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‘Great British Energy’ and the challenges in meeting Britain’s ambitious renewable energy targets

By Edward Foyle

Britain’s renewable energy targets

Britain’s newly elected Labour government has pledged to make Britain a clean energy superpower by doubling onshore wind, tripling solar power and quadrupling offshore wind by 2030. This growth will be supported by the creation of a new ‘Great British Energy’ which will receive £8.3 billion of government investment in the next five years and which published its founding statement on 25 July 2024. Britain is not alone in seeking to develop large-scale renewable energy projects and reduce its need on fossil fuels: global spending on renewable energy projects tripled in the four years from 2019, from a little over US$500 billion in 2019 to approximately US$1,750 billion in 2023.[1] Given the exponential rate at which the industry has already grown in the UK and the competing demand for renewable projects internationally these are hugely ambitious targets.

Great British Energy’s founding statement declares that it will help to achieve these targets by performing five functions:

1. Project investment and ownership: Great British Energy will invest in and own clean power generation assets with a particular focus on investment in projects using less developed technologies like floating wind and carbon capture.
2. Supporting project development, including through a partnership with The Crown Estate. This support could include, for example, carrying out land assessments, environmental surveys and securing planning consent and grid connections, allowing the private sector to focus on construction works.
3. A Local Power Plan, which will develop smaller- and medium-scale renewables projects (presumably such as onshore wind and solar) at a local level, easing the burden of national energy transmission.
4. Improving the supply chain within the UK, such that key clean energy projects will be built using domestic manufacturing and supply chains.
5. Exploring how Great British Energy can work with Great British Nuclear (a body established in March 2023 to provide specialist capability and skills to meet the government’s nuclear programme).

This article briefly considers some of the challenges the Labour government and Great British Energy will meet in seeking to meet those targets, both in terms of projects’ original costs and some of the issues that can result in renewable energy projects having cost overruns.

Project costs

Renewables projects continue to be expensive and the market challenging. In the UK’s last offshore wind auction, in September 2023, not a single developer was attracted by the maximum guaranteed price of £44 per megawatt-hour (MWh). In response, the last British government was compelled to increase the maximum guaranteed price by 66%, to £73 per MWh, in Allocation Round 6, the results of which are expected by early September 2024. Another high-profile indication of the challenging market conditions is Ørsted’s cancellation of two large offshore wind projects off the New Jersey coast in October 2023, leading to a US$4 billion write down.

Financing is one of the key issues impacting projects' costs. A renewable project's cost profile, particularly that of solar and wind projects, is front loaded: project development is expensive, but once the project is operational its fuel is free of charge. Renewables projects are debt financed, with the majority of the players in the renewables industry not having the same robust balance sheets as companies in the oil and gas sector, for example. Financing costs have therefore critical to the overall success of renewable projects and it is no coincidence that the exponential growth of renewable energy in the last 15 years has occurred in a low interest rate environment. Low interest rates enabled developers to bear the high upfront costs and as manufacturers gained more industry experience and technology became more established those upfront costs decreased, making projects more viable. Higher interest rates inevitably mean higher project costs.

Construction costs have also increased in recent years. As inflation has soared, contractors have been required to bear the increased labour costs and surge in costs of materials – such as steel, polysilicon (a key material in solar panels) and oil (essential for transportation costs) – caused by supply constraints resulting from COVID lockdowns and the war in Ukraine. Although inflation may be reducing, many of these costs remain high. Contractors often have to provide a fixed price for their works in order to provide costs certainty to lenders and therefore have to account for risks such as these in their pricing.

Great British Energy's mandate to invest in and own renewable projects might help the industry move away from a reliance on debt financing and the impact that this model has on projects' costs. However, the government's energy targets are so large that *Cornwall Insight*[3] estimated that an additional £48 billion would be required to meet its targets. Great British Energy's £8.3 billion backing may therefore be insufficient to make a significant move away from the industry's reliance on private sector debt, such that projects' costs would remain high.

The risk of cost overruns

Renewable projects also have a significant risk of cost overruns. Unsurprisingly, the Queen Mary University's 2022 Future of International Energy Arbitration Survey Report identified design & performance issues and supply chain issues (including the pricing of materials) as the two major causes of disputes on renewable energy projects. These two issues will continue to pose significant challenges.

Many renewables projects are first-of-their-kind projects, using cutting-edge technology that is often untested. Failures in the technology or designs can have drastic results on a project's costs and schedule. Although base technology may now be more established and more reliable, the increased scale and ambition of projects required to meet the government's targets – and Great British Energy's specific mandate to invest in and own projects using developing technologies – means that technical challenges and the risk of cost overruns and delays will always be present. For example, offshore wind farms are now located further from shore in deeper waters, presenting new installation challenges for the foundations, turbines and cabling, and with larger components, creating manufacturing challenges for the turbines and monopile or jacket foundations. Floating offshore wind and solar projects create numerous additional challenges.

Renewables projects have large and complex supply chains, many – such as offshore wind – also have significant interface risks. These projects also bring numerous disciplines, contract packages and parties together. A stretched supply chain brings the risk that suppliers may over commit and ultimately be unable to deliver equipment/components on time which may significantly impact (or halt) progress. In addition, given the rate at which the market is growing many of the parties will be new participants in the market and therefore prone to experience issues with project delivery. Each interface between these parties and disciplines presents a risk of default, which may have a significant impact on project delivery and cost. Supply chain issues will be a risk for even the most straight forward of projects, such as the planned development in onshore wind and solar, which could be delayed if equipment and parts are not delivered or are not of the required quality. Great British Energy is therefore right to identify that significant investment will be needed in supply chains within the UK. However, supply chains on all major projects are international in nature. Great British Energy's aim that projects are built using domestic supply chains therefore appears ambitious.

A further separate challenge is upgrading the grid to receive and transmit additional power, which will require a network to extend to locations where projects are based and run east to west (to receive power generated offshore). The National Grid has announced a £60 billion investment programme over the next five years to improve the network. A failure to complete these works in good time may, in turn, prevent completion of renewable projects, causing delays and further cost overruns.

Conclusion

There are many factors for Great British Energy to consider when investing in projects. Key issues for it to consider when investing in projects will be whether it is willing to finance projects itself and whether it is willing to bear itself any of the risks of project overruns (only some of which are considered in this article). Project costs might be reduced if Great British Energy is willing to take on some of the risks of costs overruns, such as certain supply chain risks, rather than adopt the debt financing approach of passing all risks down the contractual chain, which can result in higher original project costs. If contractors and developers are not prepared to assume these risks themselves, given the high demand that will be placed on the supply chain through the sheer number of projects (both in the UK and globally), Great British Energy may find that it has no choice other than to assume many of these risks.

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Footnotes

[1] Analysis by JP Morgan, referenced in *The Financial Times*.

[2] *https://www.gov.uk/government/publications/introducing-great-british-energy/great-british-energy-founding-statement*

[3] *https://www.cornwall-insight.com/press/solar-and-wind-to-account-for-just-44-of-power-generation-by-2030/*