

Energy White Paper 2020

“Powering Our Net Zero Future”

21 December 2020



“Governments and the private sector must work together to pursue a transition that is both fair and just – we cannot leave behind parts of society, or entire countries in developing markets, as we pursue the path to a low-carbon world.”

Larry Fink (CEO and Founder) BlackRock, Letter to CEOs 2020

“The UK is leading from the front in the transition to clean energy, while ensuring that we leave no one behind as we build back greener.”

Rt Hon Alok Sharma MP, Secretary of State for BEIS, Energy White Paper 2020

Ten points to note

The market has been waiting for the Energy White Paper since June 2018 (even before the Russia World Cup saw England's semi-final "levelling up" at the hands of Croatia and Boris Johnson's elevation as Prime Minister). At the same time, no one needs reminding that the UK Government has been focussing on a range of emergencies other than climate change (and Brexit) in the intervening period.

This White Paper, published on 14 December, contains 170 pages covering a broad sweep of legislative proposals to reform the UK energy market¹. Its scope is vast and urgent and its publication has been well received by most. On the same day it was released, Jonathan Brearley, Chief Executive of Ofgem welcomed the "**ambitious programme to build a fairer, greener energy system**". Its greenness and fairness leap from every page, as does the obvious, but implied, cost to deliver it.

1. Its range is extensive and the impact significant

The White Paper covers all aspects of decarbonisation, from offshore wind, nuclear, solar, energy storage, carbon capture, use and storage (CCUS), and hydrogen through to electric vehicles, domestic heating and transmission and distribution market reform across energy networks. While the energy sector covers a diverse array of industries and technologies, the focus of the White Paper is not energy itself, but how energy security and affordability can be maintained; how the population can remain mobile when moving and warm in their homes when stationary, while net-zero objectives are brought to the fore.

2. The capital commitments needed are enormous

"Significant investment" by the public and private sectors is flagged in the Ministerial foreword by the Secretary of State. This theme recurs throughout the White Paper, with nearly 100 references to "investment" and only a handful of references to "expenditure", usually in the context of it being saved. Private sector investors will welcome the potential opportunities this presents, however for those markets where investable regimes remain to be developed (eg nuclear power, hydrogen, CCUS) we will need to wait for subsequent policy developments (including subsidies).

This note picks out what we regard as the ten key points to note on the White Paper.

There are some very significant questions raised and many that remain to be answered, with more detailed policy platforms signposted throughout the White Paper. None of the issues to be addressed could be described as easy and the co-ordination of so many moving parts will remain a challenge for this Government and beyond².

Issues arising from these topics, such as construction, market design to bring in investors and lenders, consumer protection and data collection and usage are also covered.

Surprisingly (or perhaps pragmatically, given the continued uncertainty regarding the terms upon which the UK and the EU will continue to engage following the end of the transition period), there is no express mention of Brexit, just a reference towards the back of the document to the UK's "**world leading**" carbon emissions trading proposals "**Having left the EU**".

In the context of offshore wind, increasing UK's generation capacity from 10GW to 40GW is recognised as requiring "**billions of pounds of investment**". The White Paper additionally makes reference to the investment required to take "**at least**" one further large-scale nuclear project forward, but there is no overall estimate of the capital commitments needed to deliver on the White Paper proposals.

Finally on this point, there is no statement as to how the Government anticipates the required capital commitments to be funded, which, from an investor perspective will be critically important.

¹<https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future>

²The U.S. has similar ambitions across a similar timescale – <https://www.bloomberg.com/news/features/2020-12-10/how-joe-biden-s-2035-green-energy-grid-could-work>

3. Building back better, levelling up and employment opportunities are all emphasised

Key themes, identified from the first page and throughout the document, include the significant damage to the UK economy of Covid-19, justifying the significant investment needed, new industries and technologies and the professions which are to be created by this new global Green Industrial Revolution.

An estimate of 250,000³ more jobs being “supported” by 2030 by the new markets is given (p2 of the White Paper).

4. Affordability

Affordability and fairness are mentioned repeatedly throughout the White Paper as part of the reassurance being given to consumers that saving the planet will not cost the earth⁴. The emphasis on household bills remaining affordable over the 2020s raises the concern as to what those bills may need to include following that date and whether a combination of increased competition, innovation and taxpayer funding can in fact deliver long term affordability, including for subsequent generations. The projections on p26 of the White Paper appear to show that BEIS believe this to be possible, but there is to be a call for evidence to be published by BEIS to begin a “strategic dialogue” between government, consumers and industry on affordability and fairness. As is the case currently, there is a real challenge to ensure that all benefit in a fair way (or that all are “levelled up” rather than “levelled down” or left unlevelled entirely).

The key points here of course, are first, how to design a market or series of markets that are sufficiently attractive to deliver the investment needed from the infrastructure and energy investment community at a price that does not leave anyone behind (to pick up on the point raised by both Fink and Sharma in their quotes above)⁵. And secondly, to do this in a manner that is also sufficiently fair from an intergenerational perspective.

From an investor perspective, our expectation is that the reference to “industry” (as part of the strategic dialogue) in the White Paper will include financial investors as well as industrial strategics. We also trust that the absence of a reference in the White Paper to the financing duty (that is the statutory duty to regulate so that licence holders can finance the conduct of their regulated businesses) will mean that it is at least retained in its current form.

5. The transition away from fossil fuels and decarbonising the economy will take some time

Clearly, with a target of net-zero by 2050, the pace of change needs to accelerate, but it will still take some time. Coal will now be phased out of energy generation by 2024 although gas will take significantly longer.

One interesting point to note is that BEIS modelling suggests that with the increased use of electricity in heating and electrification of cars and vans, the overall demand for electricity could double by 2050. Delivery of this will, it is said,

“be composed predominantly of wind and solar”⁶, but also have to include nuclear, batteries, interconnectors and “short term dispatchable generation providing peaking capacity” (likely gas, we assume, unless hydrogen can be brought forward at a scalable level in a relatively short timeframe) to help deal with intermittency.

³Although this number reduces to 220,000 on p15 and in the accompanying Press Release.

⁴Picking up from Martin Cave’s Speech at Ofgem’s State of the Market event on 3 October 2019.

⁵See also the use of digital infrastructure which should optimise the integration of different low carbon technologies referred to on p81.

⁶See p43 of the White Paper.

6. UK Offshore wind will grow fourfold

The ambition is to have 40GW of offshore wind by 2030, an increase from the current 10GW, which is to include 1GW of floating offshore wind, a relatively new form of delivery. Also promised is a continuation of regular CfD auction rounds every two years to include onshore wind, solar photovoltaics and other technologies as well as the offshore wind auctions. Beyond 2030 (given point 5 on the doubling of demand being met by wind and solar), the increase will continue past 2030 and for at least another two decades.

An interesting aspect of this is the creation of a Ministerial Delivery Group, in recognition of the difficulties that can be

created by such a significant increase in renewable power. The task of this Group will be to tackle barriers, such as those facing the environment and growth of network infrastructure.

In simple terms, two examples of the issues to be faced will be whether developers should build onshore grid infrastructure on an asset-by-asset basis or for future capacity growth and whether and how the aesthetics of the proliferation of new power cables and substations on the east coast of the UK are to be handled.

7. Power CCUS to be deployed

Here the plan is for Government to support the deployment of at least one CCUS project with a new commercial framework to deliver new projects. This will be the means by which the gas peaking capacity plants can be incorporated within the decarbonisation process, and the market grow.

From a market design perspective, the economic arrangements to support CCUS projects will likely be based around the existing CfD framework in a way that “price signals” incentivise power to support renewables. We assume the approach will be published in due course (those in the industry will remember the last CCS competition which took place in 2012) – these things take time.

8. At least one large-scale nuclear project to be brought forward

The White Paper continues the Government’s commitment to nuclear power generation, including through the stated objective to take at least one large-scale nuclear project to the point of “Final Investment Decision” by the end of this Parliament, subject to value for money and relevant approvals. Contemporaneous with the release of the White Paper, the Government announced that it is entering into formal negotiations on the Sizewell C nuclear power plant project, meaning that it is reasonable to assume that, on the assumption those negotiations are successful, it will be Sizewell C that is taken forward in the near term. Also important to note is that the White Paper envisages further subsequent projects will be possible if the nuclear industry can reduce costs (30% by 2030 is referred to) and improve delivery efficiency (time and budget).

The advantages of nuclear are clear, being an energy dense, base-load, technology (generating large amounts of energy using little land, with energy generation not reliant on meteorological conditions, as compared to renewable energy assets, for example). Also flagged in the White Paper are the challenges of funding such large capital costs on the Government balance sheet, with reference to private investment via the RAB model. Finally, new modular technologies and fusion power by 2040 are referred to as playing a role “over the longer term”.



9. Major changes are needed to the energy network

Moving from an energy network based around a few “big” generators to one that is increasingly decentralised requires a different approach. Electricity and gas transmission and distribution networks will need to change to accommodate local solutions in what will still be in part a nationally organised and operated system.

The White Paper describes the smart grid of the future by which consumers can charge electric vehicles off peak (when wind is blowing in the evening, for example) and earn money by adding power to the system as market participants. More work is promised on this, with BEIS and Ofgem targeting the publication of a new “Smart Systems Plan” in spring 2021 to help address flexibility in electricity markets, including storage.

As part of this, competitive tendering for network assets (similar to that introduced by the OFTO market offshore) will at last be legislated for, offering (it is said) similar savings to that already obtained from OFTOs, which are “in excess of GBP800m”. This will be both for transmission assets and distribution assets and so goes beyond the OFTO approach.

To help balance the network a greater use of interconnectors (a threefold increase to 18GW by 2030) is also planned. The White Paper refers to the use of interconnectors as being “shown to have clear benefits for decarbonisation”⁷.

Finally, the new decentralised system may require a new system operator with greater independence than is currently the case. As part of that new system codes and governance may also be needed. As we transition from gas to hydrogen we can expect some changes to the transmission and distribution network as well as just the boilers in properties.

All in all, a great deal of co-ordination will be needed to manage the change in the network with the new generation and storage solutions being developed and brought onstream at the same time.

10. Household heating

Close to 20% of all emissions come from buildings (homes and business) and most use fossil fuels for heating, which will need to change to achieve net zero. Estimates of cost in the White Paper are of around £100 billion to achieve decarbonisation commitments, which “**must come principally**

from businesses and homeowners”. Heat pumps and hydrogen boilers are examples given, but, again, subsidies and cost are the principal constraints. The commitment by Government to help develop the hydrogen market to help facilitate this is also a necessary condition for its success.

So, we have a White Paper full of ambition and targets to deliver the 2050 net zero commitments the UK has made, with the promise of many more publications and consultations to pave the way for those ambitions and targets. Balancing the huge new energy demand and distributed generation with a major new energy network would be a challenge to any organisation.

What cannot go unsaid, however, is that the requirement simultaneously to bring in the new investment needed to deliver net zero aims in a world full of green recovery plans and energy transitions⁸ will need a real awareness and unity of purpose across Government and energy regulators for the next decade and beyond.

⁷See p79 of the White Paper.

⁸See, for example: <https://www.bloomberg.com/graphics/2020-renewable-energy-supermajors/>

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