

Welsh Government Response to “Energising Wales” publication

A plan for Wales’ renewable energy future: Essential actions to re-energise Wales by 2035

Executive Summary

Background

The Institute of Welsh Affairs (IWA) is an independent think tank in Wales. The IWA led the three year project ‘Re-energising Wales’ to provide a practical plan showing how Wales could meet its projected energy demands from renewable sources by 2035. It was supported by a steering group of experts from industry, communities and academia. The project was funded by the Jane Hodge Foundation, the Friends Provident Foundation, and the Polden Puckham Charitable Foundation.

The project was split into six work streams:

- Energy demand
- Developing a future energy systems vision
- Setting the economic parameters
- Social and community issues
- Regulatory and political challenges
- A delivery plan

On 14 March 2019, the IWA released the final report of the ‘Re-energising Wales’ project, A plan for Wales’ renewable energy future: Essential actions to re-energise Wales by 2035. This delivery plan identifies essential actions IWA believe need to be delivered between 2019-2035 if we are to work towards meeting the project’s ambitions and address our climate change targets in Wales. IWA state the actions set out are challenging, and would require shared political and public ambition. IWA have worked up a 10-point plan for a renewable Wales:

1. Fund the future
2. Renew Wales’ homes
3. Retain the benefits in Wales
4. Use local land for local benefit
5. Focus on delivery
6. Future-proof the grid
7. Get SMARTer
8. Get ahead in marine
9. Harness the potential of bioenergy
10. Decarbonise transport

Welsh Government response: Executive Summary

The Welsh Government broadly agrees with the proposals set out in the IWA's plan for Wales' renewable energy future. The plan provides useful evidence as we continue to develop the policies necessary to deliver against our challenging decarbonisation targets.

1. Fund the future

Welsh Government agrees with the recommendation to invest in decarbonisation and we are making progress in aligning the budget with carbon priorities. The Welsh Government Budget for 2020 demonstrated our commitment to move in this direction and we will continue to prioritise investment to support green growth in future budgets. However, the Welsh Government has a number of linked priorities, including adaptation to climate impacts and the ecological emergency. We are also conscious that in determining how to fund the transition to a low carbon economy we will be crucially dependent on decisions taken by the UK Government to invest in decarbonisation and adaptation.

The COVID-19 crisis is one of the most significant challenges of our times, affecting the health, prosperity and wellbeing of our communities. Like never before, our collective resources and actions will be required if we are to tackle this urgent crisis and ensure Wales can move towards a brighter future. As we plan for an economic recovery following the pandemic we remain fully committed to taking action on our climate change goals and transformation of the energy system will form an important part of the post COVID transition.

The Welsh Government agrees that in the long run pension funds should be divested away from fossil fuels and into green opportunities. However, we are mindful of the responsibilities of fund trustees and that pensions belong to those who have paid into them. The Minister for Finance and Trefnydd has written to Welsh local government pension schemes asking what plans they have in place for disinvesting in fossil fuels.

2. Renew Wales' homes

The Welsh Government agrees there should be standards in place for increasing the energy efficiency of new homes and delivery of energy positive buildings in accordance with agreed timelines. The publication of revised environmental standards for new homes later this year will be an important milestone in this regard. We collectively need to deepen our understanding of how we are to reduce carbon emissions by the way we construct, maintain and live in our homes from "cradle to grave". In the social housing sector the Innovative Housing Programme has demonstrated that we can build social housing that delivers on our net zero ambitions. We also need to learn from other projects such as 'homes as power stations' and begin to introduce these technologies at scale. We recognise the challenges surrounding the need to decarbonise our existing housing stock and the role that government can play in the short term to support no regrets investment in optimised retrofitting projects which tackle energy efficiency and fuel poverty.

3. Retain the benefits in Wales

Welsh Government agrees with the broad aim that we should seek to retain the value from energy generation in Wales. This is the intention behind our ownership policy on energy generation and our energy targets. In February we published a policy statement on "[Local ownership of energy generation in Wales – benefiting Wales today and for future generations](#)". This sets out our position in more detail. We believe ownership consideration should not be restricted solely to renewable projects, though they will form the majority of new developments. However, we are concerned specifying an upper limit for the percentage of local ownership we expect could restrict the ambition and creativity in the models used to channel benefit to the people of Wales from energy generated here.

4. Use local land for local benefit

Our draft National Development Framework (NDF) proposes a new spatial approach to large scale wind and solar developments across Wales. We believe our proposals, set out in the NDF, send clear signals to the renewables sector and reflect our ambition the sector should grow. We are continuing to explore what greater use we might make of publicly owned land to widen activity in this area.

5. Focus on delivery

Welsh Government agrees there is a need for sufficient implementation capacity in key public bodies and we are augmenting this through our Energy Service. We encourage local authorities to resource renewable energy expertise. However, we recognise the need to prioritise action within limited public resources. We look forward to seeing the UK Government matching their climate ambition in future public spending allocations.

6. Future-proof the grid

Welsh Government agrees the electricity and gas grids must continue to evolve to aid the delivery of the clean energy revolution and Welsh Government is already working to facilitate the improvements needed. The National Infrastructure Commission for Wales (NICW) is also focusing on this infrastructure challenge.

7. Get SMARTer

We very much agree Wales should lead the clean energy revolution, capturing value from the transition to a low carbon economy. Whilst storage will be an important part of the picture, we also consider there is potential for maximising effective generation, use and storage of energy in Wales by integrating and digitising the heat, power and transport sectors. In particular we see hydrogen as a potential solution to the challenge of storing electricity in a more closely integrated and smarter energy system.

8. Get ahead in marine

Welsh Government agrees there are huge opportunities in establishing Wales as a leader in marine energy technologies. We strongly encourage UK Government to provide support to marine technologies to encourage continued investment, which is necessary for costs to fall as they have for offshore wind.

9. Harness the potential of bioenergy

Welsh Government agrees the decarbonisation of heat is a major challenge in fully decarbonising our energy system. Welsh Government strongly encourages UK Government to incentivise deployment of technologies appropriate to decarbonise heat in towns and rural areas.

We are building the understanding of the practical and environmental implications of biomass for heat generation in Wales. We expect Natural Resources Wales' Area Statements to identify the extent to which areas are capable of providing sustainable biomass sources for heat and transport.

10. Decarbonise transport

The Welsh Government is refreshing the Wales Transport Strategy which will be the recommended "decarbonisation of transport plan". Decarbonisation is central to our vision for public transport for the future. It is however important to note the Covid 19 pandemic has already had a significant impact on transport and on the plans we were previously developing. We are currently considering the implications of the pandemic for transport in Wales. We are currently intending to publish the new transport strategy in early 2021.

Welsh Government full response to ‘A plan for Wales’ renewable energy future: Essential actions to re-energise Wales by 2035

Recommendation 1

Fund the Future: through an immediate 12-18 month low carbon economic stimulus for Wales which accelerates action on renewable energy and energy efficiency. Significantly increase the Welsh Government’s capital spend programme on supporting renewable energy and energy efficiency measures. Utilise the investment potential of the 8 Welsh local authority pension funds by moving away from investment in fossil fuels to ‘green’ opportunities.

Recommendation: Renewable energy and energy saving are key national indicators within the Wellbeing of Future Generation (Wales) Act 2015. To make maximum progress towards achieving the well-being goals under the Act, Welsh Government needs to align carbon budgets with financial budgets to ensure investment in decarbonisation reflects ambition. This was recommended in the *Advice to Welsh Government on taking account of the Well-being of Future Generations Act in the budget process* report by the Office of the Future Generations Commissioner for Wales. On an ongoing basis, 2% of the Welsh Block Grant is insufficient to make real progress and we recommend the expenditure group be reviewed to ensure the resource allocated matches the urgent need.

Welsh Government Response

Welsh Government agrees with the recommendation to invest in decarbonisation and we are making progress in aligning the budget with carbon priorities. The Welsh Government Budget for 2020 demonstrated our commitment to move in this direction and we will continue to prioritise investment to support green growth in future budgets. However, the Welsh Government has a number of linked priorities, including adaptation to climate impacts and the ecological emergency. We are also conscious that in determining how to fund the transition to a low carbon economy we will be crucially dependent on decisions taken by the UK Government to invest in decarbonisation and adaptation.

The COVID-19 crisis is one of the most significant challenges of our times, affecting the health, prosperity and wellbeing of our communities. Like never before, our collective resources and actions will be required if we are to tackle this urgent crisis and ensure Wales can move towards a brighter future. As we plan for an economic recovery following the pandemic we remain fully committed to taking action on our climate change goals and transformation of the energy system will form an important part of the post COVID transition.

The Welsh Government agrees that in the long run pension funds should be divested away from fossil fuels and into green opportunities. However, we are mindful of the responsibilities of fund trustees and that pensions belong to those who have paid into them. The Minister for Finance and Trefnydd has written to Welsh local government pension schemes asking what plans they have in place for disinvesting in fossil fuels.

We are facing a climate emergency and we must further raise our collective level of ambition. Following advice from our Advisory Body, we have increased our long term pathway to respond to a climate emergency (from 80% to 95% by the end of 2050). The Welsh Government has committed to putting a higher emission reductions target of at least 95% into law. However, we are currently reviewing our regulatory timetable in light of the delay to the advice from the UK Committee on Climate Change due to the COVID situation. Our pathway will change and our delivery plans to achieve our carbon budgets will have to reflect our new legislative pathway.

Decarbonisation is a cross cutting responsibility for all Ministers. Our Low Carbon Delivery Plans will continually need to show how all Ministers contribute actions to our carbon budgets. As a result, all Ministers will need to reflect on these actions in the funding decisions they take in setting detailed spending plans for their areas.

This includes maximising the impact of Welsh Government's available funding on interventions to tackle the climate emergency. For example, the carbon impact of investment proposals is a key consideration in the allocation of capital funding in line with the Wales Infrastructure Investment Plan. It is also why we are focusing our budget preparations across Government on eight priority areas where we can have the greatest impact over the long-term, including decarbonisation.

While we recognise the way we plan and allocate our resources can have an impact on tackling the climate emergency, we can draw on other levers we have as a Government to help us achieve our ambitions and encourage all public bodies to consider how they can contribute to tackling climate change. We all have a role to play.

For example, within the Finance portfolio, procurement plays an important role in helping to reduce CO₂ emissions through supply chains. As well as ensuring its buildings and vehicle fleets are efficient, the Welsh Government (and wider public sector) must also reduce emissions more widely through its procurement of goods, works and services. Through the Decarbonisation Dashboard developed by Value Wales, the high CO₂ emitting categories of spend for Welsh Government (and public sector bodies across Wales) have already been identified as priority areas for carbon reduction. By addressing these areas and adopting low carbon procurement approaches based on circular economy principles, plus ensuring monitoring through strong contract management, there is great scope to reduce emissions through the procurement process.

We are also considering whether we could include a requirement within grant award letters issued by Welsh Government and public bodies for recipients to demonstrate the action they are taking to implement low carbon actions. This would also support and complement the Economic Action Plan, which requires businesses in Wales to demonstrate what they are doing to support decarbonisation.

Fossil fuel divestment

The Welsh Government does not own or operate any pension scheme. Civil servants of the Welsh Government contribute to the UK civil service pension scheme, which operates in a different way to other pension schemes. The civil service pension

scheme meets current pension payments from a combination of contributions from current working members and UK Government tax receipts. However, a number of employees who transferred to the Welsh Government from sponsored bodies when they were merged with the government are either contributing to, or will be beneficiaries of, part of the Rhondda Cynon Taff Pension Scheme.

Whilst the Welsh Government does not 'invest' in the same way some governments do, we do fund the Development Bank of Wales (DBW). DBW has a list of sectors which it will not invest in, which includes 'activities which give rise to environmental impact.' This obviously includes fossil fuel companies, meaning they are excluded from investment.

In ***Prosperity for All: A Low Carbon Transition***, we recognise the importance of investment choices and have committed to commission research to gain a better understanding of Welsh public sector investment profiles, to stimulate discussion about future investment strategies.

Pension funds in Wales are moving towards disinvesting in fossil fuels, including in respect of the local government pension scheme, and the Minister for Finance and Trefnydd has written to all of the Welsh Local Government pension schemes asking what plans they have in place for disinvesting in fossil fuels. We would encourage all bodies to ensure they consider the impact of climate risk on the investments they make.

Recommendation 2

Renew Wales' homes: through improved building standards and a long-term greener homes programme.

Recommendation: The Welsh Government's 2019 review of Part L of the building regulations should set out a clear timetable for increasing the energy efficiency of new homes and delivering 'homes as power stations' (or 'net energy zero'/'energy positive') standards by 2022. Homes as power stations produce enough energy to balance the overall annual demand of the household with generation. This would go beyond the current nearly-zero energy homes in operation, meaning house builders, the supply chain and skills providers can prepare for these changes by 2022. Energy consumption could be cut by more than 60% - saving the average household over £600 a year – if homes were designed to 'homes as power stations' standard so they generate, store and release their own solar energy.

Welsh Government Response

The Welsh Government agrees there should be standards in place for increasing the energy efficiency of new homes and delivery of energy positive buildings in accordance with agreed timelines. The publication of revised environmental standards for new homes later this year will be an important milestone in this regard. We collectively need to deepen our understanding of how we are to reduce carbon emissions by the way we construct, maintain and live in our homes from "cradle to grave". In the social housing sector the Innovative Housing Programme has demonstrated that we can build social

housing that delivers on our net zero ambitions. We also need to learn from other projects such as ‘homes as power stations’ and begin to introduce these technologies at scale. We recognise the challenges surrounding the need to decarbonise our existing housing stock and the role that government can play in the short term to support no regrets investment in optimised retrofitting projects which tackle energy efficiency and fuel poverty.

As recommended in Wales’ “Independent Review of Affordable Housing Supply” report, we are introducing a requirement for all new affordable housing to be near zero carbon by 2021. We are also reviewing our funding streams to rationalise the number of schemes available.

As part of our 2050 decarbonisation obligations, we have accepted the UKCCC advice and declared a Net Zero ambition for Welsh Homes by 2050. We are currently developing a programme of actions to take Welsh homes to EPC band A, based on research evidence and advice from the independent Decarbonisation of Homes Advisory Group in readiness for the next term of Government. This programme will start in the social housing sector to develop capacity and capability but will be rolled out to cover all tenures.

Building Regulations

The recent Part L and F consultation outlined our proposals to improve the energy efficiency of new dwellings in Wales from 2020 and 2025.

This year, we propose to make a significant and necessary step change in energy and carbon performance in new housing. Our preferred consultation option being a 37% saving on current carbon emissions. The proposals included improved fabric performance as well as an increased role for renewables and/or low carbon heating systems.

If developers choose not to install low-carbon heating to comply with the 2020 standard, then these new homes will need to be future-proofed (with low temperature radiators and improved fabric standards), to make it easier to retrofit low carbon heating systems.

The consultation also provides details of potential 2025 standards to provide a clear vision to industry so they can prepare. The interim step of a 37% improvement in 2020 is a significant improvement on current standards, however, we expect an average semi-detached home built to meet the Part L 2025 Standard would produce 75-80% less carbon dioxide emissions than one built to current requirements.

We are currently reviewing the consultation responses and expect to publish a Government response this summer.

The Better Homes, Better Wales, Better World

The IWA report recommends a ‘Greener Homes’ programme, where *‘Welsh Government should take the lead and develop an energy efficiency implementation*

plan that has clear targets at a local level, minimum standards and clear pathways for delivery’.

The “Better Homes, Better Wales, Better World” (Better Homes) report was produced by an independent Advisory Group on the Decarbonisation of Homes in Wales. The report makes recommendations on decarbonisation and energy efficiency targets and also recommended all retrofit works should be carried out according to a formalised quality system and standard such as PAS2035.

The ‘Better Homes’ report recommends Welsh Government commits to a 30-year programme to decarbonise all sectors of the housing stock. However, it recognises the political, economic and social challenges of making homes greener and more energy efficient. In September last year Welsh Government accepted all of the recommendations in ‘Better Homes’ in principle. The ‘in principle status’ reflects uncertainty regarding the best way to implement the report’s recommendations and the work needed to understand cost implications. The work aimed to establish an appropriate, robust, short-term standard and direction for decarbonising homes to enable alignment of funding streams in existing programmes. We have established a Green Finance group to build the case for investment to tackle fuel poverty, improve homes and create jobs.

Last year’s Climate Change, Environment and Rural Affairs Committee inquiry into low carbon housing highlighted the need for a timetable for moving to low carbon housing so house builders and others can prepare for these changes. This accords with our approach to decarbonisation and delivering the 2030 and 2050 targets, which points to the need for regular review. ‘Better Homes’ acknowledges local supply chains as a key part of the opportunities a decarbonisation programme will deliver, retaining investment, skills and jobs in Wales.

The Innovative Housing Programme

The Innovative Housing Programme (IHP) aims to create demonstrator schemes to help inform Welsh Government about the type of social housing it should support financially in the future. The programme has supported innovation in construction techniques, delivery pathways and housing types across all tenures.

Houses which generate their own power and homes built using local supply chains are some of the projects to share in £91m of innovative housing funding during the first three years of the programme. The programme has so far funded 52 capital schemes to deliver over 1,400 new innovative homes.

PAS 2035

New arrangements for the management and quality assurance of housing energy efficiency retrofit developed by the British Standards Institute was published in 2019. Public Available Specification 2035 (PAS 2035) introduces a whole system approach to retrofit schemes and requires suppliers and installers to be registered with Trustmark and accredited to the PAS 2035 standards. The UK Government has consulted about the application of PAS 2035 to homes retrofitted under the Energy Company Obligation Scheme and the Welsh Government will be considering its

application to schemes delivered under the Warm Homes Programme and housing decarbonisation programme, balancing the need for quality assurance with the ability of the manufacturing and supply chain in Wales to deliver improved quality.

Recommendation 3

Retain the benefits in Wales: by requiring all new renewable projects above 5MW to have between 5 and 33% community and local ownership by 2020.

Recommendation: To ensure there is more shared ownership of renewable energy projects in Wales, the Welsh Government should require all new renewable energy projects in Wales above 5MW to have between 5% and 33% community and local ownership by 2020. This is in addition to the Welsh Government target for all new renewable energy projects to have at least an element of local ownership by 2020. The recommendation also included incentivising shared ownership projects through non-domestic rate exemptions and increased support from the Welsh Government Energy Service and from low cost finance.

Welsh Government Response

Welsh Government agrees with the broad aim that we should seek to retain the value from energy generation in Wales. This is the intention behind our ownership policy on energy generation and our energy targets. In February we published a policy statement on “[Local ownership of energy generation in Wales – benefiting Wales today and for future generations](#)”. This sets out our position in more detail. We believe ownership consideration should not be restricted solely to renewable projects, though they will form the majority of new developments. However, we are concerned specifying an upper limit for the percentage of local ownership we expect could restrict the ambition and creativity in the models used to channel benefit to the people of Wales from energy generated here.

Local Ownership of Energy Generation

Global research undertaken by the Centre for Low Carbon Futures shows significant export of economic value by paying energy bills, with 5.9% - 18% of Gross Value Added being exported from UK regions studied. Locally owned generation, with local installers and locally sourced materials, provides a significant opportunity to retain money in the local economy, contributing to prosperity.

Welsh Government committed to a range of actions following a call for evidence on local ownership in 2018, including a policy statement, which was issued earlier this year. Welsh Government established a working group to develop practical guidance on delivering increased local ownership. The working group includes representative bodies from energy developers, environmental groups, communities and local government. The resulting draft guidance is being tested with a wider group of stakeholders.

Percentage of Local Ownership

The IWA report recommends Welsh Government should ensure all renewable energy projects on public land are either community owned or have at least a 20% shared ownership stake. We believe the IWA's suggestion of energy projects above 5MW having between 5% and 33% local ownership by 2020 is helpful. However, we have concerns setting a baseline of 5-33% local ownership could risk developers considering 33% as an upper limit and this may inhibit development of projects with greater local ownership.

Welsh Government Energy Service

The Welsh Government Energy Service will continue to support delivery of locally owned renewable energy projects to improve their viability. The Service works with developers and community groups to support them in coming to an agreement on the best approach to delivering benefit to local people from projects, whether it be through shared ownership, employment and skills, community benefit payments or a combination of these. Where communities choose to take a stake in a project, the service will support them in their role in taking this forward.

Using non-domestic rates to incentivise development

Non-domestic rates (NDR) in Wales are collected by local authorities and paid into the NDR pool. The funds are redistributed to local authorities on the basis of the adult population, to provide funding for local government and the police.

Introducing a new form of non-domestic rates relief in Wales could add to the complexity of the system and to the costs of administration for local authorities. The current valuation period is expected to run for five years, with the next revaluation scheduled to be implemented in 2022. We are expecting to receive draft data sets in the lead up to this revaluation, after which we will undertake an analysis of all sectors to determine where the biggest impacts are and consider our options for intervention.

Recommendation 4

Use local land for local benefit: by ensuring that planning regulations and public land are used in support of new renewable energy schemes and create maximum local benefit.

Recommendation: The planning system plays a key role in the decarbonisation of our energy system and the ability of communities to develop projects and own generation assets in their area. *Planning Policy Wales Edition 10* now gives material weight to social, environmental and economic benefits associated with renewable energy developments in Wales and supports shared ownership, a very positive development. To realise this at scale, Welsh Government should create more Strategic Search Areas where there is capacity on the electricity network to connect and export power, whilst ensuring that community-owned projects are favourably considered, even if outside Strategic Search Areas.

Welsh Government response

Our draft National Development Framework (NDF) proposes a new spatial approach to large scale wind and solar developments across Wales. We believe our proposals, set out in the NDF, send clear signals to the renewables sector and reflect our ambition the sector should grow. We are continuing to explore what greater use we might make of publicly owned land to widen activity in this area.

Planning

The planning system has an active role to help ensure the delivery of energy targets, in terms of new renewable energy generating capacity and the promotion of energy efficiency measures in new buildings. Through Planning Policy Wales 10, Welsh Government already requires local authorities to take an active, leadership approach at the local or regional level, by identifying challenging, but achievable targets for renewable energy in development plans.

Planning authorities should consider the renewable energy resource they have available in their areas when formulating their renewable energy target, informed by an appropriate evidence base, and use the full range of policy options available, including developing spatial policies in their development plans.

Welsh Government is supporting regional and local energy planning, which considers current and future demand alongside renewable energy potential. This work is providing insights to help develop regional energy strategies

The National Development Framework

The National Development Framework consultation proposed large scale wind and solar development to be directed towards Priority Areas for Wind and Solar Energy. The development of Priority Areas will assist in co-ordinating strategic action, bringing a critical mass of new renewables developments together to build the case for new or reinforced grid infrastructure. We will work with relevant stakeholders to help unlock the renewable energy potential of these areas and the economic, social and environmental benefits they can bring to communities. The consultation closed on 15 November and responses are being reviewed.

The COVID-19 crisis, the requirement to immediately focus on urgent issues and the stopping of normal Senedd working meant it was not possible to lay the draft NDF on 20th April as planned. It is our intention to lay the draft NDF at the earliest opportunity and to do so when it can be fully scrutinised by elected members.

Local ownership

Welsh Government is working with NRW to consider how policy on local ownership can be supported on the Welsh Government forestry estate. The most recent opportunity to bid for a lease option was scored using criteria including contribution to local benefit. The opportunity was secured by a project which included an opportunity for a significant proportion of community ownership. NRW is participating

in the working group, which will inform the way it supports new renewable generation on the estate.

Recommendation 5

Focus on delivery: by ensuring there is sufficient capacity and expertise in key public bodies to deliver the vision in practice.

Recommendation: The Welsh Government has shown political will by putting renewable energy targets and policies in place because they recognise the value that a thriving renewables sector can bring to communities, businesses and the public sector in Wales. Harnessing and retaining that value locally is vital. Mechanisms of delivery need to be much more closely aligned to Wales' energy ambitions. A low carbon stimulus needs to be accompanied by sufficient implementation capacity in key public bodies including Natural Resources Wales, local authorities, the Welsh Government civil service, regional collaborations and other relevant public bodies.

Welsh Government Response

Welsh Government agrees there is a need for sufficient implementation capacity in key public bodies and we are augmenting this through our Energy Service. We encourage local authorities to resource renewable energy expertise. However, we recognise the need to prioritise action within limited public resources. We look forward to seeing the UK Government matching their climate ambition in future public spending allocations.

Welsh Government supports public bodies to develop capacity in energy project planning and deliver through the Welsh Government Energy Service. These projects can reduce costs and, in the longer term, provide income to the organisation to support increased capacity or service delivery.

Public bodies

Public bodies, such as Natural Resources Wales (NRW), are currently able to ring-fence money they raise through existing renewable projects to finance new ones. NRW manages the Welsh Government Estate on behalf of Welsh Government. Where renewable projects are developed on the Welsh Government estate, NRW receives rent, which is then paid to Welsh Government minus NRW's operational costs.

Planning

Local authorities have a significant role to play in this agenda and some have interesting work already under way, such as the Local Area Energy Strategy being developed by Bridgend County Borough Council with the Energy Systems Catapult (ESC), using the Energy Path Network tool. It can be difficult for public bodies to address these challenges alone. This work, and other similar energy modelling and

planning projects, have been supported by the Welsh Government's Smart Living programme. Welsh Government Energy Service is supporting regional and local energy planning in support of the regional growth deals. Through this work Welsh Government is considering how best to support more planning for decarbonised and integrated energy systems as a basis for prosperity.

Recommendation 6

Future-proof the grid: by getting the electricity grid ready to meet Wales' energy aspirations.

Recommendation: There are a number of activities that should feed into the development of a proactive plan that future-proofs Wales' specific energy aspirations. The National Infrastructure Commission for Wales (NICW) should immediately carry out a strategic review of the electricity grid during 2019 to recommend what actions should be taken to ensure the grid is fit for purpose. Welsh Government should engage with Ofgem, the 2 DNOs in Wales, and National Grid to secure a fit-for-purpose electricity grid through the RIIO-2 process. Welsh Government should urgently resource a dedicated Wales Ofgem team to support Ofgem and the network operators over the next 18 months to secure the best RIIO-2 settlement. Welsh Government and other public bodies should provide certainty through upfront investment in infrastructure to ensure DNO business plans align with Welsh energy aspirations.

Welsh Government Response

Welsh Government agrees the electricity and gas grids must continue to evolve to aid the delivery of the clean energy revolution and Welsh Government is already working to facilitate the improvements needed. The National Infrastructure Commission for Wales (NICW) is also focusing on this infrastructure challenge.

Officials have discussed the challenges of a low carbon, more distributed and integrated energy future with the NICW. The [Smart Power](#) report by the UK National Infrastructure Commission provides a strong starting point and evidence base. The UK National Infrastructure Commission has also recently analysed its existing recommendations to check they are consistent with net zero and found that they are aligned with the new target, although some are now more urgent. The UK Commission published a report in May 2020 updating its recommendations to government. The NICW has set out its programme in its annual report and Welsh Government will support the Commission to take this forward.

Network operators in Wales have already connected an unprecedented level of renewable generation to the grid. Adding significant new generation capacity is likely to require new infrastructure.

The National Development Framework consultation proposed a spatial policy for large scale wind and solar developments to be directed towards Priority Areas for

Wind and Solar Energy. This will enable a more strategic approach to grid development.

Welsh Government is working closely with Ofgem, the three Distribution Network Operators (DNOs) active in Wales and the National Grid, to ensure they understand Wales' needs for grid infrastructure. Network operators' ability to build new infrastructure is regulated by Ofgem's price control mechanisms. Welsh Government has set out high level requirements in response to Ofgem's consultation on the RII0-2 transmission price controls. Our comments highlighted the need for adequate investment, whilst managing the overall cost to bill payers. Our involvement with the developing RII0-2 distribution network funding framework clearly demonstrates our expectation for grid developments, where are evidenced to be necessary and of good value, to be incorporated into network operators' business plans. Officials are participating in work by Ofgem to consider how local area energy planning might inform future network development under the RII02 control frameworks.

Recommendation 7

Get SMARTer: by ensuring Welsh businesses, local and community organisations are supported to capitalise on and lead the shift to smarter energy technology and business transformation.

Recommendation: Wales should seize the opportunity to be in the vanguard of the technology and business transformation that will accompany the drive towards smarter energy. In particular, building on the strength of the Welsh community energy sector and schemes like the Bethesda energy club, community energy groups and local organisations should be supported by the Welsh Government Energy Service to participate in local energy trials to provide flexibility, demand management, peer to peer trading and other specific services to the grid like network costs avoidance. Balancing local demand will help to minimise storage as much as possible, although battery storage technology does offer the biggest growth opportunity for Wales.

Welsh Government Response

We very much agree Wales should lead the clean energy revolution, capturing value from the transition to a low carbon economy. Whilst storage will be an important part of the picture, we also consider there is potential for maximising effective generation, use and storage of energy in Wales by integrating and digitising the heat, power and transport sectors. In particular, we see hydrogen as a potential solution to the challenge of storing electricity in a more closely integrated and smarter energy system.

We have worked closely with stakeholders in Wales to feed our requirements into UK Government's 'Upgrading our Energy System: Smart Systems and Flexibility' plan.

We are working to use energy more efficiently; generate more from renewable sources; and maximise the benefits to Wales from the low carbon transition. We have a range of programmes seeking to position Wales as a test bed for a smart low carbon future, creating transformative business and societal opportunities.

These programmes include

Smart Living

Welsh Government is ensuring Wales-based organisations participate in smart flexibility through its Smart Living demonstrators. Smart Living is an initiative which drives the progress of projects from concept to deployment, using all available sources of support. There are now over 20 pilots. Four of the first wave of seven concepts are now being successfully developed by Local Authorities and key stakeholders, including the AngleDC, Sustainable Transport, Smart Systems and Heat and Zero Carbon Area demonstrators.

For example, the Angle DC demonstrator project involves creating a first in Europe test bed of Medium Voltage Direct Current (MVDC) technology. Led by Scottish Power Energy Networks, this pilots the use of direct instead of alternating current over a stretch of line, using transformers at each end. Introducing MVDC into local networks will increase capacity of the network and improve local network management enabling low carbon economic growth in the region. Costing over £15m, this demonstrator will assist the Isle of Anglesey with managing grid constraints and may provide potential associated benefits for the local area.

FLEXIS

FLEXIS (Flexible Integrated Energy Systems) is a £24 million research operation designed to develop an energy systems research capability in Wales, led by Cardiff University, Swansea University and the University of South Wales. The FLEXIS demonstration area stretches along Swansea Bay and includes potential for varied energy generation sites.

Hydrogen has flexibility to provide heat, power and sustainable fuel for transport and its potential is being explored through FLEXIS and Smart Living. Its role as a storage medium is exciting, potentially offering an option with a lower requirement for rare elements than battery storage.

There are a number of options for generation of low carbon hydrogen, including steam methane reforming, electrolysis from renewable electricity and biomethane. Hydrogen can create a new market for Wales and initial test projects will start the process of developing the local skills and supply chain to keep benefits locally.

There are opportunities for Wales to develop local and larger-scale hydrogen generation projects both at the industrial scale and as an alternative to natural gas in rural areas. However, securing benefits for Wales will be highly dependent on successful demonstration projects taking place here.

FREEDOM

The Freedom project, involving Wales & West Utilities and Western Power Distribution, used Ofgem Network Innovation Competition funding to install and trial hybrid gas/electricity heating in homes in Bridgend. The pilot, which showcases hybrid home heating, installs air source heat pumps alongside conventional gas boilers and uses smart controls to decide which system to operate at any time to reduce gas consumption. Freedom's demonstrator houses have found eighty percent of heating requirements can be provided by an air source heat pump. Supplemented by gas heating, this has enabled them to keep a comfortable temperature and cut bills significantly.

Recommendation 8

Get ahead in marine: by taking a coordinated approach between government, industry, academia and others to establish a global advantage over marine energy and floating offshore wind as niche Welsh services.

Recommendation: Wales needs to establish a comparative advantage over marine energy as a niche Welsh service in the wider UK and global (export) economies. Marine is an emerging industry where Wales can establish a first-mover advantage.

Welsh Government Response

Welsh Government agrees there are huge opportunities in establishing Wales as a leader in marine energy technologies. We strongly encourage UK Government to provide support to marine technologies to encourage continued investment, which is necessary for costs to fall as they have for offshore wind.

Wales has ambitions to be a global player in marine energy. Energy from wave and tidal flows could play a critical role in delivering a low carbon economy, providing quality jobs and creating a better place to live and work.

Ministers continue to highlight the need for the UK Government to provide financial support to allow this industry to develop to its full potential and to allow regions to make the most of their natural resources. We are also using the levers within our direct control to deliver on our ambitions for marine energy.

National Marine Plan

Wales' first National Marine Plan, published in November last year, is designed to ensure our seas are clean, healthy, safe, biologically diverse and provide economic benefits. It sets our policy for the next 20 years to deliver sustainable use of our seas, in planned and evidenced ways which benefit the communities of Wales. There will be guidance to support the plan, which will ensure the development process is proportionate.

New powers are now devolved to Welsh Ministers to consent energy projects up to 350 megawatts, both on and offshore, as well as associated overhead electric lines up to 132 kilovolts. We intend to introduce new consenting arrangements which strengthen and streamline the consenting process, on and off shore.

European structural funding

European structural funding and the establishment of the two demonstration zones is establishing a comparative advantage for marine energy in Wales. The demo zones have been successful in attracting new developers and the Marine Energy Test Centre in Pembrokeshire is ready to test apparatus to help develop the understanding of technology in marine environments.

Marine Energy Wales

We fund Marine Energy Wales, which brings together technology developers, the supply chain, academia and the public sector to establish Wales as a global leader in sustainable marine energy generation, making a significant contribution to a low carbon economy.

Recommendation 9

Harness the potential of bioenergy: enabling Wales to create a world class circular economy.

Recommendation: Whilst challenging, the decarbonisation of heat will create opportunities for Wales to develop new capabilities and accelerate its transition to a thriving low carbon economy. As a primary action, accreditation for the renewable heat incentive needs to be less complex and more certain. Wales needs to fully quantify and assess its bioenergy potential as well as assessing the availability of feed-stocks.

Welsh Government Response

Welsh Government agrees the decarbonisation of heat is a major challenge in fully decarbonising our energy system. Welsh Government strongly encourages UK Government to incentivise deployment of technologies appropriate to decarbonise heat in towns and rural areas.

We are building the understanding of the practical and environmental implications of biomass for heat generation in Wales. We expect Natural Resources Wales' area statements to identify the extent to which areas are capable of providing sustainable biomass sources for heat and transport.

Heat accounts for almost half of UK energy use and a third of UK carbon emissions. Heat policy is not devolved, though Welsh Government believes heat is a local issue, and should be devolved. However, Wales received some powers under the Wales Act 2017 in relation to renewable heat schemes. Our current focus is to identify

opportunities to maximise benefit to Wales from emerging UK approaches to decarbonising heat.

Energy efficiency

We consider reducing demand for heat will help limit the amount of renewable heat we need to generate. Improving the energy efficiency of low-income households is the most effective way in which we can tackle fuel poverty, whilst also reducing harmful emissions. The Welsh Government is working to improve home energy efficiency and tackle domestic fuel poverty by investing in our energy efficiency Warm Homes programme, which includes Nest and Arbed. These schemes have been designed to leverage additional funding into Wales from the UK Government's Energy Company Obligation (ECO). The Warm Homes Programme supports the Welsh Government's commitment to:

- Improve energy efficiency,
- help eradicate fuel poverty,
- boost economic development and regeneration in Wales,
- reduce climate change.

Since 2011, we have invested more than £248 million to improve the energy efficiency of more than 50,000 homes of those on low incomes or living in the most disadvantaged areas of Wales. We are investing a further £104 million in *Welsh Government Warm Homes* for the period 2017-2021. This will enable us to improve up to 25,000 homes. Our investment will also lever in up to £24 million of EU funding, in addition to funding from the UK Energy Company Obligation (ECO). Covid 19 has affected delivery across our Programme. Officials are undertaking activity aimed at restoring in- year delivery and understanding the risks around this anticipated spend.

The Building Research Establishment (BRE) estimates the impact of energy efficiency measures introduced in Wales through the Welsh Government's Warm Homes Programme since 2011 has resulted in approximately 80,000 fewer households in fuel poverty than otherwise would have been without such measures.

Biomass

The extent to which biomass can contribute to meeting Wales' energy needs, the right crops to produce biofuels and the relative priority of these in optimising land use in Wales all require further investigation. Welsh Government is exploring options to assess the potential for sustainable bioenergy in Wales. However, we consider there are a range of other sources of low carbon heat.

Alternative sources of low carbon heat

Welsh Government's Smart Living programme supported Bridgend to become part of the UK Smart Systems and Heat Programme, which is led by the Energy Systems Catapult. The Programme's work with Bridgend has created an environment suitable for testing low carbon heat solutions. Different innovative solutions are being piloted

involving heat, power and transport to maximise effective use of different assets and infrastructure. This includes electric and hybrid gas/electric technologies.

The Active Building Centre (SPECIFIC) in Swansea is researching the potential to store heat using a reversible process of hydration and dehydration reactions in chemical salts. The heat is used to dry the salts. When the salts are rehydrated an exothermic reaction occurs and heat is released. This approach has the potential to make heat, including waste heat from industrial processes, more transportable.

There is only one point where 'green gas' such as biomethane and hydrogen is injected into the grid in Wales. Increasing the proportion of low carbon gas in the grid will help decarbonise heating and meet our carbon targets. UK Government is consulting on proposals for mechanisms to deliver more low carbon gas and Welsh Government has had considerable engagement with officials to ensure proposals meet Wales' needs.

Wales hosts 5.8% of all the accredited heat pump installations under the domestic Renewable Heat Incentive schemes, which is slightly greater than one might expect with 5% of the UK population being in Wales. We are exploring how we continue to maximise the impact of UK programmes in Wales.

Demand and opportunity mapping

UK Government has previously mapped heat demand and opportunity for England and Wales under EU regulation. Welsh Government promoted this mapping to Local Authorities to use in developing their approaches to decarbonising heat. We also used the data in the development of the National Development Framework (NDF) to assess the potential for identifying spatial areas where heat networks should be considered. We are working with BEIS as they prepare to revisit this assessment in 2020.

District heating

District heating is a mechanism to use a single large heat source to supply heat to more than one building. This technology is used extensively in other countries, for example Denmark. There is no fully functioning district heat market in the UK, partly due to the extensive gas network and partly due to high up front capital costs for heat networks. The UK Government is seeking to develop the industry, as it considers heat networks powered by low carbon sources to be a key part of decarbonising heat, particularly in densely populated areas.

The UK Government supports development with revenue grants through the Heat Network Development Unit and capital through the Heat Network Investment Programme (HNIP). Welsh Government participates on the HNIP Programme Board. Government support reflects the fact heat networks are not typically commercially attractive developments.

Local Authorities are key to facilitating heat networks in the UK. The Welsh Government Energy Service provides advice and support to the public sector to

undertake heat master-planning and develop proposals for district heat projects, alongside the support provided by UK heat network programmes.

UK and Welsh Government have provided intense support to some district heat schemes in Wales, including support to Cardiff to develop business plans for connecting the Viridor energy from waste plant to a wider heat network. Welsh Government has supported Bridgend Council to develop an innovative scheme to use heat from warm water found in abandoned mine workings in Caerau as well as helping development of town district heating scheme plans. Support to heat projects has been in place since 2015 with first buildout expected to commence in 2020, which demonstrates the lead times for district heat projects.

Recommendation 10

Decarbonise transport: through a comprehensive ‘Transport Decarbonisation Plan’ co-produced by key public bodies and the transport sector; backed up by a national travel survey.

Recommendation: Welsh Government needs a long term comprehensive ‘Transport Decarbonisation Plan’ to wean our transport system away from its over-reliance on the car and towards much greater use of active travel and public transport. The plan should be co-produced with local authorities, regional transport authorities and organisations representing the planning profession, pedestrians, cyclists, the bus and rail industries, power distribution companies and the automotive industry. To make the progress required, the plan should be in place by the end of 2020, in line with Welsh Government’s ‘Low Carbon Delivery Plan’ which is being developed as part of the carbon budgeting process as required by the Environment (Wales) Act 2016.

Welsh Government Response

The Welsh Government is refreshing the Wales Transport Strategy which will be the recommended “decarbonisation of transport plan”. Decarbonisation is central to our vision for public transport for the future. It is however important to note the Covid 19 pandemic has already had a significant impact on transport and on the plans we were previously developing. We are currently considering the implications of the pandemic for transport in Wales. We are currently intending to publish the new transport strategy in early 2021.

Prosperity for All – A Low Carbon Wales

‘Prosperity for All – A Low Carbon Wales’ sets out our plan to work to reduce emissions from transport and achieve a modal shift from car dependency to sustainable forms of transport and promote active travel. We have begun the process of reviewing our Active Travel targets and enhancing our monitoring and evaluation function. We recognise the important role data plays in understanding travel patterns and travel choices. The National Survey for Wales contains a whole section dedicated to transport. We are developing options for transport surveys to

analyse behaviours to complement the cutting edge transport models developed in Wales.

We are refreshing the Wales Transport Strategy, which will give prominence to our policies on decarbonisation of transport. Local Authorities must give due attention to the strategy in the development of their Local Transport Plans which must be approved by the Minister. We are also considering additional policies to be included in the transport sector pathway for the next decarbonisation plan.

Planning Policy Wales

Planning Policy Wales (PPW) emphasises sustainable transport, ensuring the location and design of new development reduces the need to travel and prioritises walking, cycling and public transport. PPW also includes a new policy to encourage the uptake of Ultra Low Emission Vehicles (ULEVs), with a minimum of 10% of non-residential car parking spaces required to have ULEV charging points.

The sustainable transport policies in PPW form part of the new place making approach to ensuring people's well-being is at the heart of the planning system. We recognise a culture change is required to deliver the implementation of place making and will be supporting local planning authorities with the tools to help deliver better places.

Changes have been made to permit the installation of electrical outlets and upstands for recharging electric vehicles without the need for planning permission. The Welsh Government will review planning fees to provide more effective cost-recovery and to ensure local planning authorities' services are appropriately funded.

Car clubs

We aim to roll out more car clubs and car sharing initiatives, and look at Electric Vehicle car clubs, which have potential to change attitudes to car ownership. We will explore support for electric vehicle car clubs and car sharing initiatives in the development of our EV Charging Strategy to be published in 2020.

Buses

We recognise the need for bus reform. The nature of that reform is under review as a result of the Covid 19 pandemic.