

Second wind

How can green industries contribute to local economic growth?

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Executive Summary

The net zero transition will lead to structural change across the UK workforce. Keir Starmer's Government bullishly described this as "the defining economic opportunity of our time", envisaging the creation of up to 860,000 "good jobs" nationwide. Although around half of these jobs will be spread around the country, the rest will be in places and sectors where change is more concentrated and impacts more acute. Here, the development of clean industries – such as renewable and nuclear energy, electric cars, or carbon capture and storage – has the potential to disrupt local economies, substantially affecting living standards and growth. Indeed, the new Prime Minister has previously called for "net zero to industrialise the north".

The key question, then, is how best to harness such concentrated change. So in this report we focus on two places with high ambitions for net zero-driven growth. First, Aberdeen, where prosperity has long rested on an oil industry whose reserves are drying up; and Grimsby, a town stricken by malaise since losing its fishing industry in the 1980s. We assess how both places are capitalising on green industry, what needs to change, and what lessons their experiences can offer to other parts of the country.

Aberdeen: an oil-rich city getting poorer

Aberdeen dominates the UK's oil and gas industry and is home to four-in-five of our oil and gas jobs. When the industry boomed, times were good: total disposable incomes in Aberdeen exceeded the UK average by a fifth in the early 2010s, and the earnings of people working in the city by almost half (47 per cent). But when oil prices halved between 2014 and 2016, the city

sank into decline. By 2023, gross annual output had fallen by 11 per cent compared to its 2009-14 average. Aberdeen's earnings premium over the rest of the UK fell by three-quarters over the same period and payrolled employment is down 8 per cent since 2015, falling at three times the Scottish rate over the past year. With more than £9 billion having been lost from incomes, overall living standards have dropped below the UK average for the first time since 2003.

Some of this was inevitable: Aberdeen is an extraction-reliant city grappling with an exhausting resource, and policy cannot pretend a historical resource boon was permanent. But it must arrest decline before Aberdeen slips not just towards but well below the UK average – the well-trodden path followed by communities that once prospered from coal and steel.

UK oil and gas production is down 76 per cent on its 1999 peak and is set to fall by another 40 per cent by 2030 (and by over 90 per cent by 2050). After extracting close to 48 billion barrels of oil equivalent, reserves are running dry, and uplifts from undiscovered or undeveloped reserves would merely slow the decline rather than reverse it. Further darkening the outlook is a 39 per cent real increase in extraction costs since 2020, leaving the North Sea as the world's most expensive major offshore basin.

This decline has been accompanied by a fall in the number of jobs associated with the industry. Production rose by a fifth between 2014 and 2019, the only sustained interruption to the basin's decline since 1999, yet employment in Aberdeen's oil and gas sector fell by a tenth (11 per cent) over the same period. This is because remaining reserves are predominantly in smaller fields, connected to existing platforms and infrastructure, and extraction is more technologically driven than in the past.

Against this backdrop, the Government has rightly stopped issuing licences to explore for new fields. But the not-yet-discovered fields affected by that decision would, based on Government forecasts, would account for less than 1 per cent of projected production this decade. The current divisive debate about future North Sea exploration therefore misses the point

that falling output is overwhelmingly driven by a basin running dry. That said, Rosebank and Jackdaw, the two Scottish oil and gas fields currently at the centre of public attention, are in a position to help ease the transition, but only very marginally. Such debates need to avoid being a distraction from the need to address the future of Aberdeen and its workforce.

Replacement green jobs are not arriving fast enough

When the Scottish Government set ambitious offshore wind targets in 2010, it also made a promise on jobs: 28,000 direct roles by 2020 and 20,000 more in related industries. Aberdeen's comparative advantages – subsea engineering capability, offshore logistics, a deep harbour, and long experience with operating in harsh North Sea conditions – made it the natural home for this new industry.

These promises have not been kept. Scotland will miss its 2030 offshore wind capacity target by around 50 per cent and is running 80 per cent behind its employment goal, with oil job losses in Scotland outpacing 'clean' job creation by a factor of three. And new jobs are concentrated in project-specific construction and commissioning, rather than the permanent operations and maintenance roles that can underpin a local economy.

A binding constraint is the electricity grid, which means Scotland is 'wasting wind'. Around a third (35 per cent) of Britain's wind capacity is in Scotland, but this causes nearly all (94 per cent) of our curtailment costs (when farms are paid to switch off). The reinforcements needed to carry Scottish wind south will not be complete until the 2030s, several years after a wind farm consented today would start generating. Capacity that runs ahead of the grid would therefore add constraint costs for every household without displacing fossil generation, as well as locking in higher electricity prices for decades. Ministers need to build in a sensible order, not build less, so they should seek to align Scottish capacity targets with the grid timetable.

They also need to find a way to hold Aberdeen's workforce together through the gap between oil declining and green jobs arriving. In this intervening period, 4,400 Aberdonians voted with their feet and left for overseas destinations in the year to

mid-2023 alone. With the onshore workforce overwhelmingly (95 per cent) local but its skills in demand worldwide, arresting further departures matters: not because every city should stay the same size, but because Aberdeen's engineering base took half a century to build and no other place in the UK could reassemble it quickly.

Aberdeen needs a new plan

Both the UK and Scottish Governments should be clear-eyed about what clean energy employment can deliver in Aberdeen this side of 2030. The most immediate opportunity is decommissioning: making safe the rigs, wells and pipes through which oil and gas have flowed ashore for decades. The part of the North Sea currently serviced out of Aberdeen is expected to account for 60 per cent of national decommissioning spending over the next 10 years, with demand for workers increasing to a peak in 2029. This could draw on the skills Aberdeen already has, making decommissioning a genuine bridge between declining production and the arrival of new industries.

The best way to get the most out of this inherently temporary work is for the Government to attach domestic content conditions to the tax relief that funds much of it, and to treat dismantling capacity at ports as national infrastructure to make this a more Scottish-jobs-rich process. Indeed, coordination of this transition will be crucial and needs action from both Governments, since no single operator, regulator or local authority holds all the levers.

Grimsby: a real new industry rises from the ashes

On paper, Grimsby should also be perfectly placed to scoop up net zero jobs. It boasts the UK's largest port by tonnage and has easy access to the North Sea. The hope is that the same geography that once made Grimsby a fishing powerhouse can now provide a home for a new industrial base of offshore wind and carbon capture.

But if Aberdeen is looking to cushion a fall, Grimsby needs to reverse a collapse that is decades old. Fishing once accounted for close to a quarter of all its employment, but today official data suggests that the numbers working in commercial fishing

are vanishingly small. From an already low base, typical wages fell even more after the financial crisis, from 10 per cent below the national median in 2009 to 21 per cent below by 2017 – taking Grimsby from around the 40th percentile of travel-to-work-areas to close to the bottom tenth.

Even as the town's decline intensified, however, the first stirrings of a brighter future started blowing in the wind. Offshore wind arrived with a small Centrica facility in 2008 and today the town operates around a third of the UK's built offshore wind capacity. It also hosts one of the biggest approved carbon capture projects in Viking CCS, and myenergi, the UK's largest electric vehicle charger company, calls Grimsby its home. That gives a town of only 80,000 jobs a solid stake in three of the most important clean industry prospects. If net zero can produce concentrated local benefits anywhere, it is surely here.

Green growth, but jobless growth

These new industries are already reshaping the local economy. Since Grimsby first hit 1GW of wind with Ørsted's Race Bank in 2018, the electricity sector has delivered most (78 per cent) of North and North East Lincolnshire's GVA growth. And this growth has been highly concentrated at the ultra-local level, with 71 per cent coming from just four of Grimsby's neighbourhoods: those hosting offshore wind companies.

The rest of the local economy seems to be following suit. After years of outflows, people are moving to Grimsby for work: enough internal migrants arrived between 2020 and 2024 to offset the outflows from 2012 to 2018, and working-age people account for three-quarters of this turnaround. Among areas starting with similar wage levels, Grimsby has posted one of the fastest rates of growth in median hourly earnings since 2018, of 19 per cent, running 7 percentage points ahead of any bordering area.

These are promising signs, but there is further to go. While electricity sector wages in Grimsby are good – at more than twice the local median – real full-time salaries across the town as a whole are still 9 per cent below their 2009 level, and 15 per cent below the typical worker nationally. Overall jobs growth has lagged too: despite the inflow of workers, payrolled jobs grew

three times faster across the UK than in Grimsby between 2018 and 2025. And the spillovers to service industries that high-wage manufacturing might be expected to bring have not arrived: output in private services across the region grew just 0.7 per cent over the five years in which the electricity sector boomed.

Indeed, the recent improvement may owe less to offshore wind and more to a rise in the pay floor. Pay growth has been faster in the stagnant services sector than in manufacturing, where new green industries sit, and hours worked have fallen 7 per cent, three times the national rate, as part-time work has risen. A minimum wage up by a fifth in real terms since 2017, in a town where around one-in-eight (12 per cent) employees sit on or near the wage floor, may be a better explanation for Grimsby's recent fortunes than wind.

Small scale is Grimsby's big problem

Sparse employment in the town's new growth engine is what limits its wider impact. The energy sector accounts for over 8 per cent of local activity but only 1 per cent of jobs, equivalent to around 900 roles. The problem is that operations hubs like Grimsby do not employ many people. Once built, wind farms typically support just 100 permanent roles per gigawatt (GW) of capacity, so even the 13.8 GW that the Humber cluster hopes to achieve by 2030 would provide less than 2 per cent of employment – well below the 5-10 per cent that industries genuinely anchoring a local economy tend to hold.

The jobs that could change this are in manufacturing and the wider supply chain, and they have unfortunately gone elsewhere. The east coast's wind industry has no centre: it is scattered across hubs in the North East, the Humber and East Anglia. The Hornsea 3 wind farm illustrates the pattern, with construction, operations and grid connections straddling three different Government Office Regions. Its manufacturing base typifies this: blades made in Hull, nacelles in Scotland and cables in Hartlepool. Only a sixth of Ørsted's 255 domestic suppliers operate in the Humber region, and just five are headquartered in Grimsby. Meanwhile, a port expansion discussed since the

early 2010s has fizzled out, with construction work for projects in Grimsby's waters done from Teesside instead. Political and geographic fragmentation also makes things harder. The former Humber Local Enterprise Partnership has been replaced by two different combined authorities, one each side of the river and both run by different political parties.

With no overall jobs boom blowing inland, local hopes are turning to other potential sources of employment – such as the Viking carbon capture project, which promises around 1,000 permanent jobs and a 4,500-strong (onshore) construction boom, with hydrogen and sustainable aviation fuel further down the line. All of them, though, depend on central Government decisions about how much gets built, and where.

Net zero jam should be spread on a smaller slice of toast

Despite starting from very different positions, Grimsby and Aberdeen collide with the same barrier: not enough permanent green jobs to revive every place. Indeed, the lesson from continental Europe's offshore wind hubs is that concentrating industry in specific geographies delivers agglomeration benefits, lowering costs and raising productivity by co-locating. But the UK's current approach makes this hard to achieve: clean industry is spread thinly across the country, the predictable result of 'place-blind' auctions that select projects on price and take no view on where the activity lands. This leaves Grimsby and Aberdeen struggling to reach the scale required to become genuine green-jobs success stories.

The real prize from scale is local renewal, as higher employment across manufacturing bleeds into a broader economic revival. But it is unrealistic to hope that this can happen in every place: on plausible assumptions, perhaps a tenth of the headline 860,000 roles in the Clean Energy Jobs Plan – or around 70,000 jobs – will be direct permanent employment in industrial hubs. Spread across the 18 travel to work areas where the Plan promises green employment, that amounts to 2.6 per cent of their combined jobs, indistinguishable from ordinary labour market churn. For these jobs to make a noticeable difference

anywhere, somewhere must miss out.

This means the Government must do what it and its predecessors have avoided: identify the places it intends to 'win' from the net zero transition and back them with long-term investment and the consistent policy signals that firms need in order to commit. This amounts to picking geographical winners for the sectors where the Government has already said growth will be prioritised.

All of this is a wake-up call to the Government's devolution agenda. Grimsby makes the case for devolving better rather than more, since the Humber functions as an industrial cluster economically but is split between two combined authorities. Meanwhile, Aberdeen also shows the limits of devolution: a longstanding city deal, a capable council and an established industry body have moved neither grid timetables nor cluster sequencing decisions. Stronger local institutions do improve a place's capacity to bid for investment and to hold onto it, but they cannot determine who wins. Here our view is that comparative advantage should be the primary test, since a cluster located where it cannot thrive delivers neither national productivity nor local renewal. But among places with a genuine claim – which both Aberdeen and Grimsby have – need should be the deciding factor. And in any case, concentration alone is not enough where the constraint is timing rather than scale: the Government also needs to sequence when activity arrives.

Providing certainty would also allow areas that are not chosen to move on – building a growth strategy around an industry that never arrives wastes investment, time and scarce local government capacity. This is not just a theoretical concern: Grimsby's colleges scaled back training when the opportunities they had planned for failed to appear. Being de-selected is hard, but better than an alternative that currently disappoints everywhere slowly.

What would backing these places look like in practice? For Grimsby, resolving port capacity; a plan for sequential projects to be constructed and operated out of the Humber; better connections to the rest of the cluster; and sustained investment

in skills. For Aberdeen, new offshore wind capacity ready as grid constraints ease rather than years ahead of them, with stipulations on local content; decommissioning treated as the employment bridge it can be; and workers supported through a transition that now has more than one step.

Clean technologies are being asked to cushion decline in places like Aberdeen, regenerate towns like Grimsby, and deliver affordable energy everywhere. Each of these goals is legitimate, but achieving all of them in all places is not. Aberdeen and Grimsby show what happens when ambition outruns delivery, and learnings from them offer a framework for every place banking on green industry: sequence honestly, concentrate deliberately, and fund it fairly.

Section 1

Introduction

The transition to a net zero economy will drive large structural change across the UK workforce, though it will be felt very differently from place-to-place. It could be transformative for some places, moving wages, employment and living standards. Indeed, Keir Starmer's Government made this link particularly strongly, describing net zero as "the defining economic opportunity of our time" and set out how it could deliver "up to 860,000 good jobs" across all parts of the UK by 2030.¹ While we estimate that only around half of these workers would be directly employed in green energy or in reducing emissions, this still represents a significant change in the labour market.² It implies roughly doubling employment in low-carbon sectors by the end of the decade and seeing one-in-85 workers employed today ending up in a new low carbon role. Few parts of the economy grow that quickly, meaning that – assuming the target is met – the net zero transition will have a key role to play in shaping the labour market of the future.

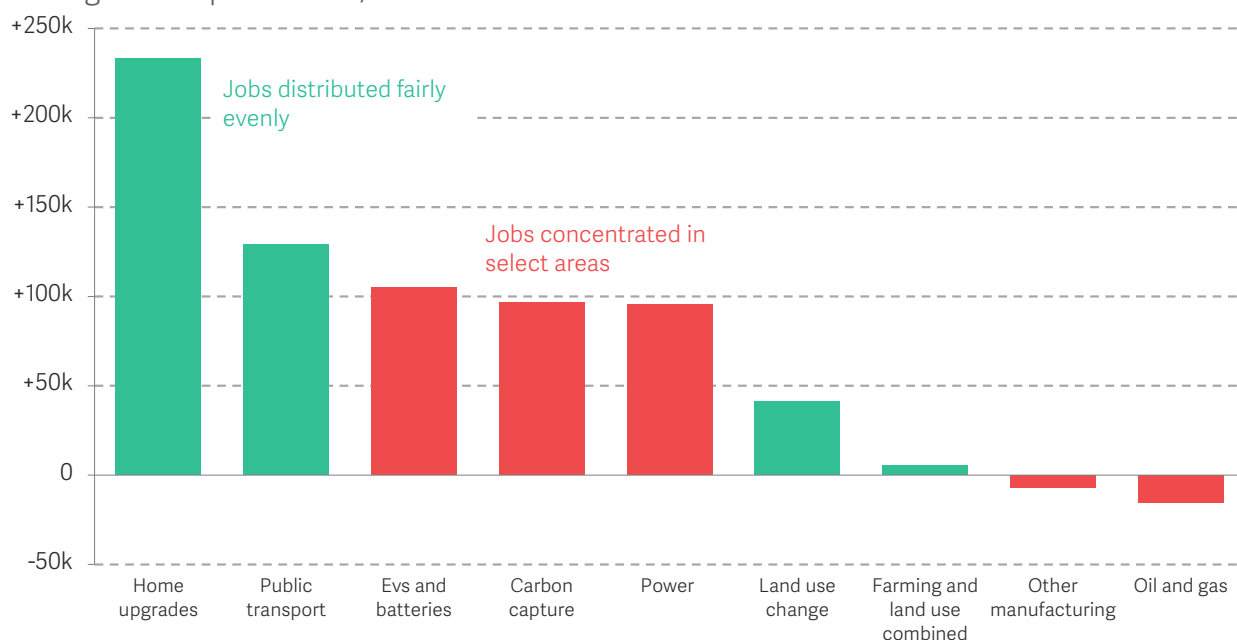
But chunky headline job numbers say nothing about where those jobs may materialise: a national employment total is a poor guide to the impacts of change without clarifying geography. In this context, some low carbon activity is inherently site-specific and tied to the nation's coast, ports, electricity grid, or determined by geology. Other activity follows the location of what is being decarbonised, such as the building stock and vehicle fleet, and is therefore dispersed much more broadly. Most (55 per cent) of the new green roles created by 2030 falls into the latter category and will be spread around the country rather than concentrated in a small number of towns and cities – as Figure 1 shows.

¹ DESNZ, [Clean energy jobs plan](#), October 2025.

² RF analysis of DESNZ Clean Energy Jobs Plan, CCC Seventh Carbon Budget data.

FIGURE 1: More than half of anticipated employment changes will be spread around the country

Net new jobs due to net zero, CCC maximum disruption scenario, by sector and regional dispersion: UK, 2023-2030



SOURCE: RF analysis of Climate Change Committee, Seventh Carbon Budget data.

These new net zero jobs that are dispersed around the country will only have a marginal impact on local labour markets, and are on a scale dwarfed by the natural churn seen as people move between employers and in and out of the workforce.³ In these places most people – those not directly employed or whose friends and families' economic circumstances change – are unlikely to notice the difference.

The stakes are higher when change is concentrated

But there are places where change will be far more concentrated and its effects more acute. Some clean industries – offshore and onshore wind, nuclear power, electric vehicle manufacturing, hydrogen, sustainable aviation fuel, and carbon capture and storage – cluster around deep-water ports, suitable coastline, grid capacity, geological storage and existing industrial sites. Where these industries arrive or grow, a single investment decision can move wages, employment and living standards for resident populations. It is these places where the stakes of getting the net zero transition right are highest, where the political spotlight shines brightest, and where the case for active and well-designed policy is strongest.

This challenge is not specific to net zero. Any episode of concentrated industrial or

³ For example, job-to-job moves in the UK have averaged around 800,000 per quarter since 2001. The 470,000 dispersed roles implied by our estimate therefore amounts to around 3 per cent of the job moves made over a five-year period. Source: RF analysis of ONS Labour Force Survey.

technological change – be that automation, artificial intelligence, or a shift in trade patterns – raises the same questions: who wins, who bears any cost of adjustment and how can the government shape investment decisions. History tells us that passive policy making can lead to painful transition that often leaves places behind.

These questions are politically live. Many places hope to benefit from the net zero transition, and the Government has actively encouraged them to seek to. Indeed, the new Prime Minister called for “net zero to industrialise the north” only a couple of years ago, and few local growth plans are now written without a clean industry chapter.⁴

That encouragement now sits inside two of the Government’s flagship agendas. The Industrial Strategy names clean energy as one of eight priority sectors, with a commitment to build domestic supply chains behind it.⁵ And the devolution settlement is handing new strategic authorities the job of writing Local Growth Plans for their areas.⁶ Both agendas assume clean industry can be a vehicle for local growth in the places that want it.

But the mechanisms that determine where clean industry lands were not designed with local prosperity front of mind. The result is a mismatch between the language of the promise, which is about places, and the machinery of delivery, which mostly is not.

The key question is how best to harness concentrated change

Discussion of green jobs has focused overwhelmingly on aggregates: how many, how fast, in which sectors, and at what cost. Far less attention has been paid to the conditions under which new roles translate into higher pay, more and better employment, and a stronger local economy for individual workers in a particular place.

That requires asking harder questions. Are new jobs permanent operations and maintenance roles, or temporary construction work that moves on when a project completes? Do they draw on skills the local workforce already has? Does the supply chain locate nearby, or does it serve the site from another region or nation? And is the local institutional set-up capable of bidding for, winning and holding onto investment? And underlying all of these, to what extent is the location of new roles driven, or not driven, by Government policy?

To answer these questions, we leave the national debate behind and focus on how net zero jobs can affect local economies instead. To do this we zoom in on two places with high ambitions, as examples of the many that are eyeing net zero-driven economic growth. Both have a reason to think they can be a suitable home for the green industries

⁴ D Dunne and O Dwyer, [28 quotes from new UK leader Andy Burnham on climate, net-zero and fossil fuels](#), Carbon Brief, July 2026.

⁵ Department for Business and Trade, [Industrial Strategy](#), June 2025

⁶ Cabinet Office, [Rewiring the State – Cabinet Statement](#), July 2026.

of the future, both have been promised a great deal, and both have placed net zero at the core of their economic strategies. If the transition can deliver tangible local benefits anywhere, these are the sorts of places where it should be visible first.

First we look at Aberdeen, where high levels of prosperity have long been underpinned by an oil and gas industry now dealing with drying up reserves – and where clean technologies are widely touted as a replacement. Aberdeen is the clearest test of whether net zero can cushion an industrial decline that is already happening: four-fifths of Britain's direct oil and gas jobs sit there, but these numbers have been in freefall since the price of oil collapsed by half between 2014 and 2016. The challenge here is ensuring that employment in clean industries arrives quickly enough to 'catch' workers at risk of drifting away from the labour market.

Then we turn to Grimsby, a town that has suffered economic malaise since losing its fishing industry in the 1980s – and where green jobs are now seen as a route to economic revival. Grimsby poses the opposite test. It is not cushioning a fall but building a thriving economy from a very low base. And it is already holding what looks like a strong hand: around a third of the UK's built offshore wind capacity is operated from the town. If green industry can lift a town that has 'fallen behind', Grimsby should show it.

For each case study we assess how the local economy is faring and what needs to change for low carbon employment to move the dial. We then set out how these lessons apply to other parts of the country and to the Government's wider 'clean jobs' approach, detailing how the net zero transition can have as much impact on local employment, and therefore on living standards, as possible.

The rest of the report is structured as follows:

- Section 2 focuses on Aberdeen: the scale of its dependence on oil and gas, why slowing the decline of North Sea production is unlikely to protect local employment, and why the clean industries intended to replace it have not yet arrived.
- Section 3 turns to Grimsby, setting out what offshore wind has and has not yet delivered for the town, discussing what it would take to turnaround its fortunes.
- Section 4 draws the two together, examining the case for concentrating clean industry in a smaller number of places, and sets out what backing individual areas would actually involve.

Section 2

Aberdeen

Aberdeen is the epicentre of the UK's oil and gas industry. Four fifths of the country's direct oil and gas employment sits in and around the city, and for decades that concentration delivered exceptional living standards: earnings ran close to 50 per cent above the UK average and disposable incomes a fifth.

But the city is now in decline. Since the oil price halved between 2014 and 2016, Aberdeen's earnings advantage has fallen by three-quarters, payrolled employment is down 8 per cent, and household incomes have dropped below the UK average for the first time since 2003. Some convergence towards the national average was inevitable in an economy built on a finite resource. But the risk facing Aberdeen is repeating what happened to the coalfields and the steel towns, which became much poorer places once the dominant industry declined.

Against this backdrop, the debate has become fixated on whether more drilling should be allowed in the North Sea. But this misses the underlying drivers of the decline: that oil supplies are drying up. Production is 76 per cent below its 1999 peak and falls a further 40 per cent by 2030 on the NSTA's own projections. Fields yet to be discovered are estimated to account for under 1 per cent of output this decade. Meanwhile, the link between output and employment has broken: production rose by a fifth between 2014 and 2019, in the one sustained interruption to the basin's decline since 1999, while Aberdeen's oil and gas employment fell by 11 per cent. More exploration is unlikely to move Aberdeen's jobs market, whatever else can be said for or against it.

A new source of prosperity is badly needed, but the promised green jobs boom is yet to arrive. The 2010 target of 28,000 Scottish offshore wind jobs (by 2020) delivered just 5,600 by 2024. This is in large part because electricity infrastructure has not kept pace with generating capacity, with grid constraints making Scottish wind the most curtailed in Britain. At the same time, promising options for carbon capture and hydrogen have stalled.

Aberdeen's problem is one of timing rather than opportunity, and that is what a plan has to fix. Decommissioning can bridge the gap while the grid catches up, but only if both governments sequence it deliberately against the wind and transmission timetables. The window for doing that, while the skills base is intact, will not stay open forever.

An oil-reliant city in decline

Aberdeen is the heart of the UK's oil and gas industry. Four-in-five (80 per cent) of Great Britain's direct hydrocarbon-producing employment sits in either Aberdeen City or Aberdeenshire. Indeed, employment in oil and gas is nearly 100 times more concentrated in Aberdeen than in Great Britain, and ten times more than in the rest of Scotland.⁷ In short, Aberdeen has a reliance on the oil sector that is not matched elsewhere in the UK.

So when oil prices were high, Aberdeen was booming. In the bull market of the early 2010s, average earnings in Aberdeen ran close to half (47 per cent) above the UK average, while gross household disposable income per head – an average across everyone living in the area, whether working in the oil industry or not – built up a 20 per cent premium over the rest of the nation.⁸ During this period Aberdeen's economy grew at twice the national rate, pushing up real GVA in North Eastern Scotland by a fifth between 2010 and 2015 (double the 10 per cent seen across Scotland as a whole) and lifting the area's share of Scottish output to an all-time high of 14 per cent.⁹

But this dependence cuts both ways. When the oil price halved between 2014 and 2016, Aberdeen's economy fell into a decline from which it has not recovered. Gross annual output now sits 11 per cent below its 2009-14 average and the area's share of Scottish GVA has fallen from 14 to 10 per cent.¹⁰ Aberdeen's earnings advantage over the UK is down by three-quarters (see Figure 2). Payrolled employment across the city and shire is down 8 per cent on its 2015 peak, from 243,000 to 224,000, and still falling: down 1.8 per cent in the year to April 2026 alone – three times the rate for Scotland.¹¹ Participation has weakened alongside it. In 2012, Aberdeen's inactivity rate stood six percentage points below the GB-wide average at around 17 per cent, and by 2025 it had exceeded it: sitting at 21.7 per cent compared to 21 per cent.¹²

⁷ These figures refer to the location quotient of SIC 06 and SIC 09 jobs in Aberdeen City and Aberdeenshire, and Britain as a whole. A location quotient measures how concentrated an industry is in one area relative to another. Source: RF analysis of ONS Business Register and Employment Survey data.

⁸ RF analysis of ONS, subnational Gross Household Disposable Income statistics.

⁹ RF analysis of ONS, Regional gross value added (balanced) by industry: ITL2 regions. Growth figures are chained volume measures; shares of Scottish output are current price

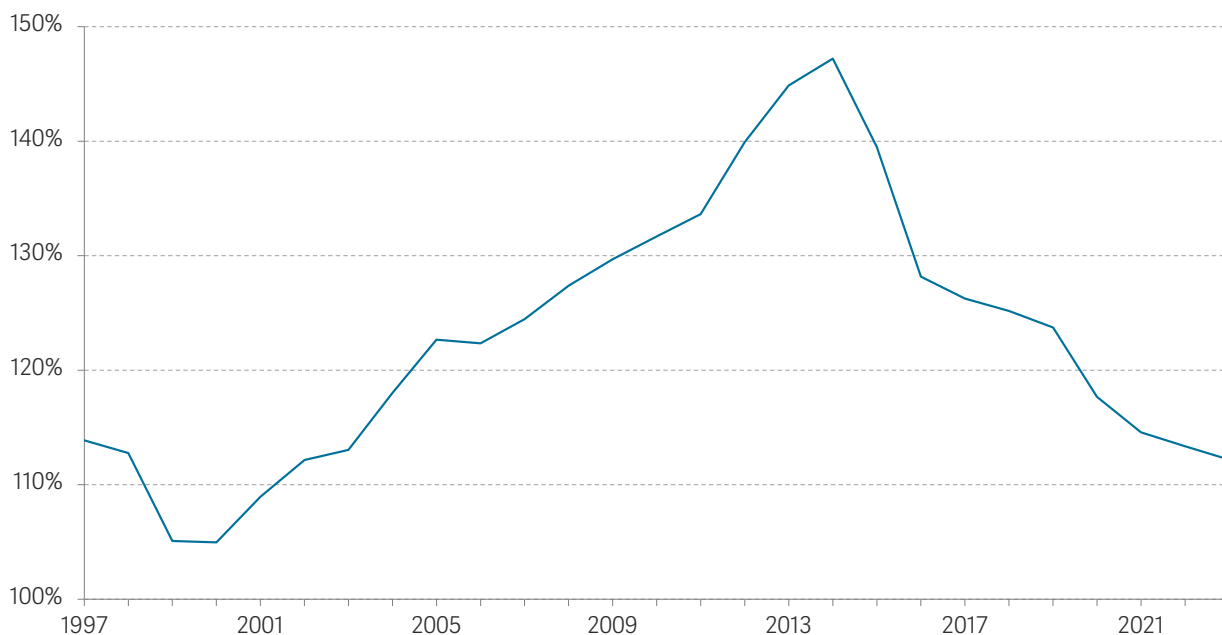
¹⁰ RF analysis of ONS, Regional gross value added (balanced) by industry: all ITL regions. Output figures are chained volume measures for North Eastern Scotland; shares of Scottish output are current price.

¹¹ RF analysis of ONS, Earnings and employment from Pay As You Earn Real Time Information, UK.

¹² RF analysis of ONS, Annual Population Survey.

FIGURE 2: Aberdeen's wage premium soared... then fell back to earth

Mean gross annual pay in Aberdeen, per head of population, relative to the UK



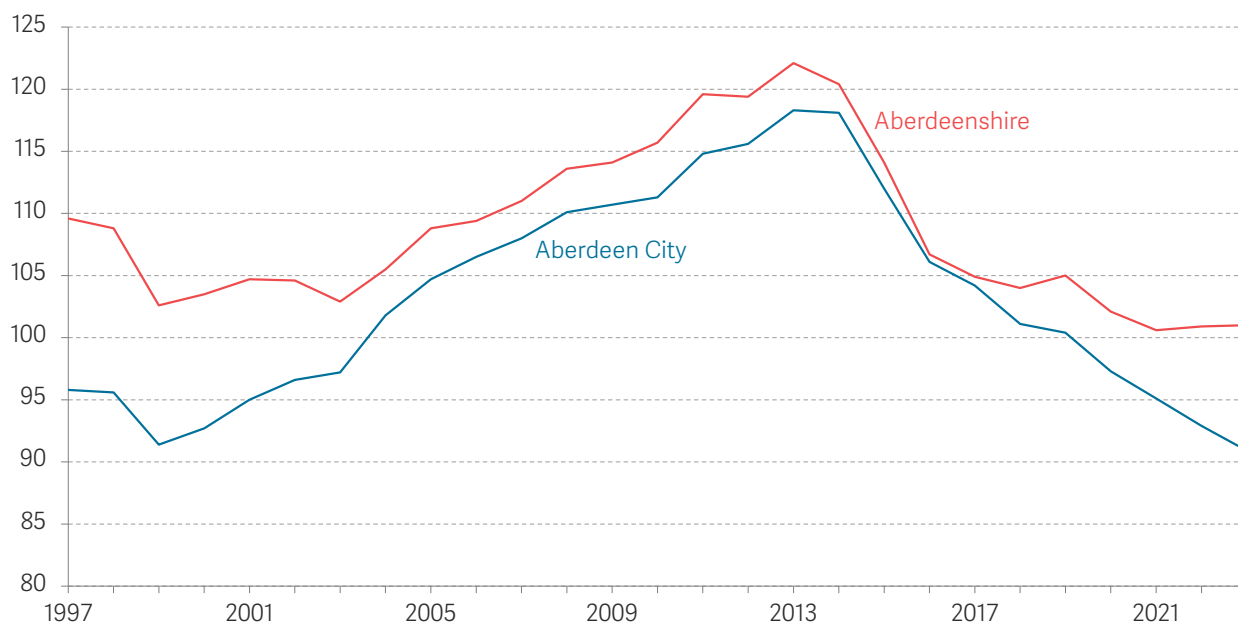
NOTES: Pay is measured on a residence basis, covering all employees. Self-employment income and other non-earnings incomes not included.

SOURCE: ONS, Regional gross disposable household income by local authority.

Living standards followed this decline. Household disposable income per head in Aberdeen City fell below the UK average in 2020 and has continued to lose ground. At 91 per cent of the UK figure in 2023, the city is further below the national average than at any point since the series began in 1997 (see Figure 3). Cumulatively, had Aberdeen held its 2014 position relative to the UK, total household incomes in the city would have been more than £9 billion higher by 2023. These changes were not lost on the stakeholders we spoke to in Aberdeen, most of whom tied local prosperity almost entirely to the health of the oil and gas industry, with many reminiscing fondly on the 'boom' that was washing over the city fifteen years ago.

FIGURE 3: Disposable incomes have fallen to levels last seen in the 1990s

Gross disposable household income per head, relative to the UK: Aberdeen City and Aberdeenshire, 1997-2023



NOTES: Gross disposable household income is the income available to households after taxes, benefits and other transfers, and includes income from employment, self-employment, pensions and investments. Figures are on a residence basis and cover all households.

SOURCE: RF analysis of ONS, Regional Gross Disposable Household Income by Local Authority.

Some of this downfall was inevitable. Aberdeen is an extraction economy reliant on a finite resource, and the economic premium built on that resource was never going to be permanent. Convergence towards the national average is therefore not in itself a policy failure, and Ministers cannot sensibly aim to restore a huge earnings advantage that rested on high oil prices and output volumes.

Indeed, the risk is different, and it is the one the UK has repeatedly failed to manage. Places that lose a dominant industry do not usually settle at the national average – they pass through it. The nation's former coalfields and steel towns all converged on the average and then kept going, with the resulting gaps in employment, pay and health still measurable decades on. What matters for Aberdeen is not whether the premium erodes but whether the erosion stops or continues to slide.

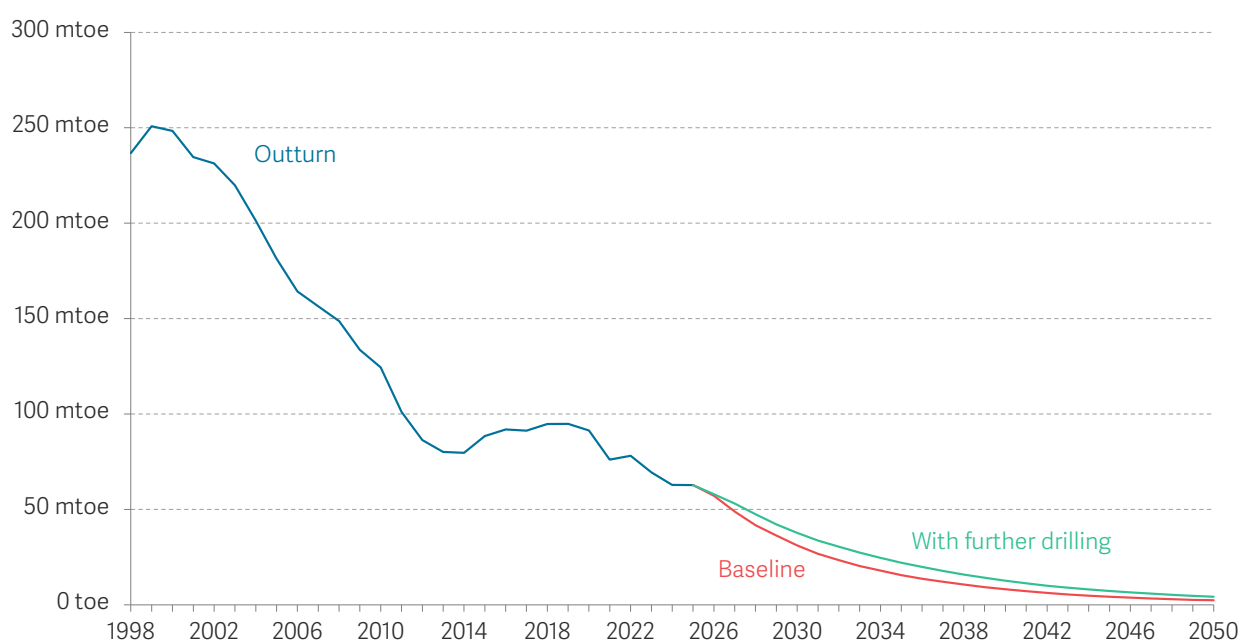
Aberdeen, then, is a city whose decline is advanced but has not yet settled. Where it comes to rest depends on what replaces the industry that has carried it for half a century. Here the debate splits in two: some see the future in extending oil and gas production, others in a transition to lower carbon industries. We examine the first of these next and find that it is largely beside the point.

The North Sea economy is on life support

The UK continental shelf is running out of oil and gas. Production peaked in 1999 at 4.5 million barrels of oil equivalent a day but had fallen to a touch above 1 million by 2024, a decline of 76 per cent.¹³ Nearly 48 billion barrels of oil equivalent have been lifted from the seabed since production began, leaving proven and probable reserves of just 3 billion.¹⁴ On the North Sea Transition Authority's projections, combined oil and gas output will fall a further 40 per cent between 2024 and 2030, and by 93 per cent by 2050 – to under 100,000 barrels of oil equivalent a day (see Figure 4).

FIGURE 4: The North Sea has peaked

Oil and gross gas production, outturn and North Sea Transition Authority projections, million tonnes of oil equivalent: UK Continental Shelf



NOTES: The baseline projection covers currently producing and sanctioned fields only, while the further drilling projection adds production from undeveloped and future discoveries. NSTA assumes annual production declines from 2028 of 9 per cent for oil and 13 per cent for gross gas.

SOURCE: RF analysis of NSTA, Production and expenditure projections, February 2026.

Figure 4 also highlights a misplaced focus on more exploration in the national debate. The upper green line includes production from fields that have been discovered but not yet developed and estimates of that extracted from fields yet to be found. The key point here is that this additional drilling only slows decline rather than reversing it. Of projected oil production volumes for 2030, three quarters comes from fields already producing or under development, and 23 per cent from discoveries already made but not yet developed; fields still to be found account for under 1 per cent, rising to around 4 per cent by 2050.¹⁵

¹³ North Sea Transition Authority, [Production and expenditure projections](#), February 2026.

¹⁴ North Sea Transition Authority, [Reserves and Resources as at end 2024](#), October 2025.

¹⁵ Rosebank and Jackdaw, the two projects that dominate the debate, sit within the 23 per cent: both are already discovered but not yet producing.

As well as overall production shrinking, the individual projects now being developed on the UK continental shelf are getting smaller. In 2024 just two new field development plans were approved, adding less than 50 million barrels of oil equivalent between them, against total production that year of around 400 million.¹⁶ This is a fraction of the output of fields on which Aberdeen's prosperity was built. Forties, the largest oil field ever developed on the UKCS, has yielded more than 2.6 billion barrels since 1975 – around a hundred times the size of a typical new project, and close to the entire proven and probable reserves left in the basin today.¹⁷ Brent, another mainstay of the UK oil sector, has produced around 3 billion barrels of oil equivalent over its life.¹⁸

Against this backdrop, the Government has rightly stopped issuing licences to explore for new fields. Indeed, on the most generous reading, reversing this decision would lift production this decade by the under 1 per cent that fields yet to be found contribute, which on the relationship between output and employment that has held since 2014 changes Aberdeen's jobs market by nothing measurable. Falling output is overwhelmingly driven by a basin running dry, not a lack of new exploration and a move to try and fight this reality would be hard to square with the UK's legally binding climate commitments.

It is worth noting that Rosebank and Jackdaw – the two projects currently at the centre of the national debate – are a different case. Both are fields that have already been discovered, so neither turns on the licensing decision. And Jackdaw's position in the Central North Sea means it could draw on skills Aberdeen already has. But the prospects to lift Aberdeen seem limited, with the developers themselves stating that Jackdaw will generate fewer than 30 permanent roles, and the employment-heavy construction and drilling phases already complete.¹⁹

An extra headwind is rising costs. The average real terms operating cost of producing a barrel of oil equivalent went from £14 in 2020 to £19.50 in 2024, an increase of 39 per cent, giving the UK the highest operating cost per barrel of any major offshore region in the world.²⁰

In a restructured industry, more oil no longer means more jobs

For most of the basin's history, production and employment moved in lockstep: as the North Sea's output declined through the 2000s, so did the number of people employed to extract it.

¹⁶ North Sea Transition Authority, [UK Oil and Gas Reserves and Resources as at end 2024](#), October 2025.

¹⁷ A Chesterman, O Vaughan and S V Plahn, [Forties: Creating a Long Range Development Plan for a Large, Mature, Complex North Sea Oil Field](#), SPE Offshore Europe, September 2009.

¹⁸ Shell UK, [Brent Field Timeline](#), accessed 20 August 2026.

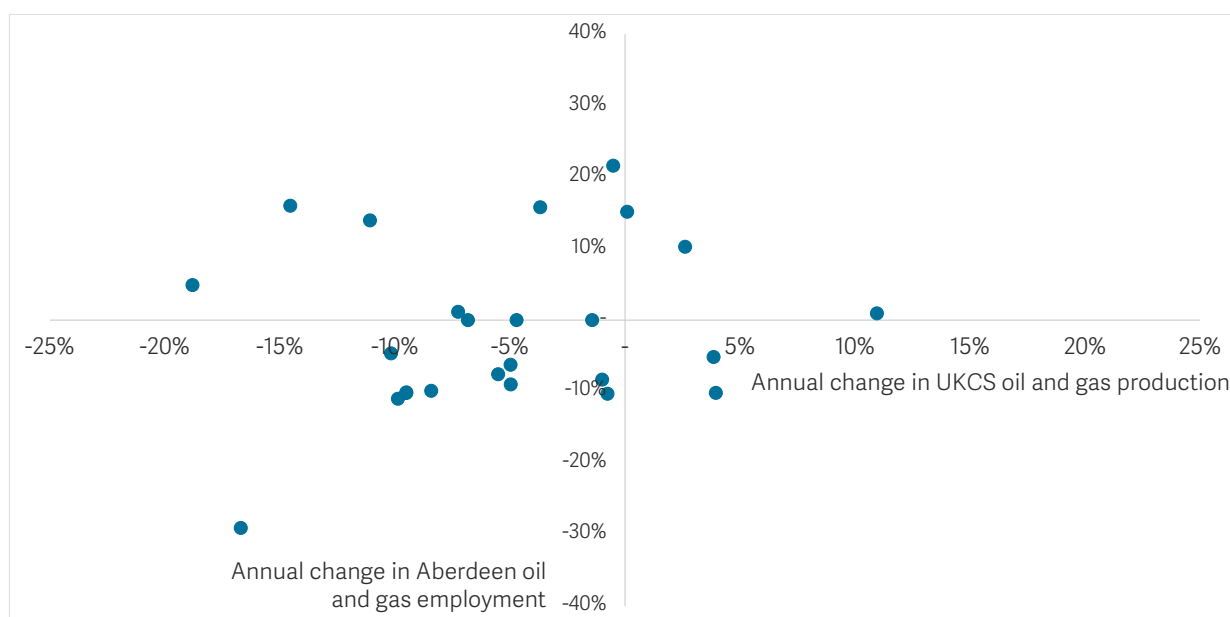
¹⁹ Adura, [Jackdaw field development, Responses to regulation 12\(1\) notice](#), June 2026

²⁰ North Sea Transition Authority, UKCS Unit Operating Cost dashboard; Rystad data.

But this link has since broken, with the clearest illustration coming immediately after the 2014 oil price crash, as shown in Figure 5. Production on the UK continental shelf rose by a fifth between 2014 and 2019, the only sustained interruption to the basin's decline since 1999. Over those same five years, employment in Aberdeen's oil and gas sector fell by 11 per cent. Output and jobs moved in opposite directions for five consecutive years, in the one period when more oil was actually being produced. The key driver of this phenomenon is the concentration of remaining reserves in smaller fields, many of which are connected to existing platforms and infrastructure, which don't require lots of workers to develop.

FIGURE 5: There is little link between North Sea production and oil and gas employment

Annual change in oil and gas production plotted against annual change in oil and gas employment, by year: UK continental shelf and Aberdeen City and Aberdeenshire, 2000-2024



NOTES: Each marker is a single year between 2000 and 2024. The horizontal axis shows the annual percentage change in production — oil (crude oil and natural gas liquids) and gross gas output on the UK continental shelf, measured in million tonnes of oil equivalent (mtoe). The vertical axis shows the annual percentage change in employment in oil and gas extraction and related support activities in Aberdeen City and Aberdeenshire.

SOURCE: RF analysis of DESNZ, Digest of UK Energy Statistics; ONS Business Register and Employment Survey; North Sea Transition Authority data.

Pay is being squeezed as well as jobs. Oil and gas roles in Aberdeen continue to command a premium of around £600-700 per week for the typical worker. But pay is being squeezed at the top of the distribution. Indeed, earnings at the 75th and 90th percentiles have fallen at twice the rate seen across the rest of Aberdeen's labour market over the

past decade.²¹ A similar pattern shows up in the downstream sectors most closely linked to oil and gas. In wholesale trade, engineering, and rental and leasing – all of which are extremely oil-adjacent in Aberdeen – pay has similarly retained a premium at the median but fallen sharply at the top of the distribution.²²

In short, oil and gas is a smaller industry than it used to be, employing fewer people, with the highest-paid tier thinning fastest. For a city whose living standards rest on that tier, the composition of the decline matters as much as its scale.

The intended replacement - green energy jobs - has not arrived as promised as grid development lags behind

Aberdeen's extensive subsea engineering capability, offshore logistics, a deep harbour and five decades of experience operating in some of the harshest waters in the world meant that it was identified early as the natural home of Scottish offshore wind. And ambitious national goals brought with them early promise. The Scottish Government's 2010 offshore wind route map set out a target of around £30 billion of investment over the following decade, 28,000 direct jobs by 2020 and a further 20,000 in related industries. In doing so, it described the opportunity as comparable to the emergence of the oil industry in the 1970s.²³

But, by 2018, two years before the target date, the Scottish offshore wind sector employed just 2,800 people: only around 10 per cent of the direct jobs promised.²⁴ The target was subsequently replaced with one eyeing more than 6,000 jobs by 2030, a sizeable downgrade on the original aim, and coming a decade later.²⁵ By 2024, the latest year available, the sector directly employed 5,600 people across Scotland. That is double the 2018 figure, but still a fifth of what was promised for 2020.²⁶ As such, oil jobs have been lost around three times faster than clean energy jobs have been created over the past decade.²⁷

Capacity has fallen short too. Against the 8 to 11 GW the Scottish Government set out for 2030, Scotland is on course for around just 5.5 GW – a 50 per cent shortfall, against the top of the range.²⁸

²¹ RF analysis of ONS, Annual Survey of Hours and Earnings.

²² For these sectors, pay at the median retains a premium of around £200 compared to the rest of the labour market but has fallen sharply at the top of the distribution – at a rate three times the rest of the high paid workforce. RF analysis of ONS, Annual Survey of Hours and Earnings.

²³ These targets were conditional on Scotland securing one-third of the GB offshore wind market. Source: Scottish Government, Scotland's offshore wind route map: developing Scotland's offshore wind industry to 2020, September 2010.

²⁴ ONS, Low carbon and renewable energy economy, UK:2020, February 2022

²⁵ Scottish Government, Draft offshore wind policy statement: consultation, December 2019

²⁶ ONS, Low carbon and renewable energy economy, UK: 2024, February 2026

²⁷ L Macfarlane, Rethinking Scotwind: Maximising Scotland's offshore wind potential, Future Economy Scotland, October 2025.

²⁸ This target was dropped in 2026 and replaced with an even more ambitious 'up to' 40 GW goal by 2040. Source: Scottish Government, Draft offshore wind policy statement: consultation, December 2019, DESNZ, Renewable Energy Planning Database, Accessed August 2026; DESNZ, Contracts for difference (CfD) Allocation round results (various). results

The grid is holding back Scottish wind goals, and especially in Aberdeen

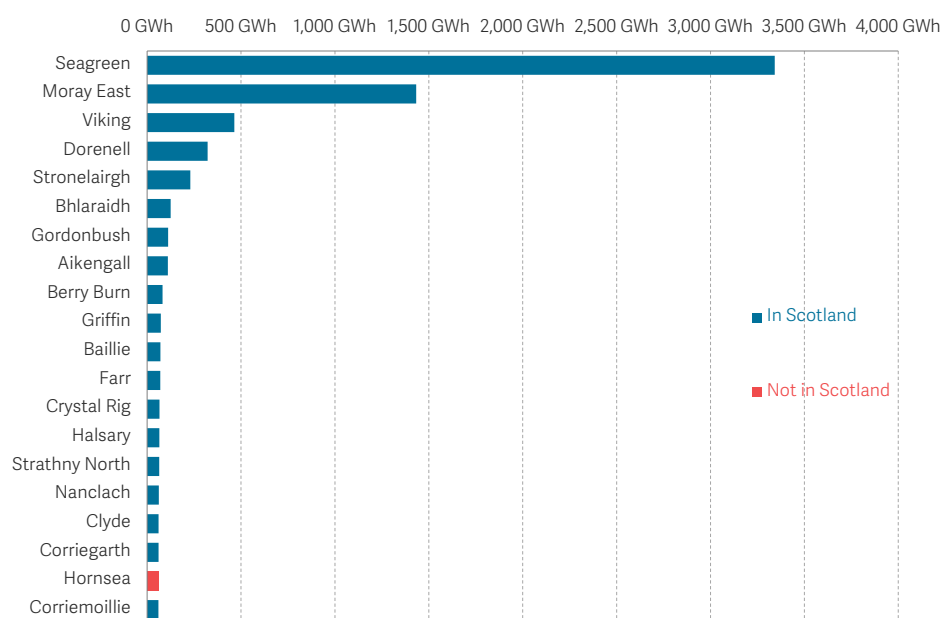
Scotland generates more wind power than the transmission network can carry south. When grid bottlenecks inhibit the transport of electricity from where it is generated to where it would be used, generating capacity is ‘constrained’: ordered by the system operator to turn down or turn off, and alternative power stations fired up on the other side of the grid boundary causing the pinch point.

Scotland holds around 35 per cent of Britain’s wind capacity but is responsible for over 98 per cent of constrained volumes and 94 per cent of curtailment costs (when wind farms are paid to switch off, and gas power stations paid to fire up elsewhere).²⁹ In 2025, northern Scotland curtailed 8.8 TWh of wind generation at a cost of over £340 million.³⁰ As such, only 61 per cent of the region’s potential output reached the grid.

The problem is particularly acute in and around Aberdeen. Seagreen, Scotland’s largest offshore wind farm and the closest to Aberdeen, is by far the worst performing (as Figure 6 shows) having been curtailed in 71 per cent of the hours it was available in 2024 at a cost of £65 million.

FIGURE 6: Scottish windfarms account for the majority of wind curtailment

Constrained output from selected wind farms: GB, 2024



NOTES: 20 most constrained wind farms shown.

SOURCE: RF analysis of Elexon, Renewable Energy Foundation data.

²⁹ RF analysis of Elexon, Balancing Mechanism Reporting Service; Renewable Energy Foundation, Balancing Mechanism wind farm constraint payments.

³⁰ EnAppSys, Curtailed Renewables in GB and Ireland, January 2026

Constraints are wasteful: bad for the nation's carbon footprint (gas power stations are typically those fired up to maintain supply), and expensive. The National Electricity System Operator (NESO) projects that balancing costs could reach around £8 billion a year in 2030, which would be recouped through additional charges on households' and firms' energy bills.³¹

One way to avoid this would have been to break up the wholesale market into a number of zones. This would have seen Scottish prices fall when the network is constrained and electricity in surplus, and – in the long run – would either discourage generation from siting where it cannot export or increase the incentive for heavy consumers to locate where there is a surplus of electricity.³² But in July 2025 the UK Government confirmed that Britain will retain a single national wholesale price, on the grounds that zonal pricing carried too much investor uncertainty and would have taken several years to implement, risking attainment of the Clean Power 2030 target.³³ Changing tack on this decision would help, but it would not override the delays previously identified and as such would not help with the immediate crunch in Aberdeen, or in Scotland as a whole.

So, the constraint problem must be solved with new infrastructure instead. Here the Government is pursuing a strategy based on extensive – and in some cases, accelerated – build-out of the grid.³⁴ But even if fast-tracked, the full set of grid reinforcements required – first to allow current Scottish wind power to be transported south, then to accommodate new output as additional capacity comes online – will not be in place until the 2030s.³⁵

It is tempting to think that the answer here is to bring forward the timetable for delivering grid infrastructure. Ofgem has already done this to some extent and the main projects are consented and in construction.³⁶ But what remains is delivery, and here the binding issues are global. High-voltage subsea cable comes from a handful of manufacturers with order books stretching years ahead, the specialist vessels that lay it are similarly scarce, and converter stations take several years to build and commission. This creates a sequencing problem. A new wind farm consented today would begin generating around the end of this decade, several years before upgrades to the grid can carry its additional load. As such, the main consequence of building this new generating capacity is to add to constraint costs, rather than to generate useable electricity or to reduce carbon emissions.

One extreme option would be to build wind farms ahead of the grid being ready. Locking in cheap electricity a decade from now is a worthy goal, and keeping Aberdeen's engineering base employed in the meantime has a value of its own. But sadly, this is wishful thinking:

³¹ NESO, [Balancing costs](#), accessed June 2026.

³² For more discussion of zonal pricing, see: Z Leather and J Marshall, [Flex Appeal](#), Resolution Foundation, June 2025.

³³ DESNZ, [Review of electricity market arrangements \(REMA\): Summer update, 2025](#), July 2025

³⁴ Ofgem, [Ofgem unlocks early investment for slew of fast-track clean power projects](#), November 2025.

³⁵ Ofgem, [Race for clean power surges as new electricity superhighway greenlit](#), November 2024.

³⁶ The main reinforcements serving North Eastern Scotland are the Eastern Green Links, a series of subsea transmission cables running from Scotland to England. Eastern Green Link 2 has been in construction since 2024 and is due to be operational in 2029. Eastern Green Links 3 and 4 – the projects needed to carry additional load rather than transport power from already-built capacity – are expected in the mid-2030s.

the costs of getting the order wrong will be widely borne for a long time.

Constraint payments fall on household bills, and capacity procured through the Government's renewable energy auction locks in a strike price for 15 to 20 years, at a time when auction prices are already rising as high interest rates, tight supply chains, and high levels of demand from the UK and elsewhere erode the cheap prices seen in the early 2020s.³⁷ Paying above the odds for two decades of electricity, in return for output that cannot reach a customer for the first five years of it, is a poor way to buy local employment.

So the case is for building in a sensible order rather than building less. Ministers need to plan around this bottleneck instead of assuming it away: aligning capacity targets with the grid timetable, and finding a way to hold Aberdeen's workforce together through a lull of five years or more. One place to look is other low carbon industries, but do they have potential?

Other routes to green employment have stalled

One often-cited source of green employment and investment activity is carbon capture, usage and storage (CCUS): extracting carbon dioxide from the exhausts of factories and power stations, using it to create new materials, or piping it to depleted gas fields where it can be stored.

But despite the high concentration of these no-longer-active fields near Aberdeen, there is little sign of a burgeoning CCUS industry. The Acorn project at St Fergus, which its developers estimated would support several thousand construction jobs and hundreds of permanent ones, was passed over in the UK Government's initial CCUS cluster sequencing and has advanced at a crawling pace since.³⁸

Other technologies also show tardy progress. Plans for a hydrogen hub have been paused.³⁹ When combined with a necessarily slower wind timeline, this leaves a structural gap between the decline of oil employment, which is happening now, and the arrival of anything capable of replacing it.

This is particularly concerning for the onshore workforce, around 95 per cent of whom live in or around Aberdeen. Those with engineering skills and expertise are unlikely to want for offers of employment from firms in other places and countries. Indeed, workers are not waiting for a transition that keeps missing its deadlines, some are already choosing to leave. In the year to mid-2023, 4,400 people left Aberdeen for destinations overseas.⁴⁰

This should worry policy makers. Living standards in Aberdeen are already falling and

³⁷ For more on the importance of cheap electricity, see: E Fry and J Marshall, *Electric Dreams*, Resolution Foundation, April 2024.

³⁸ DESNZ, *Cluster sequencing for carbon capture, usage and storage (CCUS) deployment: Phase-1*, May 2021.

³⁹ A Gossip and M Perry, *Aberdeen City Council set to withdraw from hydrogen hub joint venture with BP*, Energy Voice, February 2026.

⁴⁰ National Records of Scotland, Total migration to and from Scotland.

the continued demise of its core industry will see them fall further. It should also concern them because the workforce that is dispersing took half a century to build, has genuine export value, and is the single largest asset the UK holds for the offshore construction the transition requires. Once gone it is not readily reassembled.

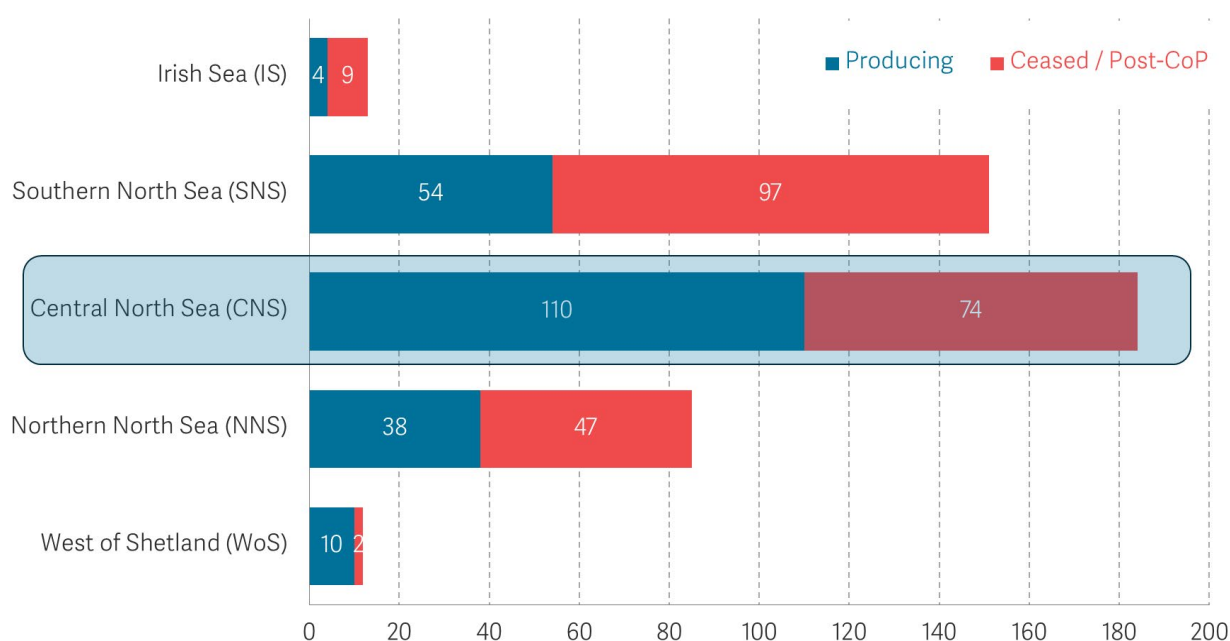
A new plan is needed

Both the UK and Scottish Governments should start by being clear on near-term constraints on the prospects for green jobs – that significant offshore wind expansion needs to wait for grid upgrades and that re-igniting stalled CCUS or hydrogen projects is not an overnight job.⁴¹

So, instead, ministers should look for other options to fill the gap. Decommissioning – making safe the rigs, wells and pipelines through which hydrocarbons have flowed for decades – provides such an opportunity. Here, the Central North Sea (CNS), the region closest to Aberdeen, is the area with most promise (see Figure 7). CNS projects are expected to account for 60 per cent of national decommissioning spending over the next decade, with staffing demand building to a peak in 2029.⁴² This work can be serviced out of Aberdeen as readily as existing production is, and a significant proportion of the roles it creates are ‘hands-on’ engineering positions with excellent transferability for current oil and gas workers.

FIGURE 7: Aberdeen is well placed to grow a decommissioning industry

Number of active and closed oil and gas fields, by North Sea zone



SOURCE: RF analysis of NSTA data.

⁴¹ Offshore wind consenting, marine licensing, skills and enterprise policy sit with the Scottish Government. Transmission investment, CCUS cluster sequencing, the CfD auction and the tax treatment of decommissioning sit with the UK Government.

⁴² Offshore Energies UK, *Decommissioning Report 2025*, November 2025.

But there are issues with this approach that need navigating. Decommissioning work is project based rather than permanent and continuous, it pays less than production, and it is finite, as a field only needs making safe once. Nor is it guaranteed to happen in Aberdeen. Heavy engineering (plugging wells and lifting structures from the seabed) is carried out by vessels and crews that can be mobilised from anywhere in the world, and bringing these assets ashore to be dismantled can happen anywhere with a suitable port. Indeed, a significant share of the highest value work has been captured by facilities in Norway and Denmark, even though decommissioning is funded through generous tax reliefs ultimately borne by British households.⁴³

Two changes could help, both the responsibility of the UK Government. Heavy dismantling capacity at ports could be treated as national infrastructure and funded as such, as offshore wind port investment has been. And decommissioning tax relief could carry domestic content conditions, so that public support builds capability rather than simply underwriting the liability, which is close to what the Clean Industry Bonus now does for offshore wind.

Admittedly, this route is far from perfect: it requires workers to make two transitions rather than one – out of production into decommissioning, then out of decommissioning into whatever follows. Each carries the risk of a gap, of workers not being able to find a role when they want one, or of Aberdeen's deep supply chain starting to crumble.

Getting the sequencing right is, therefore, a key priority for any plan to keep high-quality engineering jobs in Aberdeen, not a mere detail of it. Decommissioning activity, transmission investment and wind consenting need to be timed against one another so that workers and the firms employing them can clearly see where the next five years of work comes from. This coordination is a major departure from the reliance on market timing that has characterised the North Sea hydrocarbon industry throughout its life, and that underpins the UK Government's competition-led, 'place-blind' approach to renewable energy subsidies. But to futureproof Aberdeen's workforce the UK and Scottish Governments will have to be more hands-on: no single operator, regulator or local authority holds all the levers.

Aberdeen's future, therefore, is not one plagued by a lack of opportunity. Instead the main challenge for policy makers to overcome is one of timing. With small adjustments to Government policy, decommissioning work could start arriving in the near future, renewable energy towards the end of the decade, and carbon capture and hydrogen potentially after that. But crucially, this requires careful and deliberate coordination.

⁴³ North Sea Transition Authority: [Decommissioning](#), Accessed 24 August 2026; Offshore Energies UK, [Decommissioning Report 2025](#), November 2025.

Poor sequencing brings the risk of workers leaving and firms closing or relocating. Closing these gaps requires a plan across both the UK and Scottish Governments that sequences the three.

Section 3

Grimsby

While Aberdeen looks to clean industries to cushion a fall, Grimsby hopes they can drive a revival. Since first hitting 1GW of offshore wind capacity with Ørsted's Race Bank in 2018, the town's economy has changed: the electricity sector has delivered the vast majority (78 per cent) of local growth, years of migration outflows have reversed, and wages have grown faster than in any neighbouring area. But there is further to go: spillovers into the wider economy are scant, job creation is lagging the national average, and full-time salaries remain low by historical standards and when compared with the rest of the UK. The green economy is bearing fruit, but the town is not securely on a new growth path just yet.

The underlying problem is the scale of its green industries. Operations hubs like Grimsby employ few people once wind farms are built – around 100 permanent roles per gigawatt – and the manufacturing and supply chain jobs that could change this have gone elsewhere. Looking ahead, Grimsby's share of the offshore wind pipeline is set to shrink from a third to a sixth amid rising competition from elsewhere on the east coast. Building on the momentum of the past decade will require looking beyond Grimsby's current specialisms – and success will depend heavily on central Government decisions that govern the size and location of clean industry.

Grimsby has natural advantages but is starting from a weak position economically

On paper, Grimsby should be among the biggest winners from new net zero industry.⁴⁴ It boasts the UK's largest port by tonnage and easy access to the Southern North Sea – the geography that once made it one of the world's great fishing centres. That industry fizzled in the 1980s – where once fishing and associated industries accounted for almost a quarter of all local employment (22 per cent), fishing is no longer a meaningful part of the local economy.⁴⁵ Recent data suggests just 15 people in Grimsby work in commercial fishing today.⁴⁶ Grimsby's past is mostly visible in the town's fish processing industry, one of the largest local employers (numbering 3,500 workers) but one that is low paid and not

⁴⁴ Unless otherwise specified, the term Grimsby refers to the Grimsby travel to work area, which also contains nearby settlements such as Immingham. The current criteria for defining TTWAs are that at least 75% of the area's resident workforce work in the area and at least 75% of the people who work in the area also live in the area

⁴⁵ RF analysis of Census, 1951. Includes commercial fishing and adjacent industries like ship building and water transport. 1951 census.

⁴⁶ RF analysis of ONS, Business Register and Employment Survey.

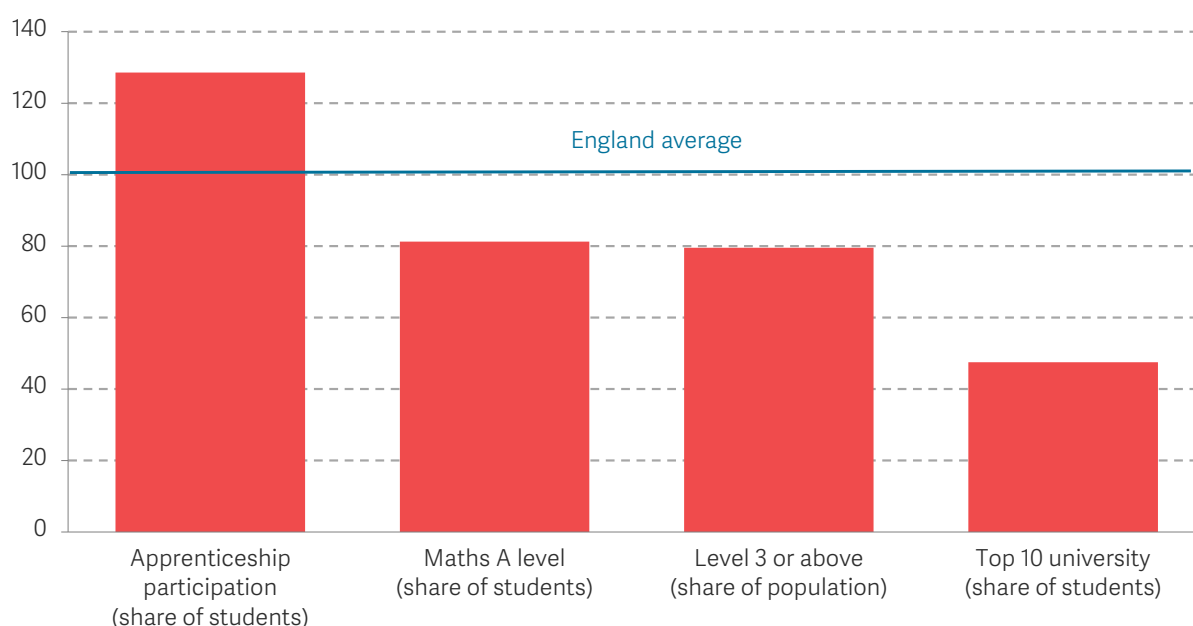
growing.⁴⁷

Like other towns deindustrialised in the 1980s, the collapse of fishing left a long shadow and in the recent past Grimsby has been a relatively low-wage place with poor labour market and educational outcomes.⁴⁸ In 2009, typical wages were 10 per cent below the national median, but the local economy proved fragile to economic crisis. The gap between local and national wages grew to 21 per cent in 2017, the post-crisis nadir for Grimsby. That left typical full-time pay in the area receding from its already-below-average position (around the 40th percentile) to being close to the bottom tenth of travel to work areas by 2017 (the 13th percentile).⁴⁹ As pay sunk, many left the workforce: since 2012, working-age economic inactivity has risen 3.6 percentage points more in Grimsby than in the rest of the country.⁵⁰

The town's skills base tells a similar story. Level 3 attainment and maths A-level entries both run around a fifth below the national rate, and those who do reach university are around half as likely to attend a top-10 institution (see Figure 8). The one exception is apprenticeships, where enrolment runs 30 per cent above the national average.

FIGURE 8: Skills and training in Grimsby are starting from a low base

Selected indicators of educational outcomes, relative to the England average: Grimsby, 2025



SOURCE: RF analysis of Department for Education, Apprenticeships and traineeships; Ofqual, A level outcomes by subject; Higher Education Statistics Agency, Higher Education Student Statistics.

⁴⁷ The number of people working in the industry is the same in 2024 as it was in 2016. Typical hourly pay in food manufacturing is 15 per cent lower than the national median, and 43 per cent lower than that in the electricity sector. Source: ONS, Business Register and Employment Survey; ONS, Annual Survey of Hours and Earnings.

⁴⁸ For a typical discussion of long-term impacts of substantial employment decline in predominantly male industries, see Beatty & Fothergill, *Labour Market Adjustment in Areas of Chronic Industrial Decline: The Case of the UK Coalfields*, February 1995.

⁴⁹ Travel-to-work-areas have been ranked according to full-time annual pay and then split into 100-equal sized groups (percentiles). Source: RF analysis of ONS, Annual Survey of Hours and Earnings.

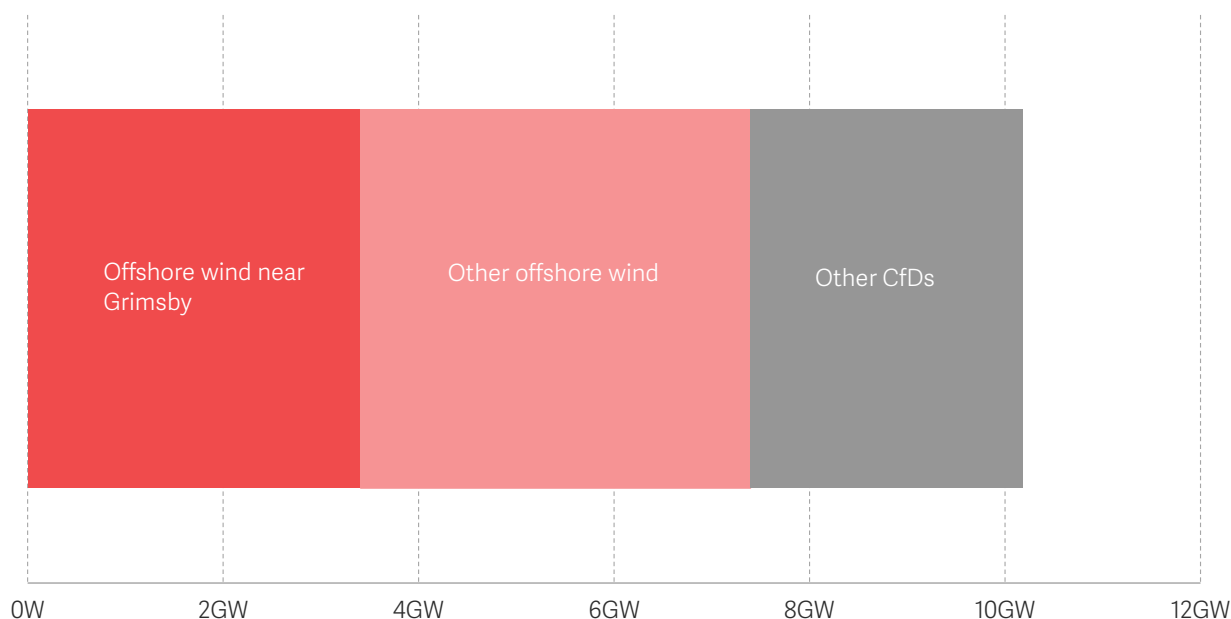
⁵⁰ RF analysis of ONS, Annual Survey of Hours and Earnings; ONS, Annual Population Survey. Due to known issues with sample sizes in APS at small geographies, we have pooled together multiple periods of the annual survey.

So Grimsby bears the hallmarks of somewhere that has been ‘left-behind’ – an anchor industry that has disappeared, falling labour market participation, wages that lag the rest of the country and a poor skills base from which to build a more prosperous future.

Amid this gloomy backdrop clean industries have been a glimmer of hope. Where Grimsby’s position on the coast of the North Sea once made it one of the world’s fishing hotspots, now offshore wind seeks to exploit that geographic advantage. It can also draw on the comparative advantage Grimsby’s skills base still has in port and manufacturing work. Since the wind industry first arrived with a small Centrica facility in 2008, Grimsby has become the country’s leading operations base, benefitting substantially from the surge in offshore wind licensing of recent years: Grimsby now operates a third of all built offshore wind projects (see Figure 9).⁵¹ The flagship employers are RWE and Ørsted, with the latter maintaining a 700 employee strong operations hub close to the town centre.⁵²

FIGURE 9: Grimsby has benefitted from the surge in offshore wind in recent years

Built offshore wind capacity under contract for difference by type and proximity to Grimsby: UK, 2026



NOTES: This only includes offshore wind that is under contracts for difference, which were first awarded in 2014.

SOURCE: RF analysis of DESNZ, Contract for Difference auction round results.

Wind is not the only opportunity. Grimsby is also part of the Humber industrial cluster, which includes the Phillips 66 oil refinery, Killingholme power station and the industrial

⁵¹ All built offshore wind projects include those contracted through other means, such as the Renewables Obligation.

⁵² Ørsted, 25 years of UK offshore wind: Ørsted celebrates Grimsby's central role in powering Britain, December 2025.

estate around Immingham docks. This concentration of heavy industry makes the Humber cluster the UK's most carbon intensive, putting Grimsby at the forefront of potential for industrial decarbonisation.⁵³ This has made the area an excellent candidate for carbon capture and storage. Viking CCS at Immingham is one of the country's biggest approved carbon capture projects, billed as bringing £7 billion in investment into the area.⁵⁴ Finally, Grimsby has picked up a foothold in the electric car industry, hosting myenergi, the UK's largest EV charger company, employing 250 staff.⁵⁵

That gives a town of only 80,000 jobs a solid stake in three of the UK's largest clean industry prospects.⁵⁶ It is no surprise, then, that low-carbon industries have loomed large in local plans for growth since the early 2010s, with the latest North East Lincolnshire economic strategy setting a vision for the town to be "the centre of the UK renewables industry".⁵⁷ The stakeholders we spoke to in Grimsby shared these hopes and the weight placed on clean industry as a basis for growth in a town sorely lacking it. So if net zero can produce visible local benefits anywhere, it should be here.

Green industries are driving growth, but not in jobs

There are clear signs that the local economy has changed since offshore wind began to scale. Grimsby first crossed the threshold of operating more than 1GW of wind capacity when Ørsted opened Race Bank in 2018 – enough generation to serve 1.3 million households – a figure which has since more than tripled and should double again once the rest of the pipeline is built.⁵⁸ Taking 2018 as the point at which the industry got going in earnest, growth has been matched with an uptick in GVA in North and North East Lincolnshire, rising by £570 million over the following five years (or 6.5 per cent, versus 4.7 per cent across the UK). Of this, 78 per cent came from the electricity sector alone.⁵⁹

This growth has been highly concentrated at the ultra-local level: 71 per cent of all gross value added (GVA) growth in Grimsby between 2018 and 2023 came from just four neighbourhoods, including Grimsby Docks, which hosts Ørsted's operations hub and the Offshore Renewable Energy Catapult; Immingham and Killingholme docks that host port infrastructure through which the offshore wind supply chain passes; and Stallingborough, where the CATCH and Maersk training facilities are based. On this evidence, an economic strategy based on North Sea renewables looks like the right approach for Grimsby.

⁵³ HICP, *Humber Industrial Cluster Plan*, Accessed 13 August 2026.

⁵⁴ Viking CCS, *Harbour Energy and bp agree to develop the Viking CCS project*, accessed 13 August 2026; DESNZ, *Viking CCS development consent decision announced*, April 2025.

⁵⁵ RF analysis of The Crown Estate, *Offshore Wind Report 2024*, May 2025; Harbour Energy; myenergi data.

⁵⁶ ONS, *Business Register and Employment Survey*, October 2025.

⁵⁷ North East Lincolnshire Council, *North East Lincolnshire Economic Strategy 2021*, May 2021.

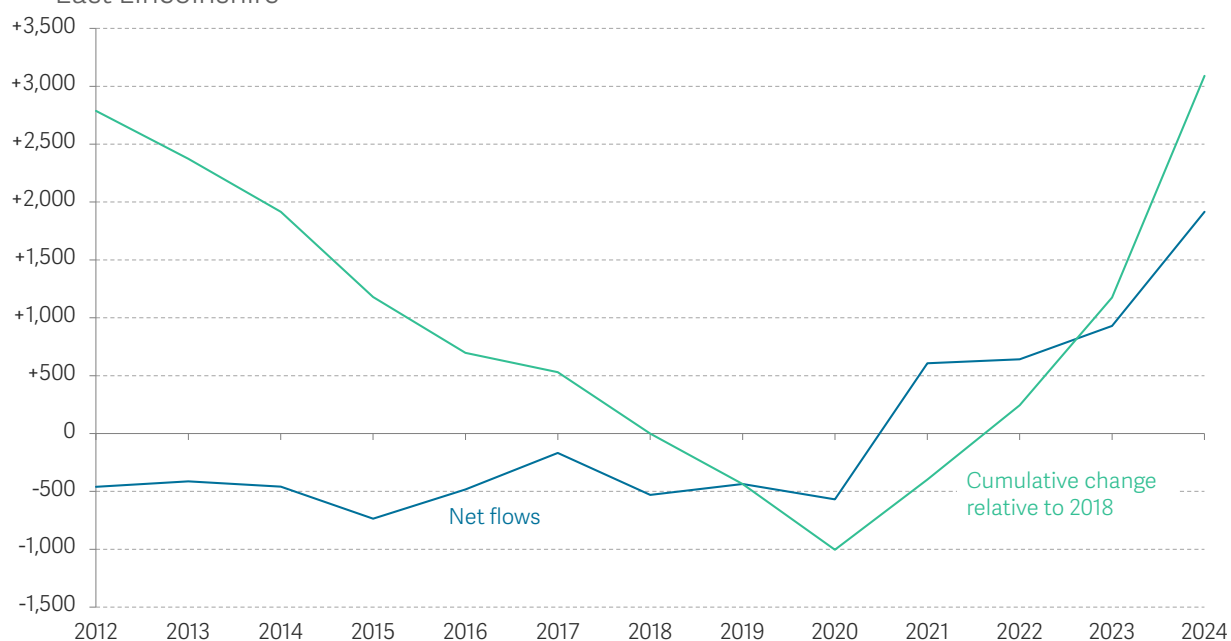
⁵⁸ This is calculated by assuming a capacity factor of 40 per cent and typical household consumption of 2.7MWh. Source: Energy Dashboard, Lincs Offshore Wind Farm; Ofgem, *Typical Domestic Consumption Values*, 2023.

⁵⁹ RF analysis of ONS, UK small area gross value added estimates.

There are also some positive signs from the wider local economy. After years of outflow, Grimsby received enough internal migrants between 2020 and 2024 to offset those lost between 2012 and 2018 (see Figure 10). What matters here is who is arriving: working-age people account for three quarters of the change in net flows since 2012, so this is people moving for work rather than retirees returning or fewer young people leaving for university. This highlights the importance of higher skilled jobs in ‘left-behind’ places, and suggests North East Lincolnshire Council’s town centre regeneration programme is bearing fruit.⁶⁰ The stakeholders we spoke to made the same point from the other direction, worrying that new jobs were going to people outside the area and emphasised that Grimsby needs to become a better place to live at the same time as becoming a better place to work, with Pride in Place funding and high-street projects a necessary corollary to industrial policy.

FIGURE 10: People are moving back to Grimsby

Net internal migration flows and cumulative population change relative to 2018: North East Lincolnshire



NOTES: The green line measures the cumulative change in population due to internal migration since 2018. It does not measure population change due to other factors, such as births, deaths and international migration.

SOURCE: RF analysis of ONS, Internal migration estimates.

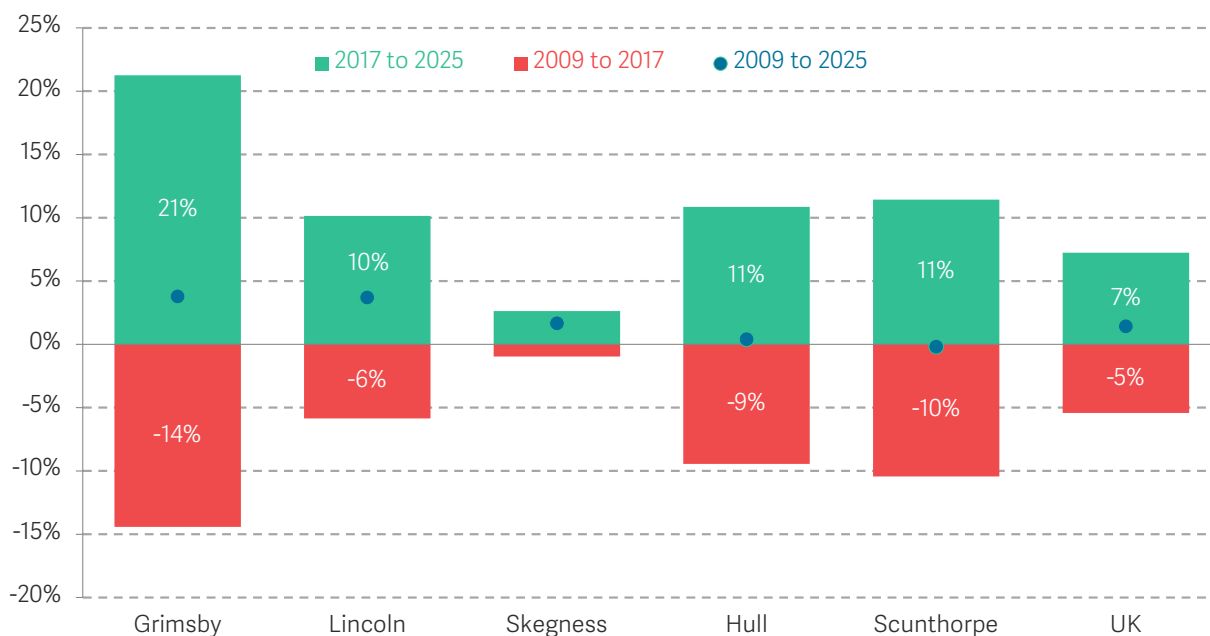
Pay has grown quickly too, after a dismal period during the austerity era. Among areas starting from similar wage levels, Grimsby has posted one of the fastest increases since 2018, when median hourly pay grew 19 per cent in real terms over that period, 10 percentage points faster than any of its neighbours, as seen in Figure 11. This has helped

⁶⁰ In 2020 North East Lincolnshire Council launched the Grimsby Town Centre Masterplan, an extensive programme to regenerate the town backed by substantial funding. More information can be found [here](#).

Grimsby claw back some of the ground it lost, leaving typical hourly pay 11 per cent below the UK average in 2025, down from a huge 21 per cent in 2017.

FIGURE 11: **Earnings in Grimsby have grown faster than in its neighbours**

Growth in real median hourly earnings, selected TTWAs and the UK: 2009-2025



NOTES: TTWA refers to travel-to-work area.

SOURCE: RF analysis of ONS, Annual Survey of Hours and Earnings.

These good signs demonstrate that it is possible for a place with worrying vitals to nevertheless prosper in the right circumstances, especially in an age of repeated failures of regional inequality agendas.⁶¹

Despite progress, Grimsby's economy still looks shaky

But there is further to go before Grimsby's economic recovery can be considered complete. While GVA data tells a story of a town growing faster than the country at large, buoyed by booming clean industry, the rest of the local economy has seen little of the benefit. In theory, growing industries that bring higher salaries and new residents into an area should lift the town, as new money sloshes around the system creating profits and jobs in local services.⁶² But private services were one of the weakest parts of Grimsby's economy, growing just 0.7 per cent in the five years following 2018.⁶³

⁶¹ Resolution Foundation research recently found that despite regional growth being on the agenda since 2010 – with Northern Powerhouse, Levelling Up, devolution deals, the Local Growth Fund and most recently Pride in Place – pay gaps between local authorities have remained stubbornly high. Source: R Curtice, C McCurdy, P Pandya, [Regional economic inequalities](#), Resolution Foundation, July 2026.

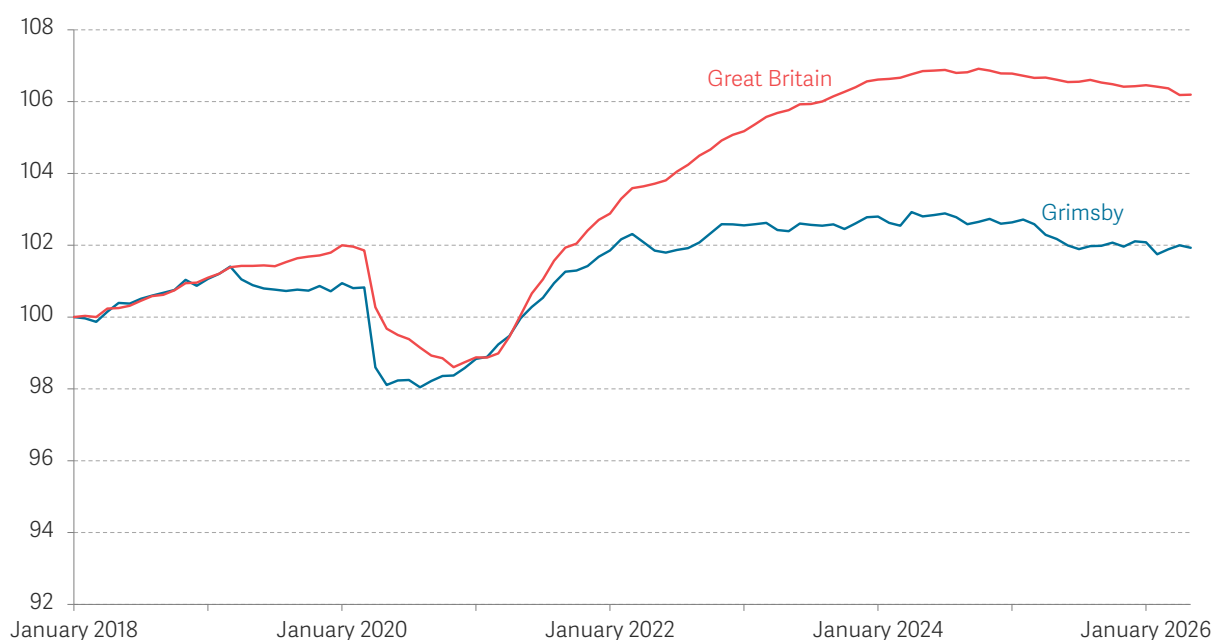
⁶² For more on spillover effects, see: E Moretti and P Thulin, [Local multipliers and human capital in the United States and Sweden](#), Industrial and Corporate Change, January 2013.

⁶³ RF analysis of ONS, UK small area gross value added estimates.

Tepid economic growth outside key growing manufacturing sectors is matched by poor jobs growth. The number of payrolled jobs in North East Lincolnshire grew just 2 per cent between 2018 and 2025, a third of the rate seen across the UK (see Figure 12). With enough internal migrants having arrived since 2018 to represent 3.8 per cent of the workforce, this underperformance is especially worrying.⁶⁴

FIGURE 12: The offshore wind boom hasn't overseen a period of growing employment

Index of payrolled jobs in North East Lincolnshire and Great Britain: January 2018=100



SOURCE: RF analysis of ONS and HMRC, Earnings and employment from Pay As You Earn Real Time Information

And while pay growth has been genuinely good, it is not clear it is enough for Grimsby's workforce. Growth in annual pay has been far slower, with salaries still 9 per cent below 2009 levels and now 15 per cent below the national median. That is because Grimsby's workforce is working fewer hours: alongside higher inactivity, the share in part-time work is up 4 percentage points and average hours dropped 7 per cent, from 34.8 to 32.5 per week – a fall three times as steep as that observed across the rest of the UK. This is not the pattern of a town whose gains are coming from high-quality, full-time jobs in clean industries.

It makes sense, then, that pay growth was twice as fast in the (stagnant) services sector than in manufacturing, where these new industries sit.⁶⁵ The main wins in Grimsby have

⁶⁴ RF analysis of ONS and HMRC, Earnings and employment from Pay As You Earn Real Time Information; ONS, Internal migration estimates.

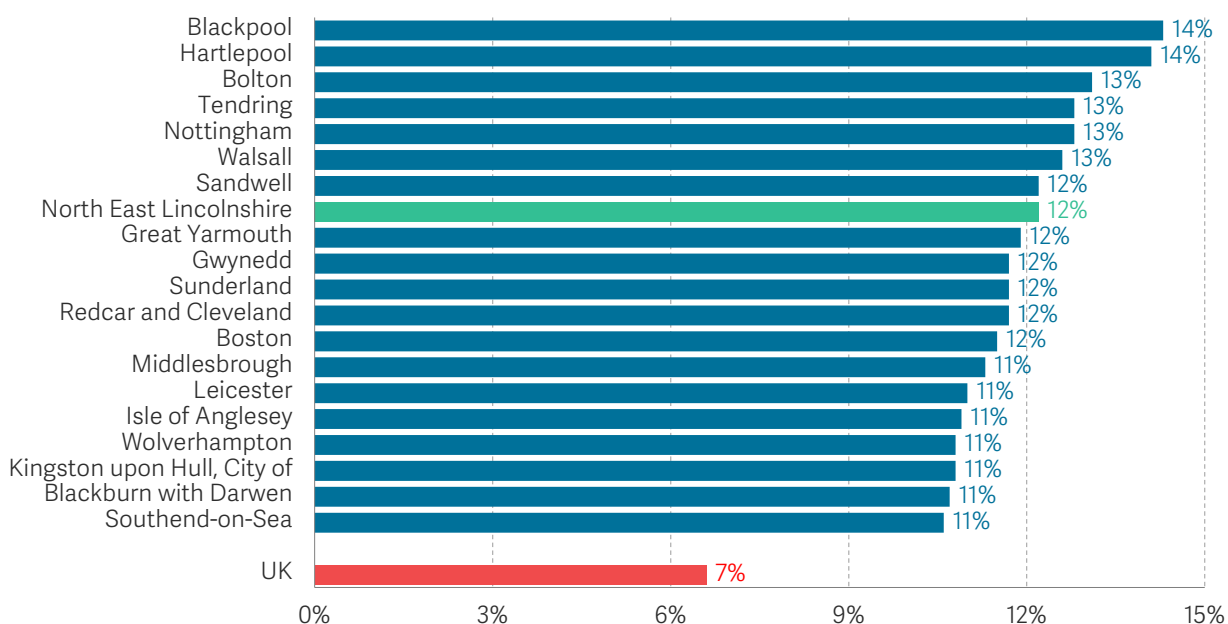
⁶⁵ For comparison, average hourly pay across the UK in 2025 was £17.96. Source: RF analysis of ONS, Annual Survey of Hours and Earnings.

thus not been better full-time manufacturing jobs of the kind clean industries are touted to deliver, rather better-paid part-time and services work. A substantially higher minimum wage – which has grown by a fifth since 2017, roughly in line with median hourly wages in Grimsby – is perhaps a better explanation for the area’s economic fortunes than offshore wind.⁶⁶

Indeed, as Figure 13 shows, Grimsby’s minimum wage workforce (proxied here by the North East Lincolnshire local authority) is among the country’s largest, at 12 per cent of all employees. Previous research has found that wage compression following minimum wage uprating means that effects can be seen up to the 35th percentile of the UK wage distribution – which, at £15.14 an hour is only slightly lower than median pay in Grimsby (£15.96 an hour).⁶⁷ And, compared to other places, hourly pay growth was one-third pacier than average in the places where the wage floor bit hardest.

FIGURE 13: Grimsby’s minimum wage workforce is one of the country’s largest

Proportion of employees on or near the minimum wage, by local authority: 2025



NOTES: Estimates show the number of employees paid below or within 5p of the applicable rate.

SOURCE: Low Pay Commission, Low Pay Commission Report 2025.

So the arrival of offshore wind has coincided with economic growth, higher wages and internal migration, but its impact on the town has been mixed, and it may only be playing a marginal role in the town’s recent fortunes. Before asking how Grimsby can sustain its momentum, it is worth first exploring why such a huge offshore wind industry has not made more impact in its first decade.

⁶⁶ For more on how changes in hourly pay have impacted those at or close to the minimum wage, see: M Brewer et al., *They’re coming home*, Resolution Foundation, June 2026.

⁶⁷ J Wilkinson, *Low Pay Commission explainer: the minimum wage and inflation*, Low Pay Commission, April 2026.

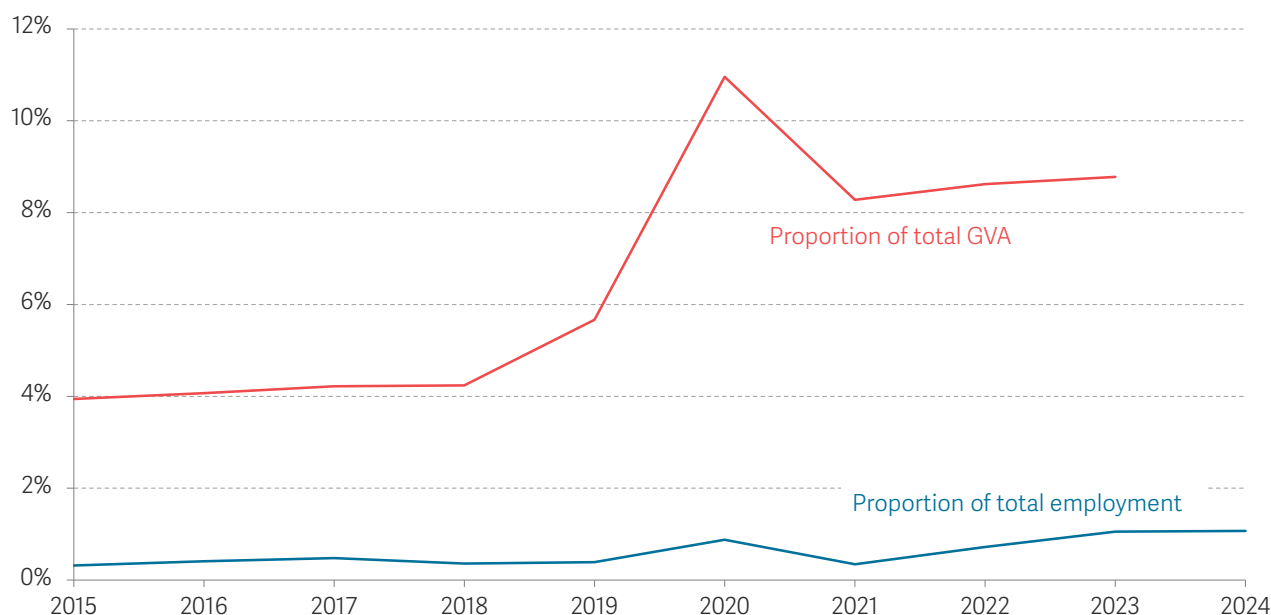
Grimsby's new industries have not generated enough jobs

Despite substantial growth and huge investments in the area, new industries are not generating enough high-paying jobs. A typical job in the region's electricity sector pays double the Grimsby median, while the National Careers Service estimates that an experienced wind turbine technician can pull in £47,000 – enough to put them at the 80th percentile of Grimsby's income distribution.⁶⁸ Anecdotally, some of these jobs are being taken by those migrating into the area: stakeholders highlighted the difficulty of hiring senior posts locally, and the numbers commuting in from north of the river.

But the biggest problem appears to be sparse employment growth. While healthy GVA growth means energy now accounts for a chunky share of local output – over 8 per cent – the sector's employment share rose by just 1 percentage point over the same period: far too little to be a plausible driver of seismic economic change, as Figure 14 shows. That is equivalent to just 900 new jobs in the sector, a figure comparable to the combined headcount of the two operations hubs in the town: over 700 at Ørsted's East Coast Hub and over 90 at RWE's Grimsby Hub.⁶⁹

FIGURE 14: Grimsby's new industries produce a lot, but so far employ few people

Electricity sector output (North and North East Lincolnshire) and employment (Grimsby) as a proportion of totals



NOTES: GVA statistics cover a different region, including both North and North East Lincolnshire.

Employment covers the Grimsby travel to work area. Not all of the energy sector is wind, as the area also has gas plants. Local GVA data only runs to 2023.

SOURCE: RF analysis of ONS, Regional gross value added; ONS, Business Register and Employment Survey.

⁶⁸ RF analysis of ONS Annual Survey of Hours and Earnings. Wind turbine technician salaries obtained from: National Careers Service, [Job profiles: Wind turbine technician](#), Accessed 24 August 2026.

⁶⁹ Source: Ørsted, [25 years of UK offshore wind, Ørsted celebrates Grimsby's central role in powering Britain](#), December 2025; RWE, [RWE invests in new Grimsby Hub operations and maintenance base](#), September 2021.

This is fundamentally because operations hubs do not employ many people. Once built, wind farms support around 100 permanent roles per gigawatt of capacity, so even the 13.8GW that the Humber cluster hopes to host by 2030 would struggle to exceed 2 per cent of Grimsby's employment.⁷⁰ To anchor the local economy, more jobs than that are needed: spillover effects into the local economy are generated by well-paid employees spending their money locally. Industries that genuinely anchor a local economy tend to account for 5-to-10 per cent of its direct employment: Grimsby's fish processing sector accounts for 8 per cent and Aberdeen's oil industry 10 per cent.⁷¹

It is virtually impossible for Grimsby's wind industry to reach this sort of scale through operations alone. Indeed, reaching 5 per cent of employment would require 4,000 operations jobs, needing 40GW of capacity to be managed out of Grimsby (very nearly the whole of the Government's 2030 offshore wind target).⁷² The stakeholders in Grimsby we talked to were wise to this, reporting that opportunities available are simply not numerous enough to be a main focus of training and skills programmes – and were often careful to emphasise the transferability of technical skills to other areas of construction and engineering should sufficient wind jobs not arrive. One reported that some colleges have scaled back their training ambitions in the area, as the opportunities they planned for a decade ago simply weren't there. The famed Ørsted internships were acknowledged to be fantastic for those that get them, but are so few and competitive that they can only help the 'cream of the crop' of Grimsby's young school finishers.⁷³

The east coast's wind industry is scattered, making scale difficult

This puts Grimsby a far cry from being the centre of the renewables industry, as the town's 2021 economic strategy hoped. The jobs that could have changed this arithmetic and provided mass employment opportunities in the area are elsewhere in the supply chain – including manufacturing, assembly and installation.⁷⁴ These jobs have mostly gone elsewhere, though not to a rival centre. The key point here is that the UK's east coast does not have a centre at all: its industry is scattered across a variety of hubs in the North East, the Humber and East Anglia.

Ørsted's Hornsea 3, which, when it starts operating in 2027 will become the largest

⁷⁰ Source: RF analysis of DESNZ, [Job estimates for wind generation by 2030: methodology note](#), June 2025.

⁷¹ RF analysis of ONS, Business Register and Employment Survey. The average size of a travel to work area's largest tradeable industry is 6 per cent.

⁷² The Clean Power 2030 Action Plan sets a target range of 43-50GW of installed offshore wind capacity by 2030, up from 14.8GW in 2024. At around 100 permanent operations and maintenance roles per gigawatt, 4,000 operations jobs would require roughly 40GW of capacity to be managed from Grimsby, or 80 to 93 per cent of that target range. Source: DESNZ, [Clean Power 2030 Action Plan: A new era of clean electricity](#), December 2024.

⁷³ Ørsted recruited 18 wind turbine technician apprentices in Grimsby in 2023, its largest East Coast intake since the programme began in 2017. An intake of this size can reach at most around 1 per cent of each school-leaving cohort. Sources: Ørsted, [Ørsted opens their largest ever apprenticeship recruitment campaign on the East Coast](#), February 2023; DfE, School census.

⁷⁴ Construction forms a large portion of the jobs, but these are typically offshore jobs performed by travelling wind turbine construction ships, and are not likely to be staffed by those living locally.

offshore wind farm in the world, illustrates this dispersion well. Construction, operations and grid connections for the project straddle three different Government Office Regions. The construction will be managed out of Port of Tyne and Steel River Quay in Teesside, the operations will be managed out of Ørsted's Grimsby hub, while the electricity will come onshore in Great Yarmouth. For manufacturing, the blades are made in nearby Hull, monopiles predominantly in South Shields, nacelles in Scotland and cables in Hartlepool.⁷⁵ In fact, very little of the broader supply chain has ended up in and around Grimsby. Ørsted says it has 255 domestic suppliers, of which only one-sixth are listed in the Humber region. Just five are headquartered in Grimsby, Ørsted's largest base in the UK.⁷⁶

One project that could have changed Grimsby's trajectory is the Able Marine Energy Park, a port expansion discussed since the early 2010s and billed to create up to 4,000 mostly permanent jobs by boosting Grimsby's role in the wider offshore wind supply chain.⁷⁷ Port capacity – specifically heavy lift equipment – is fundamental to any offshore wind base, as it is this sort of infrastructure that puts limits on participating in construction, manufacturing and assembly. For a place like Grimsby, a base of 4,000 new jobs just a 20-minute drive away would be a game changer, representing 5 per cent of employment in the travel to work area. Strictly speaking the project could yet be built – the Government recently extended its construction deadline to 2032 – but prospects have fizzled after years of litigation between Able and the landowner ABP, who likely saw developments as competition to their own port infrastructure. Eventually plans were abandoned due to what was described as pipeline uncertainty, as investors pulled out due to uncertainties that the pipeline was big enough to justify new infrastructure.⁷⁸ It's no surprise that, a decade later, bigger projects like Hornsea 3 are constructed out of Teesside instead, where quay capacity to host installation vessels is increasing. Though they recognised the scale of what could have been, few of the stakeholders we talked to were hopeful that this project would yet deliver on its promises.

Grimsby has suffered from an awkward political and physical geography

Another challenge for Grimsby has been a changing political geography and awkward fractures with the rest of the Humber. In principle, nearby Hull and Grimsby should be part of a mutually reinforcing cluster. But the political and physical geography gets in the

⁷⁵ Source: Ørsted, *Hornsea 3 monopile contract*, September 2022; Ørsted, *Ørsted makes multi million-pound investment into UK suppliers for its Hornsea 3 offshore wind farm*, December 2024.

⁷⁶ RF analysis of Ørsted, *UK Supply Chain Map 2026*, May 2026.

⁷⁷ Source: *The Able Marine Energy Park Development Consent Order 2014*; Planning Inspectorate, *Able Marine Energy Park (TR030001)*; Able UK project documentation.

⁷⁸ Able UK estimated the Marine Energy Park would create around 4,000 local jobs, supported by a £15 million government grant. The Development Consent Order was granted in 2014 and amended in 2021 and 2022. ABP's judicial review of the consent was rejected by the High Court in 2015. Source: BBC News, *Able Marine Energy Park: Court rules in favour of turbine factory*; BBC News, *Humber Estuary port development backed by MPs*.

way. The old Humber Local Enterprise Partnership made way two years ago for two new combined authorities: Greater Lincolnshire CCA and Hull and East Yorkshire CCA, with a border right through the River Humber. These combined authorities are very new (they began work last year) and are both led by different political parties than hold Grimsby's parliamentary seats and (until recently) the council. This necessitates a web of devolved bodies and collaboration groups trying to keep the CCAs talking and their minds focused on the Humber cluster, like the Humber Energy Board, and the Hull & Humber Chamber of Commerce.

The constant need to bid for government funding pots and pipeline decisions compounds the benefits of a strong, unified voice. There is fierce competition from elsewhere on the east coast, and stakeholders we talked to emphasised the importance of ongoing representation to central government, not to grow the overall pie but to win out from zero-sum decisions. Beating out competition from other industrial centres was generally the first concern when stakeholders we met discussed new projects – most notably Teesside, whose success at attracting investment and the wind supply chain under Ben Houchen is much respected (or envied). Replicating this experience in the Humber seems challenging at present, lacking Teesside's political and institutional stability (Ben Houchen has been mayor since 2017). But in the context of the new Prime Minister's devolution agenda, establishing strong political units that are well matched to the economic geography of a region's growth sectors, and sticking to them, seems a worthy goal. A more powerful unified voice would surely make it easier to plan and lobby for growth of the cluster as a whole, a need many we talked to were quick to mention.

To be fair, the area's fragmentation is also a product of geography. While the term 'cluster' conjures an image of a meaningfully unified economic zone, the estuary that separates Grimsby and Hull makes a different truth. Hull is the area's largest economic centre, with a population of over 500,000, but getting to it from Grimsby is a task.⁷⁹ The public transport option is a two-hour, two-change bus journey.⁸⁰ Admittedly, this is a car-dependent region, but the infrastructure there is not much better: the direct road route requires a toll bridge, takes 45 minutes, and cross the notoriously ageing and noisy A180.⁸¹ Others have noted Grimsby and Hull's surprising economic separation given overlap in their industrial base and apparent proximity.⁸² Commuting data bears this up – Grimsby sends more workers to Scunthorpe, Lincoln or Skegness than to its nearest big city.⁸³ Economic connectivity is on the rise – traffic across the Humber Bridge has increased 50 per cent in the past five years, over double the 20 per cent rise in the previous two

⁷⁹ Here we refer to the population of the Hull travel to work area.

⁸⁰ Journey time by public transport from Grimsby town centre to Hull city centre, based on scheduled services. Source: Google Maps.

⁸¹ Source: Google Maps.

⁸² P Swinney et al., *Talk of the Town*, Centre for Cities, September 2018.

⁸³ RF analysis of ONS, Census 2021 origin-destination data. Figures cover usual residents in employment aged 16 and over by place of work.

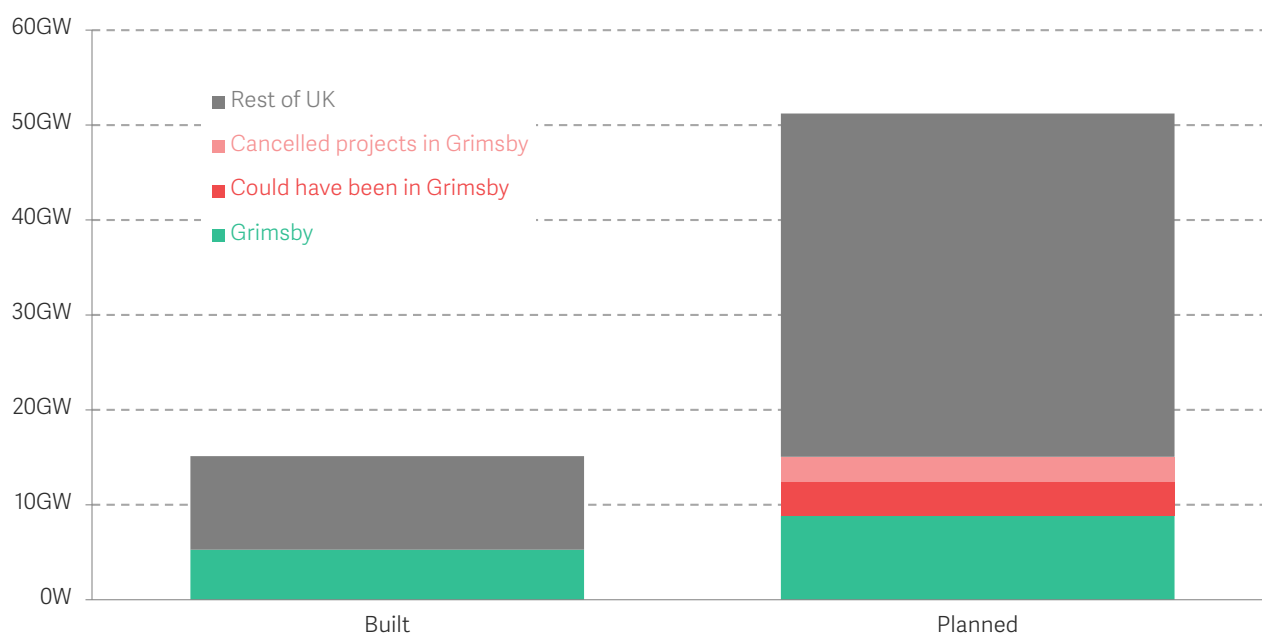
decades – but there’s a long way to climb before economic opportunities in one part of the cluster are any help to those in the other.⁸⁴

Getting more jobs in Grimsby will have to be about more than just offshore wind

But whatever the reasons for Grimsby’s struggle to attract more of the wind industry, the town’s economic plan must be centred on attracting clean jobs beyond just wind farm operations. The most pressing is that its position in wind looks set to weaken: Grimsby currently operates around a third of built offshore wind capacity, but Figure 15 shows that could fall to one-sixth of currently planned projects, as other clusters are built out and remaining space in the South North Sea declines. The town has had close to a monopoly on east coast operations so far, but that has been tested for some years now – Hornsea 4 has been cancelled and Dogger Bank A to C, a set of three large wind farms geographically adjacent to Sofia (which is managed out of Grimsby), will instead be operated from Port of Tyne.⁸⁵

FIGURE 15: **Grimsby’s share of the offshore wind pipeline is set to shrink**

Offshore wind capacity built and planned (GW), by location



NOTES: Could have been in Grimsby refers to projects that are being built in similar areas of the North Sea as others managed, in Grimsby.

SOURCE: RF analysis of DESNZ, Renewable Energy Planning Database.

Several stakeholders told us they thought there was little more the wind industry had to

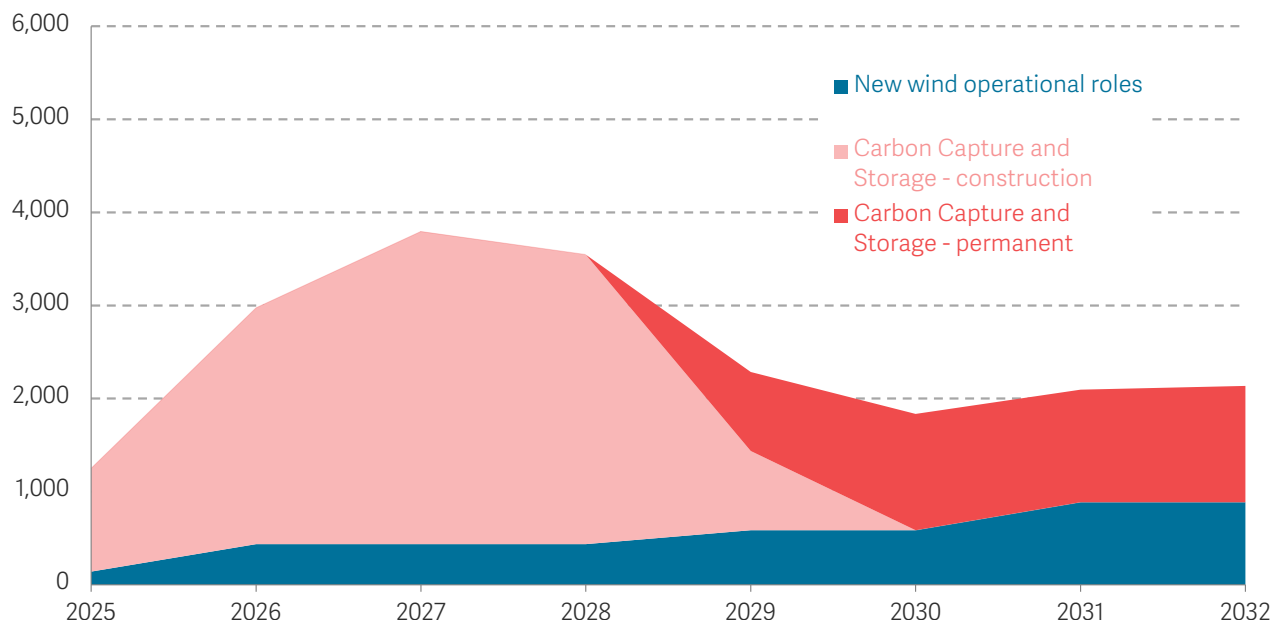
⁸⁴ RF analysis of Humber Bridge Board traffic data.

⁸⁵ Orsted, [Orsted to discontinue the Hornsea 4 offshore wind project in its current form](#), May 2025; Equinor, [Base selected for world's largest offshore wind farm](#), May 2020; Equinor, [Dogger Bank Wind Farm opens Port of Tyne operations and maintenance base](#), March 2023.

offer Grimsby, and local hopes are perhaps wisely turning to other sources of employment. One reason for optimism on the horizon is Viking CCS, which promises around 1,000 permanent jobs and a 4,500-strong construction boom.⁸⁶ Unlike wind, the construction workforce for a carbon capture and storage project is generally onshore, giving a bigger boost to the local economy than the travelling offshore vessels that build turbines. There is reason for a positive outlook – though permanent jobs are limited (at around 1 per cent of Grimsby's workforce) onshore construction booms have been accompanied by jobs and wage booms for past energy infrastructure projects.⁸⁷ Like wind, carbon capture projects are entirely dependent on central Government pipeline decisions, so the fate of Grimsby's approved but as yet unfunded Viking project lies in the uncertain political future of the technology. But if it were built when initially billed, CCS would provide more permanent jobs in Grimsby than scheduled offshore wind projects, as Figure 16 shows. In total, the planned pipeline will bring electricity and carbon capture jobs in the Grimsby area to 3.6 per cent of employment – a sizeable amount, but still well short of the town's other major industries.⁸⁸

FIGURE 16: Carbon capture and storage holds more promise than wind for Grimsby's future

Projected direct employment in the Grimsby travel to work area from major planned projects, by type



NOTES: Wind operational roles assume that all pipeline wind farms are built and create roles at 100 per GW. Carbon capture uses the socioeconomic impact assessment developed by Viking, and assumes the majority of roles are created within the Grimsby travel to work area.

SOURCE: RF analysis of developer announcements and project documentation.

⁸⁶ Viking CCS, *Transforming the Humber into a net zero SuperPlace*, March 2023.

⁸⁷ Onshore energy construction has been associated with local employment and pay gains elsewhere. The Haverfordwest travel to work area, which contains the LNG terminals at Milford Haven built in the late 2000s, and the Bridgwater travel to work area, host to Hinkley Point C, both saw employment and median pay rise during and after their construction phases. Source: RF analysis of ONS, Business Register and Employment Survey; ONS, Annual Survey of Hours and Earnings.

⁸⁸ RF analysis of ONS, Business Register and Employment Survey.

Other opportunities may follow. Proximity to large stores of captured carbon and abundant electricity will make the Humber well placed for hydrogen and sustainable aviation fuel, two new clean energy markets that will only exist as a result of Government policy. But so far, Government funding and permitting has gone elsewhere. The hydrogen industry will first cluster around the Track-1 CCS projects in the North West and in Teesside.⁸⁹ Sustainable aviation fuel will be managed by an allocation round next year and will, like Contracts for Difference, see projects in the Humber cluster competing with others next year for a limited number of contracts.

So the jobs growth Grimsby wants will require the Humber cluster to host a wide array of clean industries, taking all it can get. Wind operations cannot deliver it alone: the industry has arrived but the jobs at scale have not.

Despite starting from very different places, then, Grimsby and Aberdeen run into the same barrier: too few permanent jobs, arriving too slowly to meet their respective economic goals. The final section concludes by setting out what this means for how Government approaches the geography of the net zero transition.

⁸⁹ Sources: DESNZ, [Cluster sequencing for carbon capture, usage and storage deployment](#), May 2021.

Section 4

A strategic approach to net zero jobs is needed

Aberdeen and Grimsby should be model places for the prosperity clean industries can bring. But both are struggling to make good on promises made for green growth. This is happening for similar reasons: not enough jobs to transform the local economy; and those that do arrive coming too late. This is a product of the number of places that have been made promises. Put simply, there is not enough industry on the table to reindustrialise everywhere.

Perhaps just a tenth (70,000) of the jobs pledged in the Clean Energy Jobs Plan will be direct permanent roles in industrial hubs – just 0.2 per cent of the UK's workforce. So for the local effects to be truly regenerative, it is necessary to pick which places will specialise in these industries. If Government wants net zero to create noticeable living standards benefits, the way out of disappointing results so far is to take a more active role in concentrating green industries in the places that need it. A small number of high-productivity powerhouse clusters is better – for living standards and the economy – than a smattering of niche specialties. Achieving this means deciding which places will win – as well as which places will lose – and backing them with sustained investment and support.

Aberdeen and Grimsby should be models for the prosperity clean industries can bring. The former has spent half a century building the engineering and offshore capability the transition requires; the other has dominated the UK's offshore wind industry so far and is well placed to benefit from carbon capture. Both have made clean industry the centre of their economic strategy, and both have been promised a great deal. If net zero can deliver local economic renewal anywhere, it should be showing up here.

But in both places the delivery is falling well short. The reasons for this are related: not enough jobs arriving quickly. Given how many places have been promised the same thing, there is perhaps an inevitability about this. Put simply, there is not enough industry on the table to reindustrialise everywhere. We estimate that perhaps just a tenth of the jobs pledged in the Clean Energy Jobs Plan – around 70,000 roles – will be direct permanent roles in industrial hubs, just 0.2 per cent of the workforce. So for the local effects to be large in any one place, those jobs must be concentrated; a small number of high-productivity clusters would do more for living standards, and for the economy, than a scatter of niche specialisms.

Neither place can fix its problems alone

Aberdeen has the workforce but nowhere for them to go; Grimsby has the industry but not the employment. These failures point in different directions: Aberdeen towards timing and sequencing, Grimsby towards scale and concentration. But in both cases the same theme emerges: a more hands-on approach is needed to manage the transition.

The issues here highlight the need to combine strong local leadership with more strategic decisions at the national level. Aberdeen is at the mercy of timelines set in Whitehall or Edinburgh for grid reinforcements, carbon capture and hydrogen. Grimsby is in desperate need of scale, but local government cannot override central Government and industry decisions made with far less consideration for place. In both cases, questions are being asked of the same institutions. But they are not currently set up to provide either.

Fundamentally what is needed is a more hands-on approach. A national Government willing to decide where clean industry should concentrate and when it should arrive, rather than leaving outcomes vital for future localised prosperity to fall out of processes designed for other purposes.

Government policy has been too passive in directing the spatial benefits of new, green industries. The Contracts for Difference scheme, for example, which is in effect a 'reverse auction' between firms vying for contracts that de-risk investment has been copied by numerous other countries. But it was designed to instil maximum competition between firms, rather than to deliver on place-based objectives. So the geography of the transition is being decided, somewhat at random, by market forces. This is an uncoordinated and haphazard process that is playing out before the shape of the rest of the pipeline becomes certain. This has led to these industries becoming dispersed. The result is a mismatch between the language of the promise, which is about places, and the machinery of delivery, which is not.

The case for concentrating an industry rests on two promises

The benefits of concentration rest on two key forces. The first is agglomeration. Concentrating an industry in one place lowers costs and raises productivity, through mechanisms set out in Box 1. Aberdeen is the domestic proof: employment in oil and gas is around a hundred times more concentrated there than across Britain as a whole. The resulting cluster of subsea engineering, offshore logistics and specialist services is the reason the city could service a whole basin. The experience of Europe's offshore wind hubs supports the idea that the same can work for green industries. Esbjerg in Denmark, Cuxhaven in Germany, and Eemshaven in the Netherlands each concentrate a large share of their country's wind manufacturing, installation and operations rather than spreading it along every suitable stretch of coast.

The point for the UK is that these gains are available only if the UK concentrates too. They are not a property of the technology; they are a property of the spatial arrangement, and the current arrangement is dispersal. Were the UK to concentrate deliberately, the benefits would accrue nationally rather than only to the host place, through lower costs of building and operating clean energy and therefore a cheaper transition for everyone.

There is a related prize. The UK has been notably poor at capturing the industrial side of an industry it leads in deployment terms: since 2018 it has imported £4.5 billion more in wind turbines than it has exported.⁹⁰ For a country with the largest installed offshore wind fleet in Europe, that is a striking figure, and it reflects the absence of a centre of gravity of the kind Esbjerg provides for Denmark. The opportunity to build this sort of centre has not been missed, and there's more than just manufacturing on the table. Esbjerg has demonstrated countries can export installation and operations services as well as turbine parts, and projections suggest that North Sea wind deployment will expand six-fold to 214GW by 2050.⁹¹ Deployment without industrial or export capture is the pattern the UK has settled into, and concentration is the main policy route out of it.

BOX 1: Agglomeration benefits can accrue to Aberdeen and Grimsby

Scaling industry has benefits for the places where those firms sit, but it would probably also improve the economy at large. Many have theorised that agglomeration, or 'clustering' improves productivity. Empirical evidence – both that industries usually cluster near each other, and that those that do are more productive – tends to bear this out.⁹² There are various mechanisms to this. Where industries are more clustered, they can share infrastructure required by all (input sharing) such as the port infrastructure needed for offshore wind.⁹³ This justifies Government intervention to get these

projects built, as firms operating under uncertainty and information asymmetry will struggle to coordinate investment in shared infrastructure needs.

Co-located industry also helps with developing a skilled workforce. Hiring becomes cheaper with a deeper pool of workers with the required skills. And if all the industry is in one place, the location of the pipeline becomes clear, as it is in Aberdeen. It is easier for educational institutions to plan their skills offering if they know what's coming down the pipeline, rather than have opportunities that are highly dependent on the decisions of one or

⁹⁰ Source: RF analysis of HMRC Overseas Trade in Goods Statistics via uktradeinfo.com

⁹¹ DNV, *Ocean's future to 2050. A sectoral and regional forecast of the Blue Economy*, April 2025.

⁹² S Rosenthal and W Strange, *The Determinants of Agglomeration*, Journal of Urban Economics, September 2001; K Bolter and J Robey, *Agglomeration Economies: A Literature Review*, W E Upjohn Institute for Employment Research, September 2020.

⁹³ D Puga and A Venables, *The Spread of Industry: Spatial Agglomeration in Economic Development*, LSE, December 1996.

two firms. The difficulties of managing training budgets around an uncertain pipeline was raised by stakeholders we spoke to in Grimsby and Aberdeen.

Finally, there could be knowledge spillovers, as more skilled workers and innovative firms in one place are more likely to share knowledge between firms – through job switching and informal contact – than several smaller centres with less contact between them.

When it comes to settlement size, estimates typically find that doubling the size or density of a cluster raises productivity by around 2-5 per cent.⁹⁴ Of course how this maps onto clustering of particular industries will vary hugely by sector, and it's very challenging to run a study on what model is best for the offshore wind industry before policy outcomes are already decided. But we can look to how this has worked in other countries to see that our scattered approach doesn't stack up. Most countries elsewhere on the North Sea have invested heavily in one or two substantial and multipurpose hubs, rather than our distributed approach.

For example, Denmark's Esbjerg became one of the first large scale offshore wind hubs last decade. At a similar population to Grimsby, it has capacity to install 4.5GW a year, and could once boast that four-fifths of

offshore wind capacity across Europe had Esbjerg's fingerprints on it.⁹⁵ That amounts to over 10,000 jobs and 200 companies in a place similar in size to Grimsby. It also handles operations for many of the farms it builds, most Danish wind related exports, and can be said to operate in every stage of the wind value chain. Though not so far ahead, other countries bordering the North Sea seem to have followed similar paths. Eemshaven in the Netherlands is a huge installation and operations hub, while Cuxhaven takes a similar role to Esbjerg, acting as a base for construction, operations and manufacturing all together.

The reasons behind this are complex, but state intervention was a key part of Esbjerg's development. Its primary company – Ørsted, also the main operator in Grimsby – is state owned, as is the municipally owned port. The UK has neither a state-owned developer nor municipal ports on that model, so the Danish route is not directly available. But ownership was the instrument rather than the objective: what Esbjerg had was a single site that public investment and a reliable order book were consistently directed towards. Port investment, supply chain conditions attached to auction support, and a visible pipeline can achieve the

⁹⁴ R Ahrend et al., *What Makes Cities More Productive? Agglomeration Economies and the Role of Urban Governance: Evidence from 5 OECD Countries*, Spatial Economics Research Centre, July 2015.

⁹⁵ Business Esbjerg, *Port Esbjerg: Energy and data*, accessed 24 August 2026.

same concentration through different means.⁹⁶

Grimsby's experience has been very different. Where Esbjerg's public port expanded to meet demand, Grimsby's expansion flailed amid private lawsuits. Where Esbjerg produced one of the

world's biggest (state owned) wind companies, Grimsby has imported the one and the same. And where Esbjerg operates across all elements of the offshore wind value chain, Grimsby has been type-cast as an operations hub.

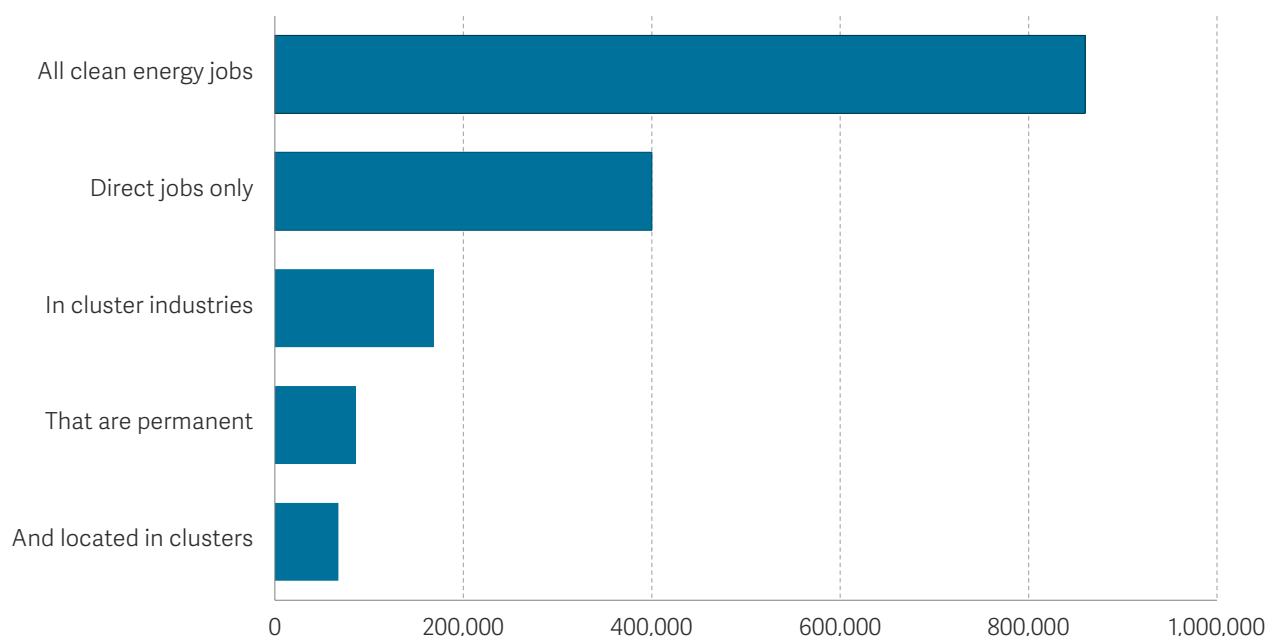
The second claim made for clean industry is that it can generate local renewal with areas hosting these industries experiencing employment booms across manufacturing and the supply chain large enough to change their economies.

But here the numbers simply aren't large enough to drive truly regenerative booms in every place where these promises have been made. As mentioned earlier, of the 860,000 jobs pledged in the Clean Energy Jobs Plan, around half are direct. Of those, a large share are construction and commissioning roles, which tend to move on when a project completes rather than permanent positions. And of the permanent roles, many are dispersed rather than concentrated in industrial hubs. On plausible assumptions, then, perhaps a tenth of the headline, around 70,000 jobs, will be direct permanent employment in industrial hubs – as shown in Figure 17. That is just 0.2 per cent of the UK workforce – a vanishingly small amount.

⁹⁶ W Kristensen, [Danish energy tech exports reached milestone in 2024](#), Energy Watch, June 2025.

FIGURE 17: Under plausible assumptions, the number of industrial agglomerated jobs could be very small

Estimated jobs pledged in the Clean Energy Jobs Plan under successive assumptions: UK, 2030



NOTES: Starting with the direct and indirect jobs estimates published in the Clean Energy Jobs Plan, assumed that 42 per cent of new jobs are in industries that could feasibly cluster (based on the proportion of CCC estimated jobs impacts that are in clustered industries like renewables, carbon capture, and electric cars). It is then assumed that around half of jobs are permanent. This assumes that most new jobs in energy-intensive manufacturing and EVs are permanent, while most jobs in low-carbon energy (two-thirds) and carbon capture and storage (four-fifths) are temporary, based on jobs estimates published for offshore wind and carbon capture and storage projects used elsewhere in this paper. Finally, it is assumed that one-fifth of jobs in clustered industries sit outside the clusters, to consider factors such as office jobs and headquarters sitting in administrative centres, and some industry plants that sit outside main clusters for various reasons.

SOURCE: RF analysis of DESNZ, Clean Energy Jobs Plan; Climate Change Committee, A Net Zero workforce.

If concentrated in a small number of places, new jobs on this scale could be genuinely transformative, as shown by the experience of Esbjerg. The difficulty is the arithmetic of division. Grimsby, with a third of built UK offshore wind capacity operated from the town, has around 900 additional energy sector jobs to show for it. Aberdeen, has a sector employing around 5,600 people across the whole of Scotland.

Spread 70,000 jobs across every place that has been promised green industry over the past fifteen years, and the effect in each is indistinguishable from ordinary labour market churn. There are at least 18 travel to work areas with 2.7 million jobs between them where green employment has been promised – 70,000 additional jobs represent just an extra 2.6 per cent.⁹⁷

The implication is one the net zero debate has avoided. For clean industry to be catalytic

⁹⁷ Each of the 18 TTWAs is included because a named, publicly announced clean-energy jobs promise is physically sited inside it.

in a given local labour market, it must be more concentrated than it is now. Which means some places may have to miss out. So, how do we decide which areas win and which lose out?

As mentioned above, at present considerations of concentration fall out of the allocation processes built to minimise cost per megawatt hour, which are indifferent to where the activity lands. The Government has dipped a toe into policies where location matters, such as the Clean Industry Bonus; rewarding supply chain investment in deprived and industrial areas. But the Bonus operates at the margin of an auction whose central logic remains place-blind. A more strategic and proactive approach is needed if the benefits of concentration are to be realised.

Net zero jam should be spread on a smaller slice of toast

All this is a wake-up call to the Government's devolution agenda. This Government should do what its predecessors have so far avoided: identify the places it wants to win from the net zero transition and back them with sustained investment and consistent policy signals that local firms are looking for.

One critique of this approach is that it is trying to pick winners that should be allocated by private markets. But in this instance picking a winning place does not require Government to pick winning firms: competition between firms can still drive costs down and innovation up, while the planning system and auction design shape where the activity lands. And these industries exist only because central Government policy created them. Left solely to market forces, the UK would have little low carbon industry activity and no workforce attached to it. Government already sets the size of these industries; what it does not do is decide where they go, leaving that to fall out of price competition instead.

The trajectory the country is on is one in which no place accumulates enough of the value chain for agglomeration gains to materialise, so the productivity benefits that would make the transition cheaper for everyone go uncaptured. And because no place reaches the scale at which an industry anchors a local economy, the local renewal that was promised does not arrive either.

Both of the UK Government's flagship growth agendas now run into this problem. The Industrial Strategy names clean energy as one of eight priority sectors and commits to building domestic supply chains, but a sector plan that does not say where the supply chain should be built leaves the question to the auction. And devolution, this Government's prevailing mantra, can be part of the answer without being the whole of it. Grimsby makes the case for devolving better rather than simply devolving more, since

the Humber functions as an industrial cluster economically, but is split between two recently created combined authorities with a boundary running through the estuary. Teesside's success in attracting the wind supply chain, under a single mayor in post since 2017, is what stakeholders in Grimsby point to with a mixture of respect and envy.

Aberdeen shows the limits of that argument. It has a longstanding city deal, a capable council and an established industry body, and none of that has moved a grid timetable or a cluster sequencing decision. Stronger local institutions improve a place's capacity to bid for investment and hold onto it; they cannot determine who wins, because those decisions are zero-sum and so must be taken at a national level. Left to competition between local authorities, the outcome is not a clear winner but instead a thinly spread compromise, distributed widely enough to be politically survivable and thinly enough to be economically pointless. So, the two are complements rather than substitutes: first, devolve to units that fit the economic geography so that a Local Growth Plan is written by a body able to deliver it, then decide centrally where the industry goes.

Deciding where means deciding on what basis. Here, we must be realistic about the trade offs. Backing places with the strongest natural advantage, the deepest existing supply chains and the best grid connections would maximise the agglomeration gains, and therefore the national return. But those are not always the places with the greatest need, and a strategy built only on comparative advantage would concentrate activity in places already doing reasonably well. Our view is that comparative advantage should be the primary test, because a cluster located where it cannot thrive delivers neither national productivity nor local renewal. But among places with a genuine claim (and both Aberdeen and Grimsby have one) the needs of local economies should carry more weight. What matters most is that the test is transparent so that places can see why they were chosen or passed over.

Concentration alone will not be enough for places like Aberdeen, where the constraint is timing. Activity that arrives in the right place at the wrong time is little use to a workforce that has already dispersed. So alongside deciding where clean industry concentrates, Government needs to sequence when it arrives: aligning grid reinforcement, decommissioning activity and consenting decisions so that firms and workers can see a continuous pipeline of work rather than a series of gaps. That is a departure from the reliance on market timing that has characterised the North Sea throughout its life, and it cannot be delegated, because no single operator, regulator or local authority holds all the levers.

For Grimsby, backing the place would mean resolving port capacity, since heavy-lift quay infrastructure determines whether a place can participate in construction and manufacturing rather than operations alone; committing to a sequence of projects

constructed from the port rather than awarding them one at a time; skills funding that colleges can plan curricula around; and early clarity that Viking CCS, and later hydrogen and sustainable aviation fuel, will be funded locally on a timeline firms can rely on. For Aberdeen, it means offshore wind capacity ready to come forward as the Scotland to England interconnectors complete rather than years ahead of them, conditions on local content, decommissioning treated as the employment bridge it can be with the relief that funds it carrying expectations about where the work is done, and a clear answer on Acorn either way.

The uncomfortable truth is that backing some places will mean withdrawing support from others. But the alternative is not that those places win; it is that they spend a decade organising their economic strategy, as both Grimsby and Aberdeen have done, around industries that were never going to arrive at the scale promised. Stakeholders told us Grimsby's colleges scaled back provision when the opportunities they had planned for failed to appear, and Grimsby secured a third of the country's built capacity. Aberdeen was promised the jobs of a second oil boom and yet, watched 4,400 people leave in a year. The investment and institutional time spent by places that lose out could have been directed at a more plausible economic strategy. Being de-selected is hard, but it offers more than a place-blind approach that disappoints everywhere slowly.

...but concentration comes with a cost trade off

The obvious objection is cost. Competitive auctions were designed to maximise bang-for-buck, and any prioritisation of projects will reduce competitive pressure and raise prices households and firms pay. This carries particular weight at a time when bills are already high and every new levy is rightly scrutinised, but also because the overall pace and fairness of the net zero transition will be determined by the price of electricity.⁹⁸ But if agglomeration gains are real, the premium should be modest and time-limited, with productivity benefits offsetting it.

Two things follow. The first is that the cost discipline the Contracts for Difference regime provides should be preserved. It has driven down the price of offshore wind materially and dismantling it in pursuit of place-based objectives would be a poor trade. Aberdeen illustrates why the discipline matters: capacity built there ahead of grid upgrades would earn constraint payments rather than sell electricity, and would lock in a strike price for 15 or 20 years in return for output that cannot reach a customer. Auction pressure is what stops that happening, and auction prices are already rising.

The second is that not every place-based intervention requires new money. Some require money already being spent to have an objective attached to it. The Clean Industry Bonus

⁹⁸ E Fry and J Marshall, [Electric Dreams](#), Resolution Foundation, April 2024.

shows how this can work inside the auction framework itself, rewarding supply chain investment without abandoning competition on price, and the same principle could be applied more widely across the support the transition already receives. Redirecting expenditure that is happening anyway is a different proposition, fiscally and politically, from asking for more.

But where genuine additional cost is unavoidable, it should sit in the right place. This ultimately boils down to industrial strategy, and the Government has already named clean energy as a sector it intends to grow. Successive governments have preferred to fund energy policy through levies on bills rather than through taxation, because levies are less visible. That preference is regressive, since energy takes a larger share of low-income household budgets, and it is particularly hard to defend when the objective is regional economic development rather than energy supply. Grimsby makes the point concretely: the port infrastructure that would let the town into the supply chain is transport and industrial infrastructure, and billpayers in, say, Cornwall should not be reasonably asked to fund it through their energy bills when general taxation is more progressive.

Net zero is currently being asked to cushion industrial decline in places like Aberdeen, regenerate towns like Grimsby, as well as delivering affordable energy everywhere at once. Each objective is legitimate. But because the industry is not large enough, achieving all three in every place that has been promised them is not possible. Aberdeen and Grimsby show what happens when that gap goes unacknowledged: in one, a workforce built over fifty years disperses while it waits for arrival dates that keep moving; in the other, a decade of real investment and genuine output growth has failed to fully transform the local labour market. Neither outcome was inevitable, and neither is the fault of the places themselves. Both follow from national decisions taken with cost per megawatt hour in mind and nothing else. The lesson for every other place banking on green industry is the one this report would put to policymakers: sequence honestly, concentrate deliberately, and fund it fairly.

The Resolution Foundation is an independent think-tank dedicated to lifting living standards in the UK. We focus particularly on households with low and middle incomes; those on low pay or in precarious work; and those vulnerable to financial shocks. We also investigate fairness between the generations in our Intergenerational Centre.

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