



Comisiwn **Seilwaith**
Cenedlaethol **Cymru**
National **Infrastructure**
Commission **Wales**

Preparing Wales for a **Renewable Energy** 2050

A report from the National
Infrastructure Commission
for Wales (NICW)

October 2023



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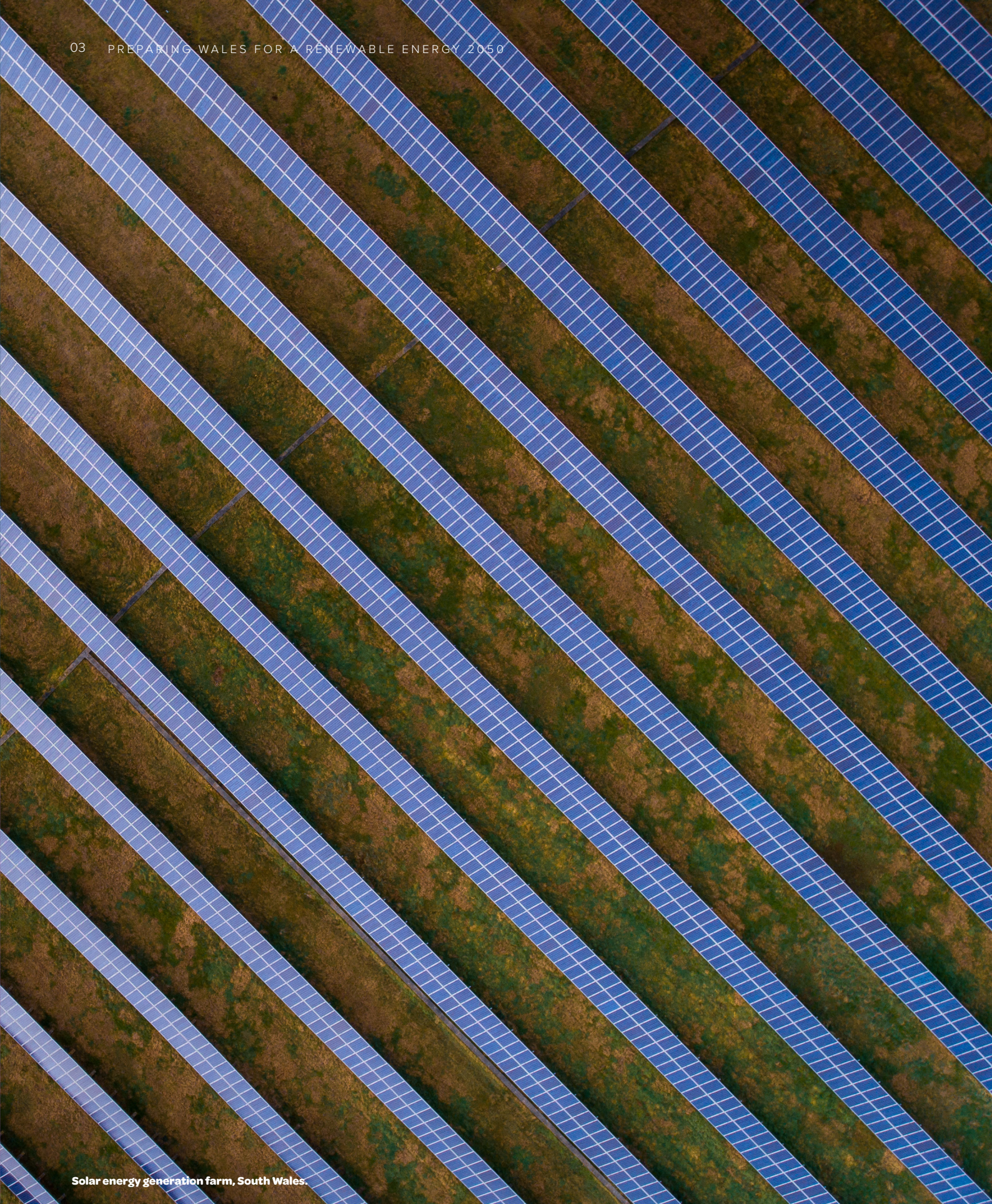
The National Infrastructure Commission for Wales (NICW) was established in 2018 as an independent, non-statutory, advisory body to Welsh Ministers.

Its key purpose is to analyse, advise and make recommendations on Wales' longer term strategic economic and environmental infrastructure needs over a 5–80-year period.

NICW conducts studies into Wales' most pressing infrastructure challenges and will make recommendations to the Welsh Government.

The advice provided by NICW will be impartial, strategic and forward looking in nature.

NICW is accountable to the Welsh Ministers for the quality of its advice and recommendations and its use of public funding.



A summary of our recommendations

LEADERSHIP AND STRATEGIC APPROACH



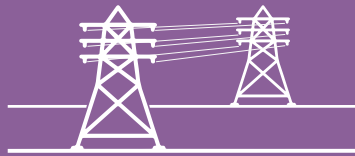
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By 2025, the Welsh Government should present a vision for energy in Wales to 2050, with an accompanying Strategy and Action Plan to set out its long-term ambition. This should include detail on renewable energy production and grid development.

These should be informed by extensive public engagement which use recognised methodologies for maximum effect.

The implementation of this Vision should be overseen by a cross-Government / sector group, chaired by a minister.

A GRID FIT FOR A FUTURE WALES



2

By 2025, planning for the electricity grid in Wales should be based on policy considerations as well as functionality.

A shift is needed for grid planning to consider the needs of Wales and be strategically developed with a long-term view.

3

By 2025, Ofgem should reform the system that plans for and delivers grid access for renewable energy to enable rapid deployment.

Policy considerations should become a factor in determining grid connections.

THE BUILT ENVIRONMENT



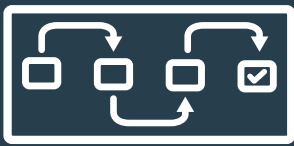
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An immediate review of Part L of the Building Regulations is needed to mandate the use of renewable technologies (especially solar thermal and solar photovoltaics) and battery storage in all new developments, and in significant renovations or extensions.

5

Permitted development rights should be immediately reviewed with a specific focus on eliminating impediments to measures that increase renewable energy generation, with a shifted focus on the climate crisis.

PLANNING



6

By 2025, where renewable energy planning applications (and associated regulatory regimes) have a mandated, statutory time allocation, decisions should default to a positive if the time allocation elapses with no response ('positive silence' approach).

7

By 2025, a pooled planning resource for energy should be created to share expertise and technical skills for articulating planning policies, engaging with the public and considering planning applications.

COMMUNITY BENEFITS AND OWNERSHIP



8

A Renewable Energy (Wales) Bill should be brought forward in the next Senedd to legislate to enable greater community ownership from renewable energy.

9

Policy should require renewable energy developments to offer up elements of community ownership and repowering of sites should be greatly simplified but include community ownership requirements.

10

The forthcoming Freeports initiative should be seen as an opportunity to allow more community renewable energy in a deregulated environment.

CROWN ESTATE CYMRU



11

By 2030, The Crown Estate's functions in Wales should be completely devolved to a new body that has as its principal aim the reinvestment of all funds in Wales for the long-term benefits of the people of Wales in the form of a Sovereign Wealth Fund.

Our Mission Statement for Renewable Energy in Wales



Wales has an accessible and ambitious vision for its future energy system that uses only renewable sources of energy to meet its need and is delivered in a way that reduces the costs to communities.

Wales' energy system is underpinned by a responsive well-planned grid that is designed to deliver Wales' policy objectives and builds strong connections to neighbouring grid systems.

The planning system is optimised to deliver renewable energy developments efficiently with high levels of public involvement to maximise the socio-economic benefit to Wales.

Accessible and ambitious energy vision

Maximise benefit to Wales

Renewable energy to our needs

Responsive well-planned grid

High levels of public involvement

Reduced costs to communities

Optimised planning system



Welcome



Jen Baxter

Deputy Chair

The nature and climate emergencies have become increasingly apparent, with unusual weather patterns, changes in food availability, polluted water courses and increased air pollution, all reducing the well-being of today's generations with little to no consideration of those who will come after us.

The National Infrastructure Commission for Wales takes a long view of delivering new infrastructure for the benefit of the people of Wales.

This view of 30-80 years into the future means that the recommendations and actions we make today are intended to build a solid foundation for a clean, nature positive future where we can live healthy and prosperous lives.

In this report we make recommendations that are designed to accelerate the deployment of renewable electricity across Wales.

These recommendations may appear complex and some tricky to deliver, however we are now facing time in our history where if we do not make a concerted effort to change how we deliver new infrastructure then our ambitions for net zero and the well-being of future generations will be in jeopardy.



Aleena Khan

**Lead Commissioner and Chair
of Project Advisory Group**

As a young person, I am conscious of the level of uncertainty that lies ahead of me and future generations because of the Climate Crisis. We are presently experiencing and witnessing the consequences of human activity – which is frightening.

“The climate emergency is a race we are losing, but it is a race we can win” (UN Secretary – General, 2022).

A key outcome of this report is to present radical recommendations to accelerate Welsh Governments goals of achieving net zero carbon emissions in Wales by 2050 through the deployment of Renewable Energy; and ultimately, mitigate the Climate Crisis.

I would like to thank all of those people who have supported the delivery of this report, including the Project Advisory Group, research teams and NICW Commissioners; all of whom shared a collective vision to ensure that future generations have the same quality of life as we do now, not a planet to fix.



Nick Tune

Lead Commissioner

We are in a climate crisis, and as the UN Secretary General stated in March 2023, ‘We must do everything, everywhere, all at once’. However, the deployment of renewable energy in Wales is currently not moving at the pace required to address the climate emergency and subsequently the needs of the people of Wales.

This report identifies critical actions that are required by the Welsh Government to deliver their target i.e. meeting 100% of its annual electricity demand from renewable sources by 2035 whilst delivering tangible benefits for the people of Wales.

To deliver this, will require partnership between the Welsh Government, The UK Government, Local Authorities, NRW, The National Grid, Businesses and local communities. With a system of systems approach to delivery.

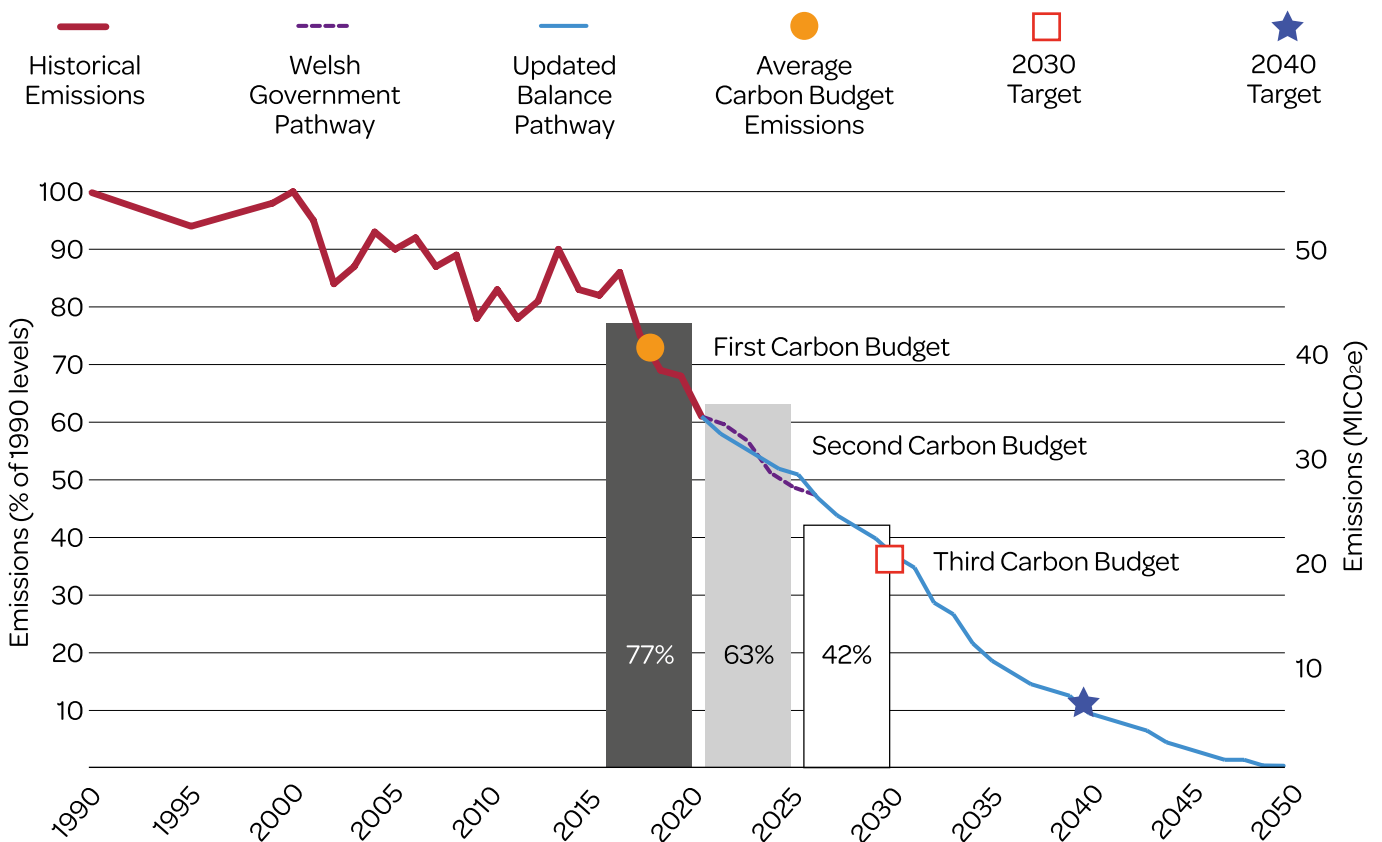
This is not easy, but it is critical for the Future Generations of Wales and I am sure it is a challenge the Welsh Government will meet’.

Background and context

Wales is part way through its second carbon budget,¹ a journey undertaken by statute and with the ultimate goal of (net) zero carbon emissions in Wales by 2050.² The 2020s will require a huge shift in carbon intensity, a greater drop than in the previous three decades.

The most recent Climate Change Committee analysis demonstrates that Wales is not on track to meet its carbon targets.³

Figure 1: Historical emission and future targets in Wales⁴



Source: National Atmospheric Emissions Inventory (2022) Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2020; CCC (2020) The Sixth Carbon Budget; CCC analysis; Welsh Government.

Notes: The updated Balanced Pathway includes the following changes: rescaling residential buildings emissions to match 2019 emissions and correcting for greenhouse gas inventory methodology updates up to the 1990-2020 inventory. The global warming potentials are those without carbon feedback from the IPCC's Fifth Assessment Report.

1 Net Zero Wales Carbon Budget 2 (2021 to 2025) | GOV.WALES
 2 Environment (Wales) Act 2016 (legislation.gov.uk)
 3 Progress Report: Reducing emissions in Wales – Climate Change Committee (theccc.org.uk)
 4 ibid

When the National Infrastructure Commission for Wales (NICW) was set its new remit⁵ in 2022 it was given the task of investigating and making recommendations to the Welsh Government on future renewable energy policy:

To complement this work, the NICW should investigate the connections between renewable energy infrastructure and other infrastructure to aim to match our energy generation to energy usage.

This may involve looking to the future in terms of what our energy needs and generation will look like, and where energy will be required.

By investigating solutions, on a national scale, it could identify which will have the most beneficial impacts.

We would welcome recommendations on how Welsh Government can influence these patterns using the levers it has available.⁶

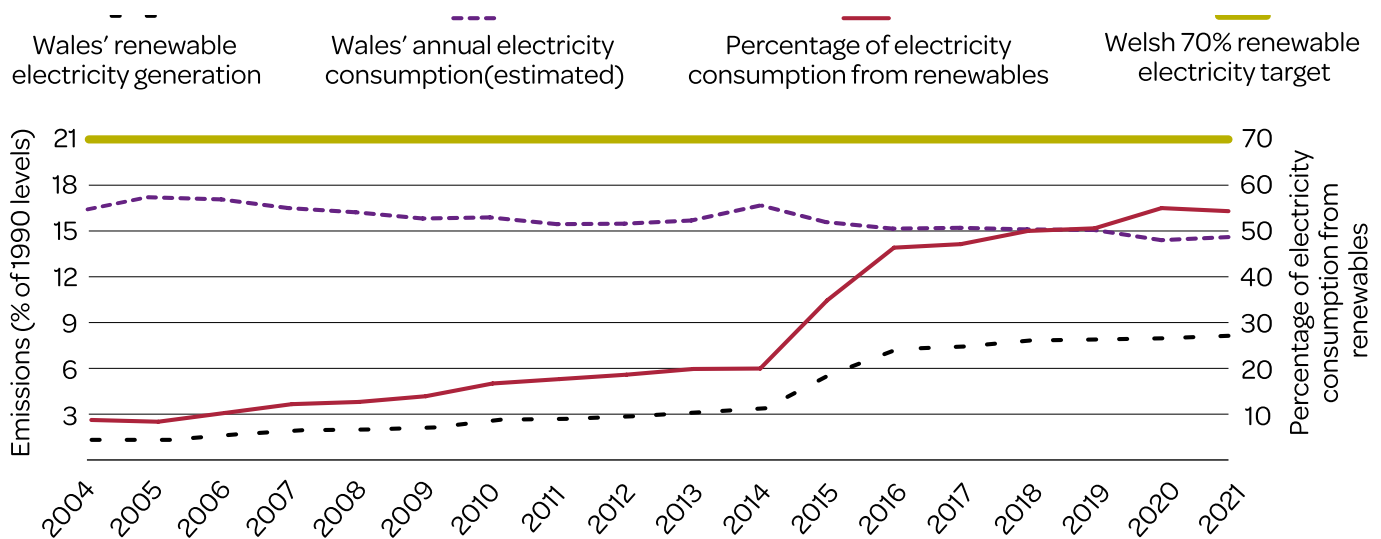
NICW recognises the scale of the challenge that is required for Wales to meet its net zero carbon commitments.

The Welsh Government has set targets⁷ for Wales to meet the equivalent of 100% of its annual electricity demand from renewable sources by 2035 and to achieve net zero by 2050.

The Welsh Government recognises that the generation of renewable electricity has a key role to play in the decarbonisation of the whole energy system that will be required to achieve net zero by 2050.

However the current levels of renewable energy generation (Figure 2) suggest that significant additional interventions will be necessary to achieve the target.

Figure 2: Growth in the percentage of electricity consumption from renewable sources in Wales⁸



5 National Infrastructure Commission for Wales remit letter | GOV.WALES

6 NICW Remit Letter

7 Written Statement: Publication of Summary of Responses to the Consultation on Wales' Renewable Energy Targets (14 July 2023)

8 energy-generation-in-wales-2021.pdf (gov.wales)

A Challenge Group is supporting the Welsh Government in suggesting radical pathways to meet Net Zero by 2035,⁹ including looking at how Wales could meet energy needs by 2035 whilst phasing out fossil fuels. Two NICW Commissioners, Eurgain Powell and David Clubb, participate in this group.

Although there was an increase in renewable electricity generation in 2021,¹⁰ the Welsh Government's *Energy Generation in Wales 2021* report estimates that 55% of electricity demand and 28% of electricity generation in Wales came from renewable sources, decreasing from 56% and 33% respectively in 2020.

The decrease in the share of electricity generation delivered by renewables is accounted for by an increase in electricity generation from gas. However, the commissioning of new renewable capacity has slowed significantly in recent years and in 2021 was nearly 90% lower than its peak in 2015.

Welsh Government's policy statement on local ownership¹¹ of energy generation in Wales estimates that Wales could be exporting between 6% and 10% of its Gross Value Added (GVA) in energy bills. It is likely that this export value has increased since the energy price cap increases in April and October 2022.

Local ownership provides an opportunity to retain more of the wealth created from renewables within Wales and to contribute to increased prosperity for communities across the country.

The Welsh Government policy statement sets out an aspiration of 1.5 GW of local ownership of renewable electricity and heat capacity in Wales by 2035, and for all new energy projects to have at least an element of local ownership.

In 2021, the Welsh Government published its deep dive¹² into renewable energy, which included 21 recommendations for further work. This included the following statement:

Our Vision is for Wales to generate renewable energy to at least fully meet our energy needs and utilise surplus generation to tackle the nature and climate emergencies.

It also committed to the creation of a national energy plan by 2024, mapping out future energy demand and supply to identify gaps to plan for a system that matches local renewable energy generation with energy demand.

Most recently, the Welsh Government has produced its *Future Energy Grids for Wales* report.¹³ This report sets out the results of taking a whole systems approach to identify the requirements for gas and electricity networks. We recognise and commend the Welsh Government's ambition in this area.

9 www.netzero2035.wales

10 Energy generation in Wales: 2021 | GOV.WALES

11 Local ownership of energy generation in Wales: policy statement | GOV.WALES

12 Renewable energy deep dive: recommendations | GOV.WALES

13 Written Statement: Publication of Future Energy Grids for Wales report (14 July 2023) | GOV.WALES

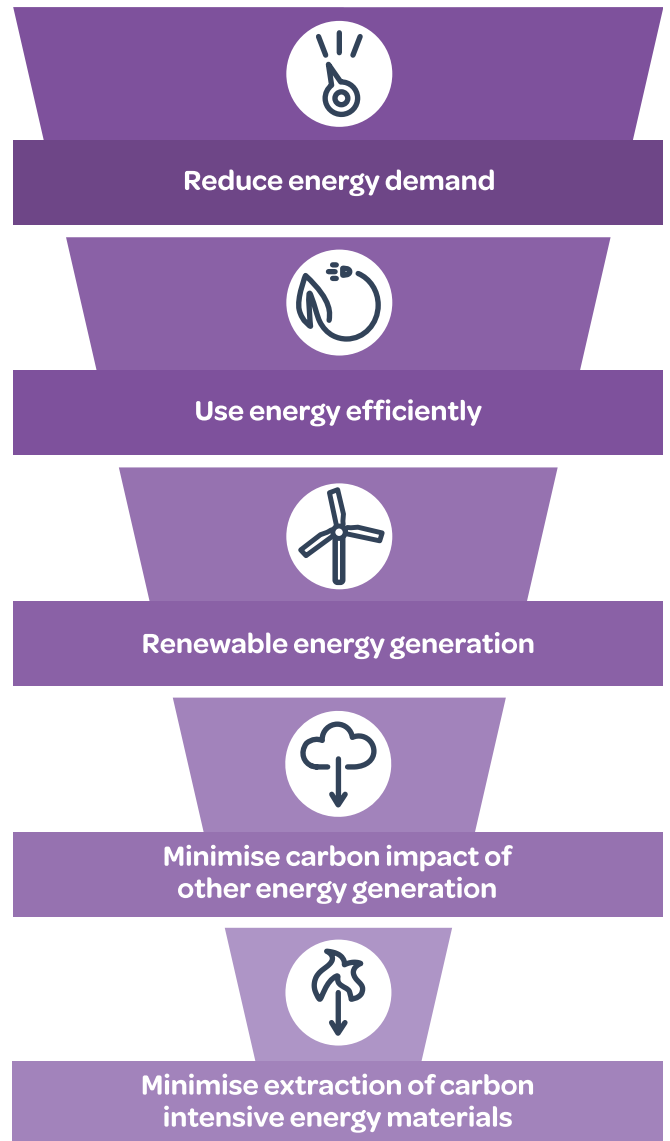
The Minister concludes that: “Wales needs ‘rewiring’”, NICW agrees with this concept and considers that our report will support Wales in taking the first steps along that journey.

It is important to stress that, whilst this report focuses specifically on energy, and renewable energy in particular, the Commission is firmly committed to the energy hierarchy.

The priority for energy policy in Wales should be to reduce energy demand and to maximise energy efficiency.

However, all plausible energy models suggest an increased future electricity demand; a rapid increase in deployment of renewable energy is therefore necessary.

Figure 3: The Energy Hierarchy¹⁴



The NICW Approach

NICW works within frameworks aligned with public policy in Wales, applying them over the longer term. NICW aims to:

1. Provide radical, challenging and evidence-informed advice and guidance to a variety of audiences, but principally the Welsh Government, that will inform and future-proof decisions on infrastructure deployment from 2030–2100.
2. Use the frameworks of the Well-being of Future Generations (Wales) Act 2015, the climate and nature emergencies, and the socio-economic duty, to guide our deliberations.
3. Support initiatives, organisations or policies that aim to create and maintain resilient and adaptable infrastructure that delivers well-being until 2100 and beyond.

It carries out these aims, upholding its agreed values:

- **Inclusive:** creating a warm and friendly environment within which people feel supported and confident to express their views.
- **Transparent:** pushing the boundaries of reporting in near-real-time on our engagement, and demonstrating publicly how we deal with internal disagreements.
- **Radical:** Commissioners have committed to working out of their comfort zones; we aim to deliver advice, opinions and recommendations that diverge from ‘business as usual’ in order to alleviate the nature and climate emergencies and deliver on our remit.
- **Challenging:** The Commissioners challenge the status quo with the needs of future generations and an aspiration to do better for the future citizens of Wales.
- **Practical:** The Commission’s work is focused on actionable recommendations that move us towards a more sustainable infrastructure for the needs of the people of Wales.

NICW began its work on renewable energy in early 2022. The Commission has met with various stakeholders in the renewable energy sector to investigate current work in this area, receive opinion and to discuss further thinking and ideas for the future of renewable energy in Wales. In framing this report and its recommendations, NICW is mindful of its long-term remit and the fact that many of its suggestions should be enacted swiftly to help Wales achieve its net zero targets by 2050. We have tested our recommendations against this framework in Appendix A.

NICW established a renewable energy Project Advisory Group (PAG)¹⁵ in the spring of 2022 to guide its work, act as a critical friend, and to provide further additional comment, advice and suggestions for action. The PAG group met several times during the course of the research phase.

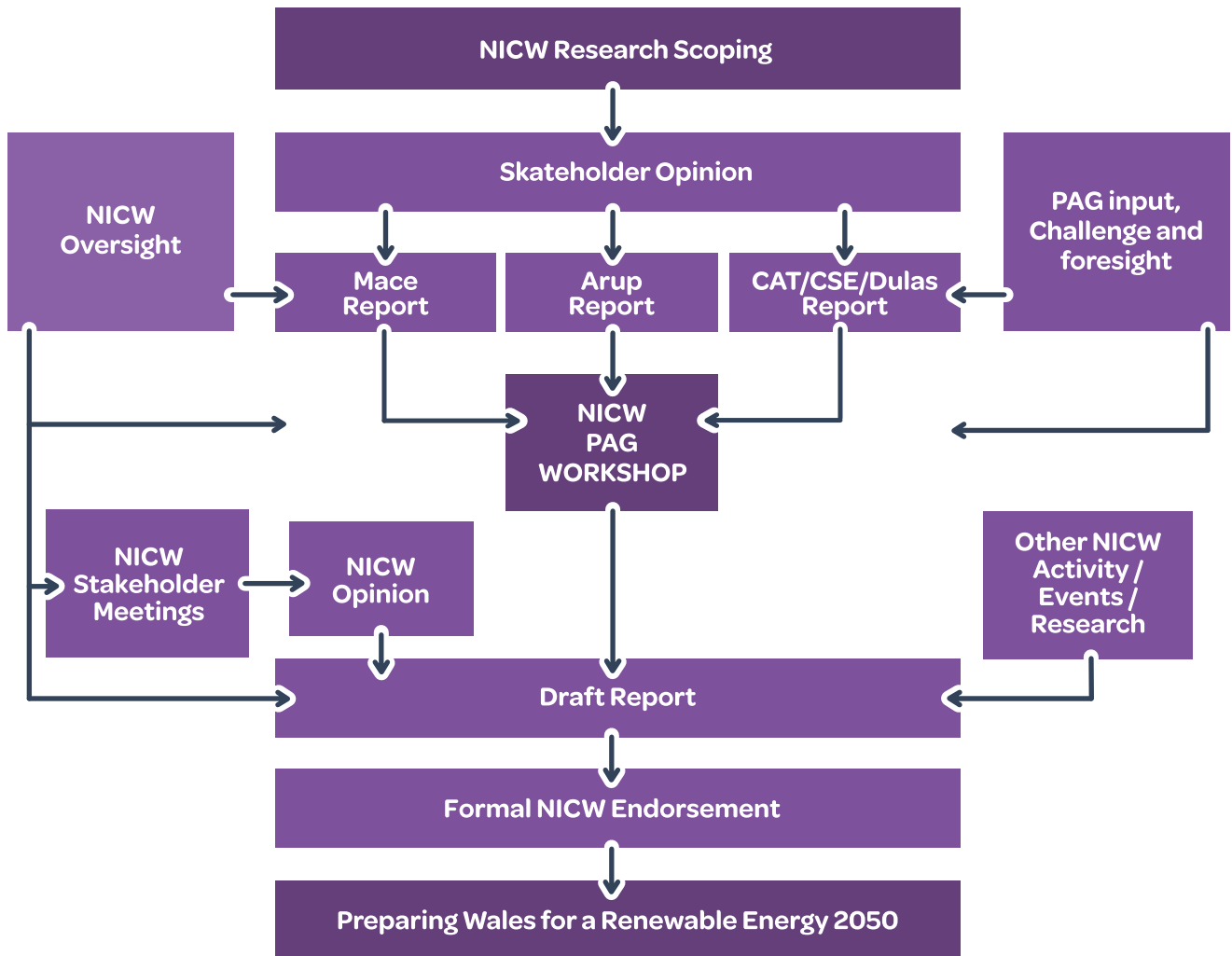
¹⁵ For membership of the PAG, see Appendix B.

Before this report was written, and with some specialist support,¹⁶ we gathered the PAG together to identify common issues raised by the three research reports; to discuss the priority areas for us to focus on; and to debate potential recommendations.

However, our recommendations should not be seen as an official endorsement of the PAG, the organisations represented by the members of the PAG or the organisations which have undertaken the primary research to inform this report.

This report has been endorsed by all Commissioners of the National Infrastructure Commission for Wales. David Clubb has a declared Conflict of Interest with offshore wind and therefore reserved his opinion during the process on recommendation 11 relating to devolution of The Crown Estate. He does not endorse or reject this recommendation.

Figure 4: The NICW Report Development Process



Our Research

In the context of the wider scoping which NICW has undertaken in this area, the Commission chose three areas within the renewable energy sphere on which to conduct primary research and evidence gathering:

- Capturing the value of renewable energy projects to Wales.
- Tensions and opportunities arising from future energy scenarios.
- Engaging Mid Wales communities on renewable energy projects.

These areas were identified as 'gaps' in existing activity where NICW could add value by further investigation. NICW awarded contracts to Arup, Mace Consult and a consortium of the Centre for Alternative Technology, the Centre for Sustainable Energy and Dulas (respectively) for the three areas of research.



How can Wales maximise the value obtained from renewable energy?

A key finding of this research, delivered by Arup, was that there is no single definition of value in the infrastructure sector. While new, wider understandings that go beyond traditional metrics such as jobs and Gross Value Added (GVA) are emerging, there is not yet any established holistic method for measuring and reporting social and environmental value from infrastructure investments.

Social value is often locally defined and dependent on the local context. In Wales, understandings of value tend to be linked to the Well-being of Future Generations Act (2015), and to the socio-economic duty, enacted in 2021.

The research found that different renewable electricity typologies can generate different types of value, in different ways and at different scales, and that renewable electricity projects across all typologies are already delivering value for Wales.

However, the renewables that will be required to meet net zero by 2050 are not being delivered at the speed or scale required, providing opportunities to increase the rate of delivery in a way that can maximise the value generated and retained within Wales.

The research found two related issues that the recommendations should address.

These are:

- increasing the rate of delivery of renewable electricity developments at all scales; and
- increasing the value that is generated and retained within Wales from those developments, nationally and locally.

Recommendations were developed based around a set of themes that emerged from the research.

These are:

- Planning and land use.
- Enabling infrastructure.
- Financial support and resources.
- Education and skills.
- Creation, retention and distribution of value.

The report identifies a set of 26 detailed recommendations, grouped around the themes identified above with six priority recommendations set out for the short, medium and longer term. These are reproduced in Appendix C below.



Challenges and tensions in achieving Net Zero 2050 Wales

The aim of this commission, undertaken by Mace Consult, was to seek an understanding of the relationship between future renewable energy and associated infrastructure, and its impacts, which create both opportunities and tensions for the communities where the infrastructure is deployed.

Working with NICW and stakeholders, tensions and challenges were mapped across a typical project timeline with a specific focus on onshore projects. Mace Consult identified areas of opportunity to address some of these tensions and challenges.

The objectives of the research were as follows:

- Recommend what policy and/or regulation should be considered to maximise the benefits from co-locating different infrastructure related to renewable energy deployment; and the opportunities from a large increase in deployment by 2050.
- Understand the relationship between future renewable energy and associated infrastructure and how this creates both opportunities and tensions for the communities in which they are deployed.
- Build a comprehensive understanding of interdependencies and systems to deliver on scenario 2050 objectives.
- Present a conclusion and recommendations by setting out the case for change.

The project focused on how the national ambition for a cleaner, greener Wales dovetails with delivery, answering the questions of what factors enable or prevent the delivery of Net Zero Wales 2050 from an infrastructure perspective. The report provides a set of recommendations on how strategy, policy and practice can be improved to maximise benefits and address challenges and tensions.

Early in the project it became apparent that the findings from the research and stakeholder engagement could be themed across the project lifecycle. Many of the opportunities and tensions were not specific to a geographical area or energy modality but related to a stage in the journey from project feasibility through to renewable energy being in use.

The report is structured around the project lifecycle, going through all the stages of bringing successful green energy schemes into use.

Recommendations ultimately focus on the following areas:

- Feasibility and deliverability.
- Infrastructure.
- Planning.
- Delivery.
- In Use.
- 2050 and beyond.

The recommendations are reproduced in Appendix D below.

Conversations on landscape and energy in Mid Wales

This project was carried out by a consortium comprising the Centre for Alternative Technology, the Centre for Sustainable Energy, and Dulas.

Part of the overall goal for NICW in its work on renewable energy was to better understand how to inform, engage and involve the communities of Mid Wales on issues around landscape and energy.

The project applied the 'Future Energy Landscapes' (FEL) methodology to engage with communities in Ceredigion and Powys in order to understand their views on renewable energy, and to ascertain ambition for local generation and use.¹⁷ The project had no connection to any particular planning proposal; it was hypothetical and exploratory to ensure that no existing developments were impacted.



The project aimed to help increase understanding of how best to bring communities together to discuss renewable energy options for their area, using a process that allows voices from across the community to be heard.

The project report summarises the outputs from workshops that took place during the months of January and February 2023 and subsequent surveys that sought to understand views from workshop attendees as well as people from the wider community who were unable to attend the workshop in person.

The information gathered from the communities has been collated to inform this overarching report.

The report advises on public perception of renewables in the local landscape and explores bottom-up participatory approaches to community engagement, building a more informed public debate on renewable energy that improves local connections and mutual understanding.

The recommendations are reproduced in Appendix E below.

Summary of the project reports

The final reports for all of these areas of work are published alongside this report. They contain a wealth of information and data that have been extremely valuable in providing the background, evidence and basis for our recommendations.

The three reports contain over 60 recommendations on further work and action that the Welsh Government and others can take to support the delivery of renewable energy and wider carbon goals. These recommendations are set out in full in Appendices to this report.

NICW invites the Welsh Government to note the contributory project reports and the individual recommendations. However, the formal NICW recommendations are those contained within this report.

As part of our work to produce this final report, the following issues were commonly identified when synthesising the three reports:

- There are resourcing issues at the planning pre-application and examination stage – and lack of incentive for LPAs to assist developers. This leads to lack of investor confidence – as there is no clear oversight on the likely success of a potential project without undertaking significant amount of work and incurring upfront costs. It was reported that it was very difficult to engage with LPA officers at a pre-application phase of the DNS process, as developers would have to submit their applications without any oversight and then receive feedback.
- The DNS system is not viewed positively due to the slow and political nature of issuing decisions.
- The lack of a clear Welsh roadmap and strategy makes it hard for stakeholders to see how schemes are prioritised across the whole timeline.

- There is no process to prioritise schemes which are going to achieve the largest benefits for the population of Wales.
- Renewable energy developers do not have quick access to visibility of grid capacity in areas that they are considering developing, without applying to National Grid or SPEN, which leads to commercial insecurity.



- The time it takes from conception of a scheme to being brought into use is long (up to 15 years – predominantly due to grid connectivity).
 - There is a risk of local opposition for energy projects to be developed in their locality – some communities feeling that they are unfairly disadvantaged by having schemes in their area, and can't see the clear benefits of investment in renewable energy infrastructure.
 - There is a lack of interconnectivity of power in north and mid-Wales.
 - There is a disconnect between what the Welsh Government are doing to facilitate the planning and consenting system, and what energy developers would want to see done.
 - Applications do not adequately involve the LPA, they are too readily put on hold by the Planning & Environment Decisions Wales (PEDW) and Welsh Government, and decision-making is often political and slow.
- There is a disconnect in the town planning system as an arbiter for onshore wind energy provision.
- A limitation of Pre-Assessed Areas is that they are located in areas with extremely limited Grid access capacity.
 - Consenting bottlenecks and other factors throughout the UK and in Europe have stagnated the deployment of renewables, despite interest in the increased role of renewables in the UK energy mix.
 - National Grid has estimated that around 25,000 people will need to be recruited in Wales with regards to successfully navigating the energy transition. This is both a challenge and significant job creation opportunity.
 - There are misconceptions about how renewable energy technologies, in particular wind turbines, operate – and their impacts/how are assessed.



NICW Recommendations

Leadership and Strategic approach

1. By 2025, the Welsh Government should present a vision for energy in Wales to 2050, with an accompanying Strategy and Action Plan to set out its long-term ambition. This should include detail on renewable energy production and grid development. These should be informed by extensive public engagement which use recognised methodologies for maximum effect. The implementation of this Vision should be overseen by a cross-Government / sector group, chaired by a minister.

Wales needs to show leadership in this area which has a complex devolution settlement. Our research found that current Welsh Government energy policy is contained within several different statements and policies.

The following list gives examples of some areas where renewable energy is considered by the Welsh Government:

- Renewable energy targets.
- Planning policy documents (including PPW and Future Wales) and letters to Chief Planning Officers.
- Low carbon energy guidance, policies and services.
- A local ownership policy statement.
- The renewable energy deep dive process.
- The Net Zero strategic plan and Carbon Budgets.

The need for a comprehensive strategy was outlined in the Mace Report together with our conversations with the renewables sector.

There is no Welsh Energy Strategy or Policy, and tensions arise from a lack of consistency and uncertainty around the overall picture for Wales.¹⁸

The report goes on to quote from a renewable energy developer who says that there is lack of consistency and clarity at all levels on objectives such as the roadmap to Net Zero for 2050. The lack of a clear roadmap to 2050 or a statement on what role onshore wind and solar will play after 2050 were also highlighted as being absent. Developers requested a single message running right through Government policy.

Mace concludes that Wales needs to set a clear and unambiguous strategy and roadmap around renewable energy and infrastructure across Wales, setting out the different scenarios and energy modalities and how and when this can be achieved.

We believe that the 'vision' set out in the Renewable Energy Deep Dive does not go far enough. The Commission considers the development of a single statement on the Welsh Government's strategic approach to renewable energy deployment over the long term would show leadership and provide clarity and greater certainty to project developers, communities and to grid development projects. The strategy should be mindful of associated infrastructure, such as the grid, at all voltages relevant to domestic and commercial renewable energy deployment.

This Vision and supporting documentation should set out supportive policy statements on renewables and grid connections including technologies, targets and spatial dimensions. This would give more certainty to the sector and align policy ambition with targets and actions. Connected Welsh Government policy areas such as planning, environment and the economy would be able to incorporate this vision into their own long-term strategies.

We would like to see a strategy that covers three time horizons and that contain nominal targets within them for each renewable energy technology that align with the carbon budget interim and final targets of 2030, 2040 and 2050. This should include a detailed action plan as to how the targets will be met.

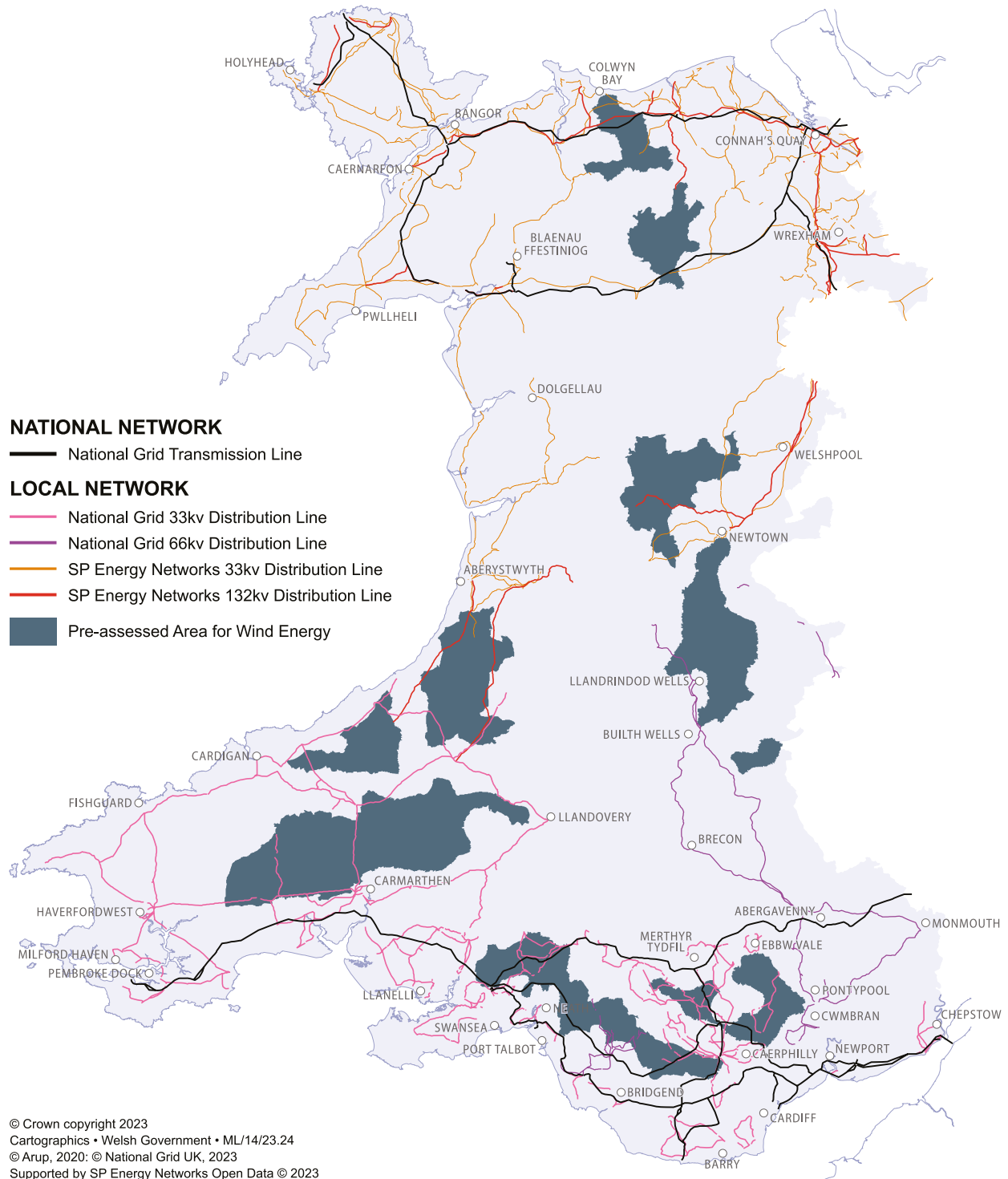
Short-term (up to 10 years)

This should include a plan for ensuring that all pre-assessed wind development areas (see figure) have high voltage grid connections to enable sufficient capture of wind resource to meet carbon targets and renewable energy aspirations.

The Commission notes that although the aspiration and rationale of the TAN8 spatial policy on wind was entirely laudable, the lack of consideration of grid infrastructure alongside the energy ambition meant that delivery against the policy was severely limited. This issue has not been resolved in the Future Wales spatial strategy.

In the next review of this document, the spatial implications of new grid development, including that needed to facilitate offshore wind development in the Celtic Sea, should be specified.

Figure 5: The ten pre-assessed areas for wind energy according to Policy 17 of Future Wales and current grid provision





Wind farm off north Wales coast.

Medium-term (11-30 years)

This should include an aspiration to have strong grid connections from north to south Wales and to have the necessary grid in place to support new offshore wind developments in the Celtic Sea.

Long-term (31-80 years)

This final horizon would provide an opportunity for Welsh policy to show true long-term vision and ambition and facilitate conversations with other parties such as regulators and developers to ensure that future renewable energy projects are supported by, rather than restricted by, issues such as grid. This long-term perspective would make Welsh infrastructure more resilient, as it would require a futures approach fully cognisant of the challenges to infrastructure that will arise from the growing climate emergency.

A key part of the Commission's work is to examine how the public are being made aware of issues that directly affect them. This will be carried forward into our planned work on flooding and on the communication of the existential risks of climate change.

However, there can be a dissonance between the pressing need for renewable energy and its associated infrastructure and public acceptance of that infrastructure in their locality. There are very high levels of public support for renewable energy;¹⁹ but this can decrease locally if developments occur at a proximity that has a direct impact on visual amenity.

Public engagement can be a positive tool that links town planning and energy planning. Engagement needs to be proactive and meaningful; communities need to be heard and decisions should reflect the outcomes of this engagement.

We suggest that a public engagement campaign should be undertaken as part of the visioning approach that outlines the need for, and benefits of, renewable energy and highlights the infrastructure implications, including spatially.

Arup identify this and recommend the continuation of *"public engagement on climate change and renewable energy to improve energy literacy and build awareness and support for renewables at the local level"*.²⁰ We recognise the Welsh Government's recently published Climate Action Wales Public Engagement Strategy²¹ makes tentative steps in this direction. However, it is fairly limited in scope regarding education / awareness raising around renewable energy infrastructure and further action is required.

Tools such as the Future Energy Landscapes methodology used in mid Wales have demonstrated their efficacy in engaging communities about their energy needs and landscape issues arising from renewable energy.

We were disappointed that the latest round of Local Area Energy Plans did not incorporate engagement with the general public. We view public discourse as a necessary factor for development of local, regional and national energy planning.

¹⁹ www.assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1164624/desnz-pat-spring-2023-energy-infrastructure-and-energy-sources.pdf

²⁰ Arup Report, Page 64

²¹ Climate Action Wales: Public Engagement Strategy. Short (main) version. (gov.wales)

The CAT/CSE/Dulas report looks extensively into this aspect on behalf of NICW. We agree with their recommendation that participatory approaches be used to build consensus on these issues.

There is considerable potential to run participatory workshops within the pre-assessed areas to build support for the deployment of onshore wind and refine proposals to meet local concerns and aspirations.²²

There are opportunities, through the review of Local Development Plans and Future Wales, to engage with the public, incorporating the outcomes into a new Vision, Strategy and Action Plan. This will require strong leadership and direction from the Welsh Government. Locally this engagement should be incorporated into local well-being plans and into the local planning processes.

Guidance is needed for planning authorities to carry out these conversations and make these assessments. Although guidance does currently exist for local planning authorities on assessing for renewables,²³ it does not include advice on involving the community in this process.

All of this work should be led and co-ordinated by a cross-Welsh Government / public sector / industry delivery group, chaired by the minister to ensure coordination across Government and the public sector. We have received evidence that various Welsh Government departments are acting in an uncoordinated way and that, ultimately, policy is unclear on issues such as soils, peat, biodiversity, protected areas and community ownership.

The lines of communication between Government, industry and energy delivery bodies need to be more accessible and transparent to ensure Wales is delivering on its ambition.



22 CAT/CSE/Dulas Report, Page 30

23 www.gov.wales/local-development-plans-guidance-renewable-and-low-carbon-energy

A Grid Fit for a Future Wales

2. By 2025, planning for the electricity grid in Wales should be based on policy considerations as well as functionality. A shift is needed for grid planning to consider the needs of Wales and be strategically developed with a long-term view.
3. By 2025, Ofgem should reform the system that plans for and delivers grid access for renewable energy, to enable rapid deployment. Policy considerations should become a factor in determining grid connections. Innovative forms of grid development should also be encouraged.

The issues of capacity and strategic planning of the grid were raised in almost every conversation or communication with stakeholders.

Responding to the priorities of the Welsh Government as set out in its strategic vision (see Recommendation 1), we believe a more active role should be taken by the Welsh Government and others in actively planning for a future Wales grid. The evidence we gathered through this process demonstrates that there is insufficient influence on grid issues in Wales from Welsh participants, including the Welsh Government.

We endorse the Welsh Government's call for a Wales Energy Systems Architect,²⁴ noting that this could provide an opportunity to embed Welsh legislation and policy into a sector dominated by a GB-centric approach that appears to pay little regard to crucial factors such as the nature emergency, climate emergency, long-term issues and the Well-being of Future Generations Act.

We have also previously called for a more strategic approach to be taken across the UK nations, including calling for the creation of a four nations intergovernmental ministerial working group on the UK electricity grid and renewables to ensure better collaboration and communication between administrations.²⁵

The recently published *Future Energy Grids for Wales* report, setting out a whole systems approach to identify the requirements for gas and electricity networks, is an excellent first step and shows the Welsh Government can add value in this non-devolved area.

The Mace report recommended that the Welsh Government should undertake a “*strategic review of the distribution of transmission grid requirements, the ‘net’ upgrades and ‘off-gridding’ that can be delivered to facilitate Renewable Energy generation, storage and overall capacity requirements*”.²⁶ This strategic review could form part of the evidence base for setting out a renewable energy vision.

²⁴ www.gov.wales/renewable-energy-deep-dive-biannual-recommendations-update-2-grid-html#122168

²⁵ www.nationalinfrastructurecommission.wales/2023/08/04/four-country-coordination-on-grid

²⁶ Mace Report, Page 41

In every workshop a number of participants raised concerns about current grid capacity. This impacted on the process as participants pointed out that there currently is not enough grid capacity to support the development at a significant scale of the renewable technologies being discussed in the workshops, and that this was a barrier to development coming forward which needed to be resolved through other means.²⁷

The current arrangements for allowing investment in grid infrastructure are too short-term to enable long-term strategic planning and grid development.

Wales is currently paying the price for a legacy of decades of underinvestment in the grid, resulting in large bottlenecks for connection to distribution and transmission networks and will not achieve its carbon targets if this issue isn't resolved.

The current investment and planning cycles undertaken by grid operators is insufficient to allow true long-term consideration of strategic needs. The current system needs to be either considerably expanded to a multi-decadal view; or a separate strategic price control with a 30-80 year outlook should be implemented. This very long-term view of grid needs should be built on the necessarily intensifying models of renewable energy deployment, and should incorporate strategic grids that connect Wales from north to south and enable renewable energy project deployment in all parts of Wales.

The Mace report highlights the need for better clarity on connections to the grid. It states that: *“Welsh Government should work with the DNOs and Development community to better understand the impacts of connection delay times, by region, so developers and investors can inform National Grid and the DNO’s which areas of limited grid capacity should be prioritised for grid access to enable scheme delivery.”*²⁸ However, we believe that even greater change is required.

Part of the reason for existing bottlenecks is the requirement that all project applications are treated equally, regardless of the capacity of the grid where they are located, or the likelihood of a project proceeding. Given the urgency and need for acceleration of renewable energy, we think that priority should be given to projects that can be developed rapidly, but that investment must be proactively made in areas that have projects that cannot be developed due to lack of grid infrastructure. We also believe that the connections process should relate to policy considerations and that priority be given to projects that meet wider Government objectives. This will require a significant change to the way connections applications are currently assessed.

We have also heard of the need for innovation in Grid deployment. This diversity of approaches will enable Wales to meet its targets sooner but may also be able to directly capture value for Wales too. The Arup report states that: *“Microgrid technologies, or local energy networks, can be used in more remote locations where grid capacity or connection costs may be a barrier to project development. Smart local energy systems (SLES) can help to balance supply and demand and reduce pressure on the grid at peak times.”*²⁹

27 CAT/CSE/Dulas Report, Page 30

28 Mace Report, Page 43

29 Arup Report, Page 45

The use of these types of technologies can help take pressure off higher voltage grid infrastructure and reduce the demand for new connections. They provide a sustainable and reliable source of energy, increasing resilience and energy security in rural areas and allow generation in areas where there is no existing 'surplus' grid connection capacity.

In addition, there is potential to support community cohesion by encouraging residents to get involved in projects, raising awareness of climate change and net zero, and encouraging reduction in energy use. The Arup report provides case studies of new and different ways to approach grid planning.



Pylons at Deeside.

The Built Environment

4. An immediate review of Part L of the Building Regulations is needed to mandate the use of renewable technologies (especially solar thermal and solar photovoltaics) and battery storage in all new developments, and in significant renovations or extensions.
 5. Permitted development rights should be immediately reviewed with a specific focus on eliminating impediments to measures that increase renewable energy generation, with a shifted focus on the climate crisis.
-

With planning policy and building regulations devolved since the inception of the Senedd, there is currently little to demonstrate that Welsh properties have been developed to a more sustainable, efficient and nature-friendly standard. However we believe that relatively simple changes to regulations could deliver substantial benefits.

The low cost of solar thermal and photovoltaic technologies means that they should now be considered as standard items in the toolbox to reduce ongoing energy costs for all new developments.

Solar thermal can make a particularly powerful impact on buildings with a high demand for hot water, such as leisure centres, swimming pools and care homes. However, they can benefit all properties with hot water demand, and their incorporation into new buildings that have a hot water requirement should be mandatory. Solar photovoltaics are another low-cost renewable technology that should now be a mandatory requirement.

Where there is insufficient space to incorporate both technologies, we suggest the applicant make the justification for the preferred choice on carbon grounds.

These requirements should also come into effect for any significant site redevelopment or extension.

This recommendation aligns with EU policy. The Commission suggests that EU policy on legislation be kept under review with a view to adopting sensible energy policy measures, such that Wales benefits wherever possible from the policy-making expertise of the UK's largest trade partner.³⁰

In developing new building regulations parameters, we suggest that any arguments against development viability also take into account the 'climate change' costs to Wales of not incorporating such technologies within buildings and the social value to the country in reducing energy bills for all.

30 www.energy.ec.europa.eu/topics/renewable-energy/solar-energy_en

The Commission has received evidence that, at the last Part L amendment, developers ‘banked’ developments which were not very far along in the development process so that they needed to comply with the previous (less stringent) arrangements. Any potential loophole in the transitional arrangements must be closed to ensure that the new developments comply with the highest standards.

We suggest that a ‘sunset’ clause should be adopted on sites that have not been developed in a timely fashion that requires adoption of the latest energy efficiency and renewable energy measures.

The Permitted Development Rights for small-scale deployment of renewable energy schemes are a powerful tool which the Welsh Government can use to reduce the barriers for increasing supplies of energy.

Whilst the permitted development system acts to balance the needs and interests of building inhabitants and owners, with amenity and the environment in the public interest, we believe the guidance needs to be reviewed to allow more renewable energy and enabling technologies such as batteries to be deployed without planning permission.

The existing permitted development rights were last reviewed in 2019.³¹ They urgently need a comprehensive review to ensure that they are fit for purpose. Whilst the Arup report suggests: *“Expanding permitted development rights for renewable energy developments up to a certain size (for example 5MW) in areas where there are no landscape, heritage or environmental designations could simplify the process for community organisations”*,³² we believe the focus

on drawing up new parameters for permitted development for renewables should be redirected to maximising the possible outputs from existing developments.

This will require a clean sheet approach and existing thinking to be challenged. Just as the recent TAN15 consultation on flooding has put climate change at the heart of planning action, we believe that, the emphasis in drafting new permitted development rights should be about increasing renewable energy generation rather than taking a cautious approach to amenity.

Our work with the Royal Town Planning Institute (RTPI) in 2023 also points to a major resource issue within the planning system (see below). We understand that the current rights around air source heat pumps, for example, are acting as a barrier to deployment.

The Mace report³³ highlights the UK Government’s plans³⁴ to increase the rate of installation of heat pumps from 30,000 per year to 600,000 per year by 2028. If planning applications are required for even a small percentage of those expected new pieces of equipment in Wales, local planning authorities will be subject to an additional and likely unnecessary burden of administration. We acknowledge that the recently published draft Heat Strategy for Wales³⁵ refers to ensuring “planning rules for permitted development rights for heat pumps are fit for purpose”, however we think this is not a strong enough commitment and swift action is needed to ensure this wave of potentially unnecessary applications is avoided.

31 The Town and Country Planning (General Permitted Development) (Amendment) (Wales) Order 2019 (legislation.gov.uk)

32 Arup Report, Page 64

33 Page 68

34 Energy white paper: Powering our net zero future (accessible HTML version) – GOV.UK (www.gov.uk)

35 Heat strategy for Wales | GOV.WALES

Planning

6. By 2025, where renewable energy planning applications (and associated regulatory regimes) have a mandated, statutory time allocation, decisions should default to a positive if the time allocation elapses with no response ('positive silence' approach).
7. By 2025, a pooled planning resource for energy should be created, to share expertise and technical skills for articulating planning policies, engaging with the public and considering planning applications.

The Planning and related regulatory systems in Wales do not provide the right balance of timeliness with comprehensive examination. We believe the systems should be reviewed to ensure they are as streamlined as possible to help enable efficient decision making which increases confidence in Wales as a place to develop renewable energy.

For significant renewable energy development proposals, Wales currently has a Developments of National Significance (DNS)³⁶ process, with smaller applications determined by local authorities. The Infrastructure (Wales) Bill currently making its way through the Senedd will introduce a new, more consolidated process for consenting schemes. In our research, the Mace Report points to developing a 'fast track' system *"to increase the speed of determination on projects that can be brought forward quickly"*.³⁷

In 2013, the Welsh Government produced research which justified the creation of the DNS process.³⁸ This found that: *"based on the handling of 16 appeals over the duration of the study period, the Planning Inspectorate has taken on average 36 weeks to determine each Inquiry across a range of renewable technologies, compared to a published average timescale for all planning Inquiries of 27 weeks"*.³⁹

We could not find any publishable data on DNS determination performance; however a recent Freedom of Information request⁴⁰ (not initiated by NICW) found that DNS renewable applications have still taken between 35 and 94 weeks to determine, with an average across 13 renewable applications of 59 weeks. The DNS process has not speeded up the process; the process may now even be slower for large renewables than that which preceded it.

36 Developments of national significance (DNS): guidance | GOV.WALES

37 Mace Report, Page 76

38 Evaluation of consenting performance of renewable energy schemes | GOV.WALES

39 Ibid Paragraph 5.1.14 refers

40 FOI release: Developments of National Significance | GOV.WALES

Whilst this does not point to a failure in the system for consenting, there are clearly other factors such as resourcing that are influencing the timing of decision-making. We believe, following the research projects undertaken for this project, that an ‘incentive’ for the decision-making processes to be made efficiently and ‘on time’ is needed. Indeed, the Mace Report mentioned that the processes should be *“adequately incentivised to meet target dates, and penalties for non-compliance”*.⁴¹

We therefore recommend that a ‘positive silence’ approach could be introduced that where renewable energy planning applications (and associated regulatory regimes) have a mandated, statutory time allocation in place, decisions should default to an approval if the time allocation elapses with no response. This could be implemented at a local and national level. We believe this would give the incentive for the planning and regulatory regimes to be properly funded and resourced. This may require changes to regulation and primary legislation (see below); however we believe it is a radical option to increase the speed of decision-making for renewable energy consents and planning decisions.

We heard from people working in the renewable energy sector that the current level of resources devoted to renewable energy consenting is insufficient in allowing timely delivery of projects. Lack of resource means reduced availability of technical officers to help in the determination of applications and permitting. However, it is not just about having the financial means to pay for expertise in public bodies; often those people just are not in post.

The Arup report mentions the need for more support for local authorities, led by the Welsh Government and a streamlining of governance. Both Mace and Arup make the case for a dedicated resource to help speed up delivery. The Mace report talks of the need to establish:

A dedicated renewable energy team made up of Planning, Development and specialist technical advisors and practitioners based within Welsh Government should be responsible for managing and processing applications on behalf of LPAs who opt to use it, ensuring that expertise is always available. Where appropriate, this team should foster collaborative working with private sector companies and organisations to ensure that skills and expertise are available to determine applications. This could include providing funding, training, or bridging the skills gap.⁴²

We therefore suggest that a ‘shared service’ be established, led by the Welsh Government or regional groups of local authorities. This could be adopted in the same manner as the present North Wales Minerals and Waste Planning Service which assists local planning authorities on such matters using existing resource. It could also consider a ‘call-off’ style system where private-sector assistance is brought in, on a needs basis, to help.

Given the nature of multiple pressing pressures on Welsh Government and local authority budgets, we understand that it can be hard to make the case for greater spend in a non-front-line service.

However, we suggest two narratives that make the case for increased spend in this area.

41 Mace Report, Page 50

42 Mace Report, Page 51

Firstly, according to the Welsh Government assessment of the benefit from implementing the Infrastructure (Wales) Bill,⁴³ there will be a net financial gain of £567,700 per annum from 2025-26 to 2028-29. We recommend that this funding is ring-fenced to provide additional specialist energy and infrastructure capacity as outlined above. This resource could be cost-neutral over the period 2025 – 2029, allowing sufficient time to review and assess the value of the additional resource.

Secondly, if more energy projects have more Welsh ownership (see below), there will likely be increased wealth creation in Wales from the energy sector.

A planning system that is able to deliver more rapid renewable energy deployment will, therefore, create greater wealth in a shorter timescale.



Pipeline from Coedty reservoir to Dolgarrog hydro electric power station.

Community Benefits and Ownership

8. A Renewable Energy (Wales) Bill should be brought forward in the next Senedd to legislate to enable greater community ownership from renewable energy.
9. Policy should require renewable energy developments to offer up elements of community ownership and repowering of sites should be greatly simplified but include community ownership requirements.
10. The forthcoming Freeports initiative should be seen as an opportunity to allow more community renewable energy in a deregulated environment.

The issue of greatly increasing the value to Wales from renewable energy was a key priority for the study. The greatest returns – as well as the greatest risks – arise from ownership of the generating (and distribution) assets. The business model of renewable energy projects to date has largely consisted of ownership by the developer or financier, with modest community benefit funds to provide a measure of socio-economic benefit locally.

With the just transition to net zero firmly embedded in our approach, we have already expressed above how people and communities in Wales need to be more adequately engaged and involved in conversations about our energy supply systems. The current cost-of-living crisis and the recent surges in the cost of energy show how vulnerable communities in Wales are to fluctuations in the energy cost of energy.⁴⁴ Estimates put 45% of households in fuel poverty in 2022.⁴⁵ Any means appropriate to cushion society from this should be explored. However, community benefits from development have also been raised, particularly in our engagement in Mid Wales.

In each of the workshop’s participants were very clear that if the local landscape was to be used for renewables there should be benefits awarded to the local communities. This was felt particularly strongly if electricity was to be exported to other areas of Wales and the UK. Whilst most of the participants accepted that renewable energy generation needed to be considered at a UK scale, with Mid Wales being a prime location, they felt very strongly that companies and communities from elsewhere (England being predominantly cited) should not benefit at a cost to local communities.⁴⁶

44 House of Commons Report – Energy Costs in Wales, 2022

45 Fuel poverty modelled estimates for Wales (headline results): as at October 2021 | GOV.WALES

46 CAT/CSE/Dulas Report, Page 5

The Arup report highlights many different case studies on community ownership models. It also points to Denmark which in 2011 “*decreed that new wind farms must be at least 20% community owned*”.^{47, 48} Whilst the Welsh Government has a policy on ‘local ownership’,⁴⁹ we are not convinced that it currently has the powers to deliver such a policy.

We believe that developers in Wales have the opportunity to contribute to the greater well-being of the people of Wales by offering an equity stake in their projects. This should be at risk, but would enable individuals, households and Wales-based organisations to participate in the renewable energy economy as active investors rather than passive bystanders.

It is clear from our research and conversations that some issues relating to the definition are too complicated to be resolved in the current legal framework which operates in Wales. We propose that this is rectified by the creation of new primary legislation, particularly around the status of community ownership projects within the planning system and the ability of planning authorities to mandate the benefits which local communities receive from renewable schemes within their area.

We believe that the ownership of a scheme by the community should be considered to be a material consideration in the planning system. The Welsh Language was given this status in the Planning (Wales) Act 2015⁵⁰ and this will enable a statutory definition of community ownership to be agreed and specific planning policies formulated to enable positive recommendations. A statutory definition of community ownership could also assist in the creation of future permitted development rights for community-owned schemes.

We believe that a 10% offer for community ownership (i.e. individuals and households), and 10% of local ownership (any Wales-based organisation) would strike the right balance between return for the investor and investment within the communities and organisations of Wales. The offer should be a genuine one, but with reasonable limits on time, and if the anticipated participation falls short of the target the developer should not be penalised for failing to meet a 10% target in either category.

Renewable energy deployment in Wales started in the last century, and we are already experiencing the first wave of re-powering where sites are replacing legacy equipment with new (generally larger and more efficient) installations. We believe that this process should be made far more straightforward for developers in order to accelerate the transition to a low-carbon economy. We suggest that industry, the Welsh Government and the regulators work together to suggest ways in which existing sites can demonstrate an easier route to repowering that reduces the burden on all parties.

As a quid pro quo, we suggest that such ‘fast-tracked’ projects for repowering through the new service proposed above be required to offer up at least 20% of the new project for community ownership, and 20% for local ownership. The appetite for this approach by developers could be tested by seeing whether developers prefer a fast-track route, compared with a standard planning application that would require a lower level of equity share.

47 Arup Report, Page 34

48 Communal ownership drives Denmark's wind... | Green Economy Coalition

49 Local ownership of energy generation in Wales: policy statement | GOV.WALES

50 www.business.senedd.wales/documents/s40644/Planning%20Wales%20Bill%20-%20As%20Passed-e.pdf

The mechanisms for achieving this would be for further investigation. However, it could be achieved via policies, similar to those that operate for affordable housing in the planning system, where developers enter into a legal agreement with the planning authority as part of the consenting process. This would also greatly encourage discussions with the community on the best use of this resource. It appears that practice in achieving this status for affordable housing has arisen from strong Government planning policy, local Government need and case law. We believe that a similar, hard-nosed approach, is required to establish precedence for this in Wales; this will start by strong leadership from the Welsh Government.

Community energy projects typically take far longer to develop than commercial projects. Wales has a programme of support for community energy in Wales, particularly via the Welsh Government Energy Service and Community Energy Wales. However, we believe that the particular benefits of community energy projects, over and above renewable energy projects more generally, suggests a commensurate policy approach.

Freeport status has recently been awarded to two areas in Wales; the Celtic Freeport and the Anglesey Freeport.⁵¹ The Mace Report highlights the benefits of the “*significantly de-regulated planning framework*”⁵² in these areas. Freeports in England allow a supportive planning environment through locally led measures such as Local Development Orders or permitted developments.

We suggest that the two Welsh Freeports be used to pilot a ‘presumed consent’ regime for majority community-owned renewable energy developments in order to accelerate the amount of community-owned projects in Wales. This geographically limited trial would test a new intervention within the Welsh planning regime and, if successful, could be used to push the boundaries of, and encourage, new local development orders across Wales for renewable energy.

51 www.gov.wales/wales-new-freeports-unveiled

52 Mace Report, Page 37

Crown Estate Cymru

11. By 2030, The Crown Estate's functions in Wales should be completely devolved to a new body that has as its principal aim the reinvestment of all funds in Wales for the long-term benefits of the people of Wales in the form of a Sovereign Wealth Fund.

Wales is the poorest constituent country of Great Britain.⁵³ The current system sees a transfer of wealth from fees arising from The Crown Estate's commercial activity in Wales, to England, an illogical and bizarre outcome.

On 1 April 2017, The Crown Estate Scotland was formed to carry out the functions and duties of The Crown Estate in Scotland.⁵⁴ The revenue that arises from The Crown Estate Scotland is paid directly to the Scottish Government. The Arup report highlights that *"Another key difference is that the Crown Estate in Scotland is devolved, giving the Scottish Government control over revenues raised from seabed leasing. In 2020, Crown Estate Scotland distributed £9.7 million to island and coastal local authorities."*⁵⁵

We note that the revenue arising from The Crown Estate activities in Wales is paid directly to the UK Government for deployment in England, Wales and Northern Ireland, and there is no guarantee that Wales receives an equivalent amount back. We understand that the scale of the benefits available to Wales will not be the same as that of Scotland. However, there is potential for greater control here in Wales over investment on the Crown Estate.

The potential devolution of the Crown Estate to the Welsh Ministers could also offer opportunities to retain more value from offshore developments.⁵⁶

The Arup report linked this issue to the creation of the Welsh Government renewables developer. However, we believe that arrangements should be made to devolve the functions of The Crown Estate to a new body, The Crown Estate Cymru, that had the sole duty of improving the well-being of the people of Wales according to the well-being Goals and Ways of Working, would ensure that all commercial activity arising from The Crown in Wales would be invested for the benefit of the people of Wales in a Sovereign Wealth Fund.

We believe that there are many specific examples of these funds which Wales could draw upon, including the Republic of Ireland,⁵⁷ all of which bring significant investment and economic benefits to their nations. A Wales fund, invested and applied alongside the ethos of the Well-being of Future Generations Act, could make significant strides in addressing some of the economic inequalities, giving back to our communities which, for generations, have supported energy generation industries in Wales.

53 www.statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Earnings/medianweeklyearnings-by-ukcountryenglishregion-year

54 www.crownestatescotland.com

55 Arup Report, Page 25

56 CAT/CSE/Dulas Report, Page 5

57 Ireland Sovereign Investment Fund



Solar energy farm, South Wales.

Appendix A – Testing the recommendations against our Framework

We have qualitatively tested the recommendations against our framework which consists of:

- The Well-being of Future Generations Goals.
- The Nature Emergency.
- The Climate Emergency.
- The Socio-Economic Duty.
- Long-term considerations.

The Well-being goals within the Well-being of Future Generations Act

We have not carried out an in-depth impact analysis of our recommendations on each of the Well-being Goals, but we note the following contributing factors.

Goal	Assessment
Prosperous Wales	<p>It is likely that a number of our recommendations will lead to greater levels of ownership for renewable energy by the people and organisations of Wales, leading to greater long-term prosperity.</p> <p>It is likely that a number of our recommendations will see an increase in the rate of deployment of renewable energy in Wales, supporting net zero targets.</p> <p>If our recommendation to devolve The Crown Estate functions to Wales is implemented, there is likely to be a significant increase in prosperity due to capture of leasing fees that are currently set to return to London.</p>
Resilient Wales	<p>Consistent; for further details see our assessment against the nature emergency.</p>
More Equal Wales	<p>Our recommendations will likely increase the opportunities and funding for people and communities in most deprived areas of Wales, compared to business as usual.</p>

Goal	Assessment
Healthier Wales	Our recommendations are not likely to make a significant direct difference to this goal, although second-order effects of reducing demand for fossil fuels are possible which will have an indirect positive health benefit.
Wales of Cohesive Communities	Our strong support for community ownership of renewable energy should support greater resources into community action and enterprise.
Wales of vibrant culture and thriving Welsh language	No impact foreseen.
Globally Responsible Wales	If our recommendations are adopted, they will likely mean more rapid deployment of renewable energy, fulfilling Wales' global obligations on climate change.

Nature Emergency

The Nature Emergency is weakly associated with our recommendations; if renewable energy is deployed more rapidly as a result of policy change arising from our work, there could be localised, short-term damage to habitats through project development.

However, good practice in project development should result in net benefits to biodiversity and nature, in particular once the development has taken place, and once mitigation measures are implemented and habitat improvement programmes are underway. Long-term, a reduction in reliance on fossil fuels should reduce atmospheric pollution and mitigate climate change.

We therefore consider that our recommendations are strongly consistent with our consideration of the Nature Emergency.

Climate Emergency

Renewable energy is one of the key methods by which the people and communities of Wales are able to reduce their contribution to climate change. We believe that our recommendations are directly aimed at tackling the climate emergency.

The socio-economic duty

The socio-economic duty requires public bodies to ensure equality of outcome, rather than just equality of opportunity.

We believe that our recommendations are linked to supporting this duty, through our support for community and local ownership of renewable energy assets in Wales.

Long-term considerations

A number of our recommendations are specifically aimed at addressing current short-sightedness of policy and regulation within the energy sector, particularly on the strategic approach to renewables in Wales, and a lack of foresight within the grid industry or regulation.

Our recommendations also support the other ways of working within the Act, in particular collaboration and involvement.



Appendix B – Project Advisory Group Members

Carole-Anne Davies

Design Commission for Wales

Liz Dunn

Burges Salmon

Claire Dykta

National Grid

Ed Sherriff and Jennifer Pride

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Ceredigion County Council

Neil Reynolds

Institution of Civil Engineers

Rachel Shorney

SP Energy Networks

Luke Sweeney

National Infrastructure Commission (UK)

Bethan Winter

Wales and West Utilities

Appendix C – Recommendations from the Capturing the value of renewable energy projects to Wales (Arup) Report

Planning and land use

1. Provide support to local authorities, including ministerial directive and updated guidance, to develop a local planning policy environment to support the delivery of more renewables.
2. Provide additional targeted resource and training for planning teams and organisations involved in consenting, including local authorities and NRW.
3. Continue public engagement on climate change and renewable energy to improve energy literacy and build awareness and support for renewables at the local level, and to encourage a cultural shift in the approach to renewables within the public sector.
4. Provide incentives for local authorities to develop renewables on their land, or to host locally owned renewable projects, such as targets or reforms to carbon reporting.
5. Explore the efficiencies that could be delivered through streamlining governance in the public sector in Wales.

Enabling infrastructure

6. Continue to engage with Ofgem around changing policy and regulatory environment to enable investment in grid infrastructure, considering the timescales for delivery.
7. Provide support for communities to develop smart local energy systems, where these could help to balance supply and demand and/or provide a solution where grid capacity is constrained.
8. Provide support for local authorities and other public bodies to use sleeved PPAs with community and local renewables.
9. Collaborate with DNOs, local authorities, developers and other partners to develop a plan for the delivery of additional infrastructure needs to support renewable energy development, drawing on evidence from LAEPs to target investment where it is needed.
10. Work with Ofgem to explore ways to explore regulatory reforms to allow small to medium scale generators to supply to local customers, reducing stress on the grid.
11. Explore the feasibility of further investment in, or a degree of state-ownership of, national grid infrastructure, including gas networks as well as electricity.

Financial support and resources

12. Consider revisions to business rates for renewable energy projects, including abolishing rates for all renewable developments below a certain size.
13. Provide resource and technical capability to local authorities to deliver and implement LAEPs, and explore how community energy organisations can best be engaged in this process.
14. Facilitate additional investment vehicles or products supported by the public sector, to support the development of community renewables schemes.
15. Explore additional financial support that could be provided to support delivery of rooftop PV as part of a wider retrofit programme.
16. Explore financial options to support development in the marine sector in Wales.
17. Explore financial options to fund investment in green industry such as greener steel.

Education and skills

18. Provide resources and commitment to deliver the Net Zero Skills Action Plan, taking into account the implications of this study.
19. Work with industry and the further education sector to develop a Skills Centre for Excellence to support the renewables industry.
20. Provide a wider programme of support, including additional resources for WGES, for community organisations to grow capacity and capability to deliver renewable energy projects.

Creation, retention and distribution of value

21. Explore how the distribution of Community Benefit Funds from large projects could be coordinated to generate the most value.
22. Build on the potential devolution of the Welsh Crown Estate and the creation of the Welsh Government renewable developer to distribute benefits across Wales.
23. Explore the potential for the Welsh Government renewables developer to invest in offshore wind and other renewable opportunities in future.
24. Support a circular economy in electricity infrastructure, including reuse and refurbishment of existing infrastructure.
25. Support Wales to become a Centre of Excellence for renewable electricity.

Monitoring and evaluation

26. Consider how to monitor and evaluate progress against these recommendations.

Appendix D – Recommendations from the Tensions and opportunities arising from future energy scenarios (Mace) Report

R1.1 Creating a renewable energy infrastructure strategy and roadmap for Wales

Create a clear and unambiguous strategy and roadmap around renewable energy and infrastructure across Wales, setting out the different scenarios and energy modalities and how and when this can be achieved.

R1.2 System stewardship

Welsh Government to set out the system stewardship requirements and governance framework for having a helicopter view across all renewable energy projects.

R1.3 Changing public perceptions

Consider what the Welsh Government, Local Authorities and other stakeholders can do to proactively change public perceptions by clearly articulating the economic, health, employment and energy benefits of investment in renewable energy at a community, regional and national level through a place economics and/or public health approach.

R1.4 Potential investment vehicles to support investors and developers, and impact of locational pricing

Development of an Investment Commission to work with investors, developers, economists and the Welsh and UK Governments to review the potential investment vehicles both within and out with the devolution agreement.

R1.5 Knowledge transfer

Consider what knowledge transfer is available from Scotland, elsewhere in Europe and the rest of the world to make Wales an investable proposition.

R2.1 Work with DNOs to provide clarity on connection times

Welsh Government should work with the DNOs and Development community to better understand the Grid 'net' capacity requirements to meet Net Zero 2050 targets, and understand the impacts of connection delay times, by region, so developers/investors can prioritise schemes where Grid capacity or access is limited.

R2.2 Incentivise 'off-grid' development

Welsh Government should work with development partners to consider ways to ensure that significant industrial cluster consumers, new residential, and industrial development a certain scale that meets viability criteria, will deliver renewable energy generating sources on site as a town planning policy requirement.

R2.3 Strategic National Infrastructure Plan and Policies

Welsh Government should work with stakeholders to prepare a national Renewable Energy Infrastructure Plan that defines where need, demand, and potential supply is greatest, which will act as a framework for future investment to upgrade the Grid and other networks (pipelines).

R2.4 Co-Location Prioritisation

As part of a combined Planning and Consenting regime, steered by a Renewable Energy Infrastructure Plan, Welsh Government could implement a preferential decision-based system for planning consents, Grid capacity access.

R3.1 Streamline the application process

Simplify the DNS/IC application process for major renewable energy projects and link to a National Renewable Energy Infrastructure Plan with broader legislative powers to delivery.

R3.2 Provide clear guidance and support

This could include hosting workshops or webinars to help applicants understand the requirements and how to navigate the application process.

R3.3 Establish a dedicated renewable energy team

A dedicated renewable energy team made up of Planning Local authorities and Development practitioners based within Welsh Government should be responsible for managing and processing applications on behalf of LPAs who opt to use it, ensuring that expertise is always available.

R3.4 Develop a fast-track system

The emerging Infrastructure Consenting system should refine mechanisms to fast-track small, medium and large-scale projects, and for co-location to increase speed of determination on projects that can be brought forward quickly.

R3.5 Funding

Welsh Government should work with the DNOs and National Grid to pool funds and resources to 'unlock' strategic areas of significant energy generation and storage capacity, rather than for the supply side to demonstrate where the need for extra grid capacity is.

R4.1 Financial Support & Investment

Welsh Government to make investments and offer financial support to Welsh manufacturers, encouraging them to produce materials for renewable energy projects.

R4.2 Supply Chain ESG & Social Value

Welsh Government to ensure that it uses all the commercial and contractual levers at its disposal to write KPIs into contracts to monitor supply chain ESG and Social Value.

R5.1 Review of export agreement process

Review of the export agreement process between Ofgem, DNOs and developers.

R5.2 Skills & Training

Welsh Government to support and promote training and awareness of key skills on renewable energy projects and delivering on actions outlined in the Net Zero Skills Action plan. There should also be a focus to upskill the workforce local to renewable energy projects.

R5.3 Business Resilience

Welsh Government to support renewable energy businesses with resilience.

R5.4 Careful consideration of the UK Energy Profit Levy on low carbon generators

The government should carefully consider the design and level of the windfall tax to 'low carbon generators' and that the intended benefits of the policy are achieved without negative consequences.

Appendix E – Recommendations from the Engaging mid Wales communities on renewable energy projects (CAT/CSE/Dulas) Report

- Consider using FEL, or similar participatory approaches, to build consent for renewable energy deployment within pre-assessed areas for wind. Encourage Local Planning Authorities (LPAs) to use FEL to inform planning policies and Local Area Energy Plans.
- Explore the potential for the Welsh Government to fund Local Authorities, existing communities, local community energy and climate groups to run Future Energy Landscape processes or similar bottom up or participatory engagement processes around the deployment of renewable energy.
- Encourage Local Planning Authorities and the Energy Service to proactively support community energy projects in accordance with Government guidance.
- Encourage LPAs to use FEL, or similar participatory processes, to inform Local Area Energy Plans and local planning policies.
- Encourage Local Authorities to act in a convening role.
- Encourage renewable energy developers to use FEL or similar participatory approaches to refine their projects where options are open and to co-create joint ownership projects with local communities.
- Make the process real, and ensure that the menu of choices offered are likely to be feasible / viable.
- Frame communications about renewable energy to rural communities around narratives of local self-sufficiency, independence and resilience. Such a narrative is likely to be more resonant in rural communities.
- Allow time: Effective engagement takes time and should be authentic.
- Ensure that heat pump installations (particularly those funded by government grant schemes) are carried out correctly and supported by any associated retrofitting measures to ensure that energy bills don't rise following installation.
- Consider developing the FEL process further, in light of these findings, with the Local Authority acting as convenor (see above) and acceptable levels of engagement throughout the process.
- Keep it local: This engagement approach works because it localises the problem of how to decarbonise the energy system to the scale of a community.
- Use known and trusted local organisations to facilitate and promote workshops.

- Reach a diverse audience: One size engagement does not fit all.
- Engage future generations: Young people are our future generations and as such the future stewards of the landscape.
- Be inclusive: Make extra effort to ensure different language and community subgroups are engaged.
- Group size is important: Do not try to address a village hall full of people – split people into small groups to discuss issues in depth.
- Good facilitation is essential: Your facilitators should be highly experienced and independent.
- Be prepared to bust myths: There are still a lot of myths about renewables that often form the basis of objectors' arguments.
- Change the language: NIMBY labels are generally unhelpful, inaccurate and leave the reasons for opposition unexplained.
- Community benefits: Community benefits should be integral to any development; but be transparent about what is and isn't possible in relation to them.