The Greatest Generation: How Public Power Can Deliver Net Zero Faster, Fairer, and Cheaper

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February 2024

common-wealth.org
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The energy transition, and with it the prospects of building a resilient and collectively prosperous UK economy, is at a critical juncture. The vast majority of investment needed to decarbonise the power sector has not yet been undertaken: the Climate Change Committee’s Sixth Budget report on electricity generation finds in its “balanced net-zero pathway” that the UK will need to have in total installed 125GW of wind and 85GW of solar by 2050. Meanwhile, the UK has currently operational 30GW of total wind capacity and 15GW of solar, with a further 18GW of offshore wind capacity, 9.7GW of onshore wind and 33GW of solar in the pipeline by 2050, subject to permitting approvals. From the Renewables Obligation Scheme to the current Contracts for Difference (CfD) subsidy regime, the state has been essential at every turn to facilitating the construction of the UK’s existing renewable generation capacity. Yet, the role of the state in power sector decarbonisation has to date been structurally circumscribed to employing its market-making and enforcement capacity to indirectly backstop private investment in renewable generation and auxiliary infrastructure, abstaining from direct investment and undertaking itself.

This division of labour between the state and private capital leaves the coordination of power sector decarbonisation to the market, meaning it is premised on private and asynchronous decision making to undertake fixed capital investment and broader economic activity based fundamentally on expectations of profit. The expected profitability of each project necessary for system-level renewable buildout must satisfy its respective investor, based on their appetite for risk, their subjective assessment of the risks, and furthermore in comparison with alternative projects where they might otherwise deploy their capital elsewhere all over the world. This report stresses that renewable generation faces constraints on consistent profitability in liberalised wholesale markets such as Britain’s and that fragmented decision-making hinders necessary investment coordination. Moreover, private investment faces the structural constraints posed by the liquidity preference.¹ These constitutive elements of market coordination hinder a coherent renewable system-level approach to investment which is necessary to simultaneously deliver the constitutive elements of an effective and just transformation of the electricity system:

→ Rapid, comprehensive and coordinated investment in renewable generation at the required pace and scale irrespective of profitability;

→ maintaining price and macroeconomic stability;

→ and building common green prosperity.

The result of the present systemic architecture of the power sector: a power system transition that is slower, more expensive, less secure and more carbon intensive than is necessary.

Ultimately, the buildout of renewable energy will be paid for by the public, whether through public subsidy, higher consumer energy bills to for-profit companies, or public direct investment. Thus, the question is not “who will pay for it”; the public always will. The question is how we want to distribute that payment, and by extension how we want to use the state, its singular risk bearing capacity, and public money.

Establishing a systemic role for public enterprise in delivering clean generation targets resolves a fundamental impasse posed by the power sector’s architecture in the face of the decarbonisation imperative: in a fragmented system, centred around a liberalised wholesale market, it is difficult, if not impossible, to rely on private investment to rapidly roll out a diverse and intricate program of fixed capital investment at a huge scale without heavy state intervention. Especially not in unison with fulfilling the mutual imperative to keep the cost of electricity — as a core economic input and human right — as low and as stable as possible. Unlike the for-profit corporation, public enterprises face no need to pay dividends to shareholders; benefit from structurally lower cost of capital — a cost to which renewables projects in particular are acutely sensitive; and are capable of demanding much lower returns in excess of these costs as a condition for going ahead with socially-needed investments. Structurally unimpeded by the profit imperative, a publicly-owned energy company would be able to more rapidly, strategically and decisively invest in renewable generation while delivering lower costs at both project and system wide levels.² Precisely in delivering comprehensive generation investment at the lowest possible cost and consumer price, ambitious public enterprise will have a systematic effect in positively reshaping the currently dysfunctional wholesale market — which was created for an era of fossil fuels.

In this report, we demonstrate the systemic role a public green energy generating company can and should play as the vehicle for delivering an effective and just transformation of the electricity system by comprehensive direct investment in and operation of renewable generation capacity at scale. We propose a mandate for this new company, detail the necessary objectives of this firm for delivering key targets, set out the scale of investment and source of funding (a combination of on and off the balance sheet financing) and quantify the benefits this proposed company will deliver relative to the status quo of subsidised or derisked market coordination. We

² In both global and historical context, public enterprises and public financial institutions may in practice set internal hurdle rates in order to meet various policy and political demands, for example to introduce market-like efficiency or financial discipline imperatives. In this report, we do not present an ideal type of public enterprise, meaning we are concerned with discussing a practical proposal for a real public institution. However, we do stress that as an institutional form, public enterprise may be designed and operated to act, especially concerning investment-decision-making at the level of system need rather than project-level returns, with greater flexibility than private for-profit enterprise.
also detail how immediate deliverability of clean generation investments by a public clean generation enterprise can take place, sketching out a division of labour between public and private capital where direct public investment can still rely (especially in the near term) on private capacities, such as physical project development through competitive public procurement processes. In a previously published companion report, we demonstrate the necessity of bringing the transmission system back into public ownership to deliver the requisite new generation for a net zero grid.³

**Designing Great British Energy**

This report is in direct discussion with Labour’s proposed Great British Energy (GBE) and now revised Green Prosperity Plan (GPP), putting forth a clear vision of and criteria that the institution must meet in order to deliver the constitutive elements of a just and effective transformation of the electricity system. Therefore, we refer to the proposed public clean generation enterprise as Great British Energy (GBE). However, our analysis of the deficiencies of the status quo clean generation investment regime as well as our proposal for and evidence supporting a muscular public clean energy company are not dependent upon a Labour government. A clean power company designed and empowered as we chart in this report is structurally necessary to most effectively deliver on the UK’s ambitious power sector decarbonisation targets.

As a public energy company, a GBE-style vehicle can undertake a broad swath of activities and investments such as storage, transmission, flexibility and green hydrogen. This paper focuses on the importance of establishing a public enterprise to undertake the majority of necessary clean generation investment for meeting the UK’s power sector targets and Labour’s mission of turning Britain into a “clean energy superpower”, and argues that GBE should assume this function. We see storage capacity as a key technology GBE should invest in as part of both a balanced portfolio approach and systems-level approach to power sector decarbonisation (we explain both concepts at length in this report). The focus of our attention in this report however, is in raising the limits of the current investment regime for renewable generation capacity and our main recommendations around chartering and capitalising a public energy company are aimed to provide a renewable generation investment pathway, initial capitalisation and institutional architecture to indicate necessary scale and institutional robustness to meet both decarbonisation and “energy superpower” ambitions. Therefore, detailed investment plans, including balance and sequence of investments (including between generation and storage) is not our primary concern. It is Common Wealth’s view that public enterprise can and should take on other functions and activities in the energy and electricity sector. In a forthcoming publication, we will chart a full systemic view

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of a transformed power sector architecture, moving towards both public ownership and functional re-bundling of the system and will continue to develop proposals for GBE activities and investments. We will publish a second companion report centred on expanding community power and its relationship to GBE. And, we will later put forth detailed plans towards power sector decarbonisation investments.

**Mandate and Form:** to serve as the investment engine necessary to deliver generation capacity targets along and to support broader government policy goals of maintaining price and macroeconomic stability and building common green prosperity in the UK. The goal — matching the scope of Labour’s “clean energy superpower” mission — should be to create a national champion akin to France’s EDF or Denmark’s Ørsted by 2040. GBE should be established as a publicly owned non-financial corporation which has a defined mission and mandate but which operates independently to government.

**Ambitious investment:** Given the existential stakes of decarbonisation of the electricity sector and the instrumental importance of developing a public clean generation enterprise to deliver this transformation, we recommend that a new government set up a public energy generator in its first year. The public company should deliver an ambitious direct public investment programme; the TUC have suggested up to £40 billion of direct investment up to 2030 is needed to put it on the path to becoming a clean energy champion. Following an initial capitalisation of £8.3 billion provided by Labour’s Green Prosperity Plan, further capitalisation funding should come from a combination of two main sources:

- Direct government injection, either by Treasury borrowing, or tax-funded.
- Support from off-balance sheet financial institutions such as the UK Infrastructure Bank, which has a mandate to invest in clean energy infrastructure up to £22 billion; drawing on the Crown Estate’s £16 billion portfolio, which as manager of the UK’s seabed — except Scotland — already invests significantly to run leasing rounds and derisk the process for developers, and can be directed to invest in public sector renewable development; and, if they form the next government, Labour’s proposed National Wealth Fund (with an initial public capitalisation of £8 billion).

**Essential Objectives**

Public enterprises are shaped by their governance, structure and resources. For a public generation company such as Great British Energy to deliver on the above mandate, its design and capitalisation must be tailored to fulfil the following objectives:

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1 Coordinate and accelerate decarbonisation of electricity, delivering long-term energy security:

A public clean generation enterprise would be mandated to directly invest in the sprint to a clean power target (2030 for Labour; 2035 as currently defined) and play the leading role in delivering a net-zero system by 2050. Investment should be in a mix of both mature and frontier technologies. This also can be done, especially in the early stages, through contracting private developers to physically build public generation assets through competitive public procurement processes. A systems-functioning approach that considers investments based on their necessity to meet system level decarbonisation and grid functioning needs rather than project-by-project profitability logic to investment is critical.

2 Minimise project costs and build public value:

Investment in future renewable buildout will be structurally cheaper if done through public enterprise due to it enjoying significantly lower cost of capital than private developers. Superior consequences for public sector net worth result from bringing assets onto the public balance sheet in exchange for public expenditure, relative to prevailing subsidy and derisking approaches. Moreover, freed from the need to pay dividends, public enterprise is a vehicle through which to cross-subsidise projects and recycle revenues into further capital investment or further consumer electricity cost reductions as opposed to dead weight loss of dividend extraction.

3 Keep electricity bills low, stable and resilient to shocks:

We chart immediate macroeconomic benefits of public ownership of existing generation capacity — in driving both growth and disinflation. Public ownership of generation will not only deliver a cheaper transition, but also offers the potential to socially set electricity prices — especially once capital investment costs are recouped over time, which would allow for capturing technology cost declines and flexibility of pricing to meet both resilience and social benefit needs. GBE — if developed at scale — can powerfully contribute to this, though as previously argued, this is a future we believe a fully integrated, publicly owned energy system is best equipped to deliver.

4 Support a just transition:

The private development of the energy system transforms what could be a shared infrastructure — and common resources — into a new site for extracting and concentrating financial wealth. The UK has made this mistake before. The political choice to privatisate the development of the UK’s North Sea oil and gas resources — in
contrast to the public-oriented approach of countries like Norway—meant hydrocarbon wealth was not converted into durable public benefit. A just transition is not only about ending extraction but putting in place the foundations of an energy democracy: a system that is owned by and accountable to the public, and that organises access to affordable power as a right not a market privilege. This necessarily involves moving beyond corporate ownership of the energy system toward genuine democratic control. An ambitious version of GBE can ensure when it comes to developing the wealth of the renewables revolution, we do not make the same mistake again.
1 Introduction: A Power System Architecture in Structural Crisis

This chapter outlines the scale and the contours of the demands of the transition to net zero. We clarify the core argument of this report, which is not that the privatised profit-centred model over-compensates investors for their risk, but that it presents an obstacle to the specific combination of investment challenges at hand. Rather than dismantling this obstacle, many commentators propose to surmount it at the expense of billpayers; we question whether this approach will ultimately be effective at delivering necessary investment.

Our argument is that direct public investment and ownership — undertaken according to system-level need, and without strewing the resulting assets across countless isolated balance sheets — neutralises this trade-off. In light of electricity’s systemically significant role as an essential economic input, we note the macroeconomic merit circumventing it.

Electricity is the linchpin of delivering the energy transition and to securing broader economic goals. In 2022, electricity generation accounted for 16 per cent of the UK’s annual carbon emissions, with fossil gas fuelled power stations still meeting approximately 40 per cent of demand.5

Figure 1.1 UK Electricity Production by Source

![UK Electricity Production by Source](image)

Source: BEIS Digest of UK Energy Statistics

5. The fraction of electricity generated from gas varies in real time depending on several factors, including e.g. wind and sun conditions on a given day. This figure represents a long-running average, via “Analysis: Why UK energy bills are soaring to record highs – and how to cut them”, Carbon Brief, 12/08/22, [https://www.carbonbrief.org/analysis-why-uk-energy-bills-are-soaring-to-record-highs-and-how-to-cut-them](https://www.carbonbrief.org/analysis-why-uk-energy-bills-are-soaring-to-record-highs-and-how-to-cut-them)
Decarbonisation of the power sector is of structural significance to wider decarbonisation of the economy and building economic resilience. First, decarbonisation of transportation, industrial production and buildings is largely reliant on electrification, which will entail an increase in demand for electricity to meet economy-wide deep decarbonisation. Indeed, the Net Zero Strategy assumes electricity generation may more than double from 2019 levels by 2050, to between 610TWh and 690TWh. Such demand must be met by further increased clean capacity.

Second, because electricity is a core economic input across the economy, as well as a fundamental right and requirement for wellbeing and participation in society, maintaining low and stable prices for electricity is imperative for maintaining macroeconomic stability, especially in the face of the potential shocks posed by a context of geoeconomic turbulence and the effects of locked in climate destabilisation. In the example of the recent cost-of-living crisis, energy input costs are estimated to have contributed an extra percentage point to year-on-year CPI inflation at its peak, beyond energy’s direct contribution and the second-round wage effects. To this effect as well, maintaining the lowest and most stable possible prices for electricity will be key to supporting a green industrial strategy in the UK.

The electricity sector suffers from structural problems that are difficult to reconcile with orchestration of a rapid and comprehensive green transformation of the sector without a systemic role for public enterprise in delivering investment. As Common Wealth discusses at length in our report, “A Wholesale Transformation: Evaluating Proposals for Electricity Market Reform”, the UK electricity system is fully privatised and highly fragmented, reliant on the price mechanism and profit imperative at the project level to coordinate the service provision and investment of heterogenous private actors among and across generation, transmission, and distribution. Through regulation and subsidy or derisking regimes, the state attempts to constrain, marshal, but not force the behaviour of fragmented market actors, ultimately leaving to the profit imperative the decisions to invest or undertake broader economic activity. This structural reliance on fragmented private investment leaves the necessary system-wide transformation vulnerable to private uncoordinated decision-making based on project-level profitability. It is even more difficult to square this with the mutual imperative to minimise and stabilise electricity costs for end users — particularly

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without public subsidy or without complete displacement of the wholesale market such as through a public monopsony buyer to mitigate renewable-specific risks with respect to profitability.

In this report, we do not claim that profit is not a reward for legitimate risk on the part of private actors. While in a fundamental sense we consider the imperative of profit maximisation to be ill-suited to a sector tasked with the delivery of a fundamental human need at the lowest cost, in what follows our focus is on demonstrating that the current power sector architecture poses structural barriers to investment, which must be undertaken rapidly, comprehensively and with proper sequential coherence across generation and transmission to meet decarbonisation targets.

Market coordination is structurally ill-suited to simultaneously deliver the constitutive elements of an effective and just green transformation of the electricity system, including:

- Rapid, comprehensive, and coordinated investment in renewable generation;
- Maintenance of price and macroeconomic stability through low prices for electricity; and
- A future based on collective green prosperity.

In this report, we demonstrate the structural issues inherent to delivering power sector decarbonisation through private investment. We then demonstrate how a public renewable generation company can resolve these issues and provide comparative operational benefits by undertaking comprehensive and rapid direct investment in clean generation capacity and operating such capacity at systemic scale. We evidence the financial and operational benefits of a public generation company compared to private (and fragmented) ownership in the sector. We then sketch an institutional design for the enterprise, addressing capitalisation, investment, and high-level governance concerns. In so doing, we focus on renewable generation investment, and our vision for GBE’s role in undertaking it and do not emphasise or propose clear investment plans concerning the balance of investments across technologies, including storage, nor in their sequencing. However, we see a clear role for GBE to invest in storage capacity as part of a systems level approach to investment and will publish proposals on indicative investment plans for GBE to complement this report’s focus on its core function in investing in generation and necessary institutional architecture and initial capitalisation programme.

The creation of a public renewable generation company need not foreclose direct private investment in generation. However, this report stresses that a public renewable generation company must be specifically chartered to serve as the investment engine needed to deliver generation capacity targets across all technology profiles, which inherently entails investment and operation of generation capacity at scale. Such a potential transformation within the sector raises further questions around the evolution
of power sector architecture and public institutional arrangements. We stress that the power sector architecture and public institutional arrangements are already in flux in the face of the decarbonisation imperative and broader dysfunctions in its systemic design.

Ultimately, this report is primarily concerned with demonstrating that creating and empowering a public generation enterprise such as GBE (if pursued with ambition and scale) is the best answer to the question of how to deliver the aforementioned constitutive elements of an effective and just transformation of the electricity system: by divorcing investment decision-making from the profit imperative and delivering such investment at structurally lower cost. Further questions concerning the evolution of the power sector architecture — such as institutional arrangements and wholesale market redesign — ultimately flow downstream from how robust this institutionalisation will be, in terms of its mandate and whether its capitalisation and design support the institution’s delivery of it.
Figure 1.2  Benefits of Public vs Private Power

<table>
<thead>
<tr>
<th>Fully Privatised Energy Generator</th>
<th>Publicly Owned Energy Generator*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Costs passed on to households and businesses, while energy generators reap profits</td>
<td>Able to control prices and keep bills down</td>
</tr>
<tr>
<td>Profits extracted for private gain</td>
<td>Profits reinvested into new capacity</td>
</tr>
<tr>
<td>Offshoring supply chains, hollowing out local infrastructure</td>
<td>Growth of domestic manufacturing, local supply chains and economies</td>
</tr>
<tr>
<td>Market to set pricing signals, leading to stop-start process</td>
<td>Planned and smooth investment in energy transition</td>
</tr>
<tr>
<td>Dependence on foreign capital (private &amp; state)</td>
<td>Self-sufficient — able to negotiate a fair deal when in partnership</td>
</tr>
<tr>
<td>Reliance on imports of good, skills and intellectual property</td>
<td>Able to export goods, skills and intellectual property</td>
</tr>
</tbody>
</table>

Source: Graphic inspired by Table 1 in Markova and Minio-Paluello, “Public Power: turning it into reality”, TUC, https://www.tuc.org.uk/research-analysis/reports/public-power-turning-it-reality
Note: *Based on experienced of publicly-owned generation companies in Denmark, France and Norway.
This chapter explains the obstacles to generating the investment necessary to the transition to clean power generation. We focus specifically on the UK context and its Contracts for Difference (CfD) scheme, but our arguments have broader relevance insofar as the scheme is the most elegant private-centric response to universal applicable investment obstacles, hence the rapidly growing adoption of CfD schemes and similar private renewable investment derisking programs premised on ex ante fixed price tools internationally and across renewable technology profiles.

Fundamentally, the key condition of private investment is confidence on the part of each investor that their respective project will be individually sufficiently profitable to merit tying up their capital in it. While realised profitability is the headline criterion, the other elements — that the investor has confidence in that profitability (depending on both their risk appetite and their subjective assessment of the risks); that it be sufficient to merit investment (including relative to alternative investment opportunities worldwide); and that it is assessed at the level of the individual project — are also decisive.

With this in mind, the purpose of this chapter is to lay out a functional, rather than egalitarian, critique of the profit imperative as it applies specifically to renewable energy generation asset: less as a superfluous layer of financial extraction that can be stripped out, and more as a logic of investment decision-making that can become dysfunctional, especially under conditions of turbulence and uncertainty — especially when concerning long time horizons.

We begin by explaining how the oft-celebrated CfD scheme was aimed at satisfying these criteria in the context of the specific challenges thrown up by the idiosyncrasies of renewable technologies. Specifically, the combination of their intermittency and their specific cost profile leads to merchant price risk and price cannibalisation in wholesale spot markets (we explain both concepts in the body of this chapter). This inability to reliably capture any of the social surplus of their low cost makes their revenue outlook highly uncertain and therefore discourages investment. Price-fixing in advance of investment via CfDs and/or Power Purchase Agreements (PPAs) rectifies this revenue uncertainty. This technique of mitigating revenue risk by eliminating price risk was relatively at incentivising investment until 2023’s Allocation Round 5, when it collided with the sudden emergence of risk on the cost side.

The core difficulty, elaborated in the following section, resides within the dual role that the CfD strike price plays both in securing investment commitments
ex ante and in recouping project costs ex post, which can become increasingly untenable when turbulence casts uncertainty upon the cost side of the profitability equation — uncertainty that will be resolved by the time a project is eventually operational, but which at the much earlier moment of the investment decision must be capitalised as a hefty risk premium if the decision is to be favourable. As a result, the distributional struggle between producer and consumer intrinsic to all prices — let alone a price as supremely important as that of electricity — becomes steeper than otherwise. Investors facing increased risk stipulate higher hurdle rates, that is they demand higher profits, delivered by higher prices. Our argument is that we should wherever possible avoid calcifying momentary risks into decades-long price premia.

Given the system-level nature of our investment needs, the CfD programme has recently expanded beyond intermittent renewables to include dispatchable technologies. The rationale in this case, as opposed to the price cannibalisation problem, is that if the system’s electricity needs are to be provided largely but not entirely by intermittent renewables, then the value of dispatchable technologies to the system also diverges from the marginal price that it commands in spot markets at the specific instances it is called upon.

The Climate Change Committee’s Sixth Budget report on electricity generation finds in its “balanced Net Zero pathway” that the UK will need to install 125GW of wind and 85GW of solar by 2050. Meanwhile, the UK has currently operational 30GW of total wind capacity and 15GW of solar, with a further 18GW of offshore wind capacity, 9.7GW of onshore wind and 33GW of solar in the pipeline by 2050, subject to permitting approvals. If we take the balanced pathway as a benchmark it is clear that the majority of necessary investment has yet to be built and must be built on a much more rapid timeframe than existing capacity came online, making the necessary investment sprint different in kind than previous achievement of clean generation capacity. The current renewable generation and auxiliary infrastructure investment regime in the UK — which structurally relies on private investment — is failing to deliver fixed investment in generation, interconnection, and transmission capacity at a pace and scale, and with the coherent sequencing, necessary to meet the UK’s existing 2035 clean power target, let alone Labour’s more ambitious 2030 goal.

11. DUKES and National Grid ESO Transmission Entry Capacity Register. We exclude projects that have not applied for planning permission, since they are often a poor proxy for genuine investment appetite.
This regime is insufficient in terms of its ability to:

- facilitate robust coordination of investment;
- decisively and comprehensively deliver investment;
- appropriately employ state capacity to achieve all three aspects of effective just transition.

In this chapter, we are concerned with the structural issues related to relying on private investment to meet these targets, and by extension the structural necessity of public enterprise to deliver the needed investment. In a later chapter we evidence the financial and further operational and macroeconomic benefits of direct public investment in comparison to private investment in clean energy generation, including the cost of fiscal subsidy for private investment.

**Coordination**

Moving from fossil-fuelled generation to 100 per cent clean electricity generation requires not only an enormous buildout of clean generation capacity but also of other physical components of the grid at unprecedented speed and scale. Due to inherent differences between renewable and fossil-based generation and distribution of energy, in physical infrastructure terms decarbonisation of the power sector is not a matter of directly swapping carbon infrastructure with a direct clean counterpart: decarbonisation requires building more infrastructure in terms of capacity, interconnection, transmission, distribution and storage, following a different spatial pattern than existing fossil fuel generation capacity and auxiliary infrastructure. Throughout this process — which will be simultaneous with the electrification of other activities and sectors and thus increased overall demand — the grid must be balanced.

In short, this is not a process of merely adding generating capacity. Instead, although it is straightforward to measure in both physical and monetary terms the absolute levels of investment in clean generation and supporting infrastructure needed, critically this investment must be actively coordinated and the overall transformation of the power system proactively planned and strategically placed. Failure to do so will mean that investment or delivery bottlenecks in one domain will prevent investment and delivery in another domain, with knock-on consequences.

For example, investment in expanding clean generation capacity must be synchronised with proactive investment in the grid and interconnection infrastructure in order for capacity to be accepted onto the grid in the first place. Already, underinvestment and a lack of proactive coordination of the grid has led to bottlenecks holding back renewable deployment, which will only worsen as we move to the investment sprint necessary to deliver power sector decarbonisation goals. Carbon Tracker research shows investment in Britain’s transmission system has fallen since
2017, leaving the grid unable to reliably transmit existing clean electricity generation, with repeated “congestion events” that pause renewable generation in favour of fossil gas generation to meet real time grid balancing needs. Likewise, investment in generation capacity must be coordinated with the expansion and maintenance of capacity in input supply chains, including labour, in order to physically build capacity in line with targets. Moreover, there are choices to be made concerning, for example, relative reliance on storage as opposed to excess generation capacity to meet grid balancing and demand in the context of the inherent variability of renewable generation that no actor is currently in a position to make, let alone, effectuate through investment.

The fragmented and privatised nature of the present system increases the number of sites for transactional conflict and coordination breakdown. For more detail on the vertically disintegrated structure of Britain’s electricity system, see our “Explainer: How Britain’s Energy System Works — and Why It Needs an Overhaul”.

Delivering Investment?

The privatisation of electricity generation — which includes current state abstention from direct public investment — poses challenges for delivering investment in clean generation capacity to meet decarbonisation targets. In a companion paper we have previously examined the challenges posed by privatised distribution and transmission networks.

At the project level, relative to fossil fuel-based generation, renewables have different cost and risk, and therefore profitability, profiles in liberalised wholesale markets such as Britain’s, even as the levelised cost of electricity (explained in footnote) which largely measures asset level costs for utility scale renewables has dramatically declined—a decline which was realised through the support of public subsidisation in global context that facilitated remarkable reduction in technology costs. Although utility scale renewable energy generation poses very low and stable ongoing operational costs, building it poses high upfront capital investment costs, especially relative to fossil generation. Unless capital investment is financed with cash — which is uncommon — current revenue streams must service debt alongside shareholder

14. Levelised cost of electricity (LCOE) is a financial measurement tool used to assess and compare alternative methods of electricity generation against one another from a cost perspective. Simply put, it refers to the average cost of building an operating an electricity generating asset against the per unit total of electricity it is expected to generate across an assumed lifetime. In the context of wholesale markets, one may also understand the LCOE as the average minimum price at which the electricity generated by the asset is required to be sold in order to recoup the total costs of production over its lifetime.
dividends if undertaken by a for-profit corporation. Private renewable generators in inherently volatile wholesale power markets thus face substantial “merchant-price” risk due to price fluctuations, as low prices impede their ability to fulfil debt obligations and their internally set level of investment returns — we quantitatively discuss private hurdle rates on renewables and the cost of capital at length in a later chapter.

Such volatility does not preclude profitability. As Common Wealth details in a previous report, renewable generators operating under the Renewables Obligation programme — which accounts for the majority of the UK’s existing renewables projects — experienced windfall profits in the context of recent wholesale market turbulence.\textsuperscript{15} Under the Renewables Obligation Scheme (closed to new entrants since 2017) generators receive the value of their electricity as determined by the wholesale market, plus an additional subsidy. However, merchant price risk is enough to stymie investment.

Moreover, renewable generators in wholesale markets are structurally vulnerable to the “revenue cannibalisation effect”, whereby periods of high output and low demand produce very low marginal prices for variable renewable electricity, causing extremely low or negative market prices.\textsuperscript{16} This is a characteristic of variable renewable generation in wholesale markets, especially without a high degree of grid storage capacity, that would not be resolved even if Britain were to restructure its market away from marginal pricing, which is designed such that the prices of electricity is largely driven by fossil gas generation, or by creating a separate clean power market.\textsuperscript{17}

In sum, for-profit utility scale renewable generation is highly sensitive to capital costs, merchant-price risk, and the revenue cannibalisation effect. Indeed, as it stands private investment in even proven, mature technologies such as offshore wind and solar require ongoing public support to overcome merchant price risk in wholesale markets, typically through tools that provide a guaranteed price or otherwise employ public funds to furnish stable profitability.

The UK currently relies on the CfD Scheme for this task. The scheme is a derisking regime that aims to induce private investment by guaranteeing a stable and certain revenue stream through an ex ante fixed “strike price” per unit of electricity backstopped by public guarantee, in turn financed by a levy on retailers.

\begin{footnotesize}
\begin{itemize}
\item\textsuperscript{16} Brett Christophers, forthcoming, \textit{The Price is Wrong: Why Capitalism Won’t Save the Planet}, Verso.
\item\textsuperscript{17} For a full discussion of this point, see Brown, Hayes, Lawrence and Buller, “A Wholesale Transformation: Evaluating Proposals for Electricity Market Reform”, Common Wealth, \url{https://www.common-wealth.org/publications/wholesale-transformation-evaluating-electricity-market-reform}
\end{itemize}
\end{footnotesize}
This scheme should be understood as a sophisticated attempt to use state intervention to reconcile reliance on private investment in renewable generation with the mutual aim of minimising clean electricity prices in the context of a liberalised wholesale power market. While derisking in this policy regime is in theory about absorbing volatility, in practice it is invariably asymmetric, and amounts to a net subsidy, with the state paying private generators for the shortfall between the ex ante fixed strike and wholesale market prices — where payments are publicly administered but financed through levies and higher prices for captured consumers (see Figure 2.2).

Moreover, as Dieter Helm has stressed, through the CfD Scheme, “the state has become the central purchaser of almost all new generation. Generators now compete for contracts from government” which structurally bypass the wholesale market for electricity.\(^{18}\) Put differently, CfDs are essentially indirect public procurement contracts for private renewable generation capacity, and their continued use will likely have transformative effects on the wholesale market. Indeed, if CfDs come to generate the preponderance if not all of the UK’s electricity — as is the status quo plan, although only at the beginning of such a programme with RO assets still comprising the preponderance of renewable generation — this scheme raises serious questions about the future of the for-profit retail supply sector, as the state would organically develop into a de facto if not de jure monopsony buyer of electricity for the duration of those contracts.

\(^{18}\) Dieter Helm, “Ofgem’s supply model is broken”, *Dieter Helm*, 2022, [https://dieterhelm.co.uk/regulation-utilities-infrastructure/regulation/ofgems-supply-model-is-broken](https://dieterhelm.co.uk/regulation-utilities-infrastructure/regulation/ofgems-supply-model-is-broken)
The CfD Mechanism — Success or Second Best?

The question of a central facilitating role for the state in the transformation of the electricity system is clearly not a “yes or no” question. Rather, it is a question of how best to use or develop the state to deliver a just and effective transition. Therefore, it is essential to ask whether the current division of labour between state and private capital — wherein the state abstains entirely from undertaking direct public investment, relying instead on attempting to induce private investment — is appropriate for achieving these ends in general, let alone within legally binding requirements such as net zero by 2050, or the clean power 2035/2030 objective of the two largest political parties.

Although the CfD Scheme has been relatively successful in inducing private investment in renewables capacity, as a regime for delivering the clean capacity needed to meet government targets, it is insufficient, even when functioning as designed. Figure 2.3 below, depicting the cumulative capacity of projects in the National Grid’s Transmission Entry Capacity Register, might appear to suggest that private capital is already demonstrating sufficient willingness to fulfil the investment needs of the transition. Two things remain unclear from this evidence, however. The first the price at which this investment is forthcoming. The second, given that the vast majority of queued projects are in the “scoping” stage, how many of these are more...
than speculative? Given the opacity of the process for charging generators for Grid upgrades, many developers in the US and UK have responded by “playing the table” — submitting speculative projects for transmission connections in the hope that one proves financially attractive. Only a fraction of such projects are subsequently pursued. The “real” size of the queue is therefore potentially overstated, as an index of private capital’s readiness to step forth if only it could be “unlocked”. We further note that this phenomenon also represents distributive conflicts between transmission and generation companies — over the apportionment of upgrade costs — that is itself a downstream effect of vertical disintegration.

Figure 2.3 Generation Capacity in Queue is Behind Transition and Most Still in Scoping Stage
Cumulative generation capacity in transmission entry capacity register (GW)

Source: Common Wealth based on National Grid ESO Transmission Entry Capacity Register

As the CfD auctions currently operate, annual contract allocation auction rounds only indirectly set a capacity target to be achieved each round, the maximum of which is determined by a combination of the government’s set auction budget and the difference between the auction’s guaranteed strike price and a reference price per technology. Critically, the scheme lacks a mechanism to set a floor for renewable capacity to be agreed with each allocation round.

19. “Scoping” status denotes projects where National Grid ESO is “not aware that a planning application has been made” by the developer.
20. Gill Plimmer, “Renewables projects face 10-year wait to connect to electricity grid”, Financial Times, 08/05/2022, https://www.ft.com/content/7c674f56-9028-48a3-8cbf-c1c8b10868ba
22. Attracta Mooney, “Gridlock: how a lack of power lines will delay the age of renewables”, Financial Times, 11/06/2023, https://www.ft.com/content/a3be0c1a-15df-4970-810a-8b958608ca0f
On its own terms, the CfD scheme does not coherently plan the rollout of renewable capacity, both in terms of achieving a targeted overall capacity and in providing sequential or geographic coherence in doing so. Rather, general private investment in renewable capacity is merely backstopped by the state in the hope it is undertaken. Moreover, as we have seen with the recent failure of CfD AR5 to deliver new offshore wind investment, and with for profit-developers likewise abandoning planned CfD offshore wind projects, such as Vattenfall’s withdrawal from its Norfolk Boreas site — rescued five months later by an acquisition by RWE\(^\text{23}\) — this regime for delivering renewable generation capacity is structurally fragile, as the profitability on which private capital depends is a function of a greater set of volatile variables than the CfD process is able to derisk, let alone while maintaining low prices.

### The Failure of CfD AR5

Rapid growth of offshore wind is critical for the UK to meet power sector decarbonisation targets, which in the context of a structural crisis of fossil fuel-dependent wholesale electricity markets — subjecting households to higher prices and volatility — is an acute imperative beyond climate stabilisation alone. On the face of it, the failure of AR5 to secure bids to build offshore wind capacity is one of government improperly executing the scheme amid exogenous shocks to the sector: the overall government budget for the round was £80 million less than the previous year’s auction; the auction featured governance changes that set offshore wind in competition with other established technologies for less funding; and the maximum strike price the government set for offshore wind was widely viewed as not high enough to properly account for the dramatic increase in both interest rates and input costs for developers, eroding their potential profitability\(^\text{24}\).

However, we should also understand the failure of CfD AR5 as reflecting fundamental tensions and flaws in the architecture of both the CfD scheme and the broader structural reliance on private investment that can’t be neatly reconciled with a higher cap on strike price\(^\text{25}\) or higher allocation budget to deliver clean generation capacity targets. Indeed, as Carbon Brief has noted, “The latest round secured just 3.7GW of new capacity — chiefly solar (1.9GW) and onshore wind (1.7GW) ... As well as


failing to secure any new offshore wind for the first time since the CfD auctions began, the round only contracted one third of last year’s total.”

First, this failure reflects a tension between price stability — which is again structurally necessary to prevent merchant price risk and self-defeating price cannibalisation in competitive spot markets that are driven by zero marginal costs — and flexibility to respond to exogenous shocks when relying on private profit-seeking investors whose fixed capital investment decisions are dependent on assurances given far in advance of ex-post changes in circumstance. To quote the credit rating agency Fitch, (our emphasis): “In some markets, wind energy developers and turbine producers operate under fixed-price contracts for their output. However, there are often time lags before costs are locked in.” It is exposure to precisely these “highly volatile prices” that Ørsted emphasised up top when it listed “supply chain and cost inflation” as its number one business risk looking ahead to 2024. If one assumes perpetual low interest rates and supply chain stability, then the CfD Scheme’s structural use of the ex ante guaranteed strike price as both the ex ante criterion for securing private investment and also as the ex-post means of recouping costs is perhaps elegant; yet even its most sophisticated advocates are careful to stipulate a “stable macroeconomic context” as a condition for its efficacy. Faced with the reality that perpetually low interest rates and supply chain stability are far from given, this inflexibility is clearly a planning and delivery risk. Indeed, depending on the organic correlation between these variables, fixing wholesale prices merely amplifies the significance of volatility in the other variables.

Price-setting is a distributional struggle between generator and purchaser – where the generator is financially constrained by the costs they are likely to accumulate – that is thrown up by the separation between the two parties’ balance sheets. The diverging fates of BP’s American and European offshore wind projects provides an instructive example. Reiterating that their “returns thresholds are sacrosanct”, BP have repeatedly emphasised on earnings calls that their offshore wind strategy is focused now on “integration benefits”. This integration is why, while cost inflation

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threatened their PPA-based US East Coast projects, their Germany project was not jeopardised: “it’s about taking the electrons [produced by offshore wind] and providing those into the rest of our businesses, so into refineries, into fast charging with fleets, into hydrogen plants and into trading relationships we have with others. That -- on a stand-alone basis, those would get you 6% to 8% unlevered returns. Of course, if you start to create the integration value with that, the returns go up an awful lot more,”

indeed “well into double-digit returns.” By occupying the position of both generator and purchaser, the two parties’ respective price risk is mutually exactly offsetting, and the distributional struggle between them is entirely subsumed; what wins out in the investment decision is the system-level consideration that offshore wind is still, despite cost inflation, economical to produce. Hence, “as time has progressed, we've focused much more on the integrated opportunities that we see in Europe. And that's why you didn't see us bid in many of the offshore wind rounds in the United States over the recent quarters.”

Second, the AR5 failure points to a tension between maintaining profitability of both private generation and private production of inputs while pushing for lowest possible consumer costs of said generation. Various factors have led to an overall reduction in technology input costs. But precisely because reverse auction models such as the CfD scheme and similar programmes elsewhere in global context have encouraged clean electricity price reductions (that is, in prices paid by electricity consumers), in recent years for-profit developers have pushed their input producers, such as wind turbine manufacturers to reduce their prices, in turn eroding profitability in the supply chain. Thus, the commodity price shocks induced by Covid-19 and the Ukraine war did not hit a robust production network, but one struggling to maintain capacity, let alone expand or respond to shocks. The extent of price increases by turbine manufacturers — 30 per cent by Vestas, for example — were shaped by this exogenous shock, but clearly achieving a productive base able to physically support meeting power sector decarbonisation targets is in tension with attempting to organise the entire chain of production and generation itself around both private profitability and consumer final price reductions, especially with the CfD scheme as the ultimate support apparatus.

32. Ibid.
33. Transmission connection agreements are similarly an example of intra-system distributional struggle between generation and transmission over the apportionment of transmission upgrade costs, subsumable by vertical integration.
Third, and central to this report’s principal arguments, the AR5 failure points to the more fundamental issue with relying on private investment — subject to subjective hurdle rates — to meet generation capacity targets. In terms of the decision to withhold investment by for-profit generators in this round, we do not know if the AR5 administrative strike price would have actually been loss-making — only that it was not sufficiently profitable, with profitability defined by internally set hurdle rates and relative to other market or investment activities towards which private capital might be more profitably employed. Moreover, we should anticipate issues with the erosion of profitability at a project-by-project level regardless of input costs as deep decarbonisation proceeds. As the American climate journalist Robinson Meyer has described well: stoking private investment in renewable generation capacity becomes more difficult as more capacity comes online even through state derisking or other forms of fiscal subsidy, as the most obviously profitable projects are invested in first.37 Further, over time marginal capacity becomes less profitable at a project level, making the realisation of minimum capacity targets difficult through private investment, let alone building system level overcapacity, as private markets tend to resolve the efficiency-redundancy trade-off at the expense of resilient capacity. Indeed, the limits that private hurdle rates pose for delivering sufficient investment in clean generation capacity speaks to the broader deficiencies of a project-by-project approach to investment deliver as opposed to an approach that considers projects against both system-level costs and the priorities of system-level generation capacity delivery.

Appropriate Use and Development of State Capacity?

The current renewable generation investment regime in the UK — both the CfD Scheme in particular but also more generally the power system architecture — attempts to use state intervention to reconcile reliance on private investment in variable and capital-intensive renewable generation with the mutual aim of minimising electricity prices in the context of a liberalised wholesale power market. Critically, by abstaining from direct public investment, the role of the state is structurally circumscribed to employing state resources to backstop or otherwise subsidise private investment in renewable generation. However, it is not clear that these elements can be reconciled to effectively deliver clean generation targets, even as state intervention over time is set to bypass the wholesale market. Therefore, as a baseline, state abstention from direct investment is untenable.

To the extent that reliance on private investment will prevail, there are obvious changes to the CfD structure or operations such as increased strike price, larger subsidisation budgets both for and beyond the scheme, and reform to more directly

set a capacity target for allocation rounds. However, these suggestions inescapably raise the question of at what point fiscal subsidisation is outright direct funding of private investment — that is complete socialisation of risk and privatisation of both control over and revenues from assets. Even partial state equity stakes would be more appropriate, as this would provide partial governance and revenue claims in exchange for employing the state’s risk bearing capacity to subsidise private investment. However, these would still unduly relinquish control of the asset and leave the decision to undertake investment to the profit imperative, which is still costlier over time than outright public ownership, as we detail in a later chapter of this report.

More structurally, given that the CfD Scheme is already set to make the state the de facto central buyer of generation over time, a formal move to a Single Buyer model is one logical possible development that would retain this structuring logic of private investment and state guaranteed revenues but with more flexibility on prices and thus ex post cost recovery. A single buyer would be able to intentionally procure clean capacity targets while leveraging monopsony power with private generators on PPA price as compared to a more robust CfD Scheme, without relying on an inflexible ex ante fixed price.

As Common Wealth discussed in previous research centred on wholesale market reform, an immediate formal move to a single buyer model implies a radical restructuring of the electricity system as it would likely involve the complete nationalisation of the electricity retail sector and elimination of the wholesale market, while leaving generation privatised — both in terms of leaving existing generating capacity in private hands and abstaining from future direct public investment. Yet, as we have previously noted, without a mechanism for delivering public investment, state negotiated prices would still be circumscribed by the need to satisfy private hurdle rates for private generation capacity. Moreover, this model still forfeits long term public control over generation capacity, which as we evidence in a later chapter forfeits a significantly lower cost transition to and ongoing operation of a revolutionarily low marginal cost renewable energy system. And, ultimately, the need to satisfy private hurdle rates does not address the fundamental unreliability of private investment decisions to deliver necessary clean generation capacity.

We already see and can further anticipate a baseline trajectory of increased state involvement in the electricity sector to deliver investment in the transition while seeking to maintain price and broader macroeconomic stability. The division of labour between the state and private capital that currently organises the UK power system architecture leaves decarbonization of the power sector subject to market coordination — premised on private and asynchronous decisions to undertake fixed capital investment and broader economic activity based fundamentally on expected profitability. Therefore, state intervention must not merely increase, but change in kind.
It is not true that taxpayer subsidy of private investment in the electricity system is somehow cheaper for the public than direct public investment and public ownership. Building renewable generation ultimately will be paid for by the public. The question is how we want to use the state, its risk bearing capacity, and public money in order to deliver the constitutive elements of an effective and just transformation of the UK electricity system.

Addressing the structural issues in the electricity sector that we have outlined in our broader body of work on the electricity system requires socialising the following economic functions:

- Proactive planning and coordination of investments and divestments across the electricity system, including generation, storage, transmission, and distribution;
- Undertaking direct investment and maintaining asset ownership of generation and grid infrastructure;
- Eventually, coordination of energy provision.

By socialising, we mean divorcing the function from the profit imperative as the primary coordination or delivery method by having the state assume meaningful and effective authority over delivering it. This would entail direct investment and operation of renewable generation assets at comprehensive scale. This change in the structural architecture of the power sector decisively away from privatisation of generation does not completely foreclose private activity in generation, notably in supply chains and in competitive tendering of project construction, but crucially does not structurally rely on private investment decisions to deliver clean capacity targets.

Alongside the creeping bypass of the wholesale market and development of the state as de facto central buyer through CfDs, the government has already begun to socialise grid balancing and system-wide investment planning function through the nationalisation of National Grid’s Electricity System Operator — which performs real-time grid balancing functions — and announced intention to develop it into a publicly-owned “Future System Operator.” This FSO would have an expanded charge to proactively plan the development of the UK’s electricity and gas systems. However, this socialisation is partial and therefore not wholly effective. The Future System Operator as a public coordination institution is set to be limited in its capacity for foreword planning and coordination of electricity and gas system developments only through providing advice and data to other actors who will make actual investment and divestment decisions and without an enforcement mechanism.38

Moreover, the inability of the FSO or any other actor in the current ecosystem of UK public institutions to undertake direct investments in the electricity system means that critical investments in generation capacity and supporting infrastructure cannot

be guaranteed to be undertaken at all, let alone in the necessary sequence, pace, or geographic spacing to proactively smooth bottlenecks that could stymie or delay further investment by both public and private actors. Public planning and coordination must be able to overcome the fragmentation of ownership and privatisation of investment decision-making throughout the electricity system. Socialising the investment decision function through the capacity to undertake direct investment in renewable energy generation is essential for delivering power sector decarbonisation targets.

In our companion briefing on the grid, we argued for public ownership of grid infrastructure to deliver the critical and strategically directed investment in transmission and distribution needed to decarbonise electricity at pace. Here we propose the creation of a muscular public renewable generation company, mandated to serve as the investment engine necessary to deliver generation capacity targets along with broader goals of maintaining price and macroeconomic stability and building common green prosperity.

Chartering such an institution would overcome the investment obstacles outlined above and socialise the direct investment function and ensure delivery of renewable and flexible generation capacity targets. We have outlined the obstacles to mobilising renewable investment posed by reliance on the private sector, in spite of heavy state intervention. Chapter 3 argues that this can only be reliably overcome by direct public investment — as distinct from mere public financing — undertaken on the basis of system-level need. Alongside a host of financial and macroeconomic benefits outlined in Chapter 4, this will mean an ultimately cheaper transition to, and ongoing operation of, a renewable electricity system.

Figure 2.4 CFD Auction Scenarios Under Cost Uncertainty

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>No investment</td>
</tr>
<tr>
<td>High</td>
<td>Investment goes ahead with high margins at consumers’ expense</td>
</tr>
</tbody>
</table>

This chapter argues that the critical weaknesses in private-centric investment approaches outlined in the previous chapter can be overcome by a public enterprise, on the condition that its mandate, scope, capitalisation and corporate governance structure properly align its investment priorities with the needs of the energy system.

We distinguish our proposal from two other variations of state capitalism. Firstly, we distinguish it from SOEs which operate in overseas markets on the same project-level, profit-driven terms as their private competitors. Secondly, we distinguish public investment of our proposed kind from mere public financing, the latter exemplified by the new UK Infrastructure Bank and Labour’s proposed National Wealth Fund. We nonetheless argue that these public financing institutions can be crucial to capitalising the kind of public enterprise we describe.

Fundamentally, the purpose of public investment in energy is to ensure that the energy system develops to meet society’s needs, not merely to sit on the broader public balance sheet as a source of returns. It can achieve part of this by bypassing the CfD process and selling PPAs at a price determined ex post to recover all relevant costs (real and financial), after the risks attending those costs have been resolved. It can achieve it further by subsuming distributional conflicts between components of the larger system — e.g. vertical integration between transmission and generation would resolve conflicts concerning the apportionment of transmission upgrade costs, of the kind that has exacerbated the connection queue.

In view of the challenges outlined in preceding chapters, a public generation company which can not only directly undertake investments in and operation of generation capacity but functions as the ultimate delivery vehicle of renewable generation investment, must be chartered to play a systemic role in transformation the power sector. Public enterprises face no mandate to pay dividends and benefit from structurally lower cost of capital — a cost to which renewables projects in particular are acutely sensitive — and do not stipulate subjective hurdle rates in excess even of these costs as a condition for going ahead with socially needed investments. A publicly-owned energy company would be able to more rapidly and decisively invest in renewable generation while delivering lower costs at both project and system wide levels — which we evidence in a later chapter.
The existential task of decarbonisation at necessary speed and scale poses unique economic coordination challenges. But the question of how to deliver necessary investment in capital intensive, low or uncertain-profit, bottleneck or otherwise essential industries or infrastructure such as electricity has historically and globally been answered by public enterprise, which functions as “a public option for capital investment.” Compared to private investment, public investment is subject to neither the profit imperative nor the liquidity preference. Therefore, public investment can be undertaken and planned in accordance with more diverse ends, at a more rapid and comprehensive scale, and in a (especially temporally) coherent manner. This holds not only for risky frontier technologies, but also necessary investment across all renewable generation technology profiles, which, as we have discussed above, struggle in wholesale markets without heavy state backstopping. This is precisely why countries leading renewables deployment have electricity generation State Owned Enterprises (SOEs) and why many SOEs or former SOEs feature heavily in global renewable generation markets.

For example, as We Own It documents, Norway’s Statkraft is Europe’s largest renewable energy producer, while Sweden’s Vattenfall is one of Europe’s largest producers of electricity and heat; both are one hundred per cent state-owned. Switzerland’s Axpo and France’s EDF (imminently) are one hundred per cent publicly-owned and low carbon energy pioneers. While Denmark’s Ørsted — the world leader in offshore wind — is publicly listed, the state owns a controlling 50.1 per cent stake. Norway’s Equinor, primarily an oil company but fast ascendant in offshore wind, is 67 per cent state-owned. Yet despite being rich in renewable resources Britain is almost unique in Europe in lacking a national green energy champion: a public clean power generator to drive the transition and more directly retain the benefits.

Indeed, public ownership already plays a critical role in clean energy generation in Britain — only, at the moment, it is foreign governments enjoying the benefits of this growing sector. Previous Common Wealth analysis found that 42.2 per cent of the installed capacity from operational and under construction wind farms is owned by foreign public entities, including state-owned enterprises and public pension funds. Remarkably, the government owns less of aggregate offshore wind capacity (0.03 per

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41. “Xuyang Dong of Climate Energy Finance... points to benefits stemming from China’s centralised command and control structure as well as governance continuity... When Beijing ordered the SOEs to pivot towards renewables, “they do it”, she said. Dong argued that among western countries, there were barriers to decarbonisation in the “myopic short-termism” of financial markets, the struggle to establish carbon pricing and policy disruptions when governments changed.” Edward White, “China’s ‘dinosaur’ state-owned enterprises make a green pivot”, Financial Times, 02/01/2024, https://www.ft.com/content/7c9dcd6c-79dc-48da-9255-c40b15b48af8
cent) than the government of Malaysia (0.1 per cent), let alone the governments of Denmark (20.4 per cent) or Norway (9.2 per cent). The city of Munich, meanwhile, owns more (0.85 per cent) than any British town or city.

Here, it is important to note that in global context there are and have been a diverse plethora of SOEs chartered with various mandates and with various ownership, governance and institutional arrangements, subject to political economy and different strategic aims across time, space and sector. Therefore, the shape, character and behaviour of SOEs vary.

It is critical to note that our proposal is for an energy SOE to be chartered to behave differently from the way many foreign SOEs operate in Britain’s electricity generation market. As the political economist Milan Babić has highlighted, neoliberal globalisation has furnished opportunities for states to act as global corporate owners, “leav[ing] the iron cage of the nation state in order to reap the benefits of a globalised economy, such as returns on investment or the acquisition of strategic assets.” Meaning, such actors are not acting differently than for-profit private firms. This is how we should understand the behaviour of foreign state-owned capital — both corporate enterprises such as Vattenfall and sovereign wealth funds — in the context of the UK’s renewable generation capacity: globalised state capital bases its non-domestic investment decisions on expected profitability. Hence, why foreign state-owned enterprises dominant in the UK offshore wind sector such as Vattenfall and Ørsted have cancelled planned projects and withheld bids from the most recent CfD auction round.

However, public enterprise stands as the only organisational form that allows for divorcing investment decision-making and operation of capital assets — at both project and system level — from the profit imperative at the scale required for rapidly and comprehensively delivering power sector decarbonisation targets. However, for a public generation company to invest in rapid and comprehensive rollout of generation capacity in line with power sector decarbonisation targets without hinderance of project or portfolio level profit maximisation — that is to say to behave differently from both private and foreign state-owned for-profit companies acting principally to achieve capital accumulation — is a matter of mandate, institutional design and governance, discussed in further detail in a following chapter.

Although this report argues that this public generation enterprise should be mandated and institutionalised to serve as the investment engine to deliver clean generation targets, this does not foreclose private investment in generation. Especially

43. Ibid.
44. Ibid.
in the near term it is likely that a public clean generation enterprise will rely on existing developers to build public assets through outright competitive procurement contracts.

Rather than crowding out investment, we argue public ownership at structural scale is the best mechanism for derisking private investment and activity: through public ownership and operation, the company will be able to socialise investment decision-making while drawing on existing capacity in the private sector without forfeiting investment decision-making power, control over assets, and thus costs while more broadly stabilising related production networks.

**On Public Investment Rather than Public Financing**

In arguing for chartering a public generation company, we distinguish between fixed capital investment and financing or funding of said investment, and between the public institutions that might serve each function. Public financing institutions such as development banks support investment through tools such as credit on generous terms, loan guarantees, grants and minor equity stakes. Likewise, the Bank of England could directly provision subsidised credit or use credit guidance tools to subsidise bank extension of private credit to renewable projects. Alongside the Bank of England, the UK enjoys an ecosystem of public financing institutions, including the recently chartered UK Infrastructure Bank that has a mandate to support net-zero targets. However, these existing institutions constitutively do not undertake direct investments themselves, let alone operate capital assets at scale or for extended time periods. They can extend their tools to support private enterprises, who may still refuse to undertake subsidised investment. Or they can finance public institutions or actors such as local authorities or a public corporation able to undertake direct investment and operation of capital assets, but that entails a distinct institution.

Therefore, we see a role for both the UKIB and the Bank of England to support financing in the renewable sector — both GBE and private developers — but caution against viewing public financing and credit guidance as sufficient. In particular, it is worth emphasising the end of easy money has demonstrated the ambivalence of green monetary policy. On the one hand, renewables benefitted greatly from the era of low interest rates. Renewable energy is capital intensive and sensitive to interest rate rises, especially in comparison to fossil fuels. Therefore, increases in interest rates disincentivise private investment in renewable generation. Moreover, the era of low interest rates (and thus lower yield on safe assets) generated the private portfolio glut’s greater relative need for yield-bearing assets, which pushed structural interest in private infrastructure investment. Yet, this period of low interest rates and state derisking regimes still did not see sufficient renewables investment to meet power sector decarbonisation targets. Therefore, while raising interest rates has actively harmed private investment, lowering them is not sufficient to meet system-wide targets.
Although there is scope to reform the UK Infrastructure Bank into a more muscular green development bank, even a maximally ambitious and more adequately capitalised UKIB would be circumscribed to being a financing vehicle. Indeed, even in its use of equity investment tools, its use of equity is likely to be passive stakes of projects without appropriate asset management or operations functions to undertake direct capital investment nor operate electricity generation assets at either the project or aggregate system level. Such use of equity investment is insufficient for meeting delivery of capacity targets and will not offer the same benefits of public ownership of generation that we evidence in the next chapter.

A strategic state holding company such as Labour’s proposed National Wealth Fund (NWF) could also make equity investments in generation or transmission infrastructure with more substantive equity share, but its asset management and operations functionality would likewise still be limited in comparison with a public corporation. The NWF could more maximally be used to capitalise a public enterprise and house it on its balance sheet. In a later chapter of this report, we provide an institutional sketch of a stand-alone off-balance sheet independent enterprise. Ultimately, it is Common Wealth’s view that regardless of whether the public generation enterprise is housed by a public holding company or is set off balance sheet, it will need to take the form of a public enterprise — not ad hoc equity stakes or assets on the holding company’s balance sheet. More generally, the NWF is better suited as a strategic equity investor to coordinate green supply chains and industrial decarbonisation than as the coordinator of the electricity system.

Some proposals for a public energy company in the British context look much closer to a public development bank or a wealth fund than a public generation enterprise as we have proposed, in particular by only supporting high risk assets or technologies and through only partial equity stakes in projects. We agree with the TUC, who note that such a limited approach will lead to overly cautious investment, as safer investments cannot balance riskier ones in a portfolio. This would mean “socialising the risks of technology development, while leaving proven profits to the private sector.”46 Moreover, such weak institutionalisation would fail to fulfil the criteria of socialising the investment function for clean generation — which as we have stressed is necessary across all technologies — and does not offer the financial and operational benefits that we detail in the next chapter. Therefore, we again stress that GBE must directly invest in and operate generation across the current possible electricity generation technologies.

This chapter outlines the financial and macroeconomic advantages of public energy investment relative to private — namely that it can sell electricity more cheaply. It is widely recognised that governments and public bodies generally enjoy a cheaper cost of capital (in terms of both debt and equity) than private companies. This is a prima facie argument in favour of public investment; since electricity infrastructure investment costs are always ultimately borne by the public, the higher financing cost of private investment correspond to higher prices for energy customers across the economy, all else equal.

Of course, it does not follow that the entire economy should be nationalised. In countless instances we tolerate private capital’s higher cost in exchange for the other advantages of private provision — chief among them the efficiency gains encouraged by competitive discipline, and the role played by decentralised market coordination in discovering what goods and services ought to be provided and where. Compared to these advantages, this cost often pales in significance, especially when the consumer price in question is of marginal significance to the larger economy.

The argument of this chapter is that both sides of this trade are less favourable where energy is concerned.

On the one side, these putative advantages are less applicable to the electricity sector than to other more conventional industries. The market’s discovery function is redundant in a sector where the overwhelming need for top-down planning rather than bottom-up incremental mutation has already been explicitly recognised in the creation of the Future Systems Operator. And the cost efficiencies realised in the construction of solar and wind farms have less to do with competition between developers, as many assume, than between manufacturers and other parts of the supply chain, where our proposals would preserve a competitive tendering process—which we evidence in this chapter. If anything, public investment would improve cost efficiency by enhancing the certainty and magnitude of demand that allows manufacturers in turn to invest efficiently.

On the other side of the trade-off, the price of electricity is of such systemic significance, and the particular sensitivity of renewable energy to the cost of capital is so extreme — a two percentage point increase in the cost of capital inflates the levelised cost of renewable electricity by twenty per cent per cent! — that the stabilisation and minimisation of this price by whatever means
available ought to be a macroeconomic priority, especially given the scale of investment required by the transition.

To the extent therefore that the profit motive is a layer of financial extraction (beyond the qualitative coordination concerns of the previous chapter), it is one whose toll on the macroeconomy is greater in the electricity sector than elsewhere, and whose elimination or mitigation via the public sector indeed improves, rather than sacrifices, the market functions of coordination and discovery. To the extent that it is avoidable, the continued insistence on private investment is a policy of upward redistribution.

To this end this chapter rehearses the argument that electricity is a systemically significant price, whose distortion in 2022 famously wrought havoc on the UK macroeconomy. It then explores the magnitude of the cost of capital saving that public entities enjoy, and of hurdle rates that a public energy company need not stipulate. It finally examines the drivers of cost reduction in offshore wind over the last decade in order to gauge the implications of public investment for non-financial costs.

This report has thus far stressed the importance of public enterprise in delivering necessary investment in clean generation in terms of its singular institutional capacity to undertake capital investment at necessary speed, scale and coherence without the hinderance of the profit imperative. This chapter further evidences the complementary set of financial and operational benefits of a comprehensive clean electricity investment sprint delivered through public enterprise as well as public ownership of existing renewable capacity (and transmission and distribution networks).

The financial benefits we detail come from the structurally lower cost of building new generation through public direct investment as opposed to private investment and in the perpetual public control over price setting. Public ownership, and public ownership alone, offers zero marginal cost renewable electricity once capital costs are recouped.

Our claims about the superior operational and coordination benefits of public ownership over private for-profit ownership are based on the coordination power a systemically significant public enterprise would enjoy over electricity system-wide investment planning, supply-chain or industrial planning, and over time, provision of electricity.

The costs of energy investment in whatever form are always ultimately borne by the public. This section starts by detailing the straightforward financial advantages of public investment. These include the structurally lower cost of capital due to lower interest on borrowing and the freedom from obligation to pay dividends to shareholders
in perpetuity, and the subjective hurdle rate thresholds that developers stipulate as a condition of risk-taking beyond covering that cost of capital. At the scale of investment required, these savings add up to tens of billions overall. Refusal to exploit these savings investment is tantamount to a policy of upward redistribution from the public to the financial sector — for which we get nothing in return except for a slower and less coherent transition than otherwise.

**Energy as a Strategic Economic Node**

The economic importance of energy is of course a truism. However, it is nonetheless worth describing how the provision of energy at a low and stable cost can act as a powerful strategic node within the economy, stabilising the chains of material and financial relations that constitute the entire productive and economic nexus, and supporting each link therein.

The purpose of this exercise is not merely to reiterate the urgency of accelerating renewable investment, but to illustrate the amount of policy space that is acquired when the public exercises control both over the terms on which energy infrastructure is built out, and correspondingly the terms on which the collective productive capacity of that infrastructure is enjoyed downstream. As we have argued, to have those terms dictated by the market exigencies of fragmented private actors is profoundly restrictive. Instead, public control over energy price-setting should be understood as an indispensable policy lever for risk management during an era of ecological, geopolitical and financial turbulence. The obvious macroeconomic and fiscal benefits ought to be taken seriously by any political party claiming to value economic growth, stability and security.

Furthermore, very little is sacrificed by transcending the profit motive with respect to this particular node of production and especially at this historical juncture. This is a result both of its acutely headwater status within the network of inputs — such that financial extraction is for its own sake far better suspended to allow other sites of surplus creation to blossom downstream — and its physical qualities, which are intrinsically inhospitable to market competition and therefore to the efficiency and discovery benefits that might otherwise arise from it. (Efforts to simulate such competition through regulatory artifice are invariably illusory and quixotic.) This is compounded, for reasons explained already, by the overwhelming speed, scope, scale and coordination needs of the energy transition.47

This report has detailed the structural role a public generation enterprise must play in delivering further clean generation capacity. This chapter details financial and operational benefits. We begin by outlining how the pay-as-clear marginal pricing system governing wholesale energy markets amplified economic fallout of the gas

price shock beyond that necessitated by real resource constraints alone. We crucially highlight that the pricing system is itself a system for coordinating private actors that would have been obviated by public ownership of existing generation capacity. While the growing shadow of CfDs and private PPAs will blunt the sharper edges of the danger posed by the marginal pricing system, it will preserve a core component: the wedge between what real resource constraints will allow and what our social institutions will facilitate. As marginal pricing needlessly embedded the cost of gas into the price of non-gas electricity, so too do CfDs capitalise yesterday's uncertainties into today's prices. This calcification of short-term volatility into long-term prices would remain an issue with ex ante fixed price structure even if the UK reformed its wholesale markets away from marginal pricing entirely. It is a truism that the fulfilment of our economic needs is inevitably constrained by natural forces beyond human control; social institutions should aim not to add to those constraints.

In detailing financial benefits of public ownership of generation, we begin by discussing the financial benefits of public ownership of existing renewable generation. As we argued in our previous report “A Wholesale Transformation: Evaluating Proposals for Electricity Market Reform”, bringing existing renewable generation assets, especially those under the Renewables Obligation Scheme, into public ownership through a public generation company would have mitigated windfall profits by allowing the enterprise to set strike prices at cost.\(^{48}\) These findings evidence the systemic effects of public ownership as a tool for controlling price, which would be even stronger as a public generation enterprise comes to own the majority of generation capacity for the British power sector. As we argued in that previous paper, the configuration of domestic wholesale electricity markets serves to amplify commodity shocks instead of contain them, copy-pasting the soaring price of gas-powered electricity onto much cheaper sources.

### Energy and Inflation: Shock, Amplification and Conflict

The macroeconomic policy architecture of developed economies largely manages price stability along the single dimension of economic over- and under-heating. This architecture is reluctant to intervene in the reallocation of purchasing power occasioned by shocks, other than bluntly via the interest rate.

The central role of energy prices in the inflationary surge and economic slump of 2021-23 can be understood using the three-stage heuristic developed by Isabella Weber and Evan Wasner: impulse, propagation and amplification, and conflict.\(^{49}\)

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48. In the report, we detail obstacles and relative deficiencies to an alternative approach that would seek to either voluntarily or by mandate move legacy RO assets onto CfD-like fixed price contracts.
In terms of impulse, consumer electricity prices within the CPI rose by 97 per cent per cent (annualised growth of nearly 40 per cent) and gas prices by 191 per cent per cent between March 2021 and May 2023 (see Figure 4.1). With consumption basket weighted of 1.9 per cent in 2021 and 2.7 per cent in 2023, electricity alone a direct contribution of 3.5-5.5 percentage points to the overall price level over these 26 months. Despite talk of overheating in advance of the February 2022 invasion of Ukraine, the first significant jump above target in month-on-month inflation in April 2021 coincided with 9.2 per cent and 9.4 per cent jumps in the electricity and gas components of CPI.

Figure 4.1  Inflation at its Peak was Dominated by Energy
Annualised inflation for 220 weighted COICOP items, March 2021 to May 2023

Source: Common Wealth analysis of ONS

The propagation stage concerns the slower diffusion into other parts of the basket as businesses — who account for two thirds of UK electricity consumption — sought to pass on their costs. Energy costs have consistently been the most cited consideration for raising prices. “Analysis of wage and price increases, UK: 2011 to 2023”, Office for National Statistics (ONS), 15/12/2023, https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/articles/analysisofwageandpriceincreasesuk/2011to2023
exceptional significance within the input-output nexus of UK economy. In normal times, the electricity industry was the third largest direct input into aggregate domestic production (see Figure 4.2), but its precise nodal position and price volatility (even in the two decades pre-pandemic) elevates it beyond even those larger aggregate inputs of construction and finance, as Weber et al. have calculated for the US. Businesses must pass these costs onto their consumers via higher prices, or absorb them at the expense of lower margins. Bank of England researchers recently estimated that these pass-through effects contributed around one percentage point to CPI inflation at peak (CPI peaked just above ten per cent and nearly three percentage points at peak to food and non-alcoholic beverage inflation.)

Figure 4.2 Electricity was the 3rd Largest Input to Production Before the Crisis

30 largest input sectors to aggregate domestic production, 2019

Source: Common Wealth based on ONS

Finally, the conflict stage concerns the second-round inflationary effect of wage demands from workers trying to preserve purchasing power in the face of the above. While we cannot produce estimates, these demands would no doubt be much lower if not for the price shocks against which they are seeking to catch up. These inflation-chasing wage demands were rendered more inflationary than otherwise because of the inefficient reallocation of margin space towards energy and commodity companies from those firms employing the bulk of the work force.

As we explained in March 2023, the marginal pricing system exaggerated the extent to which the gas shock had in aggregate “made us poorer”. The macroeconomic shock was greater than real resource constraints demanded. Untethering the prices of these sources could have muted the disastrous chain reaction described above, and the resultant monetary policy tightening cycle would have been much shallower, mitigating the damage to future renewable investments wrought by the sudden jump in cost of capital. Meanwhile, higher growth would have supported the public finances, with similar supportive effects for the investment environment. Public ownership (especially of those assets operating under the legacy Renewable Obligation regime) could have coherently and tenably achieved this. Meanwhile, higher growth would have supported the public finances, with similar supportive effects for the investment environment. Public ownership could have coherently and tenably achieved this. A rational macroeconomic strategy going forward must prioritise the cheap and stable provision of energy. This means when exogenous risks enter the system, (a) the system of organising prices and production not add to those risks, and (b) the risk-bearing and risk-pooling capacity of state be employed to absorb some portion of those risks within reason. A public generation company can institutionalise these priorities in ways that market coordination cannot, for fear of capital strike, market exit and general inaction.

But while CfDs and private PPAs can prevent sudden price fluctuations, they will still set a price level above that set by the canonical social planner of mainstream economic theory. As AR5 and AR6 demonstrate, the bundling of the ex ante investment commitment device and the ex post cost recoupment device into the same instrument of the strike price fossilises past uncertainties into present and future energy prices long after their resolution — and despite the most important and enduring certainty being the system-level necessity of energy infrastructure itself. In this sense, the price of CfD-based derisking is to sacrifice the policy space to flexibly respond to whatever turbulence obtains during the investment phase. Moreover, the broadening of the CfD regime to include dispatchable, non-intermittent technology with greater operational discretion may open up opportunities for private operators to game the system to enrich themselves at the cost of the broader economy.

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56. Drax has been accused of doing this during the crisis, scaling down its CfD-covered units and scaling up its non-CfD units to making CfD repayments, and otherwise selling biomass pellets on global markets. Drax has been accused of doing this during the crisis, scaling down its CfD-covered units and scaling up its non-CfD units to making CfD repayments, and otherwise selling biomass pellets on global markets. Todd Gillespie et al., “UK Consumers Needed Energy Relief — a Loophole Lost Them Millions”, Bloomberg, 02/08/2023, https://www.bloomberg.com/graphics/2023-uk-power-stations-avoided-paying-back-consumers
Crowding In and Out: Disaggregating Private Sector Investments

Insofar as the reliance on private investment to lead the energy transition has increased the level and volatility of arguably the economy’s most important price, such reliance has had the result of both dampening aggregate demand and rendering it more brittle. Both make for an inhospitable environment for private investment in other industries. Conversely, direct public investment in energy can crowd in private investment in all other sectors. A serious theory of “crowding out” ought to reckon with possible tensions between different within private capital, and orient substitutabilities and complementarities accordingly.

The following section lists some of the more conceptually straightforward financial advantage of public over private investment — the structurally lower cost of capital.

The Unnecessary Costs of Private Capital

The capex-heavy, opex-light cost profile renewable energy projects makes them much more acutely sensitive to the cost of capital than traditional fuel-based energy infrastructures, whose operating expenditures can be financed out of ongoing revenues. The International Energy Agency (IEA) estimate that financing costs as of 2022 accounted for up to 60 per cent of renewables’ LCOE (noting that this global average is pushed up by developing economies where the cost of capital can be up to seven times higher than in advanced economies), and that a 2ppt increase in the cost of capital alone can lead to a staggering 20 per cent increase in a solar or wind project’s LCOE.57 Perversely, one of renewable energy’s most miraculous qualities — that of zero marginal cost generation — is transformed by the social institutions of finance into its Achilles’ heel.58 The safest protection against this perversity is a public generation enterprise charged with undertaking the majority of necessary investment in clean generation capacity to meet power sector decarbonization targets, because it is able to command a structurally lower cost of capital.

In its Net Zero Strategy, the government estimated that £280 to £400 billion of public and private investment in new generating capacity will be needed by 2037 to decarbonise the power sector. Meanwhile, the Climate Change Committee estimates that the cumulative investment in low carbon generation required to maintain a net zero system by 2050 — based on the Government’s Energy Security Strategy — is

over £200 billion in renewables and nearly £100 billion in nuclear and dispatchable low carbon generation. Alongside this, electricity networks require an additional £150 billion to get ready for a post-carbon system.⁵⁹

The clearest quantifiable benefit of public ownership of new low-carbon generation is the potential savings to finance the construction of new assets while both retaining all the income generated from those assets and controlling them — in terms of operations, including pricing — once capital expenditure is recouped. These savings are three-fold (though they may overlap in practice). First, the costs of borrowing for the Treasury — or a government backed institution — are significantly lower than the cost of borrowing for private sector actors. Second, any income generated from low-carbon assets would be retained and invested in new capacity instead of being extracted by external private shareholders in the form of dividends and share buybacks beyond the level needed to recover their initial equity injection. Third, private developers subjectively stipulate profitability thresholds in excess of their cost of capital as a condition of investment, since they must cover not only their costs, but also both their subjective risk assessment and their opportunity cost. The following section takes each of these in turn.

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Figure 4.3  Cost of Capital for Public vs Private Investment

<table>
<thead>
<tr>
<th>Private investment</th>
<th>Public investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher interest on borrowing</td>
<td>Lower interest on borrowing</td>
</tr>
<tr>
<td>Obligation to pay shareholder dividends in perpetuity</td>
<td>Need only recover initial equity injection</td>
</tr>
<tr>
<td>Subjective hurdle rate thresholds set by developers</td>
<td>Invests on basis of system-level need and recoups costs ex post</td>
</tr>
</tbody>
</table>

Higher cost of capital  Lower cost of capital

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https://www.theccc.org.uk/publication/net-zero-electricity-market-design-expert-group
In what follows, we present analysis concerning the potential savings to be made by establishing a public energy generating champion such as Great British Energy. For the purposes of this report, we present estimates of the savings that derive from differences in the cost of borrowing between the private and public sectors and in the high cost of equity for the private sector, mediated primarily through dividend payments to shareholders. Due to limitations concerning data availability, we focus on the largest clean energy generating firms in the UK, taking these as a representative sample for the sector. It is noted that with respect to the cost of borrowing, the higher credit rating and, consequently, reduced cost of borrowing for larger firms means our results are likely to underestimate the difference in borrowing costs between the public and private sector, and therefore the savings to be made through public investment.

**Gilt-y pleasures: Lower cost of borrowing**

The majority of renewable energy projects are financed using project finance, while a minority use corporate finance. From the awardees of CfD Allocation Rounds 1 to 4, Scottish Power’s East Anglia 1 is the only offshore wind project not developed by a special purpose vehicle (SPV). By setting up a bond-issuing SPV for a project, larger companies are able to protect their core balance sheet from the financial risks associated with that project. In other words, rather than pooling risk, project finance has the effect of segmenting risk and preventing cross-subsidy.

When calculating the appropriate administrative strike price for CfD auctions, the Government’s own financial assumptions are informed by BEIS-commissioned 2018 research by Europe Economics, who note that the bond credit ratings associated with most EMEA offshore wind projects are BBB for long-dated bonds and BBB- for short-dated bonds. That tendency has not changed since. Credit rating upgrades appear to have only occurred subsequent to project completion, that is, after most costs have been sunk and most risk resolved.

Following Europe Economics’ approach, we compare the yields on S&P bond indices based on different UK bond categories: gilts, quasi-government (government-
backed) bonds, investment grade corporate bonds, and BBB investment grade corporate bonds. As plotted below, the spread on such bonds is usually in the region of 1.5-2.5ppt. This is consistent with the Bank of England’s estimate of the corporate borrowing spread on UK bank loans — rather than bonds — over 1978-2016, which invariably hovered between one and three percentage points. In both cases, the spread perceptibly rises during periods of financial instability, of which we can reasonably expect more in the decades to come.

Figure 4.4  
Public Borrowing is 1.0-2.5ppt Cheaper Than Private  
Yield spreads of UK gilts* by other UK bond categories (ppt), Jan 2014-Jan 2024

Note: *Exception where otherwise specified. Source: Common Wealth based on S&P indices of corresponding bond categories

Separately, our analysis of bonds issued by private owner-operators of UK power plants (or related entities) finds considerable variation in yields upon issuance, but with an (unweighted) average spread of one percentage point relative to


contemporaneously issued gilts\textsuperscript{66} of comparable maturity. These spreads are plotted beneath, with the numbers denote the bonds’ term lengths.

In either case, and especially in light of the sensitivity of renewables’ LCoE to cost of capital, these spreads are material. When combined with first the scale and secondly the longevity of borrowing required, spreads measured in basis or percentage points quickly turn into billions of pounds per year, and tens of billions of pounds in aggregate. Some back-of-the-envelope calculations are illustrative. Low-end estimates of both the spread (1ppt) and scale of borrowing to invest required to decarbonise the power system (£280 billion) imply savings of £2.8 billion per year. High-end estimates (3ppt and £400 billion) imply savings of £12 billion per year.

What is more is that these spreads measure difference in yields for a given maturity — if, for the reasons we have outlined above, public ownership can also accelerate the delivery of these projects and thus bring forward revenues, then further savings could also be enjoyed through the shortening of maturities. This means both the lower yields implied by a normally upward-sloping yield curve and also fewer years on which interest needs paying.

\textsuperscript{66} We analyse LSEG Eikon data on bond issuance by entities related to companies listed in the DESNZ’s DUKES publications as owning and operating major UK power projects regardless of technology. Our comparison set comprises outright issuances of conventional treasury gilts.
Figure 4.6 Offshore Wind Takes Three Years to Start Construction After Getting Planning Permission
Capacity-weight average time between stages in development (years)

<table>
<thead>
<tr>
<th></th>
<th>Planning application</th>
<th>From permission to construction</th>
<th>From construction to operational</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Onshore</td>
<td>3</td>
<td>2.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Wind Offshore</td>
<td>2.2</td>
<td>3</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source: Common Wealth based on Renewables Energy Planning Database

Dividend rule: Cost of equity

In addition to a lower cost of borrowing, public financing has the advantage that shareholder payouts via dividends or buybacks can be limited to the minimum amount needed to remunerate the original equity injection. In a stark example of the latter, over FY2022 the Norwegian Government recovered $1,075 for every Norwegian citizen through its 67 per cent stake in shareholder payouts from oil and renewables company Equinor. The figure beneath looks at owners/operators of UK energy generation for whom cash flow data is available, and plots their five-year trailing ratios of dividend payments to revenues as well as to gross and net capital expenditure (net of disposals). For example, SSE plc, the largest owner of clean, non-nuclear generation at 17.2 per cent of capacity are paying out 7p in dividends for £1 of revenues – or 43p

67. Common Wealth’s analysis of annual results as published by David Sheppard and Tom Wilson, “Equinor makes record $75bn profit during energy crisis”, Financial Times, 08/02/2023, https://www.ft.com/content/0f87e1b6-d46a-4f25-a903-eaafc092f9e7

68. Our sample is based on DESNZ’s DUKES database, and listed in order of their share of UK clean, non-nuclear energy generation capacity. Where a given firm’s cash flow data is unavailable through LSEG, we instead show the closest available ancestor company. Some firms (e.g. Temporis Capital) show ratios for revenue but not capex due to zero or unreported capex. Other firms (e.g. Denmark Holdco) reported zero dividends.
for every £1 in gross capex, or £1.25 for every £1 in net capex, to express it another way.

Figure 4.7 Dividend Ratios by UK Energy Operator
Dividends over last five years, firms listed by percent of UK clean, non-nuclear capacity

Source: Common Wealth based on LSEG Eikon and DUKES

The Costs of Subjective Private Hurdle Rates

In discussing the relative costs of capital for public and private investments, it is important to note that while there may be absolute cost considerations considering a break-even revenue point, private investment is governed by consideration of hurdle rates, which are subjectively and privately determined, and which exceed the weighted average cost of capital (WACC).

According to a recent study, “discount rates [also known as hurdle rates] are substantially higher than the perceived cost of capital, on average twice as large.” The authors’ data show that average hurdle rates have never fallen under fifteen percent in two decades, even when interest rates hit record lows (Figure 2). Since 2007, average net investment rose only if average hurdle rates fell (Figure 3) — but hurdle rates do

not fall: “many managers are averse to lowering their discount rates and only do so in response to competitive pressures.”

Evidence on the specific hurdle rates of UK renewable energy profits is less stark, thanks presumably to the lower levels of revenue risk involved — revenue risk encompassing both level of demand and price. Figure 4.8 depicts the technology specific hurdle rates reported in 2018 by the consultancy Europe Economics, commissioned by BEIS, as well as 2023 updates to those assumptions. These underpin the DESNZ’s (formerly BEIS) methodology for determining the administrative strike price in CfD auctions. Also visible for relevant technologies is the success of CfD-based derisking in lowering both WACC and hurdle rates relative to the “merchant” based revenue support assumption. Still, hurdle rates exceed WACC by over 0.5 percentage point for offshore wind, ~0.4 percentage point for onshore wind and solar PV, ~0.8 percentage point for hydro and wave, and as much as 1.4 percentage point for tidal stream.

**Figure 4.8** Subjective Hurdle Rates Exceed the Cost of Capital, and Have Risen
Hurdle rates and WACC by technology under CfD vs Merchant Scenarios

![Diagram showing hurdle rates and WACC by technology](source)

Source: Common Wealth based on DESNZ and Europe Economics 2018

In pointing to the subjectivity of private hurdle rates and the broader limits of relying on private profit-based investment decisions, we are not claiming that profit is not the reward for legitimate risk taking on the part of private actors. Rather, first, we are pointing that private hurdle rates impose further unnecessary costs relative to public investment, as the state does not charge a premium for its risk bearing capacity and that public direct investment is not only the more effective mechanism
than subsidising private investment to ensure that investment goes ahead, but will later be reflected in the structural lower price at which the resulting energy can be sold. Second, we are questioning which of those particular risks are unavoidable, e.g. operational risk, and which can be eliminated if we have a public enterprise which can fully use the singular risk bearing capacity of the state to carry out investment and economic activity carry out regardless, e.g. demand risk or price risk. This is the true delivery benefit of separating the investment imperative from the question of how a given project will internalise the social benefits that it yields.

**The Low Opportunity Cost of the Low Cost of Capital**

Opponents to public ownership may object, from reductio ad absurdum, that the extreme logical endpoint of the “cost of capital” argument is to issue trillions in gilts and nationalise the entire economy, leaving no room at all for private enterprise. If we treat this objection as non-trivial (the extreme logical extension of most arguments is to do everything or nothing), it ignores the structural differences between industries that detailed above.

Similarly, we question the role that profit-seeking by developers plays in the mission to decarbonise energy. While competition can still drive innovation in the manufacturing supply chain, the same is scarcely true of project developers. Meanwhile social and economic need ascertained via coherent top-down system-level planning, there is no need for the marginal process of bottom-up, decentralised market discovery in which profit acts as a key signal. As we argued in our companion report with regard to Grid infrastructure: “It is one thing to claim that investors are being legitimately compensated for their risk, or for the opportunity cost of their investment. It is another to claim that that risk is remotely necessary in a world where ownership regimes are a policy choice and when the infrastructure concerned is as essential as the grid is to delivering a decarbonised, energy-secure and resilient economy.”

So too with generation.

**Non-Financial Costs**

We have so far addressed only the cost of capital in making our case for public investment on the grounds of lower cost. This section addresses the possibility that the savings from GBE’s lower cost of capital might be offset by higher costs elsewhere. Bearing in mind the UK’s natural endowment, we focus on the case of wind energy.

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We have emphasised that our proposal vis-a-vis GBE concerns the development and ownership of generation assets, not the manufacture of their components. While the ability to use the supply chain procurement process as an industrial strategy policy lever is indeed part of the policy space that is afforded by the creation of a public generator, we nonetheless advocate that the manufacture of wind turbines and other inputs remain subcontracted to private manufacturers as it already is by private developers. Therefore, here we address the question of to what extent cost efficiency is reliant upon competition between developers rather than between other parts of the supply chain.

Estimates vary of the cost composition of an offshore wind farm over its lifetime. One LCOE decomposition by Catapult attributes 38 per cent to the turbine alone (its foundation comprising 8ppt of this), 21 per cent to installation and decommissioning activities, 10 per cent to ‘balance of plant’ and 32 per cent to project development and management, operations, and maintenance and service.71 UCL energy economist Michael Grubb cites BVG Associates in attributing 40 per cent as of 2019 to turbines, 26 per cent to installation and commissioning, 24 per cent to balance of plant, and only 8 per cent to project development/management and O&M.72 (Both estimates incorporate the cost of capital into each component rather than breaking it out as a separate category.)

Grubb furthermore examines the cost reduction per MW of capacity between 2010 and 2019, decomposing the direct costs (see Figure 4.7), and surveying companies’ subjective assessments of the cost drivers. Two factors predominate in driving down costs in whatever category: turbine size (which IRENA credits with 60 per cent of the decade’s global cost reduction73), and the size and certainty of demand. Most other reductions are downstream of these drivers. Grubb cites the cost of capital falling more than 3 percentage points from over 10 per cent to below 7 per cent over 2010-20, and each percentage point reducing LCOE by 7 per cent — a cumulative LCOE reduction of more than 20 per cent from the cost of capital alone. This improvement reflects both the reification of offshore wind as a bankable asset class, the improved provision of innovative financing models, and a general reduction in risk profile. This general reduction in risk profile is in turn attributable to the replacement of the RO scheme with the price certainty of CfDs, as well as the industry generally learning from experience and better managing risks such as installation time, turbine availability and O&M requirements. Many of these risks were in turn improved by the expansion of

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the turbine manufacturing industry, the increased availability of the suitable vessels for installation, and the push towards larger turbines, whose impressive economies of scale also extended to maintenance activities.

**Figure 4.9** Larger Turbines Have Driven Offshore Wind Cost Reductions

Components of lifetime costs in offshore wind development (£000/MW)


The relevant question to our advocacy of public direct investment is to what extent a GBE-style entity would be unable to perform the same tasks as private developers and match the cost efficiencies achieved so far under competitive conditions. Much of the work that private developers do — securing land or seabed rights, planning permits, transmission connection agreements and financing — would be rendered at least as easy in public scenario, especially where reaching the agreements sought involve distributional struggles that would be subsumed by a larger public body. The freedom to move beyond these obstacles would also be a recruitment pull.

Market competition among developers has contributed to the economies of scale from ever larger turbines, which include: fewer turbines per MW, therefore meaning less downtime for maintenance, fewer foundations, and fewer installation procedures (with less vessel time too installation time fell by 80 per cent in the decade to 2017).74 While two significant drivers of these economies of scale dynamics include R&D and

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“learning-by-doing” — both of which are compatible with public non-market provision — it remains true that some of the impetus towards more ambitious turbines has been motivated by developers whose contracts leave cost as the only margin through which to compete towards profitability. Although there is even disagreement on this: “Developers tended to view the CfDs’ contribution to goal-setting more positively than those in their supply chain.”

To the extent that developers competing on cost has lowered LCOE, it is increasingly apparent that this same dynamic also had the effect of foisting risk onto turbine manufacturers and even vessel companies. US and European manufacturers have been under increasing financial strain, in part because frenetic turbine growth has quickened product cycles to their financial detriment, and we now appear to be approaching the safety and reliability limits of turbine size. Investments by vessel companies in new bespoke fleets, which played a key role in reducing installation times, have turned financially damaging as the turbines have too quickly outgrown the new vessels and rendered them obsolete. Now, turbine manufacturers are demanding

75. “Some supply chain interviewees suggested that the clear cost reduction goal [arising from CfD discipline] did not support innovation because developers pushed the supply chain so hard on cost that they had no room to invest in innovation. Others felt that the clarity on both scale and cost reduction goals gave turbine manufacturers a clear target, driving them to develop the larger turbines that have been so instrumental in bringing costs down. Developers tended to view the CfDs’ contribution to goal-setting more positively than those in their supply chain.” Grubb, “Policy, Innovation and Cost Reduction in UK Offshore Wind”, Carbon Trust, 2020, https://www.carbontrust.com/our-work-and-impact/guides-reports-and-tools/policy-innovation-and-cost-reduction-in-uk-offshore-wind

76. “While [growth in] renewable energy is expected to be favorable for our wind businesses over time, we face uncertainties related to future levels and timeframes of government subsidies and credits (including the impact of the Inflation Reduction Act and other policies), significant price competition among wind equipment manufacturers, dynamics between onshore and offshore wind power, potential further consolidation in the wind industry, competition with solar power-based and other sources of renewable energy and the pace at which power grids are modernized to maintain reliability with higher levels of renewables penetration.” “2023 Annual Report” General Electric, 2023, p.29, https://www.ge.com/sites/default/files/ge_ar2023_annualreport.pdf


78. [A]t our Renewable Energy business, the rapid pace of innovation among onshore and offshore wind turbine manufacturers in recent years has led to short product cycles, early market introductions and faster time to market, all of which have led and may continue to lead to quality and execution issues, higher costs and other challenges to achieving profitability for new products. Such risks are especially acute in the nascent offshore wind industry, with higher ramp-up costs and the potential for new product introductions to result in losses both in the short- and long-run. If we are not able to identify and implement initiatives that control and reduce costs and increase operating efficiency, or if the cost savings initiatives we have implemented to date do not generate expected cost savings, our financial results could be adversely affected.” “2023 Annual Report” General Electric, pp.30-31, https://www.ge.com/sites/default/files/ge_ar2023_annualreport.pdf

standardisation and industrialisation as the key to scalability and efficiency, and cite its continuing absence as a core business risk. At the same time, manufacturers have been under pressure from the “reduced margins and returns for wind energy investors [leading to] uncertainty in many markets and disruptions of demand” as a result of governments’ pivot towards ‘auction based schemes’.

If anything, the most sustainable efficiency gains in the turbine industry have been to do with certainty and size of demand, which is precisely where a systemic public developer is superior to a fragmented cast of private developers. The ability of a GBE-style entity to guarantee large-scale investment would enhance precisely the “predictability of demand in the wind power supply chain” that Ørsted celebrates for “help[ing] facilitate investment in new capacity”. This can therefore potentially improve the efficiency of turbine manufacturing by remedying what William Westgard-Cruice, a scholar of the political economy of offshore wind, describes as “temporal incoherence” in order flows, that leads to erratic and inefficient patterns of investment in manufacturing capacity. Grubb likewise credits CfDs with supporting “resource mobilisation” in factories and vessels by “ensur[ing] a strong pipeline of projects that enables the supply chain to prepare.” Vestas recently cited “developers cancelling or pausing offshore projects due to business cases uncertainty” as a key source of risk for the manufacturing industry, alongside “severe permitting delays [and] volatility in electricity market policy.”

An Integrated Approach to Energy: Operational and Coordination Benefits

In addition to the financial benefits of undertaking the majority of necessary clean generation capacity investment to meet power sector decarbonisation targets through a public generation enterprise, we see substantial operational and coordination benefits both in terms of the act of undertaking investment and the ongoing systemic operation of clean generation.

As this report has stressed, the UK’s electricity system is currently fully privatised and highly fragmented. This current structure is a stark opposite of the vertically integrated model that preceded radical and intentional restructuring in the 1990s. Although a complex and diverse thicket of political argumentation and action delivered

this restructuring, a central claim was that divorcing generation from the rest of the system and reorganising generation around wholesale market competition would lead to more efficient operation of existing assets after the culmination of the post-war developmentalist electrification programme. The problem before us now is the inverse of this claim: a complex and rapid programme of fixed capital investment is necessary to in essence rebuild the system over again. Structural reliance on fragmented private investment leaves the comprehensive investment program necessary to build a new clean generation system vulnerable to private uncoordinated decision-making based on project-level profitability by a diverse set of actors even within the wholesale generation market. An industry as profoundly important as energy ought to be able to realise the coordination benefits of vertical and horizontal integration without risking the predation associated with private monopolies.

Public enterprise allows for investment-decision making based on more pluralistic including, critically, highly instrumental and system-oriented, concerns. As the economist Ronald Coase argued in his influential early 20th century theory of the firm, even within market-based economic systems, large firms are a market-alternative to organising production. The firm is a planned system that operates in relation to external markets, where the nature of internal relationships and decision-making is relatively flexible — a state-owned enterprise, unburdened by the profit imperative, maximally so compared to private firms. This means a public generation company singularly can adopt a clean generation system-oriented approach, where project level investment is undertaken in compliance with coherent coordinated system-oriented investment plans. That is to say, a public generation company can re-integrate the generation system within the form of the large firm.

As the Center for Public Enterprise has noted, coherent investment plans are crucial for ensuring both the eventual decarbonised system and meeting grid balancing needs along the path towards it: “to get to a decarbonized grid it’s not enough to think about individual generation or storage technologies that hold promise. Nor is it enough to think about specific transmission lines that we would like to see built. Rather, we need to envision the future state we desire and develop plans for a whole grid solution that can operate effectively during and after the transition to a zero-emissions grid.” Such a system-oriented approach by a public enterprise will singularly be able to ensure riskier or more costly projects that are still necessary to meet grid decarbonisation and grid balancing needs are undertaken and potentially cross-subsidized by cheaper or less risky projects. This cross-subsidy technique of risk-

pooling would be foreclosed by a halfway-house GBE that limits its direct investments to speculative frontier technologies and merely contented itself with derisking proven technologies for private investment. Such a model would therefore represent not just an unsatisfactory apportionment of risk and reward between public and private, but a failure to reduce overall risk within the system regardless of apportionment.

More broadly, centralising and consolidating the control rights of these currently structurally disparate generation assets into the hands of a coherent authority offers ongoing operational and coordination benefits beyond just generation investment decisions. On the face of it, organising the operation of a variable renewables-based system — both through and after the process of building it — through fragmented private ownership and markets is absurd.

Under current arrangements, both investment in system-level generation capacity (for what is currently a fossil-gas dominated hybrid renewables gas system) and operation of assets — including curtailment — to meet grid balancing is done not through direct asset coordination but through the price mechanism — more concretely, payments to asset operators financed out of higher customer prices. Thus, the £1.9 billion in Grid congestion costs (or “constraint management costs”) paid by UK customers in 2022 may have been extracted under conditions determined by the fact of renewable intermittency, they should still be considered a cost of market coordination rather than of intermittency per se. At one end, renewable generators are paid to wind down production; at the other, dispatchable generators (often gas) nearer to demand centres are paid to wind up. In the former case, we are asked to compensate private operators for the failure to fulfil market expectations enshrined in contract. In the latter, they momentarily wield tremendous momentary bargaining power and extract large sums. If the examples of derisking investment critiqued elsewhere in this paper constitute what the 20th century economist Paul Samuelson termed the “bribe to capital formation”, then congestion costs and capacity payments are an example of a bribe to capital operation, which would not be necessary within the boundaries of the publicly owned and operated firm.

Integrating the generation system within the firm removes the need to indirectly attempt to cohere the action of private assets around the real time project of grid balancing through pricing, especially if public generation is coupled with public ownership of the grid, as we argue for elsewhere. As Matt Huber and Fred Stafford pithily put, it “Electricity is not a commodity like T-shirts or iPhones. It is a complex infrastructure that can be described as ‘a giant synchronized machine’ shaped by physical flows of electric energy. In this machine, a light switch flipped in Nova Scotia

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causes an infinitesimal tug on a power plant in Miami. In other words, electricity necessitates socialised planning, where supply must always be balanced with demand. Grid planners must carefully track the generation of electrons with specific patterns of electricity use and its daily peaks and troughs.”

As we argued in Chapter 2 of this report, the status quo renewable generation investment regime, which relies on the Contracts for Difference Scheme, would on its own terms represent a restructuring of the power sector’s architecture. For, over time, the state would become the de facto monopsony buyer of electricity from a fragmented set of private for-profit generation firms, bypassing the wholesale market with fixed-price power purchase agreements, which throws the future role of supply companies in question. In our proposal, there is a similar functional bypassing of the wholesale market and for-profit supply companies with the benefit of both socialised and system integrated investment-decision making and ongoing operation of assets. If coupled with public ownership of the grid, as we argue in a companion report, our proposals would entail de facto reintegration of the electricity system under public ownership, regardless of nationalization of supply companies.

Alongside this electricity system reintegration, we also see economic coordination benefits through a systemic role for public generation enterprise both at the level of green supply chains and the broader macroeconomy. As we have stressed, direct public investment in clean generation can support the stability of its underlying supply chains — likely to be private for-profit production — better than private generation as it can invest with greater certainty — regardless of shocks or profitability considerations — and without pushing for maximum reductions in input costs at the expense of supply chain stability. This systems approach offers investment coordination benefits structurally precluded by fragmented private ownership, such as coordination with grid investments and supply chain coordination. For example, as we noted in our discussion of the recent failure of CfD AR5, public renewable generation would go a long way towards ameliorating the issue of input cost inflation. Not only would a public generator not need to rely on an inflexible ex ante fixed price to induce investment, a public company freed from the burden of furnishing a maximal shareholder dividend could purchase inputs at higher prices while still maintaining lower consumer electricity costs than a profit-maximising private generation system. Indeed, for example in the offshore wind sector, even without willingness to pay higher input prices, the greater certainty of system-wide renewable buildout by a public generation enterprise would allow for greater certainty of demand needed to maintain sufficient capacity. Instead of peaks and troughs in order cycles by fragmented buyers, a public enterprise can offer bulk but temporally coherent procurement. In this sense, public ownership derisks private investment in green production networks without

falling into the model of socialising risks and privatising profits. To this effect as well, the greater certainty of a state-led green transformation of the power sector will functionally derisk investment to electrify other sectors, such as industrial production.

Moreover, both because public investment benefits from structurally lower costs than private investment and because public ownership allows for socially and flexibly setting electricity prices, a green investment sprint by GBE that comes to own the majority of generation capacity will support a green industrial strategy and greater macroeconomic resilience. As this report has stressed, public ownership of generation assets allows for minimisation and stabilisation of consumer electricity costs and over time the effective social setting of electricity prices. Especially once capital investment costs are recouped over time, this would be profoundly and structurally deflationary. Indeed, in terms of public sector net worth, systemic public ownership that in this case governs investment in and operation of a systemically significant sector or input such as electricity provides both policy room to manoeuvre and economic resilience capacity that exceeds tidy accounting of liabilities versus revenue by assets.
5 Institutionalising a Public Clean Energy Champion

This chapter lays out how a public energy should be set up to overcome the challenges laid out in the foregoing chapters.

We start with the concrete targets for energy investment that should be enshrined in the organisation’s mandate. We outline a set of complementary strategic objectives that serve to guide it along this journey. To this end we list six key elements required for success, and finally provide some time horizons for organisation’s first hundred days.

The strategic objectives include coordinating the accelerated electricity decarbonisation process through a systems-functioning investment logic, building public value through project cost efficiencies, supporting a just transition, keeping electricity bills low and stable, and serving as the foundation of a green industrial strategy. While some of these objectives may be in occasional tension (e.g. minimising project costs versus supporting labour rights in the supply chain), the institutional form can allow more policy room to negotiate these tensions and render them less acute. The key components of success include: an expansive remit with a robust governance structure; ambitious investment programme and capability; suitable borrowing powers; a National Energy Guarantee retail offer; control over Grid expansion; and new planning powers to expedite the permitting process.

This chapter charts how a public energy generation company should be established and properly empowered to achieve transformative decarbonisation goals and other socio-economic benefits discussed in this report. We do this by first setting out a vision, mandate and set of objectives for the company to pursue. We then sketch the institutional design and capitalisation and investment programme required to meet these goals. The recommendations set out an ambitious but deliverable investment pathway to scale a clean energy champion — one capable of producing the majority of new renewable electricity in Britain by 2040 — and how that can be achieved within established fiscal frameworks. In doing so, we set out how a national energy champion could operate in relation to community energy development, suggest how it could backstop a new minimum energy guarantee pricing system and outline our view of the company’s potential relationship to the transmission and distribution networks.

An ambitious new generating company can play a decisive role in accelerating power decarbonisation while better retaining the benefits for the public. The first order priority of this new entity should be the rapid expansion and decarbonisation
of electricity generation; a second order priority — albeit still important — is to support inclusive growth, macroeconomic stability, and the thickening out of high-value domestic supply chains. As such, legally establishing such an entity should be the priority of any future government within its first 100 days with an investment agenda necessary to deliver on these priorities. In doing so, we recommend the public enterprise adopts the following vision and mandate; objectives and necessary systemic functions; and the design, and capitalisation and investment programme to transform Britain into a “clean energy superpower”.

**Vision**

The creation of a public company to develop, own and operate the majority of Britain’s new renewable infrastructure for shared benefit, accelerating the transition to a future of abundant, secure, domestically produced clean power for all. Unlike past decades, where the privatisation of the petrocarbon riches of the North Sea failed to build long-term public wealth, this operationally independent but strategically focused company would steward the energy commons — the sun, and the wind, and the waves — for common benefit for generations to come.

In doing so, an ambitious new public company can provide a decisive institutional break from the current industrial structures governing the power sector — unbundled, fragmented, private, for-profit, and marketised — moving from market coordination toward public coordination of the transition: integrated; properly synchronised, sequenced and prioritised; public oriented; and with democracy, decarbonisation and decommodification of power the triple horizon of achievable ambition.

**Mandate**

The company should be mandated to act as the decisive engine to transform Britain into a genuine “clean energy superpower”, along with the mutual goals of maintaining price and macroeconomic stability and building common green prosperity in the UK. Britain's power sector being the site of international investment by a mix of multinationals, private equity operators, and foreign state-owned firms is not enough to make the country a genuine “superpower”. That requires the development of domestically owned and controlled production, with autonomous strategic capacity, secure supply, and above all, significant scale. To achieve that, the new public enterprise should be required to pursue three targets:

> Contribute to an initial and rapid renewable generation infrastructure buildout to hit a potential net-zero 2030 power target (while recognising there will be a ramping effect as public sector capacity develops);
Play the leading role in delivering a net-zero power system by 2050 at the latest, investing in, owning and operating the majority of new renewable power brought online in the coming decades to achieve that target. The TUC suggest an ambition of scaling to relative the size of France’s EDF by 2040 (which currently produces around three-quarters of all domestically generated energy in France, 418 of 549 TWh in 2021) which constitutes a stretching but reasonable goal.91

Invest in scaling up nascent technologies, derisking new projects, and accelerating deployment of flexible technologies to support the transition and secure ancillary domestic industrial and service sector supply chains.

The programme of fixed capital investment it delivers — the mix and scale of technologies and their sequencing — is for the company to determine but should be guided by this mandate.

Complementary Strategic Objectives

If the mandate should act as the company’s North Star, a complementary and reinforcing set of strategic objectives should guide its forward journey. The fulfilment of these objectives — detailed below — are best delivered if the company absorbs and performs the following systemically significant functions. Some of these functions should be ramped up over time but by 2040 they should be integrated into the operation and strategic role of the public enterprise within the electricity system as a coherent set.

1 Coordinate and accelerate decarbonisation of electricity, delivering long-term energy security through the public enterprise form

Large-scale investment in and operation of the majority of the UK’s new clean energy generation, beginning with the commissioning of new capacity to contribute toward Labour’s clean power 2030 target. A systems-functioning approach rather than project-profitability logic to investment is critical, enabling the ability to synchronise, sequence and prioritise investment decisions. Centralising and consolidating the control rights of currently disparate generation assets into the hands of a coherent authority offers such coordination benefits. An industry as profoundly important as energy ought to be able to realise the coordination benefits of vertical and horizontal integration without risking the predation associated with private monopolies. And the institution and broader decarbonisation project should be able to benefit from

the recycling of revenues and cross subsidisation of projects that investing in all technologies allows.

2 Minimise project costs and build public value

Harness public procurement and ownership benefits to minimise costs and build value, as the company will face no need to pay dividends, will benefit from structurally lower cost of capital than private projects and will not stipulate subjective hurdle rates in excess even of these costs as a condition for going forward with socially needed investments. Therefore, future large-scale renewable investment will be structurally cheaper if done through public enterprise. Superior consequences for public sector net worth result from bringing assets onto the public balance sheet in exchange for public expenditure, relative to prevailing subsidy and derisking approaches. Moreover, freed from the need to pay dividends, public enterprise is a vehicle through which to cross-subsidise projects and recycle revenues into further capital investment or further consumer electricity cost reductions as opposed to dead weight loss of dividend extraction. Given the foreign ownership prevalent in the sector currently, this will also have a positive balance of payments effect.

3 Keep electricity bills low, stable and resilient to shocks

Immediate macroeconomic benefits would come from public ownership of existing generation capacity — growth and disinflation. Public ownership will not only will deliver a cheaper transition, but it also offers the potential to socially set electricity prices — especially once capital investment costs are recouped over time, which would be profoundly and structurally deflationary due to renewable-centric system’s low marginal costs, and also more resilient to physical and economic shocks. Toward these ends, as part of wider electricity pricing reform, the public company should backstop a new National Energy Guarantee retail offer (see below for more details).

4 Support a just transition

Privatising the development of renewable energy transforms what should be a shared infrastructure — and common natural resources — into a new site for extracting and concentrating financial wealth. Nearly half of the UK’s offshore wind is already publicly owned — by foreign governments through sovereign wealth funds and state-owned enterprises — with the rest in the hands of private equity and multinationals. As a result, energy bills represent a transfer of income from squeezed households to these asset-owners and beneficiaries largely situated outside the UK. If the buildout of future energy infrastructure is monopolised by these actors, then this mechanism of upward and outward redistribution will expand and entrench. At the same time, the energy system, as the recent cost of living crisis has underscored, is fundamental to
our collective wellbeing. Seeing publicly owned infrastructure being built across the 
four nations of the UK would be a highly visible sense of greater public control over 
— and benefit from — this fundamental sector. It could also anchor a step change 
in employment quality in the renewables sector and ancillary supply chains through 
the use of stringent procurement standards, industry leadership, and ensuring pay 
and conditions are determined by collective bargaining. Functions therefore include 
setting labour standards in the energy sector; returning income to the public purse 
that would otherwise flow to overseas investors; and embodying a new approach to 
the development of shared resources.

5 Serve as the foundation of a green industrial strategy

The current clean generation investment regime — which relies on private 
investment — causes a tension between maintaining profitability of both private 
generation and private production of inputs, while pushing for lowest possible 
consumer costs of said generation, which has led to an erosion of the stability of green 
production networks or supply chains. Public renewable generation would address this 
issue, as a public company freed from the burden of furnishing a maximal shareholder 
dividend could purchase inputs at higher prices while still maintaining lower consumer 
electricity costs than a profit-maximising private generation system. In this sense, 
public ownership derisks private investment in green production networks without 
falling into the model of socialising risks and privatising profits. A function of large-
scale clean electricity generation is therefore to subsidise private industry in other 
sectors as part of a green industrial strategy. For example, structurally cheaper public 
renewable energy generation can systemically subsidise manufacturing sectors such 
as green hydrogen, green steel, or battery production.

The Architecture of the Company

Delivering on this mandate and objectives will require scale, itself dependent on 
decisive and bold action, including endowing it with appropriate powers. In this section 
we set out six key elements required for public enterprise to do so:

➔ Institutional design, operational remit and effective governance to provide 
strategic leadership, value for money and democratic direction;

➔ Ambitious investment capability to develop and deploy generation rapidly and 
cost-effectively;

➔ Appropriate borrowing powers to undertake necessary future investment;

➔ Underpin a National Energy Guarantee retail offer that can cut bills and reform 
the wholesale marker;
Coordinate and expand a renewable-ready grid as part of wider public coordination of the energy transition;

New planning powers to expedite the development and build process.

Institutional design, effective governance, operational focus

As is best practice among other successful national energy companies, the generator should be a limited liability company with the state as the sole shareholder (with the company owned on behalf of the public) Capitalised initially through Treasury-issued gilts to maximise cost of capital savings for upfront investment, the energy company should nonetheless sit off the state’s balance sheet and have operational independence to pursue its mandate and objectives. It should have independent borrowing powers. The company’s governance should reflect the fact is owned and operates by and for the public (further details below).

We recommend that the company has three main divisions. Each division would draw on technical expertise related to their sectors and areas of focus:

- **Mature**: A division focused on rapidly scaling mature technologies, primarily through building and operating new wind and solar capacity (including generation and related transmission, distribution, and storage needs);

- **Frontier**: A division focused on accelerating the deployment of frontier generating technologies as well as ancillary technologies like demand side response, long duration storage and green hydrogen;

- **Community**: A division focused on supporting community clean power initiatives (see box out and forthcoming paper for more details on how this could operate).

Operationally, GBE should develop and deploy a balanced portfolio of mature and frontier technologies. Passive stakes of majority-private owned projects will not offer the same benefits of structural public ownership of generation that we evidence in this report; retaining direct ownership and operation gives flexibility on how to quickly and rationally address questions of prioritisation, sequencing and distributional concerns that will inevitably arise through the transition to a decarbonised grid, helping both accelerate the transition and make it more cost-effective. Therefore, while not precluded from taking partial equity stakes in projects, the modus operandi of the clean generation enterprise must be direct majority ownership, undertaking the preponderance of necessary investment across all technologies. Ownership stakes at 51 per cent of projects is the minimum necessary to assume control rights over day-to-day operations, which bring the many of the coordination powers we have stressed, for example procurement. We note a trade-off between outright ownership — with full coordination, income, and pricing control rights—and a 50+1 approach that would
enable the company to capitalise and operate a larger portfolio of projects more immediately. In balancing these trade-offs, the imperative is that ownership structure enables a systems-level approach to investment and maximal control of operation of assets at the system level.

The exact mix of technologies should be guided by what combination would deliver a net-zero grid fastest and cheapest. This will necessarily involve a broad and balanced range, including onshore and offshore wind (both fixed and floating turbine), solar, tidal and green hydrogen. Excessive focus on frontier technologies, many of which are not expected to come online until the 2040s at the earliest, will do little to decarbonise the grid in the near-term or reduce our exposure to volatile fossil fuels; it also risks creating potential cashflow vulnerabilities and leaving the company excessively reliant on public capital injections, as frontier technologies will likely not yield regular income in the coming decade. Conversely, a singular focus on mature technologies risks missing out on unproven but potentially critical new technologies and supply chains of the future, and would miss out on the benefits of investing in derisking and scaling up nascent technologies and the deployment of flexible low-carbon technology. Nonetheless, given the imperative to hit fast-approaching clean power targets — and the need to exponentially expand renewable generation in the decades thereafter — proven technologies should form the majority of the company’s portfolio, at least in its first decade.

To hit the ground running, the public enterprise should run competitive direct public procurement auctions for bids to build public generation assets as the best route to clean energy security annually during the first parliament. This approach would immediately deploy private building capacity backed by the certainty of socialised investment decision-making. To hasten the process, the public enterprise could, for example, go back to one of the recent failed developments as a redeveloper. By drawing on established private sector development capability, this approach would also help answer concerns around public sector capacity, enabling a smoother ramping up while still commissioning and investing in new generation.

Once properly established and operational, the enterprise should aim to meet all cash flow commitments without regular cash inflows or subsidies from the Treasury. In setting internal hurdle rates, it should seek to balance selling electricity as close to cost as possible against bringing in extra cashflow to protect its operational independence.

**Governance**

We propose a tripartite organisational structure aimed at democratic and effective generation of the energy transition: an executive board with managerial autonomy; a competent technical structure supporting and guiding the enterprise’s investments, ongoing operation of generation assets and broader economic activities; and a stakeholder board, comprised of members of the public.
**Strategic Board:** this board would be the ultimate decision-making body of the public generation enterprise. It would have managerial autonomy with respect to investment decisions and the use of funds. It would be composed of a chairperson, a deputy chairperson and an odd number of experts (ideally five or seven), enabling decisions to be taken by a simple majority. The chairperson and its deputy would have further delegated autonomy and powers. The other appointed experts would need to have proven expertise in the power system. HM Treasury and the Department for Energy Security and Net Zero would be responsible for putting forth nominations for executive board members to be formally appointed by Parliament for fixed-term four-year period. One possibility — particularly in light of capacity concerns — would be focusing recruitment on those with proven experience in running public enterprise in the renewable power sector, e.g. executive board members from Ørsted, Statkraft, Vattenfall, EDF, and so forth. As an independent public enterprise, these supervising ministerial departments would be concerned with supervising the enterprise’s adherence to the provisions of its establishment act — which may include delivery of capacity targets and other formal objectives — and with monitoring against any formal breach of rules of conduct by its appointed executives.

The **technical structure** comprised of personnel with expertise in the electricity system, financial management, industrial strategy and the broader decarbonisation of the UK economy.

**Democratic stakeholder board:** As the political economist Michael McCarthy argues, “A truly democratic society needs input from ordinary people in investment decisions.” This is all the more critical for public enterprise which is owned by and operates on behalf of the public. A stakeholder board should therefore be established to directly incorporate citizens’ input into investment decisions.92

The fifteen-person stakeholder board — appointed by sortition with members having a two-year term — should provide input through a deliberative democracy style forum. It would review the enterprises’ operation and whether it is complying with its mandate; it should have the power to require the Board to revise investment or corporate decisions if they are not aligned with the mandate.

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Ambitious investment

EDF, which produces almost three-quarters of France’s electricity, was created through the nationalisation and vertical integration of existing generating and transmission capacity in 1964. With Labour (and other parties) ruling out the nationalisation of all existing generation assets, the alternative route to creating an entity of comparable scale — one able to make Britain a genuine “clean energy superpower” — is a large-scale investment programme in new renewable capacity (the vast majority of which is still to be built) over the coming decades. Recent modelling by the TUC finds that a new public energy company would need to invest £114-£153 billion between 2025 and 2040 to reach a comparative scale to EDF, relative to Britain’s size and population.93

To achieve this scale of investment from a standing start, assuming that a similar proportion of that investment would be sourced through debt financing as with

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existing renewables developers across Europe (both public and private), the modelling shows that a transformative entity would need public capital investment allocation of £61.4 - £82.3 billion in the decade ahead. As the TUC argue, “for a new public energy champion to operate successfully, this capital allocation should be frontloaded towards a new government’s first term from 2025. We argue that at least £40 billion of capital investment should be allocated between 2025-2030.” Following initial capitalisation, the remaining capitalisation “£21.4-£42.3 billion should be provided in 2030/2031, once the public company has demonstrated its capacity to scale up, but before it has fully invested its initial capital allocation, to allow a continued pipeline of projects and prevent a bottleneck in deployment.” 94

Once firmly established and scaled into the mid-2030s and beyond, the public company would be able to issue its own debt and not depend on further capital (or cash flow) support from the government to fund its investment and day-to-day operation (though, as is common in other public energy companies, we should leave open the possibility of further capitalisations down the line as a sign of continued public commitment or confidence in the company’s progress).

In order to deliver the required £40 billion of capital investment over the course of the coming five-year Parliament (ramped up over five years), following an initial capitalisation of £8.3 billion, further capitalisation funding should come from two main sources:

→ Direct government injection, either by Treasury borrowing e.g. as part of Labour’s Green Prosperity Plan, or tax-funded.

→ Off-balance sheet financial institutions such as the UK Infrastructure Bank, which has a mandate to invest in clean energy infrastructure and an investment war chest of £22 billion; drawing on the Crown Estate’s £16 billion portfolio, which as manager of the UK’s seabed — except Scotland — already invests significantly to run leasing rounds and derisk the process for developers, and can be directed to invest in public sector renewable development; and, if they form the next government, Labour’s proposed National Wealth Fund (with an initial public capitalisation of £8 billion).

Potential sources for funding investment through additional taxation as a substitute or addition to borrowing to invest include extending the windfall tax on oil and gas companies, or broadening it to include the banking sector, which has made similar, if less well publicised windfall, due to increases in interest rates. Funding a significant proportion of the company’s capitalisation and investment programme out of taxation would mimic the pay-for approach of the Inflation Reduction Act, whereby increased public investment is matched by tax increases. Regardless of approach,

94. Ibid.
the key point is that ambitious and frontloaded investment total is critical if the public enterprise is to rapidly scale and maximise its potential benefits.

Ambitious as the moment demands, this £40 billion of public direct investment power figure is nonetheless less than double the £22 billion in public funds in the first five years allocated to the UK Infrastructure Bank by the Johnson government. Moreover, given rapidly expanding and decarbonising electricity generation is so key to greening and making more competitive others sectors, such as transport, heat and industry, this is a highly effective use of public investment, while leaving significant private investment for other areas of the economy.

Private sector investment into the sector — either as wholly private projects or in minority partnership with the public enterprise in blended projects — would be welcome, both to contribute to existing domestic decarbonisation targets and also to increase energy export potential in coming decades — a potential source of significant growth for Britain. The public enterprise would also of course partner with private sector developers at significant scale, particularly while it is still scaling its capacity. Indeed, our recommendations do not eschew private activity and indeed should be viewed as a more effective regime for derisking and stabilising private investment and activity in green and in greening production networks.

To give a sense of what a five-year £40 billion investment programme could commission, the Hornsea 3 project is expected to have a capacity of almost 3 gigawatts (GW) with an estimated cost of £8 billion. While this is a large-scale project, undertaking ambitious procurement of private developer capacity, the public enterprise could commission non-trivial levels of capacity in its first half-decade to come online in the 2030s.

Adequate borrowing powers

Just as with other publicly-owned companies from other countries, a public energy company must be able to borrow to invest. Not being able to do so would significantly and damagingly inhibit its ability to scale and collaborate and leave it reliant on government financing to operate. Conversely, as publicly-owned and publicly backstopped enterprise, it would be able to borrow at lower cost than private sector firms, with access to cheaper capital a key aid in the development of renewable capacity (as well as enjoying large-scale capitalisation in its first decade at significantly lower costs of capital than private sector alternatives).

As with other public clean energy companies, such as Ørsted, Vattenfall, or Statkraft, its debts should not be included in national public sector net borrowing figures. Currently the UK is an outlier in that the debts of all its public sector trading companies are included within national public debt statistics. To address this, the TUC is right to argue the government should update its classification guidelines so that
future PSNB accounting excludes public energy companies. There is precedent for this: the EU excludes all public sector trading companies from public debt and deficit rules, while the UK government excludes the debts of banks nationalised during the financial crisis from public sector debt calculations, as well as public bodies such as Network Rail and TfL.

**Supporting a New Era of Community Energy**

While we have focused on the role of public enterprise in accelerating the large-scale development and operation of publicly owned renewable assets and scaling domestic supply chains, it also has an important critical and innovative role in capitalising and scaling community energy. For example, Labour have set out a £3.3bn capitalised Local Power Plan, where GBE would provide funding for local authorities and community energy organisations to finance the number of local green energy projects on council-owned land and buildings, or community-owned and led initiatives. GBE would be the lynchpin of this strategy providing the institutional context, patient investment, coordination and capacity-building to give communities control of their energy future.

We recommend that GBE and local communities adopt the public-commons partnership framework, where communities govern and co-own energy projects. Public-commons partnership in this proposal are comprised of three parts: 1) local authorities; 2) a “Commons Association” whether it be a tenants’ union, energy cooperative or other community association; 3) project-specific stakeholders such as worker representatives or subject matter experts. Learning from the Inflation Reduction Act, we recommend that the capitalisation fund is “uncapped”. In other words, if there is greater demand from local authorities and communities for investment from GB Energy into local projects, then the scale of support should not be arbitrarily capped; instead, GBE should be able to issue bonds to enable it to support viable community and council owned energy projects.

**The Creation of a National Energy Guarantee**

Driving the transition to a net-zero grid is only the start. The goal must be to convert common renewable abundance into sustainable, affordable, and secure energy for all. Key to this is moving toward a new residential energy pricing system — a National Energy Guarantee — that would at once lower and fix the price paid by households for their essential energy needs. Emerging from the Energy for All campaign coordinated by Fuel Poverty Action, and developed by the New Economics Foundation, this would see the introduction of a rising block tariff system. Under a National Energy Guarantee, which would be cost neutral in design, each household would receive, free of charge,
enough energy to ensure it can cover its needs (weighted by the number of people in a family and to account for any disability needs).

Above this guaranteed block of free energy, a higher and progressively rising price would then be charged for higher levels of usage; in other words, free energy for everyday usage, sharp and rising prices for luxuries like heated swimming pools.

There are a range of benefits to this approach. Most obviously, by ensuring everyone had access to a free energy block for life’s necessities it would mean no one would have to choose between heating and eating, ending fuel poverty. In doing so, this policy would be strongly redistributive: modelling by NEF suggest that under their version of the National Energy Guarantee, 80 per cent of families would receive considerable net support.95 As NEF argue, this has a number of advantages. It would also create a strong incentive for high energy users to improve energy efficiency; while beyond the scope of this report, we support those arguing for a mass programme of grants and incentives for home insulation and retrofit to address the fact UK homes are among the least energy-efficient in Europe.

Beyond the Wholesale Market

Under the current design of Britain’s electricity market, electricity prices are broadly pegged to the price of gas, which quintupled in the year following the February 2022 invasion of Ukraine. As Common Wealth has previously shown, the design of the wholesale market has both transmitted these soaring gas prices to energy bills for households and businesses, and created windfall profits for renewable generators.

This previous Common Wealth analysis has assessed a range of options to address this structural flaw, including: a price cap for low carbon generators; a windfall tax on low carbon generators; a voluntary shift to Contracts for Difference (CfDs); and splitting the electricity market. Based on an assessment of cost savings on bills, complexity of implementation, long term impact and capital cost, the analysis found that a large-scale publicly owned generating company represents the most promising solution across the broadest range of criteria.

As a long-term ambition, a public generator should aim to sell electricity at cost via a Power Purchase Agreement directly to a network of regional public suppliers. The publicly owned generator would set the strike price; it would achieve a similar outcome to the CfD model but guarantee that all low carbon generators would be shifted to a price that simply covers their costs.

Public Ownership and Coordination of the Grid

Expanding renewable generation is not enough: power decarbonisation hinges on transforming the transmission and distribution networks of the grid to meet demand for higher capacity, a proliferation of new connections to renewable sources, and the different geospatial requirements of a renewables-based system. To give an example of the scale of transformation required, to meet government power decarbonisation targets, it is estimated that five times the number of transmission lines need to be built by 2030 than were built in the last thirty years.\footnote{“Delivering for 2035: Upgrading the grid for a secure, clean and affordable energy future”, National Grid, May 2023, \url{https://www.nationalgrid.com/document/149496/download}} A private, for-profit monopoly with a poor track record of investment is badly designed to undertake this programme of investment and coordinated deployment. A corollary of a publicly-owned generator is a public grid. Labour have proposed GB Energy bid in competitive tendering processes to build future elements of the grid. While that is a step forward, a more integrated approach would be to return the grid to public ownership in its entirety, as is common across Europe and North America, where such a critical piece of national infrastructure is typically in public hands.

A recent Common Wealth report — which made the case for public coordination of the grid as the most effective means for building out a renewable ready network — found that over the period from 2015 to present, the yields on ten-year bonds issued by entities related to both the National Grid and the distributed network operators have carried an average spread of 1.94 percentage points over equivalent UK gilts issued at the same time. If this spread were eliminated, based on the projected £40 to £110 billion in the debt-financed network investment required by the transition, public ownership could lead to savings of £776 million to £2.13 billion per year. If we assume an average debt maturity of ten years, then these savings would total a cumulative £7.76 to £21.3 billion.

Planning Reform

We agree with the political economist Brett Christophers in that the major “P” inhibiting the more rapid roll-out of renewables, both in the UK and globally, is not planning but profit: a reliance on the profit motive to structure investment decisions. The architecture of the public enterprise outlined above seeks to substantively and substantially cut that knot. However, we also support reform of the planning system to expedite the development and construction of renewable infrastructure, both generation and the grid (transmission and distribution). This should build on the UK government’s proposed reforms National Planning Policy Framework (NPPF) to reduce (unreasonable) costs and delays caused by both national and local planning systems to both new renewables and the grid.
Measures could include: greater investment in planning capacity, which has been gutted by under-investment; new targets to speed up consenting decisions for renewable projects; rolling back inhibitions on onshore wind development; requiring local authorities to proactively work with developers, public and private, to identify and allocate areas suitable for renewable generation; and developing a national spatial and strategic planning framework that works across departments (and with local and combined authorities, as well as devolved Parliaments).

A bolder measure could be to mimic the Norwegian model, where the Norwegian Water Resources and Energy Directorate is able to grant developers a permit to expropriate (with compensation) landowners with whom purchase terms for rural land to develop generation could not be agreed voluntarily to expedite the planning and development process.

**Time Horizons**

Institutionalisation of an ambitious public enterprise, and its effective operation, will take time and is a necessarily open-ended process. Nonetheless, to succeed, it is critical that the initial establishment of the company endows it with institutional, financial and political momentum so that it can scale and fulfil its mandate. Failure to do so would be dangerous; a key risk to proposals like GBE is that despite bold claims, it amounts to little more than a small-scale derisking vehicle of private sector investment, doing little to address the challenges in the energy sector, and certainly not in a way that triggers political support. To avoid that, we recommend that a new government undertakes the following steps to constitute a transformative publicly-owned energy generator in its first hundred days and set it on the path to long-term success.
Figure 5.2  Our Vision for the First 100 Days of GBE

1. A new government legally charters GBE, sets out power targets, and capitalises robustly
   - Immediate charter with robust capitalisation of GBE allowing it to take institutional form early in the new government
   - Reaffirmation of political, whole of government, intent to reach 2030 power sector decarbonisation

2. Technical experts in planning, development and operations are hired
   - Developing a skilled workforce that draws on the capacity of the private sector’s current labour force
   - GBE jobs are competitive with private developers and electricity operators to kickstart initial projects and build longer-term institutional capacity

3. RO assets are brought into public ownership
   - Bringing existing RO assets into public ownership will have an immediate deflationary effect on electricity prices, building support for GBE
   - Provide an immediate revenue base and a set of assets through which to build operational expertise

4. Initial investments are announced
   - Picking up and replanning any projects cancelled by private developers
   - Done as a reverse auction akin to CfD, but around development cost bid rather than strike price

5. Initiation of ten-year plan for system-wide rollout
   - Can be iteratively done in consultation with other public institutions such as the UK CCC and DESNZ
   - Critical for charting GBE’s initial investment paths and coordinating economy-wide investments such as labour training and input production
1. A new government legally charters the company with the aforementioned mandate and governance structure and endows it with initial capitalisation in its first major fiscal event. The governing board and senior management should include a mix of people with experience running public sector renewable companies and UK renewable energy experts. Legislation should affirm the intention to meet the 2035 power sector decarbonisation target (or 2030 if Labour are elected) through the new public enterprise; and confirms its central role in delivering a net-zero power system by 2050.

Immediate charter with robust capitalisation of GBE will be essential in ensuring it can begin to take institutional form and operations early in the new government, in line with meeting power sector decarbonisation targets. Reaffirming political, whole of government, intent to reach 2030 power sector decarbonisation through GBE-style vehicle will provide necessary certainty for investments throughout the UK economy.

2. Hire technical experts in both electricity planning, project development, and operations of renewables assets.

Developing a skilled workforce will be essential for the successful delivery of its mandate. There is a great deal of capacity in terms of knowledge and technical expertise found in the private sector’s current labour force, and making the jobs of the public company competitive with private developers and electricity operators will be essential to both kickstarting initial projects and longer-term building a robust institutional knowledge and broader capacity base.

3. In order to kickstart transition and begin process of building a portfolio of assets and contain sectoral prices, bring RO assets into public ownership through a one-off thirty-year gilt issuance (separate to any investment allocated for new renewable generation).

As this report has discussed, bringing existing RO assets into public ownership would have an immediate effect on electricity prices. Such price deflation would build political support for GBE and public generation. Moreover, it would provide both an immediate revenue base and a set of assets through which to build operational expertise.

4. Announce a handful of initial investments, which should include at least one project cancelled by private developers, to replan as public projects by GBE.

This can be done as a reverse auction akin to CfD but not around strike price but development cost bid. We argue that picking up a project that the private sector refused to complete would be a simple route to initial project development and would have great political effect, signalling the significance of GBE and power sector decarbonisation goals.
5. Initiate process of creating five-year plan that includes electricity system mapping along with planning labour force needs.

This can be iteratively done in consultation with other public institutions such as the UK CCC and DESNZ, but will be critical for charting both GBE’s initial investment paths and coordination of economy wide investments and decarbonisation capacity such as labour training and input production.
6 Conclusion: A Vision of Public Power in 2040

The energetic basis of society profoundly shapes its socioeconomic order. Our energy system is defined by double extraction: of the upward transfer of wealth from people and planet to those who own and control the resources and infrastructures that we depend upon for power. That extractive relationship is inseparable from — and drives forward — our unequal and carbon-intensive economy. Unless we transform that foundation, we will struggle to build a sustainable and secure economic future that works for all. We therefore propose an alternative vision: in place of extraction, an energy democracy, where we harness the resources of our island home to benefit all of us for generations to come.

The expansion of public ownership is fundamental to realising the vision of an energy democracy. This is not just because public ownership can develop clean energy faster and cheaper, though it can. It is because an alternative institutional framework — based not just on public ownership of the generating assets, but public control of system-wide investment and pricing decisions — is the best way to achieving security, speed, and stability for the broader energy transition and macroeconomy.

Realising that vision will depend — as this report has argued — on an alternative industrial structure for the power sector:

- Public power driven by the public interest: from private ownership of generating assets with investment organised by the profit imperative to public ownership with investment guided by economic and environmental needs.
- Vertical integration: from a fragmented market of generation, supply and transmission to a vertically integrated industry.
- Strategic planning: in place of competition and market coordination, public coordination and strategic planning.
- Energy for All: from power as a commodity to a human right provided for all through a National Energy Guarantee.
The Greatest Generation: How Public Power Can Deliver Net Zero Faster, Fairer, and Cheaper

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Charts and visualisations by Sophie Flinders, Adam Almeida and Sophie Monk

February 2024

Common Wealth would like to thank Advait Arun, Alex Chapman, Brett Christophers, Sahil Dutta, Susanna Elks, Amelia Horgan, Chaitanya Kumar, Chirag Lala and Lorenzo Sani for their comments on this paper. Any errors or omissions are the authors’ own.

Common Wealth is reimagining ownership for a sustainable and democratic future.

Working at all levels, from community and grassroots groups to national and international policymakers, we combine rigorous analysis and research with bold ideas for an economy that works for everyone.

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