

Budget Submission to HM Treasury

March 2010



RenewableUK Budget Submission 2010

– Maximising the Benefits

- In difficult economic circumstances, it is vital that the most efficient and effective use of resources is made; further strengthening of policy and direct support for manufacturing will reduce costs and maximise the benefit of renewable energy to the UK economy.
- Network policy must facilitate the build of renewable capacity; Government action to provide *pragmatic flexibility in the offshore transmission regime* and *reform of the structure of transmission charges* is urgently needed now to ensure this.
- The current electricity market arrangements are not demonstrably broken, so we do not advocate any change in the near term. There may be a case for reform in the further future to meet objectives of delivering secure, reliable low-carbon energy, but any reform process must be handled extremely sensitively.
- There is a strong *prima facie* case for a new state-backed finance institution to ensure sufficient capital flows to the renewable energy sector. Any such 'green bank' should encourage private capital into the market and not inhibit it by being in competition, while correcting market failures and advising Government on the financial impact of its policy measures.
- Strong action is required to drive investment in the offshore wind industry supply chain: an *active ports policy* is urgently required; tax breaks for manufacturers, possibly tied to Low Carbon Economic Areas, will leverage private investment; a further *£200m–300m over 2–3 years* should be allocated to invest in facilities, technologies and intellectual infrastructure; a *capital grant programme* to support testing and demonstration of new technologies and techniques should be established.
- The long-term support package needed to bring the new technologies of wave and tidal stream power to commercial reality must be provided. Alongside existing R&D funding from the TSB and ETI, the *Marine Renewables Proving Fund must be allocated £10m–11m per annum* and the *Marine Renewables Deployment Fund increased to £120m up to 2013*, while a long-term signal to the market is given through establishing a *higher-multiple band for marine renewables in the Renewables Obligation*.
- Further funds to solve aviation objections to wind power developments are needed, with *£30m required for R&D, trials and investment in strategic solutions, and £15m to allow the MoD to integrate data from 'in-fill' radars* into its existing air traffic control infrastructure.

RenewableUK is the leading trade association in the renewable energy sector in the UK, representing the interests of the wind, wave and tidal stream industry. Over 550 organisations are members of the Association, covering all aspects of the renewable 'value chain', including project development, equipment manufacturing

and consulting. RenewableUK is the new name for BWEA. The name change reflects the fact that the associations remit is broader than just wind power.

Our membership has grown rapidly in recent years, reflecting the growth in installed UK renewable capacity and rapidly growing development activity, particularly in offshore wind. We have also seen the types of members changing, with increasing numbers of companies looking to enter the supply chain for our industry. Existing manufacturing members, who have primarily imported equipment from factories abroad, are also looking more favourably on the UK as a potential manufacturing location for the new, larger offshore wind turbines.

For this country to convert the rising interest in investing in the UK into actual capital deployment and job creation, then it must not only solidify the existing renewable policy environment, but provide direct support to the manufacturing sector. If policy is strengthened, risks for investors and costs of capital are reduced, lowering the cost of delivery significantly. Direct support for manufacturing keeps the maximum value of the money spent on renewables in the UK economy.

Overall, by maximising the effectiveness of existing policy measures, the cost of achieving the transition to a low-carbon economy is minimised, while the economic benefits are maximised. In a time of tight public finances, making the best use of resources and ensuring policy delivers efficiently is essential.

The role of electricity networks

One of the key areas where policy effectiveness can be improved is in networks. Historically, lack of strategic extension of the transmission grid, and the complex arrangements to access it, have been ongoing blocks to the swift progress of building up renewable generating capacity. Very welcome progress has been made in these areas, with the plan set out by the Electricity Networks Strategy Group now moving to implementation, and Government's decisions made around new access arrangements. However, more must be done to make sure that networks and their regulation are active facilitators of progress, given the scale and speed of the change required.

In our view, the regulatory process for assessing whether investment in networks is justified has, to date, lacked a system-wide perspective. By taking a narrow view of whether individual assets were justified by grid connection applications already made, the methodology applied formerly has delayed investment when it needed to be accelerated. A focus by Ofgem on the risk of 'stranded assets' – lines built but not used – has led to an unmerited conservatism in allowing investment. In our view, the risk of stranded assets is very low, while the impact of late investment in networks is highly damaging.

There is also a place for flexibility and pragmatism in implementing policy, given the urgency with which targets need to be met. This is most keenly felt right now in the arrangements for the Offshore Transmission Owner (OFTO) system. While the system has

some significant merits, most notably in the ability to draw in capital that would otherwise not be accessible to existing network owners, the overly rigid application of the planned enduring regime threatens to delay offshore wind development in the vital 2013–15 period, immediately after the last of the current 'transitional' projects. In the transitional period, developers are able to build their own connections and then have them transferred to an OFTO. Once the transitional window closes, developers will have to wait through a process of OFTO appointment, design of the connection by the OFTO, and its consent and build, including placing of tenders for crucial supplies and equipment with long lead times.

Projects that are intending to meet the deadline for two ROCs may well be hampered by the OFTO approach, resulting in a delayed connection and the developer not being accredited, the risk of which would prevent developers pushing to achieve the March 2014 deadline in the first place. This in turn would mean Government's attempt to overcome the current supply chain cost spike in offshore wind could be stymied by lack of timely grid connections rather than the desire or ability of developers and the supply chain to deliver operating turbines.

Also, RenewableUK analysis shows that the first projects into the enduring regime will not be able to connect until after 2016, while transitional projects will be complete earlier. Particularly at risk are the extensions to Round One and Two projects for which the Crown Estate is currently tendering; one of the

conditions on these leases is that the project is finished by 2016. Therefore, the currently envisaged application of this system will result in a gap in orders to the industry. Without a stable flow of work in this period, supply chain investment will go elsewhere in Europe, where the economic benefit of UK offshore wind will be captured. The hiatus will also mean that the UK is behind the delivery curve necessary to meet 2020 targets.

Government must direct Ofgem to give developers the option to design and construct their own grid connection before transferring it to an OFTO, and so avoid a hiatus in delivery just when there needs to be an acceleration. We believe this option should be allowed on a permanent basis.

These examples of network investment issues point to the need to further address the role of Ofgem. Government has amended the regulator's remit to place more emphasis on the needs of future as well as current consumers, and issued stronger guidance on social and environmental issues, but there is a case for Ofgem's role to be made clearer still. One option is for Ofgem to be mandated directly to ensure the delivery of secure, low-carbon energy at least cost. If this was the clear mandate, Ofgem would be putting in place stronger incentives for the networks to connect renewables, and the strategic delivery of an extended grid. Government should consider carefully whether, given the urgency of action required to deliver our targets and the scale of the challenge of the low-carbon transition, further fundamental change of this kind is required.

An important area that will need urgent attention is that of network charging. RenewableUK is very concerned that under current methodology, the charges applied to remote generators will be punishingly high after investment in new transmission capacity, such as the offshore HVDC 'bootlaces' in the ENSG plan. There is no point in investing in this necessary capacity if the cost of accessing it becomes a barrier to its use.

We urge Government to work with all parties to ensure that network charges do not become a barrier to using the extended transmission grid. RenewableUK aims to state a clear position on the structure of network charges in the near future, and we hope that this will become a starting point for reform.

Electricity market arrangements

Whether the electricity trading arrangements currently in force are fit for purpose is an important issue, and one that is receiving much attention. We note Ofgem's work in its Project Discovery initiative, and we are keenly awaiting Government's opinion through the joint DECC–Treasury work reporting at Budget, and DECC's 2050 roadmap project. RenewableUK urges caution on this subject, because there is a distinct risk of market disruption through regulatory uncertainty if it is handled badly.

When the NETA/BETTA trading arrangements were introduced, there was considerable concern in the renewable energy sector that the system would be a barrier for participation in the market of variable renewables such as wind. Due to considerable effort by all market participants, this has proved not to be the case, and the trading arrangements are working efficiently and effectively in the main. In this sense the market is not 'broken', and therefore there is no case for disruptive reform in the near term. We are also not convinced that the current market cannot deliver investment, given that the wind power sector alone is gearing up for delivery of about 2GW a year over the next five years.

As we move towards 2020, however, there may be more of an argument for reviewing the arrangements to consider whether they are fit for the purpose of integrating a large proportion of renewables into our mix and otherwise delivering energy security and reliability at reasonable cost to the consumer. Such a review would have to weigh

the potential requirement for change to deliver these goals against the need for regulatory stability and investor protection needed to assure capital flows. If that balance were to indicate that change is needed, it must be well signalled, taken forward confidently, and the transition planned meticulously. For the absence of doubt, we do not believe that there is an urgent need to change the market arrangements, but that in the 2020 time frame there may be merit in addressing these issues comprehensively.

In considering fundamental changes to established regulatory norms, the following key principles must be applied:

- Transparent pricing. How prices are set must be clear to all parties, so that players can deduce what price should be given for a set of certain market conditions. This is necessary to ensure investor confidence that their price forecasts are well grounded;
- Appropriate generation mix. Any new system should incentivise the appropriate mix of generation types to deal with large volumes of variable renewable generation, particularly wind power. This may mean capacity payments;
- Demand-side participation. New trading arrangements must actively facilitate the participation in the market of the demand side at all scales;
- Evolution not revolution. Any changes should aim at incremental

improvement rather than radical upheaval, to reduce the risk of hiatus in development when a clear investment landscape is required;

- Robust pricing for carbon. While this is not related to the power trading arrangements *per se*, it is important for the market to have clear signals about low-carbon generation across the board.

Financing the transition

As most low-carbon energy sources are capital-intensive, attracting sufficient private sector capital is key. Thus, Infrastructure UK's review of the possibility of establishing a 'green bank' is timely. We are also aware of a number of other proposals being discussed. It is vital, however, not to lose sight of the fact that, in this area, strong and stable policy is the most important factor in inducing banks and institutional investors to direct the flows required into these sectors. Without confidence that the policy underpinning investments is secure, private capital will be inhibited, and no public-backed bank will be able to make up the shortfall.

In our view, the key features that any institution in this area must have are:

- It must encourage and invest alongside private capital, and not be in place of or in competition with such capital;
- It should seek to correct market failures from the credit crisis;
- It should advise the Government on the financial impact of policy changes.

It is also important to note where there is and is not a need for an investing institution. It has been suggested that early-stage venture capital for entrepreneurial start-ups should be the focus of a public finance institution, but we do not see this as being an issue for wind power: the deployment of wind onshore and offshore over the next decade will require something in the order of £100bn of capital, and this dwarfs into insignificance the

amounts that will be needed to develop technologies and the companies that produce them. This is not to say that VC-type funding will not be helpful: firms in the marine renewable and small wind sectors may well benefit greatly; innovation funds to bring forward cost-reducing techniques for offshore wind are also needed. But these other needs are orders of magnitude less than the requirement for mass deployment.

Ideally we would like to see a private sector solution to the issue of bringing forward the needed capital. With suitable financing structures, one can imagine a situation in which banks could provide construction finance, exiting once projects are operating successfully through sales to institutional investors; the banks would get to recycle limited capital after a 3–4 year commitment, while pension funds would get lower-risk, long-term investments that would fit their needs. However, institutional investors have to date not provided significant funding for renewables and will need some time to get comfortable with renewables and other low-carbon investments, as they have with other new investment types such as infrastructure funds: given the fiduciary duties of pension trustees and their consequent caution, this is unlikely to change quickly, and nor would their investors necessarily want it to. Without a solution of this kind available in the near term, the case for a public institution playing a key role seems strong.

When bringing forward a new institution in this area, we would emphasise strongly that public-backed funds alone will not be sufficient to ensure the

investment required, and that therefore care should be taken to ensure that any 'green bank' does not compete directly against private banks. Given the better terms that an institution with the Government behind it would be able to offer, this would be unfair competition and result in a reduction of capital put into the market by the non-Government-backed banks.

Driving investment in the offshore wind industry

To maximise the benefit to the UK of policy for offshore wind, this country needs to secure a significant proportion of the manufacturing for this industry. Understanding of this point is well developed across Government, and we welcome the attention that is now being given to bringing investment to this aspect of the renewable energy sector. With the award of the Round Three zones to the development consortia, the issue has further sharpened in its urgency, and now is the time to step up a further gear in activity.

The area where a step change in policy is now required is around ports. Good work has been done to bring the offshore wind opportunity to the attention of the UK ports sector, and many are now working hard to capture value from this industry. However, if the UK is to secure the manufacturing that is key to maximising employment and UK value, there needs to be more focus. RenewableUK has maintained for some time that key areas must be selected for targeted investment to become manufacturing 'super-hubs'; a process must be created to make clear why public money is going to three or four selected port areas and not others, and for funds to flow swiftly to create the right infrastructure, both physical and intellectual. Such a process is in train north of the border, where the Scottish Renewable Infrastructure Plan is looking to develop business plans for public investment for a select number of ports and yards. This approach has also been taken in Germany with great success. To further encourage private investment

in this industry, Government should consider targeted tax incentives. Corporation tax remains higher in the UK than the average for the EU and OECD; a targeted cut in this tax for low-carbon industries could be very beneficial in driving investment. There has been a reduction in benefit through changes to capital allowances, from 25% to 20% for investment in machinery and equipment, while the Industrial Building Allowance is being phased out by 2011; reform here is essential to incentivise investment in new facilities. In the US, the economic stimulus package includes \$2.3bn of incentives through the Advanced Energy Manufacturing Tax Credit, expected to leverage \$7.7bn of private investment; such a scheme would be advantageous to industrial investment. There is a successful research and development tax credit that could be extended further to support innovation in the renewables sector.

We call for a package of such tax incentives, aimed at encouraging firms to put their own money into the offshore wind industry. These could be geographically targeted through tying them to the declaration of Low Carbon Economic Areas. The LCEA programme is welcome, but so far the direct benefits of such areas are limited. Giving tax incentives to clean technology firms within these areas would transform their image and strongly drive the clustering of supply chain companies. Even if LCEAs are not tied to tax breaks, there is clearly an argument to increase the benefits of

having such areas declared, as this will highlight specific geographical areas as ones of interest.

Last year's Budget and Pre-Budget Report allocated a very welcome £170m of funds to the development of offshore wind industries and technologies; we look forward to seeing the specific projects that this money will benefit. However, the Treasury needs to consider further funds to continue the good work that this budget has started. An additional allocation in the range of £200m–300m, spread over 2–3 years, will need to be made to support the development of a mass industry in this area, including investment in the infrastructure for large-scale manufacturing hubs chosen in the process described above.

One key area that must be given urgent attention is testing and demonstration sites for new turbines and other technologies for offshore wind. Facilities for testing and demonstration are a necessary but not currently sufficient part of the infrastructure required to support manufacturing in the UK. The Crown Estate is running a licensing round for offshore technology demonstration sites of up to 100MW, but without funding to support the construction of demonstration wind farms using new improved technologies and operational techniques, this round will not be successful. We recommend that Government maximises the funds available from EU research and development streams such as the New Entrants Reserve programme

and Framework 7. The Aberdeen offshore wind site has already benefited significantly from such funds and there is no reason to believe that other UK sites should not also be successful. However, UK Government funds will likely also be necessary; we estimate that a fund that can provide about 10% of the capital cost of demonstration installations will be required, comparable to the Round One capital grants programme.

It should also be noted that onshore sites that can be used for initial tests of offshore machines would be necessary, to get early results from machines that can be readily accessed for maintenance and inspection. Given the size of these turbines, such sites may be challenging to consent, and the need for such sites is urgent, as these are the testing sites that are needed first in the development process. Government must give urgent attention to identifying these sites and expediting their consent and build.

Investing in future industries

As well as focusing on the industrial opportunity of offshore wind, which is available now, Government must also pay attention to the next low-carbon industrial opportunity, which is in the marine renewable technologies of wave and tidal stream. The UK is currently the wave and tidal energy world leader, with a capacity of 2.4MW currently installed. The UK also has world-class testing facilities which, combined with one of the best wave and tidal resources in the world, places it in an ideal situation to become 'natural owner' and establish a world-leading industry, with fantastic export potential.

The comparison between the emerging wave and tidal industry and the wind industry of the early eighties is obvious: a great potential, which requires strong Government leadership to turn into a successful industry. Since 1993 the Danes have invested £1.3bn in their wind industry; this has resulted in a 50% global market share, which provides annual revenue of £2.7bn.¹ If the UK was to invest strategically and secure a similar global market share of the wave and tidal industry, the potential revenue could reach £4.2bn per annum by 2050.² With a practical resource of 29GW,³ fully exploited the wave and tidal industry could directly provide 43,500 direct jobs.⁴

In addition to these direct benefits, a recent RenewableUK study concluded that diversifying the renewable energy mix by including a greater proportion of wave and tidal energy would reduce requirements for reserve capacity, leading to annual savings of £0.9bn, equal to 3.3% of the annual wholesale cost of electricity.⁵

Given the current economic situation, Government needs to adopt a supportive investment approach to the marine renewables industry to deliver the rewards outlined above. The Government should be commended for taking the initial steps by committing £60m, via the 2009 Renewable Energy Strategy. These funds have been allocated to the development of major infrastructure projects at NaREC, EMEC and in the South West Low Carbon Economic Area. Without continued Government intervention, the lead the UK presently has within this industry will be lost. Insignificant return will be obtained from the investment made, and UK plc will fail to secure any long-term economic benefits.

The UK wave and tidal industry now requires Government to deliver targeted investment to develop technology, as the scale of investment needed to overcome the present challenges is too vast to be overcome by industry alone, and private investment is presently limited by a challenging market. The stop-start nature of funding for marine energy delivered to date has created an unreliable development pathway and delayed deployment. RenewableUK suggests the following points for action.

Renewal of the Marine Renewables Proving Fund

RenewableUK wishes to thank the Government for its foresight in awarding the Carbon Trust £22m to run the MRPF. This has unblocked a key bottleneck, allowing the development of prototype devices, an activity with exceptionally high project costs due to the harsh

operating environment, the need for bespoke engineering solutions and the need for rapid technology scaling.

RenewableUK wishes to point out that 32 applications were received by the Carbon Trust, of which only 6 applicants were successful. The Carbon Trust has acknowledged that many other projects may have been eligible for the funding as the quality of the applications was so high; however, potentially successful applicants were restricted by timing constraints. RenewableUK would like to state that there is a real need for the MRPF to be continued, allowing projects already receiving funds from the scheme to complete testing and to facilitate new project delivery. If the scheme were to be withdrawn, it would create a gap in the UK funding landscape and stall development.

RenewableUK calls for the MRPF to be continued at a scale of £10m–11m per annum, to be reviewed on an annual basis, assessing industry's requirement and capabilities.

Energy Technology Institute Programme
The ETI has provided essential funding to the wave and tidal industry for the development of generic technology solutions that can be used by the entire industry. This programme should continue to be supported as it will be essential in tying together this developing industry.

RenewableUK calls for the ETI marine energy programme to be continued on a long-term basis and to be reviewed

on an annual basis, assessing industry's requirement and capabilities.

Technology Strategy Board Programme

The TSB is set to announce a new funding call in 2010 that will focus on technology development. This funding is set to complement the MRPF funding, ensuring successful projects are able to access the MRDF, and to support early-stage technology development. This funding is vital to ensure a coordinated funding landscape for marine energy within the UK.

RenewableUK calls for the TSB marine energy programme to be enhanced and established on a long-term basis. This programme should be reviewed on an annual basis, assessing industry's requirement and capabilities.

Increase the Marine Renewables Deployment Fund

Deployment of the world's first wave and tidal energy arrays will be the single most important step in industry development and it is widely acknowledged that the country which has the first full-scale arrays deployed in its waters will retain the majority share of the future global market. With other EU Governments such as Sweden, Portugal and Spain already developing advanced plans to support full-scale arrays, the UK Government currently stands to make a minimal return on the investment made to date if it fails to provide substantial financial backing to this crucial technology development stage.

The MRDF currently stands at £42m, and while it is perfectly positioned to

facilitate the deployment of the first wave and tidal energy arrays, it has some major flaws. Funds are capped at £9m per project and are split at 25% capital grant and seven years of enhanced revenue support. Indicative figures show that the primary wave and tidal arrays will have a capital cost of around £5m per MW, resulting in array capital costs of £25m–50m for a 5–10MW project. Providing capital support alone to the successful applicants of the MRPF would require £37.5m–75m. This highlights the need to increase the MRDF allocation on a long-term basis, as failure to do so will drive development overseas and render all previous funding ineffective.

The UK Government should clearly define its intention to secure a majority market share of the wave and tidal industry and markedly increase the MRDF. *RenewableUK calls for the Government to state its long-term commitment to the MRDF, and to review and top up the capital within the fund on an annual basis, with a view to providing a total of £120m over the period up to 2013.* In due course the structure of the scheme should be reviewed to ensure it fits with industry development. The amount of capital within the MRDF should also be reviewed on an annual basis.

Long-term Market Signal

In England and Wales, energy currently generated from wave and tidal devices receives two Renewable Obligation Certificates (ROCs) per MWh. In Scotland, electricity produced from wave energy receives 5ROC/MWh and from tidal energy 3ROC/MWh, giving Scotland a

significant advantage. If the UK wishes to secure a significant global market share of the W&T industry it must develop a secure and attractive domestic market across all of the constituent nations.

A long-term market signal of increased ROC banding will provide a strong signal to initial investors, as early devices and arrays will still have high levels of technology risk, and thus require a high return to justify the high levels of investment involved. Increased ROC banding will provide a long-term signal that will reduce risk in the long term.

Therefore, RenewableUK believes the banding support required is dependent upon the capital grant support provided, but that the aim is to move to a ROC-only funding landscape in the medium term. RenewableUK notes that the proportions of capital and revenue support required can only be attributed once real evidence has been collected and collated.

RenewableUK calls for the ROC multiple to be raised for marine renewable projects in England and Wales during the next review process (coming to fruition in April 2013) in order to deliver commercially viable projects.

Tackling key barriers: Aviation

As a final note, it is vital to continue work to overcome planning barriers if the UK is to overcome a reputation as a 'difficult' wind power market, where order flows to the supply chain are inconsistent and unreliable, thus discouraging manufacturing investment in the UK. One of the main areas in which there is still work to be done, is the interaction of wind power and radar. We see two key areas in which further funds will unlock considerable new generating capacity.

DECC Financial Support

We are approaching the tipping point for solving the aviation issue for wind energy deployment in the UK. Industry and Government welcomed a number of great advances in 2009, thanks to collaborative funding and cross-departmental cooperation.

Planning applications for wind farm schemes are currently blocked by aviation objections. Radar issues affect over 12GW of projects today, of which 6.6GW are in the planning system or have been awarded consent with an aviation condition to discharge. If built, the capacity in planning or with consent could support about 3,000 direct construction and operation-and-maintenance jobs. If confidence in the UK wind development pipeline was boosted sufficiently by a solution to the aviation issues, then it is possible that manufacturing investment could come to this country: this could as much as double that number. That would be highly contingent on other factors, but it is clear that aviation is one of the key planning blocks that lead to the inconsistent flow of orders that discourage manufacturers.

In 2008, under the leadership of BERR, the Aviation MoU was signed between BERR, MoD, DfT, CAA, NATS En Route and RenewableUK. Within a year, the wind industry's central Aviation Fund had been formed, bringing together fourteen key players in the industry. This was a catalyst for placing the first contracts with technology providers to invest in resolving the radar issue. In 2009, DECC appointed an Aviation Expert to manage the plan of mitigation activities, co-invested in one of the research projects with the industry's Aviation Fund and provided resource to the CAA for facilitating dialogue between the aviation and wind industries.

Collectively we are now close to finding a credible solution to the radar issue for wind development. We must fast-track development of solutions, and further contribution towards this from the Office of Renewable Energy Deployment within DECC will be essential. RenewableUK asks for joint investment with Government on solution development and the implementation of strategic solutions and investment programmes.

A joint investment of £30m is required for research and development programmes, flight trials for testing mitigation and investment in strategic solutions. This will ensure that momentum is not lost on these critical activities.

MoD Air Traffic Control Infrastructure

The current Air Traffic Control (ATC) display systems in operation by MoD require updating if MoD is to accept 'in-fill' radars as wind farm mitigation. Radar in-fill is widely accepted in the civil ATC domain as technical mitigation

for wind farm proposals, with in-fill mitigation operational at Glasgow Airport, and plans for integration of in-fill radar at Doncaster, Edinburgh and Prestwick Airports. MoD acceptance of in-fill radar as mitigation is prejudiced on there being the appropriate technology available to integrate additional radar feeds with existing equipment.

There are at least 1.6GW of onshore wind farm projects in the pipeline with military ATC objections. RenewableUK expects that MoD objections to a large proportion of these wind energy schemes could be lifted if the conditions were appropriate for MoD to accept in-fill as mitigation.

There is a £750m capability replacement programme in the defence budget, designated the 'Joint Military Air Traffic Service' (JMATS) contract, which proposes to incrementally replace the ageing military ATC infrastructure with a radar service provision. Within this programme it is likely that industry partners would seek to rationalise and consolidate radar equipment in service with MoD, whilst maintaining the current level of ATC capability. Through JMATS, it is also likely that modern display equipment would be deployed, which would support the integration of multiple radar feeds, and therefore would be suitable for in-fill radar as wind farm mitigation.

A budget allowance today for MoD to update the ATC radar display and integration equipment could bridge the capability gap until the JMATS contract is awarded. Crucially, this will involve the move from video to plot

extracted display equipment, commonly found in civil ATC operation. The cost implications involved are modest, but fundamental for the implementation of wind farm mitigation. An estimated £500,000 per radar site would cover the updating of this equipment, and could represent a saving in the longer term through compatibility with the JMATS programme. There are approximately 30 military ATC sites currently affecting wind farm development, representing a budget allowance of £15m.

RenewableUK supports the replacement of the obsolete radar equipment currently being addressed through the JMATS programme. The wind industry believes that it is essential MoD is supported in recognising its place in the modern community where wind turbines co-exist with radar infrastructure.

The Treasury should provide the MoD with the budget to update radar display equipment (£15m) for integration with in-fill radar as wind farm mitigation.

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