the breakeven oil price for these projects by $10/bbl on average.

Longer term, Norway expects its oil production to rise by 19% by 2024 due to a second Johan Sverdrup development phase due on stream in Q4 2022, along with the start-up of Johan Castberg in the Barents Sea, which should enter production in Q4 2023, according to the
NPD in mid-January. The NPD expects total liquids output to reach 2.38 mn bpd in 2024, with crude output averaging 2.07 mn bpd. Gas output is expected to rise by just 5% over the 2020-2024 period, to 1.98 mn boe/d.

Given a lack of major discoveries in recent years, the NPD is increasingly focusing on the future role of enhancements to mature fields and additional small developments (as UK authorities have been doing for some time): “History over the past 20 years has shown that smaller discoveries, with volumes up to 25 million m³ of oil equivalent (160 mn boe), together contribute to more value creation than the larger discoveries made during the same period,” it said. The NPD also said investment in the Norwegian industry had held steady despite last year’s price crash, rising 3% in 2020 to NOK155 bn ($18 bn). However, it expects investment in currently producing fields will fall 8% this year to NOK109 bn, with investment in ongoing development projects falling 3%, to NOK35 bn, despite the tax breaks—although recent oil and gas price rises may boost this.

Looking ahead, activity is being maintained, despite Norway’s zero carbon commitments. In its latest annual licensing round in mid-January, it awarded licenses to Lundin Energy and Equinor, along with smaller awards to Eni-owned Var Energi, DNO, Neptune Energy, Wintershall Dea, and PGNiG. Norway also launched its long-awaited frontier round in November, offering rights to 136 blocks, mostly in the Barents Sea.

2 | M&A ON THE UP; PLENTY ON OFFER

The “energy transition” and low oil and gas price mean plenty of upstream assets on the market, and increasingly tight finances for some companies. This has spurred M&A activity, with the biggest recent deal being Premier Oil’s merger with private equity-backed Chrysaor to form Harbour Energy. Over in Norway, Italy’s Edison recently agreed to sell its oil and gas production business to local company, Sval Energi, for $300 mn. Further activity is expected this year as stability returns to the markets. Deals could include the sale of ExxonMobil’s UK upstream business, with speculation growing after the company said it was providing information to third parties that may be interested in the assets. In addition, BP has reopened the sale of stakes in the North Sea’s Andrew area and Shearwater oilfield after a previous $625 mn sale to Premier Oil fell apart in October after Premier was taken over by Chrysaor. BP reportedly has called for interested parties to send in bids with no deadline.

In addition to Exxon, Japan’s Marubeni is reported to be selling its upstream assets, including its non-operated stake in the Montrose-Arbroath area, situated in the Central North Sea. The area contains the Montrose, Arbroath, Arkwright, Brechin, Wood, Godwin, Cayley, and Shaw fields, which together produced 24 000 boe/d in the first 9 months of 2020. Marubeni has a 41% stake in the project, while joint venture Repsol Sinopec Resources is operator with 59%. Other Japanese companies, including Idemitsu Kosan and Itochu have exited the North Sea in recent years, leaving only JX Nippon E&P and Mitsui & Co. Marubeni also holds 5% to 8% shares in the 3500 bpd North Sea Columba fields, but it is unclear whether these assets are also up for sale. Others reportedly seeking UKCS divestments include CNOOC and Suncor.

On the buyer side, private equity has spurred interest through new entrants such as Harbour Energy, as well as smaller companies such as Pandion Energy and Zennor Petroleum, which aim to invest in new production and promote technical upgrades to curb emissions.

3 | NORTH SEA TURNS GREEN

In light of the UK’s recent commitment to net-zero carbon emissions by 2050, the UK government is negotiating a “North Sea transition deal” with the oil and gas industry. As well as charting a path to decarbonization, the deal intends to preserve jobs and create trade and investment opportunities. The United Kingdom is also reviewing its offshore licensing regime to ensure they are compatible with the zero-carbon goal, as well as possibly increasing its support for CCS and hydrogen production, with added pressure on in the run up to COP26 in Glasgow. Denmark has already announced plans to stop oil
and gas exploration and phase out extraction in the North Sea altogether by 2050, although neither the United Kingdom nor Norway is expected to take that route at this stage. Domestic sectors argue that oil and gas will continue to be needed, and indigenous gas supplies will have a CO₂ footprint less than half that of imported LNG. UK regulator, the Oil and Gas Authority (OGA) estimates UK pipeline gas has a CO₂ footprint of 22 kg/boe, compared with 18 kg/boe for imported Norwegian gas and 59 kg/boe for imported LNG.

“UK production until 2050 is consistent with the [UK] Committee on Climate Change scenarios,” Nick Richardson, OGA head of exploration and new ventures, told the Prospex conference in December. “Security of supply remains important, jobs remain important, and the economic value of the oil and gas sector to the UK economy remains significant.”

As a result, the OGA is expected to adopt a new remit in 2021 requiring it both to ensure companies maximize economic recovery of oil and gas (as before), and contribute to achieving the goal of net-zero emissions by 2050. Trade body, Oil and Gas UK, said the industry had pledged to halve its operational emissions by 2030, and that it was “up for the honest discussion.” BP, Equinor, Shell, and Total have all made announcements on plans to capture CO₂ emissions from industrial sites in Norway and the United Kingdom and store them under the North Sea.

One issue, the green electrification of offshore facilities, is likely to prove critical and its success or otherwise will influence future UK investments, according to Oil & Gas UK—including projects in the West of Shetland area, such as Cambo and Rosebank, and an extension of BP’s Clair development, as well as projects further south. Norway has already electrified large portions of its offshore sector (see earlier Focus) and the United Kingdom needs to catch up to get emissions down. Power generation at UK offshore facilities, using diesel or gas, currently accounts for 10% of UK power generation emissions and 70% of upstream operational emissions. A major project, dubbed ORION (Opportunity Renewables Integration Offshore Networks), aims to supply green power backed by offshore wind and hydrogen to the West of Shetlands, and the Shetland Energy Hub. BP, Equinor, Shell, SSE, Total, EnQuest, Shetland Islands Council (SIC), and OGTC are all involved in the project. Another five schemes are planned in UK waters.

ORION will initially rely on onshore wind—including the 450 MW Viking Energy wind farm coming online in Shetland in 2024 and the new 600 MW mainland interconnector acting as a backup. Thereafter, various offshore wind plans could supply power to the project. Developments west of Shetland, including Glen Lyon and the first two phases of BP’s Clair field, would require a combined 194 MW to electrify, with further demand on Shetland and among other fields and facilities. Longer term it is hoped that 5 to 10 GW of off-shore wind can be harnessed around the Shetlands (about 20% of total current UK demand). This would provide surplus green power to produce green hydrogen at scale, helping provide a backup fuel for when the wind is low—and later, exports to Europe, possibly using existing infrastructure.

Norway is also expanding supply of green power to offshore facilities, and by 2025 about half of output should be powered with hydroelectricity from shore. The country leads the field in decarbonization of upstream assets, although it took Equinor until November (some months after its European peers) to announce a net-zero carbon emissions goal both for its operations and consumption of its products by 2050. Despite the anticipated rise in output, the NPD is expecting emissions reductions of about 40% by 2025.

4 | ALTERNATIVE FUTURE

The North Sea’s relatively low-carbon profile; established open infrastructure and supportive regulatory environment may remain appealing to many E&P investors. However, the oil and gas industry will inevitably decline over future years. Offshore wind on the other hand is just getting going. As well as the ORION plans for Shetland, Orsted is developing Denmark’s largest ever construction project, a 210 bn krone ($34 bn) man-made “energy island,” which has recently been approved alongside hundreds of offshore wind turbines that will help the country achieve climate neutrality by 2050. There are numerous other more modest projects, and costs keep falling. Where there is cheap green energy, hydrogen production is likely to follow, which together may provide another lease of life for existing infrastructure and an alternative zero carbon energy producing future for the region.

There are also plans to transform the region’s depleted hydrocarbon fields and infrastructure into a carbon storage industry, which may also help extend the socially acceptable life of oil and gas production, by capturing the carbon emitted from the fossil fuels produced. All the major European oil and gas companies are involved in proposed CCS partnerships with state backing, but so far only the Equinor-led Northern Lights project in Norway has been approved, thanks to a generous contribution from the Norwegian government.
REFERENCE

1. Westwood Global Energy Group. UK and Norway Exploration and Production Outlook for 2021. https://www.westwoodenergy.com/news/westwood-insight/uk-and-norway-exploration-and-production-outlook-for-2021. Accessed February 23, 2021.

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