REA response to Science & Technology Select Committee Inquiry into Technologies for meeting Clean Growth emissions reduction targets

The Renewable Energy Association (REA) is pleased to submit this response to the above consultation. The REA represents renewable electricity, heat and transport, as well as Electric Vehicle companies and Energy Storage. Members encompass a wide variety of organisations, including generators, project developers, fuel and power suppliers, investors, 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 trade association in the UK.

The effectiveness of the four main areas identified in the Strategy

1. The REA welcomes the four strands identified in the Clean Growth Strategy. In particular, accelerating the shift to low carbon transport and delivering clean smart and flexible power. The Climate Change Committee has come to the conclusion that the UK are at serious risk of missing the next two carbon budget targets. Due to this, the Industrial Strategy and Clean Growth Strategy should prioritise lowering carbon emissions in order to meet targets and avoid the political and environmental consequences of carbon emissions remaining at their current level or rising. The most efficient way to reduce carbon emissions is through renewable heat, transport and power.

2. Beyond the current pillars, the REA believes that the Clean Growth Strategy should consider Heat as a priority area in addition. In the UK, 85% of households still use fossil-fuel based natural gas to heat their homes. Not only does this make heat one of the least commercially developed renewable technologies in the UK but this reliance on natural gas is having a significant impact on meeting carbon budgets.[1] The UK are already behind on meeting it's renewable heat targets with only 6.2% of our heating and cooling coming from renewable sources[2] and with upcoming changes to renewable heating support schemes such as the RHI ending in 2021, considerable focus must be placed on decarbonising the heat sector.

Current progress on carbon budgets and how to progress towards meeting them

[1] Committee on Climate Change (2018), Reducing UK emissions (https://www.theccc.org.uk/2018/09/10/cleaning-up-the-uks-heating-systems-new-insights-on-low-carbon-heat/)

[2] REA (2018) REView 2018, http://www.nnebooks.co.uk/REA/REA%20REview%202018/index.html

3. Information on the details of the current progress on meeting carbon budget targets can be found on the Climate Change Committee website.[3] To summarise, the UK is not on track to meet both the fourth and fifth carbon budgets unless new fully funded policies are introduced and risks to the implementation and delivery of existing policies are removed.

4. Progress needs to be made on two levels. Firstly, development in specific areas and technologies such as heat, power and transport need to be made in order to meet the carbon budgets. In particular, the lack of progress made on decarbonising heat and transport need to be addressed immediately if carbon budgets are to be met. To do this, existing and developing technologies need to be utilised; biotechnologies in particular are a resource that is continuously referenced as a necessity in rapidly decarbonising the UK. Alongside this, the REA urges the Government to consider additional technologies such as deep geothermal and marine technology which will facilitate rapid decarbonisation as well as creating economic growth by stimulating regional development. Below are some of the currently less deployed or well-known renewable technologies which offer huge opportunities for decarbonising alongside those more mature technologies such as solar and wind.

5. <u>Biogas</u>

   Biogas, which is about 60% methane, can be used for cooking, for direct heating, for combined heat and power, for injection into the national gas grid, or for vehicle fuel. It is, therefore, a very versatile source of renewable energy. Once all the UK biomethane plants operational and under development operate at full capacity, they will be injecting approximately 4 – 6 TWh of green gas per annum into the gas grid, enough to meet the heating needs of around 400,000 homes. This will represent around 240,000 tonnes of LNG that the country won't need to import from the Middle East or four 60,000-tonne LNG tankers not needing to dock at domestic ports.

   Cost reductions have already been made to some extent (Gas grid Entry Unit costs have already been reduced by 50% in the last 7 years) but there is potential for further cost reductions, so long as the Government continues to provide a stable support mechanism at the right level for industry, to ensure the market continues to grow with confidence.

6. <u>Biomass</u>

   Biomass boilers have been shown to be very effective in replacing oil boilers in existing buildings off the gas grid. Biomass boilers will be needed in order to reach the 2050 targets, as many existing buildings with higher heat demand will exist in 2050. In addition, the use of biomass fuels supports the forest and woodland growth in the UK and abroad, and as the wider economy

[3] Committee on Climate Change (2018), Reducing UK emissions (https://www.theccc.org.uk/2018/09/10/cleaning-up-the-uks-heating-systems-new-insights-on-low-carbon-heat/)

decarbonises, the GHG emissions of biomass will decline (e.g. emissions from transportation of biomass declining) and align with the Government's 2050 targets. Furthermore, with the supply chain for biomass heat, The Forestry Commission estimates that the wood fuel industry specifically could generate £1 billion and support more than 15,000 jobs spread across the UK.[4]

7. Geothermal
   Geothermal is a technology which has great potential within the UK. It is still an emerging technology with no plants in operation to date, but after the first plants in operation, the costs and risks will reduce significantly, which have been seen in many other European countries as the industry matures. Deep geothermal energy can provide heat for commercial, industrial and residential buildings. It is ideal for providing heat to district heating schemes, universities and hospitals. It can also be used in industrial processes, such as cooling, or in aquaculture and horticulture. Deep geothermal energy is available 24 hours per day, 7 days a week, and produces large quantities of heat to be used in industrial processes, farming and district heating. It has a very small surface footprint and is a reliable, cost-effective form of energy.

8. Heat pumps
   Heat pumps have proved very effective in new build properties where the heat demand is lower and the cost is lower to install larger radiators and/or underfloor heating as needed. It does require some space, but less than biomass fuel storage. It is very convenient for consumers that do not want to deal with fuel delivery and want a lower maintenance. As the power grid is decarbonised, the GHG emissions of heat pumps will decline and align with the Government's 2050 targets.

9. Marine
   The UK has enormous potential for wave and tidal power due to it being home to some of the best tidal resources in the world and leading marine researchers and developers. We have world leadership in IP and manufacturing in the sector at present which must be maintained and built on to secure the industrial benefits for the country which are available. Changing government policy shifts and incentives have significantly impacted the marine industry. Funds such as the Contract for Difference (CfD) and the Renewable Obligation Certificate (ROC) have not been suited to a technology that faces specific constraints and challenges and is close to being deployed on a widespread basis (see the Atlantis Meygen scheme) but not yet fully commercialised. A minimum capacity allocation ion future CfD allocation rounds is essential as a first step, and an Industrial Strategy Sector Deal benefitting the industry.

10. Secondly, progress needs to be made on a policy level. The Government must ensure a favourable investment environment, with stable government policies

[4] Committee on Climate Change (2018), Reducing UK emissions (https://www.theccc.org.uk/2018/09/10/cleaning-up-the-uks-heating-systems-new-insights-on-low-carbon-heat/)

and appropriate levels of public support. This will result in greater private investment into renewable technologies that will increase the uptake of renewables and accelerate decarbonisation. For example, Sectors such as bioethanol production have already seen £1 billion invested in them, and a further stable environment will allow yet more private investment to enter to realise the next generation of advanced renewable transport fuels.[5]

11. The inconsistent policy environment over the last three years has begun to effect even the most developed technologies. Solar PV and onshore wind projects are the most established renewable technologies, as well as being the form of power generation closest to requiring no subsidy support at all levels, thanks to cost reductions and a growing commercial power purchase agreement (PPA) market. Their deployment has been restricted by sudden policy changes that saw them excluded from the Renewable Obligation more than a year before its official closure; cuts in the tariffs available within the Feed in Tariff and blocked from entering the competitive auction processes within theCfD allocation rounds. This has blocked the ability for the UK to build on the substantial success and innovation which had already been achieved by these technologies. This trend must be reversed if the affordable clean energy system identified by the Industrial Strategy is to be realised.[6]

Development and Deployment of new and existing technologies

12. All renewable technologies should be supported and pursued by the Government if the UK is to meet upcoming and future carbon budget targets. In order to meet the fourth and fifth carbon budgets, numerous renewable technologies must be used in conjunction to decarbonise at the rate needed. Developing new technologies and deploying existing technologies are of equal value and importance. It should not be the case that either development or deployment takes precedence.

13. Solar and onshore wind are excellent examples of technologies where development and deployment have been effectively supported. The public support these technologies received helped to lower the cost and develop them to the level of maturity they are at now, as the lowest cost form of new generation, across all power technologies. Many technologies have the potential to reach this level of maturity and cost competitiveness if the correct support is given. Initial public support during the research and development stage of these technologies has resulted in them being almost at the point of grid-parity; because of this, deployment should not come at great expense if

[5] Committee on Climate Change (2018), Reducing UK emissions (https://www.theccc.org.uk/2018/09/10/cleaning-up-the-uks-heating-systems-new-insights-on-low-carbon-heat/)

[6] Committee on Climate Change (2018), Reducing UK emissions (https://www.theccc.org.uk/2018/09/10/cleaning-up-the-uks-heating-systems-new-insights-on-low-carbon-heat/)

given a fair route to market, for example through Pot 1 of the CfD auction.

14. We urge the Government to recognise that a number of technologies are in many cases well beyond the R&D stage, with companies ready to deploy their technologies, an example of this being energy storage. Due to this, investment would be welcomed to boost them into the deployment phase.

15. Those existing technologies which are at the point of deployment now are due to the public support they received when in the R&D stage. In order to remain world leaders in the industry and meet carbon targets, the Government must seriously commit to the development of new and upcoming technologies. In particular, the development of new technologies is increasingly being utilised alongside existing technologies to develop new business models and deliver innovation such as the link between solar, energy storage and EV charging. For this to continue to happen, support needs to be maintained in equal levels for development and deployment.

16. There are numerous ways development and deployment of technology can best be supported. Policies should be put in place to ensure existing infrastructure, skillsets and resources are utilised to efficiently transition from traditional energy to low-carbon energy. While traditional centralised energy systems will decline over the coming decades, especially given the UK's trajectory for the closure of coal generation by 2025, there should be serious consideration of how people employed in these sectors will be able to transfer their skills into renewable industries. There is also opportunity to convert existing traditional energy plants into low-carbon energy plants, an example being old coal plants being turned into clean biomass plants. This would allow for decarbonisation to take place efficiently in regards to cost and time. The regional nature of both marine and geothermal technologies, which include Cornwall, Wales and Scotland, means they could be essential components of regional sector deals, crucial to growth in these areas. Key to such deals will be the provision of a viable route to market, which currently does not practically exist under the existing CfD arrangements given no minima for marine and too low a strike price for Geothermal.[7]

17. Maintaining stable and long-term sector deals and policies. One of the biggest barriers to the establishment of new technologies in the last three years has been the damaging delay to promised policy developments and the cutting of support mechanisms at very short noitice. Delays to both the CfD allocation round and the promised increase in RTFO targets, have meant projects have been unable to deploy, supply chains have been lost and industries have been unable to realise vital price reductions to enable innovation. Similarly, the cutting of the FiT and RHI schemes have damaged

[7] Committee on Climate Change (2018), Reducing UK emissions (https://www.theccc.org.uk/2018/09/10/cleaning-up-the-uks-heating-systems-new-insights-on-low-carbon-heat/)

the highly successful solar and small scale biomass boiler markets. This, in turn, has damaged investor confidence which is needed to be able to support innovative technologies. As such, the sector deals and policies that come out of the Industrial Strategy must be long-term and provide absolute transparency about future developments.

18. The Government should be looking at how tax incentives, rather than subsidies can be used to further deploy renewable energy technologies. As prices fall, the most innovative and efficient technologies, realised through technology advances, can be encouraged through the effective use of mechanisms such as Enterprise Investment Schemes, Enhanced Capital Allowances and Tax Credits on research and development. These schemes are well understood and liked by investors, allowing for consistent innovation and deployment while not relying on subsidies. In the long term, these mechanisms could be particularly effective for decarbonising heat through biomass boilers and heat pumps. While favourable road and fuel duties on liquid and gaseous renewable transport fuels would also prove beneficial.

19. Establishing a funding mechanism beyond the innovation stage, by offering early stage equity backing or debt support. Many of the latest developments in renewables have been supported through innovation funding; however, further support is needed to get over the hump of commercialisation. The British Business Bank could be used to provide this funding which will establish the necessary guarantees for investors by taking direct equity stakes or offering debt funding. In addition, the UK Guarantees Scheme, should be extended to decentralised energy systems to ensure the growth of UK developed technologies.

20. Demonstration Funding and support for risk-taking SMEs - Demonstration funding for the most innovative and advanced projects should also continue to be considered. These are effective in realising efficiencies during early projects, as well as beginning to establish supply chains and bring down costs. This could apply to such technologies as deep geothermal, grid scale (>50MW) non-battery energy storage, lignocellulosic biofuels, heat networks, ACTs and some marine technologies.

21. Support Innovative projects in seeking export opportunities – The REA recently partnered with the FCO on a trade delegation to India. We saw first-hand the enormous opportunities available in international markets for UK based renewable and smart technologies. The Government, in collaboration with Trade Associations, play an important role in providing local partner introductions, vetting and logistic support to UK firms, all of which helps get inward investment for UK-based innovation. The FCO and DIT should work closely with Trade Associations to facilitate the linking of UK industries with

foreign markets.

22. In regards to decommissioning renewable technologies, unlike current forms of energy production such as nuclear plants and oil rigs, the cost of decommissioning is paid for by the projects. In the planning stages of renewable projects, cost will be factored into the financial modelling. Beyond the cost, part of the decommissioning process in renewable projects ensures that the landscape being used will be returned back to its initial natural state.

The 'Clean Growth Grand Challenge'

23. The REA welcomes the Clean Growth Grand Challenge as an incentive to facilitate the decarbonisation of the UK. However, there is disparity between what the Clean Growth Grand Challenge is aiming to achieve and current Government policy. There is a contradiction between funding opportunities recognised in the Clean Growth Challenge and the imminent closure of the FiT scheme in March 2019, funding closure of the RHI in 2021 and lack of route to market the Contract for Difference Pot 1 technologies. The REA urge the Government to consider alternative schemes to be put in place after 2019 and 2021 to see the continued reduction in costs achieved through these schemes. Decarbonising our energy supplies is vital and the Government's own independent advisers (the CCC) have highlighted the significant Policy Gap in meeting this objective without new measures.

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