REA response to the Business, Energy and Industrial Strategy (BEIS) Committee inquiry to examine the outlook for future investment in energy infrastructure in the UK

The REA represents renewable electricity, heat and transport, as well as Electric Vehicle companies and Energy Storage. Members encompass investors, generators, project developers, fuel and power suppliers, equipment producers and service providers. Members range in size from major multinationals to sole traders. There are around 550 corporate members of the REA, making it the largest renewable energy & clean tech trade association in the UK.

Executive Summary

The REA welcomes investigation into the outlook for future investment in energy infrastructure, following recent investment decisions on Nuclear. We believe that renewable energy and smart, clean tech can offer the UK the security of energy supply, grid and infrastructure flexibility, and low cost energy which is needed to both meet our carbon emissions targets and support clean growth. We would welcome the opportunity to present oral evidence to the committee on this topic.

Key points highlighted in this response are as follows:

- It is crucial that any strategy focuses on diversity among dispatchable renewable and clean-tech assets to support a flexible, low cost, low carbon, secure energy system. We make specific recommendations in relation to CfDs, heat decarbonisation and transport in this regard.
- Despite wider market uncertainties due to Brexit, there remains significant interest in investment, although there is a lack of supply of these projects, due to recent policy changes leaving crucial policy gaps. These policy gaps create a bottleneck in supply, leaving technologies with no route to market.
- In the last 3 years there have been withdrawals of the main subsidy support mechanisms, at the same time as withdrawing eligibility for tax efficient investment schemes (EIS and VCT) which were able to fund investments with less stable revenues.
- A diverse investor community is essential for the development of a low carbon energy sector however they require a stable energy policy, stable technology sector and an environment where there are visible, measurable returns.
- A long term, stable and consistent integrated national energy policy is a fundamental requirement for investor confidence.
- Policies should be aligned across all government departments involved, including BEIS, DfT, OLEV, DEFRA.

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- The 'hidden' costs to projects from grid usage, planning and taxation regimes must be addressed. These include the TCR grid charges and reintroducing EIS eligibility.

1. The recent investment decisions on nuclear demonstrate the fragility of the UK's energy strategy and highlight the need for a clear, well considered and robust strategy. The REA supports bringing forward an energy white paper, along with the implementation of strategic decisions from Government which are crucial for supporting investment decisions.
2. As highlighted in our recent Bioenergy Strategy, Bio-based fuel technologies are estimated to cut 19.7 million tonnes of CO2e per year, replacing £21 billion worth of fossil fuels and supporting 46,000 jobs throughout the UK.[1] Bioenergy already meets 7.4% of the UK's energy needs, and offers great opportunity to support further decarbonisation, although the gaps in the policy and regulatory framework are now growing, with existing support mechanisms ending, and the pipeline for future bioenergy projects being constrained. The REA's Bioenergy Strategy makes the case for, and clarifies potential of, the role of Bioenergy technologies in delivering a low cost, low carbon energy system.
3. Our work with members Eaton, and Bloomberg New Energy Finance on their recent "Flexibility Solutions in High Renewable Energy Scenarios" report[2] also highlights the ways in which renewable energy can offer many of the benefits of nuclear energy, at a fraction of the cost, through flexible and dispatchable low carbon generation. Their studies assume no nuclear capacity, and their findings show that:
    - rapid deployment of energy storage reduces the requirement for fossil back-up by 12% and emissions by 13% to 2030
    - uptake of electric vehicles with smart charging could reduce carbon emissions by 96% by 2040
    - a highly flexible system could reduce overall system costs by 5% by 2040.

It is crucial that any strategy focuses on diversity among dispatchable renewable power generation and clean-tech assets to support a flexible, low cost, low carbon, secure energy system.

How do recent investment decisions on nuclear and trends in low carbon investment affect the UK investment outlook for energy infrastructure? Is there a case for changing the Government's current approach to delivering a low cost, low carbon energy system? How could the 'nuclear gap' be filled?

[1] REA Bioenergy Strategy, 2019 https://www.bioenergy-strategy.com/publications
[2] Bloomberg NEF, 2018, Flexibility Solutions in High Renewable Energy Scenarios, https://about.bnef.com/blog/flexibility-solutions-high-renewable-energy-systems/

1. The so- called "Nuclear Gap" can be met by the introduction of further 'dispatchable' low carbon generation at all scales. It is crucial that low carbon energy diversity is supported to provide resilience and strong energy security. Proven technologies such as biomass are cheap and dispatchable. Energy storage provides a whole host of valuable services which are key to enabling a flexible energy system, lowering overall infrastructure costs. Bloomberg NEF's recent report on flexibility, shows that a system with low amounts of renewables, and low flexibility, means a greater reliance on gas peakers, leading to higher system costs (13% by 2040), higher green house gas emissions emissions (36% by 2040) and a greater need for back-up capacity.[3]
2. Strong investment support has been communicated for offshore wind, "£40bn of infrastructure spending over the next decade to deliver 30 GW of power"[4], but diversity is crucial for energy security and to tackle wider infrastructure costs.
3. The government's Clean Growth Strategy provides a positive long term statement on its commitment to the transition to a low carbon energy system. However it is limited in scope and lacks clear and specific, enabling policy framework, coordination between frequent and interacting policy changes, and does not present an integrated view on how the UK will meet its long term emissions reduction commitments leaving policy gaps. Whilst the strategy itself serves to improve investor confidence somewhat, the lack of "routes to market" and slow removal of real and perceived regulatory barriers causes a shortage of supply of investable projects. One of the findings of the Green Finance Taskforce highlights that investment in energy transition should take into account regional impacts and wider environmental and social benefits by creating sustainable economies and communities.
4. A lack of forward looking policy support for renewable generators hampers the economic and practical viability of projects in getting off the ground – recent policy changes have and will create a bottleneck in supply. The removal of Triads, the Feed-in-Tariff, the end of the Renewable Heat Incentive, the Renewables Obligation, followed by the anticipated removal of other embedded benefits, are clear examples of how a route to market have been blocked. Many technologies, especially in small scale renewable generation, find themselves with no route to market for the foreseeable future, with consultations on replacement mechanisms such as the Smart Export Guarantee (SEG) still under consideration. Furthermore, the Targeted Charging Review, in addition to grid code changes, negatively affect investment in all grid connected decentralised generation assets.

How attractive is the UK energy sector for investment compared to other countries? Are there particular technologies which are more – or less – attractive to investors under current arrangements?

[3] Bloomberg NEF's Flexibility solutions in High Renewable Energy Systems Report, 2018 https://about.bnef.com/blog/flexibility-solutions-high-renewable-energy-systems/
[4] The CCC, 2019 https://www.theccc.org.uk/2019/03/19/chris-stark-towards-net-zero/

1. The UK energy sector had traditionally been seen by investors as relatively stable with comparatively low policy risk. It was well understood by industry that support would diminish in a controlled manner as technology costs declined. This has allowed investors time to develop trust in realistic business models, which accounted for the time required to realise their returns. As such, the policy risk was well understood and investors' confidence grew. Despite this, both the Renewable Obligation and FiTs schemes have now closed, with no future support mechanism in place for the deployment of small scale renewables. The policy gap left by the closure of the FiT and an undefined date for the introduction, and unspecified format of, the Smart Export Guarantee strongly undermines the progress made towards the UK's status as a safe investment opportunity for small scale generation. The uncoordinated proposal to implement the Targeted Charging Review (TCR) out of sync with the Access and Forward Looking Charge review, completely undermines investment in the nascent zero-carbon flexibility market and puts unfair energy system costs onto flexible power providers.
2. EY's Renewable Energy Country Attractiveness Index (RECAI) noted that UK investment in renewable energy has fallen 46% year-on-year due to speculation around the outcome of Brexit resulting in the UK dropping from 7th to 8th place in this year's index (although the UK was outside the top ten two years ago).
3. Although the UK's attractiveness ranking has moved back up the EY scale since its fall to 11th place in 2016, our members have highlighted that investors show significant hesitation around the current administration's commitment to a low carbon future for anything other than large scale offshore wind.

Despite wider market uncertainties due to Brexit, there remains significant interest in investment, although there is a lack supply of these projects, due to recent policy changes leaving crucial policy gaps. These policy gaps create a bottleneck in supply, leaving technologies with no route to market.

4. Overall there is significant supply of capital and interest in investment, despite market turbulence due to Brexit. With the right basket of Government support mechanisms (such as Enterprise Investment Schemes and Venture Capital Trust eligibility for renewables) this could allow the UK renewable energy sector to deploy technology rapidly and help the UK meet its targets.
5. Projects with more stable and predictable revenue streams are favoured by investors. Particularly for technologies which have high operating costs and associated 'feedstock' risk, stable and predictable revenue streams are most important. These technologies offer stable supply benefits to the system.
6. The Government's push for green gas in the recent Spring Statement is positive and from a UK investor perspective this is interpreted as an area which the Government wants to drive investment into further. In terms of supporting the future decarbonisation of UK heat, the REA has proposed a number of options including, but not limited to: a fixed-period continuation of the RHI, a Green Gas Obligation for the gas grid, and a CfD type mechanism for the funding of renewable gas. In particular, we welcome

Government's recent ambition to consult later this year on increasing the proportion of green gas in the grid with the aim of reducing natural gas dependency in homes and businesses. We are engaging closely with BEIS on these issues, and would welcome the chance to discuss this and the decarbonisation of heat with the committee further.

7. The UK transport sector though is the only sector seeing *increases* in its carbon emissions.
    - Whilst most other financial incentives for renewable energy are closed to new entrants (or in the case of CfDs) subject to infrequent competitive rounds, the Renewable Transport Fuels Obligation has targets which increase to 2032 and it has no scheduled end date. However, it differs in other important ways, which make it an unattractive investment prospect; fuel production projects are not grandfathered, fuels can be produced anywhere in the world and traded into the UK and there is no floor price to the Renewable Transport Fuel Certificates. There is already significant production capacity Europe-wide of bioethanol and biodiesel and it is unlikely that the RTFO will create an incentive for the commissioning of new production facilities in the UK. Indeed the challenge is ensuring that these remain in operation. Bringing forward the introduction of E10 petrol (with a 10% ethanol blend) is essential in this respect. Where the UK would like to see new production capacity is in the category of "Development Fuels". These have a higher financial incentive, as the buyout price for these innovative, strategically important fuels, is 80p/litre and there is expected to be a shortfall in their production. However, the lack of grandfathering and floor price for development fuel certificates will make funding new projects a significant challenge.
    - Meanwhile, electric vehicle investment in the UK is on the high - In 2017 the UK ranked fourth worldwide by market share, with EVs representing 1.7% of all new car and van sales, and seventh by volume, with 47,250 EVs sold.[5] However, since that report, while uptake of Plug-in hybrid vehicle (PHEV) has continued to grow, the uptake of Battery Electric Vehicles (BEV) in the UK now lags behind the EU average. More support is required for investment in charging infrastructure, to support a positive consumer charging experience considering range anxiety is highlighted as the major barrier to consumer uptake of EVs. Further support for investment in battery electric vehicles themselves may include tax incentives, such as ensuring that the 2% rate of company car tax benefit in kind is both brought in for 2020, and then kept in place for at least 5 years. The BNEF flexibility solutions report shows that with high electric vehicle uptake and smart charging, net emissions could be reduced by 30% and 96% in 2030 and 2040 respectively[6]. This does not take into

[5] BEIS Select Committee, EVs Driving the Transition, 2017 https://publications.parliament.uk/pa/cm201719/cmselect/cmbeis/383/383.pdf

[6] BNEF Flexibility Solutions in High Renewable Energy Scenarios, 2019, https://about.bnef.com/blog/flexibility-solutions-high-renewable-energy-systems/

account the flexibility opportunities that Vehicle to Grid and Vehicle to Home technologies offer.

How has Government policy improved the UK energy investment environment over the last three years?

1. The Clean Growth Strategy (Industrial Strategy) and initiatives stemming from that like the Green Finance Taskforce which has led to the formation of the Green Finance Institute are helpful, but much of the policy drive of Clean Growth is on hold until the local frameworks and financing strategy are resolved – this must be addressed with urgency.
2. The disbandment of the Department for Energy and Climate Change was suggested to UK investors that Government's priority in this sector had dwindled.
3. Poor quality and time of processing of renewable projects, by the energy regulator Ofgem, historically under the Feed-in-Tariff and Renewable Heat Incentive schemes, have had a negative impact on project development and investor confidence. The Deiter Helm report also finds that energy policy, regulation and market design are not fit for the purposes of the emerging low-carbon energy market, as it undergoes profound technical change[7].

In the last 3 years there have been withdrawals of all main subsidy support mechanisms, at the same time as withdrawing eligibility for tax efficient investment schemes (EIS and VCT) which were able to fund investments with less stable revenues.

4. In the last 3 years there has been withdrawals of subsidy support mechanisms for the renewable energy technologies, at the same time as discontinuing eligibility for tax efficient investment schemes (such as EIS and VCT) which were able to fund riskier investments with less stable revenues. The key policy changes and increases in grid usage charges include:
    a. The closure of the Renewables Obligation in 2017 across all technologies.
    b. The closure of the Feed-in-Tariff, and lack of smooth transition to the proposed Smart Export Guarantee replacement, has ended the installation of small scale renewables projects, especially solar. Without a route to market, this strongly diminishes SMEs operating in this area, with a possible 6,000 job losses in solar alone.
    c. The closure of the Renewable Heat Incentive in 2021, also with no proposed replacement mechanism is likely to end the installation of small scale and domestic biomass boilers, and strongly limit our options for decarbonising domestic heat.
    d. The OFGEM proposed TCR (Targeted Charging Review) proposals threaten to slow down the transition to a flexible, low carbon energy system, and with it lost investment – just as the need to accelerate

[7] Deiter Helm, Cost of energy review: Independent Report, 2017 http://www.dieterhelm.co.uk/energy/energy/cost-of-energy-review-independent-report/

the transition and to increase investment grows more and more urgent. For the price of saving some consumers the equivalent of a cup of coffee (£2) a year, these proposals will make it tougher to build small scale renewables and punish homes and businesses that have taken the socially and environmentally responsible decision to install renewables.

i. They must be taken in the context of a myriad of negative policy change in recent years, making it very difficult to develop new renewable electricity capacity beyond offshore wind. The scale of the low-carbon industry's opposition to the current proposals is clear, with the REA signatories to joint letters from a number of organisations and the majority of members strongly opposed to the proposals.
ii. With an unprecedented level of change in the energy industry and grid charging regime, grid and networks fees are a critical area for the renewable energy, energy storage and EV industries. There is likely to be a significant impact on the willingness to invest in the provision of local flexibility resulting from the proposed TCR reforms.
iii. Our asks for the TCR include ensuring the implementation of the TCR is aligned with that of the accompanying Access and Forward looking charges review and that smaller 'embedded' generators should not be charged BSUoS rates as they cannot currently access the Balancing market. It should also be ensured that the 'Forward-looking charges' do provide pro-active signals to reward flexible behaviour from generators and demand, to offset the loss of signals from the TCR reforms. Ofgem's own analysis shows that there is no advantage to the system (in terms of carbon reduction, fuel savings, more efficient grid investment) from implementing the TCR before the Access & Forward Looking Charges review.

What types of investor can we expect to finance future UK energy infrastructure? What are their criteria for investment, including on risks and returns? Does it matter if investors for specific technologies are largely from overseas?

1. The UK energy sector will require a broad range of investment organisations in order to support the sustainable energy solutions needed to meet both the UK's emission and renewable energy targets. These range from large scale Institutional Investors, who help fund high capacity energy and system infrastructure projects, right down to community scale developments which will contribute to diversifying the energy generation portfolio of the UK.

A diverse investor community is essential for the development of a low carbon energy sector however they require a stable energy policy, stable technology sector and an environment where there are visible, measurable returns.

2. Domestic Investment:

   a. The types of investor will be determined by the business and revenue models which materialise. However, they should include the major infrastructure funds and pension funds and accommodate the ability to engage investment at the local and individual level consistent with other drives to increase public engagement through infrastructure investment.

   b. UK-based pension fund allocations to renewables infrastructure is currently well below other leading pension funds, including those in Australia and Canada. Data suggests that UK-based defined benefit (DB) pension schemes in aggregate allocate less than 2% of assets under management (AuM) to unlisted infrastructure, compared with allocations of up to 5-10% at large pension schemes globally (Green Finance Initiative, 2018).

   c. The Industrial Strategy includes a significant focus on Places and the benefits of strong local economies and the role of regional cities in driving growth. Frameworks that facilitate and encourage investment from 'local' pension funds and local people can create significant opportunities to retain the economic benefit locally in a diversified and risk-adjusted manner.

3. International Investment:

   a. Global financial institutions, either directly or through Funds are likely to collectively generate the largest amount of future investment. Their focus is purely on the financial performance of their assets and which are in part aligned with the goals of the energy sector of the country.

4. With such a wide range of investor groups participating in the energy sector it is essential that the government creates the right conditions in order to facilitate investor confidence. The primary criteria for any investment are the forecasted risk-adjusted returns of a project. While the acceptable risk profile varies between investors and technology type, all investors will closely scrutinize policy risk as central to their decision making process. It is therefore fundamental that government is able to mitigate this risk by setting out a clear and stable energy strategy stipulating their firm priorities for energy sector development.

What role should the Government play in providing financial support and sharing risks for new energy infrastructure? Are existing financing mechanisms, notably the Contracts for Difference, fit for purpose? Are there any practical issues, or potential unintended consequences, that could affect the feasibility of implementing alternative support models (such as a Regulated Asset Base)?

A Long term, stable and consistent integrated national energy policy is a fundamental requirement for investor confidence.

1. The Contracts for Difference mechanism has largely been effective for offshore wind only, and has been too intermittent in its auctions, preventing long-term planning. More focus should be given to diversifying the UK energy mix.

a. Pot 1 should be included in the next CfD round expected in 2021. Pot 1 technologies still need financial support of some form in order for them to become subsidy-free. The reason that offshore has gained a competitive price is due to previous government support. A formula similar to the first allocation round in which Pot 1 and Pot 2 are included with a smaller allowance reserved for Pot 1 technologies is needed to allow a clear and fair route to market. There should also be annual auctions.

b. There should be a fair and level playing field for fund allocation within Pots. In this case, simultaneously lowering funds and removing reserved capacity for individual technologies significantly lowers the likelihood of lesser advanced technologies within Pot 2 being able to compete. Reserved capacity for specific technologies (ie wave, tidal, and advanced conversion technologies (ACT) which have not benefitted previously from government subsidy unlike onshore wind) should be included in CfD rounds until parity is achieved between them.

c. This will immediately provide confidence to larger developers who are currently unable to move forward with their projects. The longer the delay in this development the more likely investors will exit the market and it will become increasingly difficult to attract them back.

2. Further measures required to open up the low carbon energy market:
    a. Renewable Development Fuels / Bioenergy – guarantees for feedstock; further restrictions on landfill and sustainability requirements for disposal routes.
    b. Stable supply deployment: Research and development funding for energy storage, especially long term large scale storage. Longer term capacity market and frequency response funding is also required for storage projects. Additionally, support should be given to flexible use of domestic energy storage through enabling the export of grid power through the Smart Export Guarantee, in addition to VAT reliefs for retrofitted home battery storage (similar to the 5% for newly installed co-located solar and storage) and business rates relief for installing solar and / or storage.
    c. Mandating Solar PV and other domestic enabled/building integrated technologies in the upcoming review of the Building Regulations Part L – creating a clear and stable route to market for installers.
    d. Encouraging quick deployment of time of use tarifs flexibility enablers which will create a market for flexible demand and supply (improving the investment case).

What further steps should the Government take to increase investor confidence in the UK energy sector?

1. BEIS and Treasury must now set out a clear long term integrated energy strategy, which shows a commitment to the Paris Agreement emissions reductions goals, and a strong framework that implements timely coordinated

policies which enable a route to market and stable revenue streams for renewable generation and zero-carbon flexibility.

Policies should be aligned across all government departments involved, including BEIS, DfT, OLEV, DEFRA.

2. Taxation measures at the individual level are often the most powerful statement of an administration's commitment to policy direction and also the most effective driver of consumer action/behaviour. The rapid uptake of home-owner owned solar installations and the incidence of ISAs are prime examples.
3. Government must quickly implement the proposed Smart Export Guarantee following the closure of the FiT. They must listen to the responses they have received from industry in order to ensure there remains a future for sub 5MW generation, which is crucial for the development of a decentralised flexible energy system.
4. Government must now also recognise, and make clear its support for developers attempting to build projects 'subsidy free'. It is fair to expect Treasury to extend the same level of tax benefits as enjoyed by the nuclear and fossil fuel industry to renewables. This will enable the market to start to see beyond subsidy support and develop alternative business models that may help investors to stay within the market.
5. The 'hidden' costs to projects from grid usage, planning and taxation regimes must be addressed. These include the TCR grid charges and reintroducing EIS eligibility.
6. Create a clear trajectory for an increase in the carbon price over the next 10-20 years and communicate whether there will be amends to how it is calculated after leaving the EU. This can be achieved either by ratcheting the Carbon Price Support or ensuring a Carbon Emissions Tax sufficiently replaces the EU ETS in the case of a withdrawal from the EU. Either way, consideration should be given to the possibility of expanding a carbon tax beyond just the power sector.