

The voice of the energy industry

# The Clean Growth Gap



How low carbon energy  
investment can transform the UK

# Foreword

The UK has made remarkable progress in decarbonising the power sector. Since 1990, our economy-wide emissions have almost halved, driven by a move away from fossil fuels and a rapid expansion of clean energy. With overwhelming successes like our world-leading offshore wind programme, we've laid strong foundations for the decades ahead.

At the heart of a successful energy transition is the need to attract investment. The scale of the transition and increasingly constrained public finances mean the vast majority of this investment must come from the private sector. This investment has the capacity to transform our economy and bring jobs, skills, and growth to the areas that need them most. Whether its well-established technologies like renewables and network infrastructure, the strategic export opportunities of the future such as EVs and batteries, or more nascent technologies like CCUS, hydrogen and electrified heating, clean energy investments have the potential to profoundly improve our lives. Beyond the obvious environmental benefits, clean energy projects provide countless opportunities for British workers and businesses, reduce our energy bills, and ensure our energy supplies are never again endangered by turbulent geopolitics.

Over the past year, however, a number of domestic and international factors have led to a weakened investment climate that makes it harder to reach our decarbonised future. Key among the challenges facing the UK's clean energy investment is the changing face of global competition. Through the Inflation Reduction Act, the US has changed the nature of the game in the race to Net Zero, and is set to attract trillions of dollars of investment. It is expected to be the largest redeployment of international capital since the 2008 financial crisis; capital that is pointed in the direction of the US.

The Chancellor has committed to a UK response to this challenging new environment in the autumn. It's hardly controversial to say that the UK can't go head-to-head with the US on subsidies. But nor can we afford to sit back and do nothing. Instead, the UK must chart an ambitious course that embraces our regulatory strengths and strategically directs support to where it can be best leveraged by businesses and communities.

It's more important than ever to understand what the UK can do to once again lead the way on attracting investment in clean technologies. Energy UK's programme The Clean Growth Gap – supported by Oxford Economics – is our contribution to a frank discussion. Following on from the initial survey of challenges in this paper, we will be publishing a series of reports over the summer. We will consider how the environment for clean investment varies between the UK and other key markets, and the 'size of the prize' for our workers, communities, and the broader economy if we fully seize the opportunities of the energy transition. This analysis will explore the options available to the Government as it considers how to tackle this challenge, and reap the benefits of a decarbonised economy..

We're fully aware that getting the right answers will require contributions from across industry, civil society, and Government. Please don't hesitate to contact the Energy UK team if you would like to discuss this work in the coming weeks and months.



Emma Pinchbeck, CEO  
Energy UK

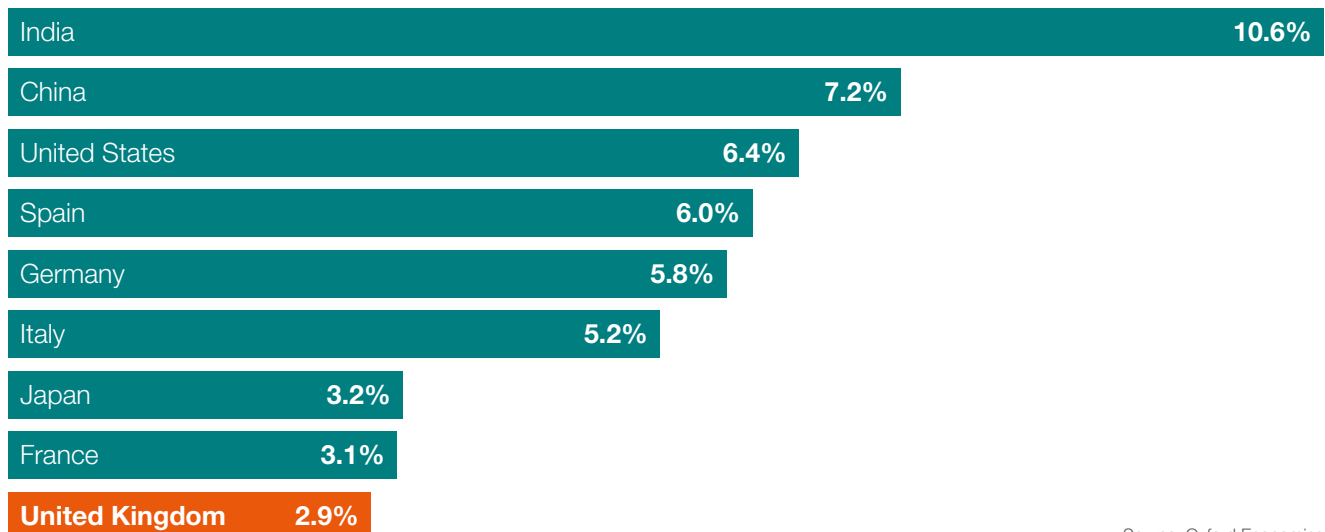
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## Without additional investment in clean energy the UK risks falling behind in the race to decarbonise

Of the world's largest eight economies, the UK is forecast to have the slowest growth in low-carbon electricity generation between now and 2030. Low levels of expected investment in the UK are a significant factor behind the downbeat UK forecast.

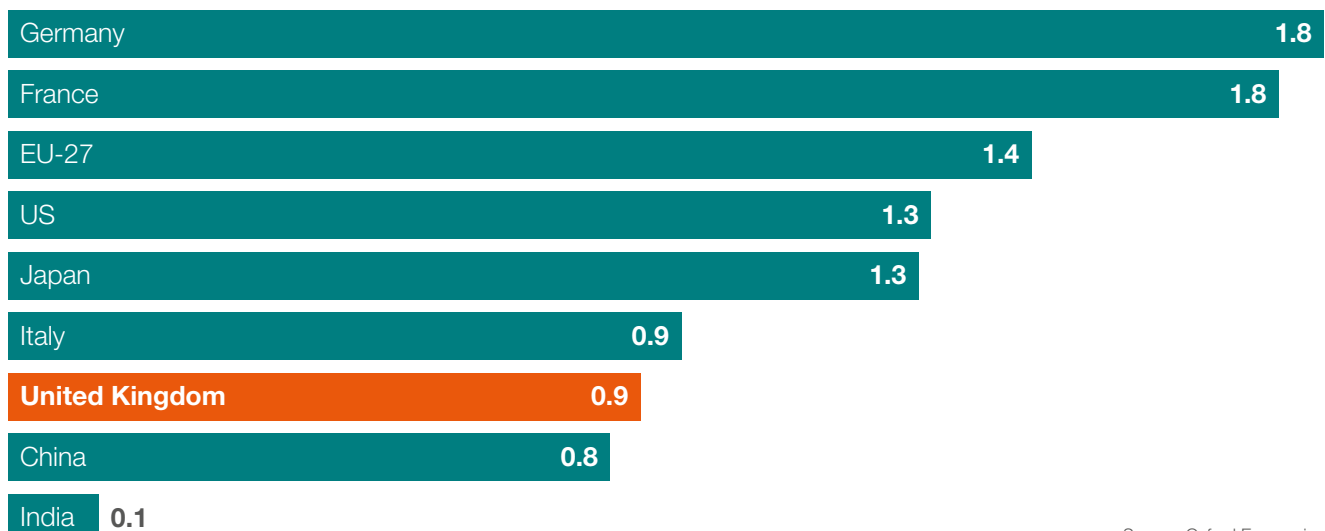
Moreover, as the UK's renewable capacity per capita is currently lower than both the EU and the US, these economies already appear better leveraged to take advantage of the economic opportunities the transition to Net Zero presents. Per head of population, France and Germany have more than double the installed clean energy capacity than the UK. Furthermore, economies such as China with lower renewable capacity per capita are expected to have much faster growth rates of clean energy so could soon overtake the UK on this metric.

### Forecasts of average annual growth in low carbon electricity output, 2023-2030



Source: Oxford Economics

### Per capita installed renewable electricity generation capacity in 2022 (kW per capita)



Source: Oxford Economics

Arup/Oxford Economics estimate that renewable fuel production will create \$1.1 trillion (£865 billion) in global economic activity by 2050. In addition, they estimate that the value of the global clean energy equipment manufacturing sector and its supply chain will be \$316 billion.<sup>1</sup> In order for the UK to seize these opportunities and benefit from a first mover advantage especially in emerging sectors (for example, hydrogen and carbon capture, usage and storage), additional investment in the UK's low carbon technologies, manufacturing facilities and networks is imperative.<sup>2</sup>

## **Private sector investment is essential for the UK meeting Net Zero goals**

The Office for Budget Responsibility (OBR) has estimated that the cumulative investment cost of the UK reaching Net Zero by 2050 (which includes the cost of emissions removals) will be £1.4 trillion in 2019 prices.<sup>3</sup> This is over 10 times the Government's estimated capital investment spending in 2023-24.<sup>4</sup> Given the scale of investment required to create a decarbonised power system and the current pressure on public finances, encouraging private sector investment is essential to achieving Net Zero goals in an efficient and timely way. The OBR approximates that over 70% of clean energy investment will have to come from the private sector.<sup>5</sup> However as highlighted by Chris Skidmore's recent Net Zero Review, in order to meet Net Zero goals, more needs to be done to encourage private sector investment.<sup>6</sup>

## **However, the UK risks losing investments in green energy**

In the last year, many jurisdictions including the US and the EU have approved ambitious measures to incentivise private investment. Corporation tax credits under the US Inflation Reduction Act (IRA) are estimated to total \$216 billion over the next decade.<sup>7</sup> These are designed to catalyse private investment in clean energy, transport, and manufacturing. In February 2023, the EU stepped up its own measures by relaxing state aid rules for investments in Net Zero technologies until the end of 2025. This means member states can grant "anti-relocation" aid and in some cases grant aid that would match an equivalent subsidy outside of the European Economic Area (EEA). Moreover, the EU also provides substantial funding opportunities through the Recovery and Resilience Fund (€250 billion) and through the REPower EU scheme (€270 billion).<sup>8</sup> In contrast, funding for the UK's contract for difference (CfD) scheme<sup>9</sup>, the Government's main mechanism for supporting low-carbon electricity generation, has been reduced to £205 million in the latest round. This is down from £285 million in the previous round.<sup>10</sup>

Given the current incentive schemes around the world, which are often much more generous than the UK, there is a risk that investment in green energy infrastructure will be pulled from the UK to countries with more attractive regimes.

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## **This would thwart the UK's clean energy industry**

A slowdown in private sector investment would suppress the UK's flourishing clean energy industry. The ONS estimates that in 2021, the UK's low carbon and renewable energy economy (LCREE) generated £54.4 billion in turnover and employed 247,400 full-time equivalent (FTE) workers<sup>11</sup>, 0.75% of the total UK workforce. The sector is fast growing, with turnover rising by 30.8% between 2020 and 2021 and employment increasing by 16.4% in the same time period. However, unless the Government ensures investment in the UK is attractive, the 480,000 jobs that a Net Zero transition is estimated to support by 2030 will not materialise.<sup>12</sup>

Exports from the UK's low carbon and renewable energy economy (which includes clean energy, electric vehicles (EVs), and low carbon services) amounted to £10.4 billion in 2021.<sup>13</sup> A lack of investment would restrict UK exports of clean energy and products, and increase dependence on imports.

Furthermore, the impact of the UK clean energy sector on the UK economy is wider than just that of the turnover it generates and the people it employs. The industry supports many other workers indirectly both through the wages spent by people working in the sector and through the sector's supply chain purchases of goods and services.

## **Leading to opportunities to reduce geographical disparities being missed**

There is great potential for green energy investments to be a vehicle for closing the UK's geographical disparities, which are amongst the largest in the OECD.<sup>14</sup> The UK Government's Green Jobs Taskforce finds that the growth of carbon capture, usage and storage (CCUS) and low-carbon hydrogen will lead to increased employment opportunities within the UK's industrial clusters such as Merseyside, Humberside, Scotland, and South Wales.<sup>15</sup> These areas have a rich heritage of manufacturing and engineering, but their fortunes have declined in recent decades due to deindustrialisation.

Moreover, through supply chain purchases, green energy investment would also help to close geographical disparities by supporting well-paid manufacturing jobs (which are disproportionately located in disadvantaged areas). Oxford Economics modelling suggests that manufacturing sectors such as mechanical engineering and manufacture of basic metals, would be amongst the biggest beneficiaries of increased green investment spending. This is because these sectors make up a large part of the supply chain of products such as wind turbines, transmission infrastructure, and equipment needed to power increased electrification. Manufacturing jobs in these sectors are typically well-paid, with the median wage of beneficiary manufacturing sectors mentioned paying 20% more than average median wage in the UK.<sup>16</sup>

**The UK Government's Green Jobs Taskforce finds that the growth of carbon capture, usage and storage (CCUS) and low-carbon hydrogen will lead to increased employment opportunities within the UK's industrial clusters.**

## Getting back on track

The UK has the potential to establish itself once again as a global leader in the clean technologies of the future, but the multiple crises of Covid 19 and high, volatile energy prices (in part due to the Russian invasion of Ukraine) have had a lingering impact. In its most recent Fiscal Risk and Sustainability report, the OBR rightly acknowledges that among advanced economies, the UK had been one of the larger investors in renewable energy in the decade prior to the pandemic. It also notes, that “*significant investment in the power sector is needed over the next decade to reach net zero, both in renewable energy sources and in the electrification of the wider economy.*”

We’re at a crossroads. One path leads to further market uncertainty and economic instability. The other leads to stable, secure, home grown, plentiful clean energy. To achieve the huge cross-economy potential this brings, it’s crucial that we unlock investment in low-carbon, clean energy technologies.

The Clean Growth Gap will start to unpack the case for the UK: a unique island nation, with huge potential to lead the way in clean energy. 2023 is a turning point – and this series of reports and original analysis will consider:

- How the environment for clean energy investment varies between the UK and other key markets;
- What the potential is for people, communities, and local economies across the UK
- The economic potential of investment in the technologies that power the energy transition

A successful UK clean energy transition is dependent on Government, business and civil society working together effectively. The energy industry in the UK can lead the world in the technologies of the future – in skilled jobs, in financing and in new infrastructure. Ambition and decisive action from the Government will unlock this potential.

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## Endnotes

1. Arup and Oxford Economics, “[The global green economy report](#)”, 2023, accessed July 2023.
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7. McKinsey & Company, “[The Inflation Reduction Act: Here’s what’s in it](#)”, 24 June 2022, accessed July 2023.
8. Allianz, “[A Faustian bargain: Europe’s answers to the US IRA](#)”, 2023, accessed July 2023.
9. Contracts for Difference (CfD) payments are funded by a statutory levy on all licensed electricity suppliers, with this cost eventually passed on to households and businesses through their power bills
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16. ONS, “[Earnings and hours worked, industry by four-digit SIC: ASHE Table 16](#)”, 2022, accessed July 2023.



Energy UK is the trade association for the energy industry with over 100 members - from established FTSE 100 companies right through to new, growing suppliers, generators and service providers across energy, transport, heat and technology.

Our members deliver nearly 80% of the UK's power generation and over 95% of the energy supply for 28 million UK homes as well as businesses.

The sector invests £13 billion annually and delivers nearly £30 billion in gross value - on top of the nearly £100 billion in economic activity through its supply chain and interaction with other sectors. The energy industry is key to delivering growth and plans to invest £100 billion over the course of this decade in new energy sources.

The energy sector supports 700,000 jobs in every corner of the country. Energy UK plays a key role in ensuring we attract and retain a diverse workforce. In addition to our Young Energy Professionals Forum, we are a founding member of TIDE, an industry-wide taskforce to tackle Inclusion and Diversity across energy.

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We employ 450 staff, including more than 300 professional economists, industry experts, and business editors—one of the largest teams of macroeconomists and thought leadership specialists. Our global team is highly skilled in a full range of research techniques and thought leadership capabilities from econometric modelling, scenario framing, and economic impact analysis to market surveys, case studies, expert panels, and web analytics.

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