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# Briefing: what the Jackdaw gas field means for the net zero transition

## Summary

- Jackdaw is a planned new gas field in the North Sea, owned and operated by Shell, which is currently awaiting government approval.
- The government's recent Energy Security Strategy aimed to “ensure our gas remains the low-carbon choice.” However, Jackdaw is a particularly polluting gas field: its gas reserves have an unusually high CO<sub>2</sub> content.
- In 2021 Shell's original application to extract gas from Jackdaw was rejected due to the “significant effect” on the climate from Jackdaw's emissions. Shell has submitted an updated application, yet analysis shows that it has not taken sufficient steps to mitigate Jackdaw's high emissions, despite instructions from the regulator. It does not align with the targets and objectives of the UK's Carbon Budgets nor the industry's decarbonisation commitments in the North Sea Transition Deal.
- Jackdaw's gas reserves will satisfy 1- 2% of UK gas demand on average over its short lifetime. Thus it will not significantly support the UK's energy security. It will not stop the UK from needing to import gas, and only distracts from real solutions, such as energy efficiency measures and the acceleration of renewables.
- Jackdaw's gas will have no impact on UK energy bills, as the price of oil and gas produced in the North Sea is set by changes in gas supply and demand around the world, which is unaffected by any comparatively minor increase in production here.
- Allowing Jackdaw to proceed will, though, worsen the climate crisis, a fact acknowledged by Shell. Burning Jackdaw's gas reserves would create the equivalent of more than half of Scotland's annual emissions or Ghana's entire annual emissions.
- These emissions undermine the UK's ability to fulfil its statutory climate obligations and the global effort to achieve the goals of the Paris Agreement. For this reason alone, the government should reject Shell's application to develop the Jackdaw field.

## Shell's gas field plans ignore industry commitments, undermine UK climate targets and present a crucial test for the regulator.

Shell's proposals to develop Jackdaw's gas reserves would contribute to CO<sub>2</sub> emissions equivalent to 0.1% of all UK emissions from its production alone. In October last year, the Offshore Petroleum Regulator for Environment and Decommissioning (OPRED) refused to sanction them on behalf of the Business Secretary, citing the “significant effect” on the climate from Jackdaw's emissions.

OPRED said: "To align the project with objectives and targets set out in the [UK's] Carbon Budgets and the North Sea Transition Deal would require the project philosophy to be revisited."

Shell resubmitted its Jackdaw proposals in February this year with only very minor alterations. Despite being presented with lower impact alternatives, the overall plan has not changed. It is explicit that this is because it makes the most commercial sense for Shell.

Jackdaw is a high-pressure, high-temperature gas condensate field and its gas reserves have an unusually high CO<sub>2</sub> content. Shell proposes extracting CO<sub>2</sub> from the gas, effectively 'cleaning' it, using a special process (an offshore amine unit). This will ensure it meets pipeline specifications but is itself a highly emissions-intensive process, with Shell planning to directly vent the extracted CO<sub>2</sub> into the atmosphere. Shell does include a decarbonisation element in its plan for Jackdaw: the electrification of its Shearwater hub, some 20 miles from Jackdaw, to which the gas will be fed (electrification of the hub would see it use renewable energy to extract the oil and gas, rather than fossil-based power supply). But, as OPRED notes, this will have no bearing on the vented emissions, which would equate to nearly a quarter of all greenhouse gas emissions vented in the UK Central North Sea, and so won't mitigate Jackdaw's climate impact. The regulator also notes that Shell's plans to electrify its Shearwater hub remain uncertain.

OPRED concluded that the "baseline philosophy" of these proposals for Jackdaw run "contrary to the wider environmental protection objectives for the sector" in relation to its high emissions.

Shell is a central player in the UK's offshore oil and gas industry. The year-old North Sea Transition Deal commits the industry to a 50% reduction in these emissions by 2030 with a view to becoming a 'net zero' basin by 2050. This industry target has been criticised, however, by the Climate Change Committee as well below its recommendation of a 68% cut in production emissions by 2030 to reach net zero by 2050. The production of oil and gas (i.e. extracting hydrocarbons, and not accounting for the emissions from their use) generates 4% of all UK emissions.

Emissions associated with the Jackdaw development could potentially account for nearly 3% of the total emissions from the whole of the UK Continental Shelf. Factoring in the industry's emissions reductions targets, Jackdaw and Shearwater's contribution as a percentage of the whole rises to nearly 5% of all allowable emissions under the Transition Deal, and about 7% of the Climate Change Committee's 2030 scenario for total production emissions from the sector. Given that there are over 200 oil and gas fields in operation in the North Sea, the upstream emissions created by the Jackdaw development would, therefore, be excessive.

Whilst Shell has publicly stated its commitment to reducing its climate impact, these plans for Jackdaw see Shell going forward with a highly carbon intensive project, and sidelining the UK's commitment to reducing the climate harm from oil and gas production. This poses a test for OPRED and the North Sea Transition Authority, which is responsible for both consenting new developments and monitoring the implementation of the Transition Deal. Approving Shell's plans for Jackdaw would call into question the value of the North Sea Transition Deal as a pathway to net zero and the industry's pledge to cut production emissions, as well as the pivotal role companies like Shell have claimed for themselves in the UK's transition to lower carbon energy.

The UK will need gas while it transitions and ensuring that it is as low emission as possible has become a mantra for policy-makers as they look to source supplies from around the world. The recent Energy Security Strategy committed the government to ensuring "our gas remains the low-carbon choice". For this to be true requires measures to be taken to reduce the carbon intensity of North Sea gas. While lower than LNG imports, the emissions intensity of gas produced on the UK Continental Shelf is higher than piped gas from Norway (22 kgCO<sub>2</sub>e/boe and 18 kg CO<sub>2</sub>e/boe respectively). The emissions intensity associated with the Jackdaw project would be even higher at 31 kgCO<sub>2</sub>e/boe. Jackdaw's gas would therefore have a much higher emissions intensity than the UK average, and almost double that of gas imports from Norway. It is not "low-carbon" gas.

In October last year, Shell CEO, Ben van Beurden, praised the North Sea Transition Deal, saying it made the North Sea "probably one of the leading, if not the leading basin in the world when it comes to the energy transition and carbon intensity". Shell's plans for Jackdaw, submitted the same month, undermine both the Deal and claims of lower carbon UK production. If Shell and the industry as a whole want to retain their social licence to operate and role in the UK's transition to clean energy, they need to deliver on their commitments.

## Jackdaw will not provide UK energy security or lower energy bills. It will contribute to the worsening climate crisis.

If approved, Jackdaw's output will only meet around 1- 2% of UK gas demand on average over its lifetime. It would start producing gas in 2025 and production would drop by almost 60% within four years of its peak in 2026. It will not prevent the UK from needing to import gas.

Jackdaw, with its estimated 58m barrels of oil equivalent (boe), is the UK's 10th largest undeveloped offshore gas field. The North Sea is an oil-heavy basin: 70% of remaining reserves are oil (80% of which the UK exports). To put it in context, as Europe seeks to slash its dependence on Russian gas, even extracting all proven UK reserves and resources from new fields would only meet about 1% of European gas demand each year to 2050, according to the Climate Change Committee.

Focusing on the North Sea's remaining reserves, like Jackdaw, gives false hope and distracts from the urgent task of reducing energy demand and transitioning the UK to a cleaner energy system. Nor does it solve the real crisis facing the UK, which is one of affordability. Jackdaw's gas will have no impact on UK energy bills, with the price determined by global markets, a fact this government concedes. Jackdaw's gas also belongs to Shell, which can sell it overseas should it choose to. As we entered the gas crisis last year, the UK exported unusually large amounts of gas for the time of year because the companies that own it could get a better price elsewhere.

The UK's oil and gas industry provides less tax revenue and fewer secure jobs than in previous decades. In 2020, the UK was the only country where Shell operated that it didn't pay any tax. In fact, it collected almost £100m from the UK government. Last year, as gas prices hit record highs, Shell again received more – about £90m more – than it gave back to the UK. Research also shows that, with the right support and investment, the move away from fossil fuels could see three jobs in cleaner energy for every oil and gas job at risk. Every new field, like Jackdaw, delays a genuine transition to a more affordable, cleaner energy system.

Approving Jackdaw will not provide UK energy security or lower energy bills but it is guaranteed to worsen the climate crisis. Burning Jackdaw's gas reserves would create the equivalent of more than half Scotland's annual emissions or more than Ghana's entire annual emissions.

The world is currently way off track to limit warming to 1.5°C, which is deemed the safest, liveable temperature rise still possible. Burning the fossil fuels in existing projects will push us past this target. Analysis by UCL published in *Nature* found that almost 60% of oil and gas reserves must remain in the ground by 2050 to provide a 50% chance of limiting global temperature rise to 1.5 degrees. This translates into an annual decline rate of 7% on average for UK gas extraction, leading to the conclusion that new gas fields in the UK are incompatible with the Paris Agreement.

Adding new developments, like Jackdaw, will push us closer to parts of our world becoming uninhabitable. The UK, as the second largest oil and gas producer in Europe and a wealthy economy with large cumulative emissions, must lead the way and begin phasing out fossil fuel infrastructure now.

New production of gas, regardless of its carbon intensity, is incompatible with the UK's path to net zero. Allowing Shell's plans for Jackdaw to proceed would undermine the UK's ability to fulfil its statutory climate obligations and the global effort to achieve the goals of the Paris Agreement. When weighed against the minimal public benefit from exploiting its reserves, this fact alone should lead the government to reject Shell's application to develop the Jackdaw field.