Number: WG45896

Llywodraeth Cymru
Welsh Government

Welsh Government
Consultation Document

Review of Wales' Renewable Energy Targets

Date of issue: 24 January 2023
Action required: Responses by 18 April 2023

Mae'r ddogfen yma hefyd ar gael yn Gymraeg.
This document is also available in Welsh.

Overview	This consultation seeks your views on our proposals for revised energy targets for Wales.
How to respond	Please submit your response by 18 April 2023 in either of the following ways: • Complete our online form • Download and complete our online form and email to: YmatebionYnni-EnergyResponses@gov.wales
Further information and related documents	Large print, Braille and alternative language versions of this document are available on request. CCC Advice Report: The pathway to a net zero Wales Distribution Future Energy Scenario - SPEN Distributed Future Energy Scenarios – NGED Energy Generation in Wales Report 2021 Energy Use in Wales report – 2nd Edition Future Energy Scenarios – National Grid Local and shared ownership of energy projects: guidance Net Zero Wales Carbon Budget 2 (2021-2025) Programme for Government 2021 to 2026 Regional Energy Strategy – Cardiff Capital Region Regional Energy Strategy – Mid Wales Regional Energy Strategy- North Wales Regional Energy Strategy – South West Wales Renewable Energy Deep Dive recommendations Welsh Government's webpages on the Well-being of Future Generations (Wales) Act 2015
Contact details	For further information email: YmatebionYnni-EnergyResponses@gov.wales

This document is also available in Welsh	URL HERE

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In order to show that the consultation was carried out properly, the Welsh Government intends to publish a summary of the responses to this document. We may also publish responses in full. Normally, the name and address (or part of the address) of the person or organisation who sent the response are published with the response. If you do not want your name or address published, please tell us this in writing when you send your response. We will then redact them before publishing.

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The contact details for the Information Commissioner's Office are:
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Wilmslow
Cheshire SK9 5AF
Tel: 01625 545 745 or
0303 123 1113
Website: https://ico.org.uk/

1. Context

1.1 Our current energy targets

In 2017, the Welsh Government set renewable energy targets as part of our commitment to a more sustainable future for Wales.
These targets are for:

- Wales to generate electricity equal to 70% of its consumption from renewable sources by 2030.
- 1GW of renewable energy capacity in Wales to be locally owned by 2030.
- An expectation for all new energy developments in Wales to have at least an element of local ownership from 2020.

Additionally, the Programme for Government 2021-26 includes a commitment to "expand renewable energy generation by public bodies and community groups in Wales by over 100 MW by 2026".

Our latest data shows that in 2021 renewables in Wales generated the equivalent of 55% of our electricity use against a target of 70% by 2030. Wales has achieved nearly 90% of its target of at least 1 GW of renewable energy capacity to be locally owned by 2030, representing an estimated 1.9 GWh of generation in 2021.

The deployment of renewables in Wales and the UK has slowed since 2015, largely as a result of the UK Government's approach to its renewable incentives, withdrawing key subsidies that secured a route to market. While renewables-based electrical capacity continues to increase year-on-year, the current rate of growth will not be enough to meet our demand, especially in light of our future electricity needs. Our Energy Generation in Wales 2021 report provides a baseline for our current estimated generation.

1.2 Why are we consulting?

We have a statutory duty to reduce our greenhouse gas emissions. The Environment (Wales) Act 2016 requires the Welsh Government to reduce emissions of greenhouse gases in Wales to net zero by the year 2050, and establishes a framework of interim emissions targets and carbon budgets. Decarbonising our energy system will unlock emissions reduction pathways for other sectors of the economy and will be fundamental to meeting net zero.

We have a duty to carry out sustainable development. The Well-being of Future Generations (Wales) Act (2015) (WFG Act) provides a comprehensive framework for sustainable development in Wales, which includes seven long-term well-being goals for Wales. It places a well-being duty on government and specified public bodies to carry out sustainable development. They are to act in a manner which seeks to ensure the needs of the present are met without compromising the ability of future generations to meet their own needs.

We need a secure, affordable energy supply. The climate crisis and our current dependence on expensive, global fossil fuel supplies underline the importance of clean, affordable renewable energy that is generated in Wales and supports the well-being of our citizens.

In 2021 we published Net Zero Wales Carbon Budget 2 (2021-2025), which contains policies aimed at reducing emissions to meet our second Carbon Budget while laying the foundation for longer-term decarbonisation. It includes significant effort within our devolved competence to develop a flexible, smart, renewables-based energy system.

In Net Zero Wales, we committed to reviewing our renewable energy targets to ensure that Welsh Government "meet our duties and ensure renewable generation delivers wider benefit to Wales". A Ministerial deep dive into renewable energy in late 2021 explored the opportunities for, and barriers to, renewable energy generation in Wales. It sets out a vision 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. We will accelerate actions to reduce energy demand and maximise local ownership retaining economic and social benefits in Wales".

The Deep Dive's vision provides a frame for our review of renewable energy targets and a rationale for the new targets we want to set. Reviewing our renewable energy targets now gives us a chance to reflect on the challenges over the coming years. If we are to achieve Net Zero by 2050, then during the next decade we need to put in place the structure to support our ambition; and the targets we set will help give certainty to the sector of our policy ambitions.

1.3 The evidence base

We have published the evidence base underpinning our proposals as a Technical Annex alongside this consultation document. While the key messages have been extracted into this document, you may find it useful to refer to the Technical Annex when considering the issues raised in our consultation question.

2. Generation Target

The current target is as follows:

- Wales to generate electricity equal to 70% of its consumption from renewable sources by 2030.

2.1 Scope

The current target is focused on electricity only. It does not extend to other energy sources, for example biogas for heat or bioethanol and biodiesel for transport fuels. We have considered if we should amend this scope by reflecting on the advice of the Climate Change Committee (CCC) on the future energy sources we will need in order to decarbonise the economy.

In December 2020, the CCC provided advice on a pathway to a net zero Wales. The CCC prepared a number of scenarios exploring the actions required in each emissions sector and every year in order to reduce Welsh and UK emissions to Net Zero by 2050 at the latest. The scenarios for Wales are compatible with the CCC's UK scenarios and represent Wales' fair contribution to the UK's obligations under the Climate Change Act and Paris Agreement.

The expansion of low carbon energy supplies is one of four key areas the CCC identified as necessary to meet the net zero target in Wales. Further, the advice notes that low-carbon electricity can now be produced more cheaply than high-carbon electricity in the UK and globally. In its Balanced Pathway the low-carbon share of generation in Wales increases to 100% by 2035, cutting Welsh electricity supply emissions by more than 95% compared to the baseline. Electrification of transport, buildings and industry will result in electricity demand in Wales doubling by 2050.

The CCC also states low-carbon hydrogen will scale up during the period to 2035 and beyond, for use in particular in areas less suited to electrification, such as shipping and parts of industry, and to provide flexibility to deal with intermittency in the power system. They also recognise it may have a longer-term role in buildings and other transport, such as heavy goods vehicles. It is the Welsh Government's policy for this hydrogen to be produced from renewables in the longer term, whilst recognising there may be a need to transition through fossil-fuel derived hydrogen with carbon capture and storage. This policy will impact on the amount of renewable electricity we will need to produce.

Given this increased focus on the use of electricity across the economy, either directly or via green hydrogen production, we propose our target retains its current scope.

Proposal 1: We will retain the scope of the previous generation target, focussing on generating electricity to meet future demand.

2.2 Level of Ambition

The renewable energy deep dive sets out clearly our aspiration to meet our needs through renewable generation.

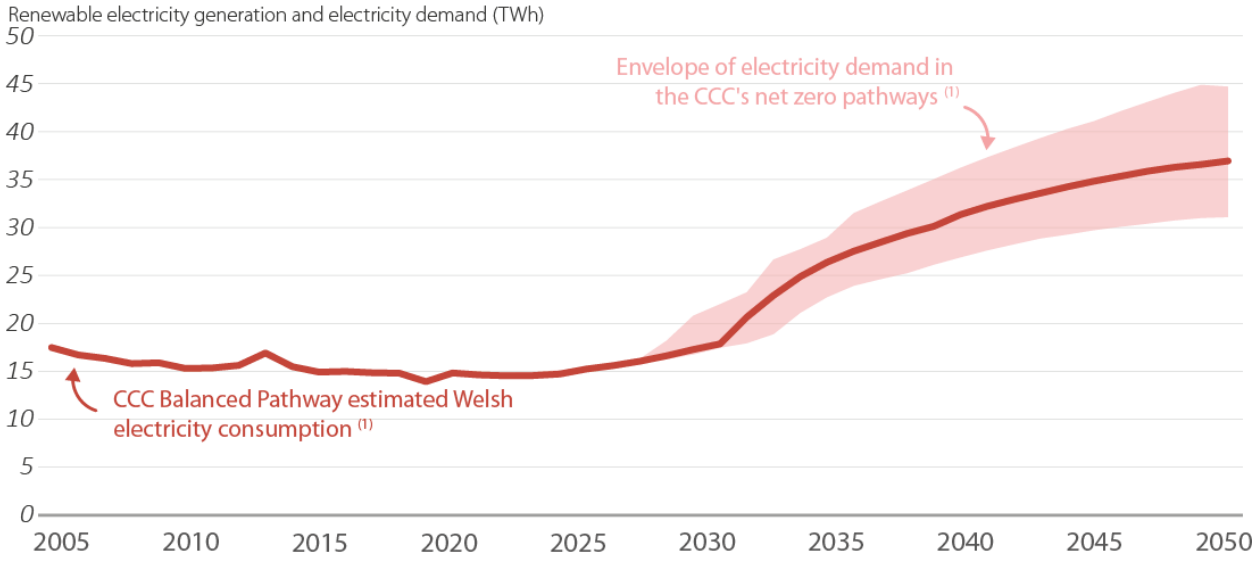
We first need to define what we mean by “fully meet our needs”. We are part of a GB electricity network, which is itself linked via interconnectors to the Irish network and through a number of additional interconnectors to other European countries. We recognise the GB system and its interconnectors to neighbouring energy markets are designed to make our electricity system more resilient and efficient. In a future where we are moving to a renewables-based system, there may be times when favourable conditions mean we will be producing more than our own demand and will be exporting electricity to the rest of the GB system or through interconnectors onward to other centres of demand. Conversely, there may be times when there is insufficient resource to meet the demand, for instance during still winter evenings.

It makes sense for us to use the flexibility these arrangements offer us to build resilience, to reduce the amount of additional infrastructure we need to build and to keep energy costs as affordable as possible. Therefore, to recognise this flexibility we do not propose we meet all our needs at all times through renewables. Rather, **we propose a target to generate the equivalent of Wales’ total annual electricity demand from renewables.** This also provides continuity with the current target.

The CCC provided an envelope of total electricity demand across all sectors in Wales in its net zero pathways, shown below. It incorporates assumptions that energy efficiency measures are implemented across the economy.

Welsh electricity demand projections

Welsh electricity demand is projected to at least double in all CCC net zero pathways



(1) Estimated Welsh electricity demand increases from c. 15 TWh in 2022 to c. 37 TWh in 2050, excluding electricity transmission losses.
Source: CCC 6th Carbon Budget, 2019.

The CCC's scenarios explored uncertainties, particularly over how far people will change their behaviours, how quickly technology will develop and the balance between options where credible alternatives exist. Based on these scenarios, they developed a **Balanced Net Zero Pathway** as the basis for the recommended net zero target and interim emissions reduction targets for Wales.

The Balanced Pathway makes moderate assumptions on behavioural change and innovation and takes actions in the coming decade to develop multiple options for later roll-out, e.g. use of hydrogen and/or electrification for heavy goods vehicles and buildings. While it is not a prescriptive path that must be followed exactly, it provides a good indication of what needs to be done over the coming years.

The range of uncertainty in the future demand for electricity increases beyond 2035, in particular the degree of electrification and hydrogen deployment in industry and certain transport modes. However, there is insufficient evidence to suggest that we should adopt a significantly different projection for electricity demand.

We have considered applying technology specific targets. However, given the scale of the challenge our preference is to remain flexible on the technologies to be deployed and at what scale. Our planning, consenting and licensing regimes provide a framework to determine whether individual project proposals are appropriate.

Section 2.3 provides a credible illustrative technology mix. However, our aim is to secure an affordable system which delivers wider benefits to Wales and is not driven by specific technology preferences.

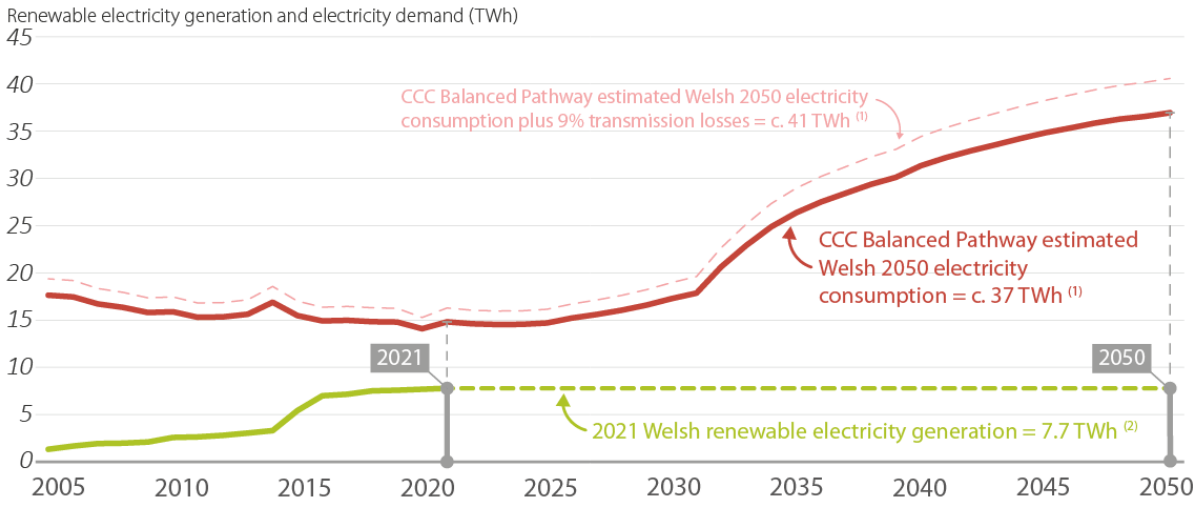
Proposal 2: That Welsh Government use the CCC's Balanced Pathway as a basis for Wales' electricity demand projections when setting renewable energy targets. We will also incorporate 9% transmission losses[1] into our projections.

The following chart illustrates the future demand trend against the baseline generation for 2021.

[1] A proportion of electricity will be lost as it moves along a network from the point it is generated to where it is used. The energy is lost in the form of heat. Transmission over greater distances creates more power loss. Therefore, we need to generate more electricity to account for these losses and still meet 100% of the demand.

Welsh electricity generation and demand trends

Welsh renewable electricity generation in 2021 may be equivalent to less than 20% of Wales' estimated 2050 electricity demand



2021 In 2021, baseline Welsh renewable electricity generation was equivalent to 55% of Welsh electricity consumption. (3)

2050 In 2050, baseline Welsh renewable electricity generation may only be equivalent to 20% of Welsh electricity consumption. (3)

(1) Estimated Welsh electricity demand increases from c. 15 TWh in 2022 to c. 37 TWh in 2050, plus 9% transmission losses = c. 41 TWh.
Source: CCC 6th Carbon Budget Balanced Pathway, 2019.

(2) Welsh renewable electricity generation in 2021 extended to 2050 for illustrative purposes.
Source: Welsh Government, Energy Generation in Wales, 2022.

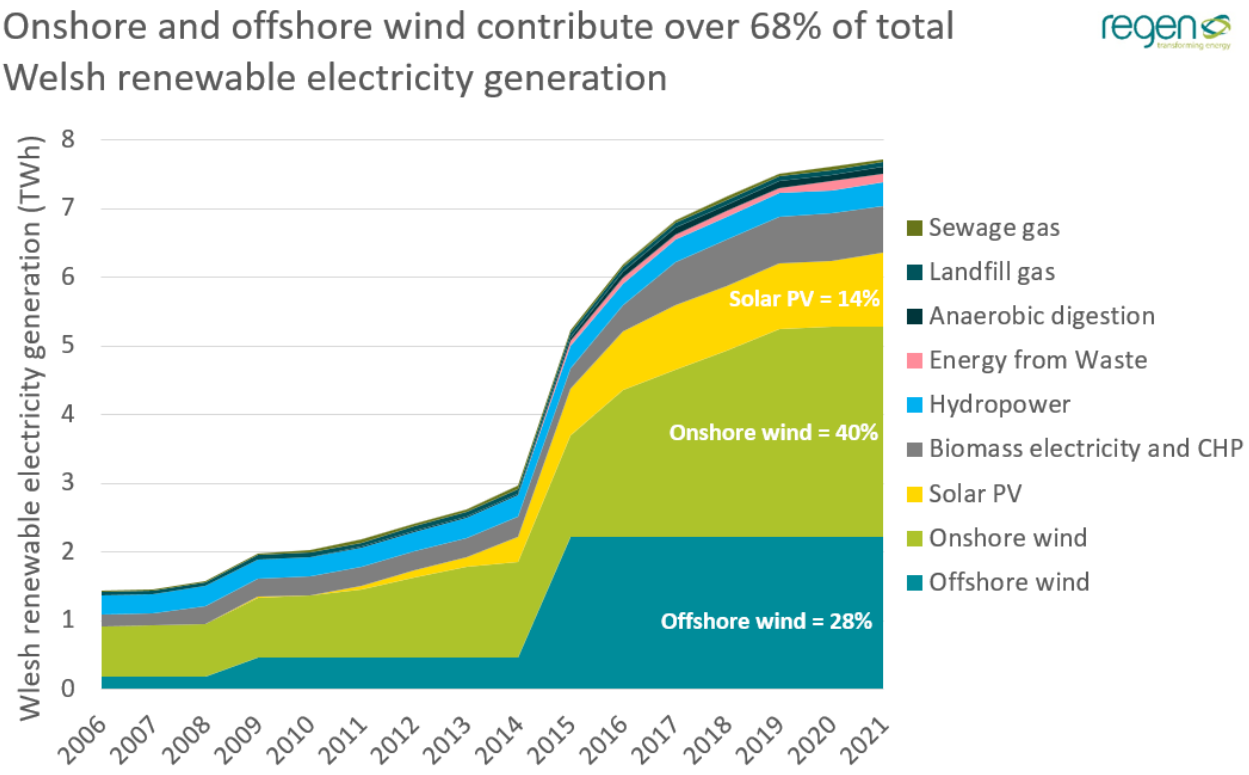
(3) Excluding losses associated with the transmission of electricity.

This clearly shows we need a **fivefold increase** in generation of electricity in Wales between now and 2050, with the majority of this increase required after 2030 and with a particularly steep increase through the 2030s.

Given the evidence on demand increases set out above, **a target to meet our own demand from renewable energy is very ambitious**. If our projects were all developed using the principles of sustainable development, this level of investment could bring significant additional benefits to Wales. **We do not feel a target which goes beyond the equivalent of meeting our annual demand is credible at this time**.

2.3 Timescales

The chart below illustrates the progress to date in increasing renewable electricity generation in Wales. The dominant sources of renewable electricity are from onshore and offshore wind. It also illustrates that, following the deployment of some large projects in the middle of the last decade, there has been a slowdown in the deployment of new generation assets.



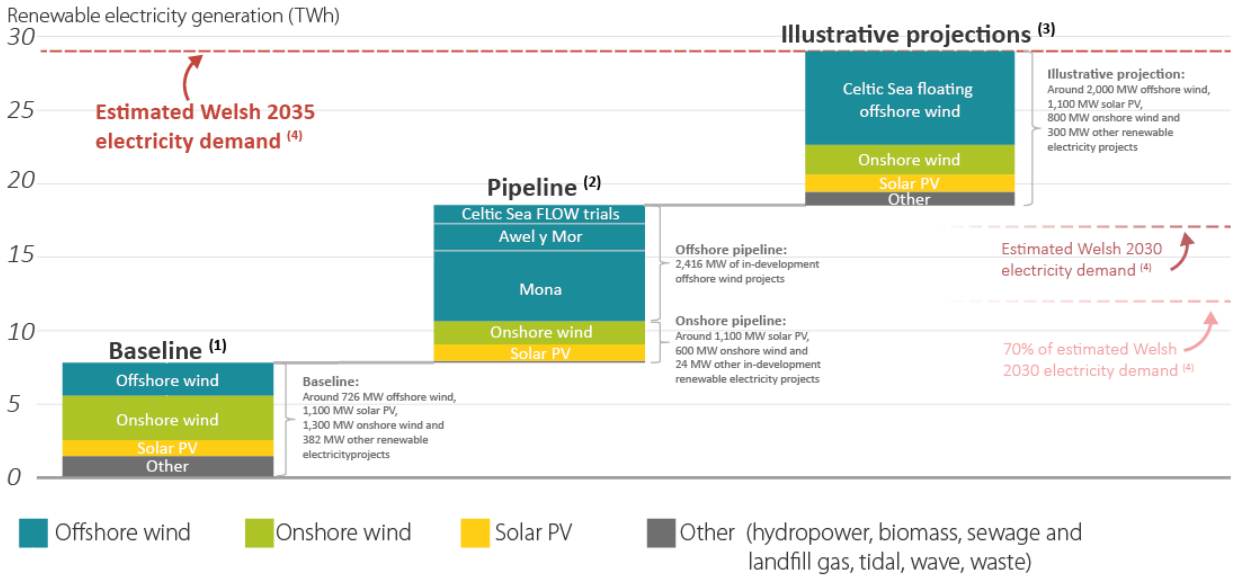
When looking to set a date by which we might generate the equivalent of our demand, we carried out an analysis of Wales' pipeline of in-development projects. It indicates that achieving Wales' existing electricity generation target of equivalent of 70% of our annual demand by 2030 is currently highly reliant on the successful deployment of Wales' in-development offshore wind projects, including the fixed offshore wind projects off North Wales and the demonstrator scale floating offshore wind (FLOW) projects in the Celtic Sea.

In conclusion, **the 2030 target is highly ambitious given the current pipeline.** We then looked at the 2035 electricity demand and the potential for meeting it with renewable electricity generation. Note, this does not prescribe the future renewables mix but offers a plausible illustrative mix. For example, the Crown Estate are preparing for an initial round up to 4GW in the Celtic Sea and have indicated a longer term potential for a further 20GW by 2045. We have, therefore, included the FLOW demonstrator sites in the 2030 pipeline as they are already well in development. We have then included an additional 2GW of offshore wind in the 2035 illustrative mix, which is half of the upcoming round.

The baseline generation for 2021, pipeline to 2030 and plausible illustrative projections to 2035 are shown below, against the current 70% target and projected electricity demand in 2030 and 2035.

A route to 2035

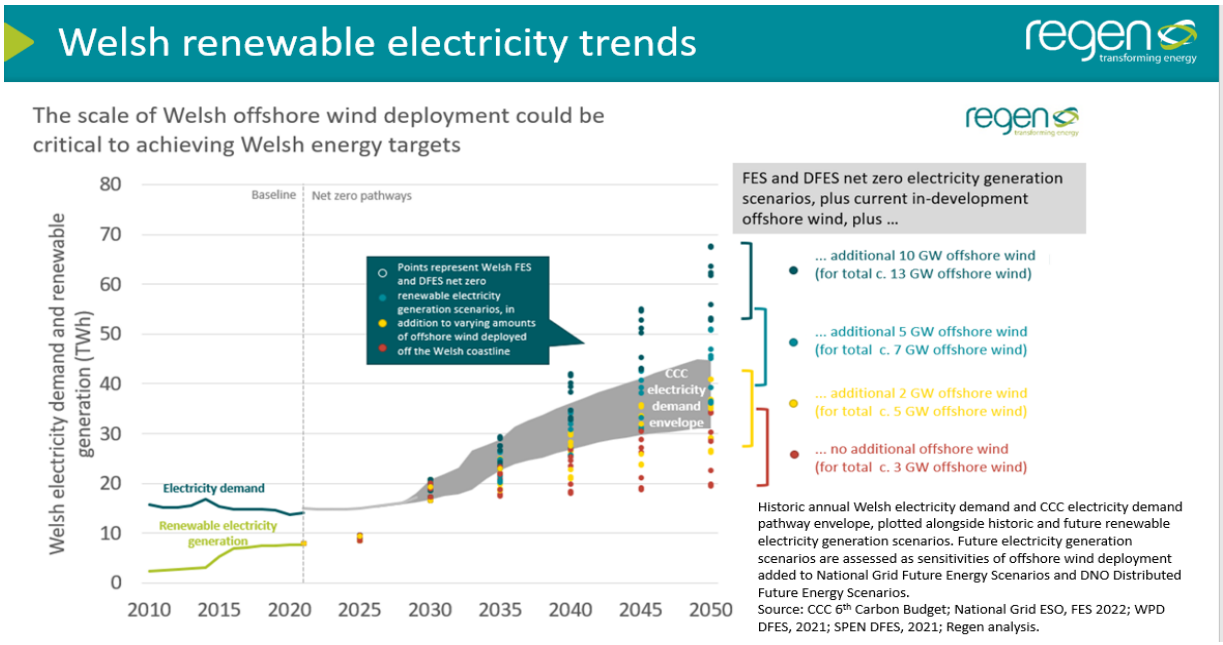
Although Wales has the renewable energy resources to acheive more, the below is an illustrative route for Wales to generate the equivalent of 100% of its electricity demand from renewable electricity sources in 2035



There are a number of notable factors that will affect the successful delivery of the pipeline of projects we have assumed in our projections above. Actions the Welsh Government can take to influence the development of renewables in Wales, such as the Bill on Infrastructure Consenting, the creation of a national energy plan and our development of revised targets, are vital. However, the success of navigating the challenges to deployment will depend on a range of factors, some of which are outside the Welsh Government's control.

We have also considered the deployment required between 2030 and 2050. We have used the assumptions of the National Grid Electricity System Operator (NG ESO) and district network operators (DNOs) as a foundation for the onshore renewables deployment and assessed the potential for total generation by assuming different rates of deployment of offshore wind. This analysis is illustrated below.

Our analysis demonstrates that **in all net zero pathways renewable energy deployment must accelerate and be sustained for the next three decades – at a rate greater than that achieved over the last decade**.



As described previously, there are inherent uncertainties in both the level of electricity consumption forecast by the CCC between now and 2050, and the delivery of the supporting infrastructure and pipeline of projects presented in our evidence base. These uncertainties increase further into the future and create challenges to attainment of our renewable energy ambitions.

Rather than providing technology-specific targets, our analysis suggests we need to pursue a range of technologies at different scales to meet our targets. We are adopting a pragmatic, technology neutral approach - proposing a target for our overall generation needs and illustrating a potential future energy mix to reflect our ambitions.

Bearing in mind Welsh Government's existing powers, the pipeline of projects already in development in Wales, the need for repowering of older projects and the need to strike the right balance between maximising the total benefits for Wales and meeting our electricity consumption needs, we have to ensure we strike the right ambition for our renewable electricity targets.

Proposal 3: That Welsh Government set a target for us to meet the equivalent of 100% of our annual electricity consumption from renewable electricity by 2035, and continue to keep pace with consumption thereafter.

Based on the Balanced Pathway, this will mean a requirement to generate 29 TWh of electricity from renewables in 2035.

3. Local Ownership Target

The current target is as follows:

- 1GW of renewable energy capacity in Wales to be locally owned by 2030.
- An expectation for all new energy developments in Wales to have at least an element of local ownership from 2020.

Energy Generation in Wales 2021 shows that Wales has achieved nearly 90% of its target of at least 1 GW of renewable energy capacity to be locally owned by 2030.

3.1 Scope

The definition for 'locally owned' is set out in our policy statement detailing local ownership of energy generation in Wales[2]. It covers energy installations that are located in Wales, owned by households, communities, local authorities, housing associations, other public sector bodies, charities (including faith organisations), further education establishments, local businesses (registered in Wales) and Welsh farms and estates.

This target is for renewable energy (rather than only electricity) and encompasses renewable heat generation such as through heat pumps and biomass boilers.

Our guidance on local and shared ownership of energy projects provides clarification on how shared ownership can be achieved; and it provides developers, local communities and decision-makers within Wales the tools they will need to embrace our ambition and targets for local and community-owned renewable energy.

We are keen to encourage local ownership across a wide range of technologies and scales of development. Shared ownership offers a solution for communities to have a stake in larger developments as well as for public and private sector partners to develop projects jointly. Smaller scale projects are often developed by communities with the intention of delivering social value alongside the energy generation. Increasingly, we are seeing an uptake in micro-scale generation such as air source heat pumps and rooftop solar PV. Innovative projects such as "homes as power stations" are also beginning to be rolled out. Given the need to reduce emissions from our buildings over the coming 10-15 years, the uptake of small-scale renewable energy technologies could be a key contributor to a Welsh renewable energy local ownership target.

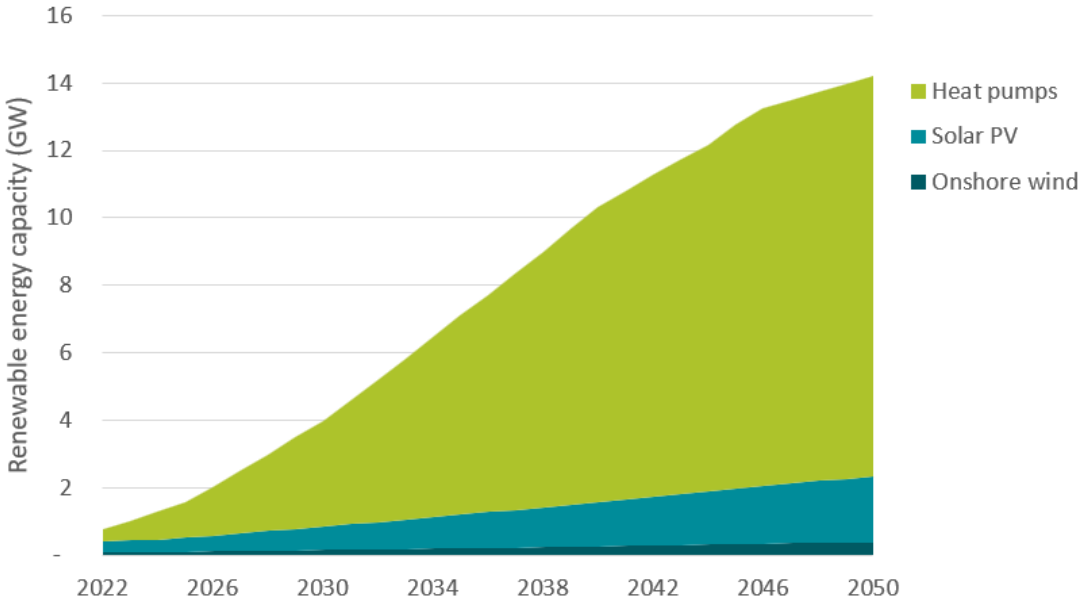
Approximately 550 MW of existing locally owned renewables is smaller than 1 MW capacity, while about 349 MW is equal or greater than 1 MW of capacity (equivalent to approximately 10% of all renewables greater than 1MW).

[2] Welsh Government, 2020; Policy Statement: local ownership of energy generation in Wales – benefitting Wales today and for future generation - www.gov.wales/sites/default/fles/publications/2020-02/policy-statement-local-ownership-of-energygeneration-in-wales.pdf

Below is a projection of small-scale renewable energy capacity, showing a clear uptick in deployment across all technologies assessed, but particularly of heat pumps.

Small-scale (<1 MW) renewable energy capacity projections of solar PV, onshore wind and heat pumps

Source: Average of Welsh net zero DFES projections of small-scale technologies



We are developing a Heat Strategy for Wales which will explore the role of a range of technologies, including heat pumps. Decisions at a UK level around the future of the gas grid and financial support mechanisms, the suitability of other technologies such as heat networks, the rate of cost reduction of heat pumps and the development of a trusted, skilled workforce is required to achieve the scale of roll-out projected above.

We have limited evidence on the pipeline of larger scale locally owned projects. Our Welsh Government Energy Service is supporting a pipeline of publicly owned renewables projects. Our publicly owned renewable energy developer is scoping its first projects, however we do not have certainty on the pipeline or timescales.

The proposal below is based on relatively limited evidence. We welcome any supporting evidence which you can provide to support us in setting this target. We will also be working with stakeholders during the development of the Heat Strategy to test our target on heat pump deployment.

We also welcome your view on whether a supporting narrative might be helpful in explaining this target, and how that might be presented.

Proposal 4: That Welsh Government set a target for at least 1.5GW of renewable energy capacity to be locally owned by 2035, excluding heat pumps.

Proposal 5: That Welsh Government set a target of 5.5GW of renewable energy capacity to be produced by heat pumps by 2035, contingent on scaled up support from the UK Government and reductions in the cost of technology.

4. Supporting Infrastructure

Our targets will only be met if we have the supporting infrastructure required to support a renewables-based system.

We do not intend to set a target through this consultation regarding supporting infrastructure. However, it is worth noting here the role of electricity networks and battery storage in meeting our renewable electricity target.

4.1 Networks

We recognise the frustration faced by our citizens and businesses attempting to connect renewable generation to the grid, and those who wish to install heat pumps or EV chargers, due to constrained electricity grids.

We are working with network operators and Ofgem to understand and champion the needs of Wales for investment in energy networks capable of supporting a net zero society.

Our local, regional and national energy plans will identify the demand for energy and the resources that can be deployed to meet that demand. It will also highlight where we may face constraints in the supporting infrastructure. Smart, local energy systems may be appropriate solutions in some cases, reducing the need for expensive upgrades. In other instances, there will be a need for network operators to put forward a case for investment to Ofgem. Anticipatory investment, that is investment for a future need, will become ever more important. However, there is a need to ensure that investment is targeted at the right solutions in the right locations. We are working with all network operators to build the case for appropriate investment in Wales.

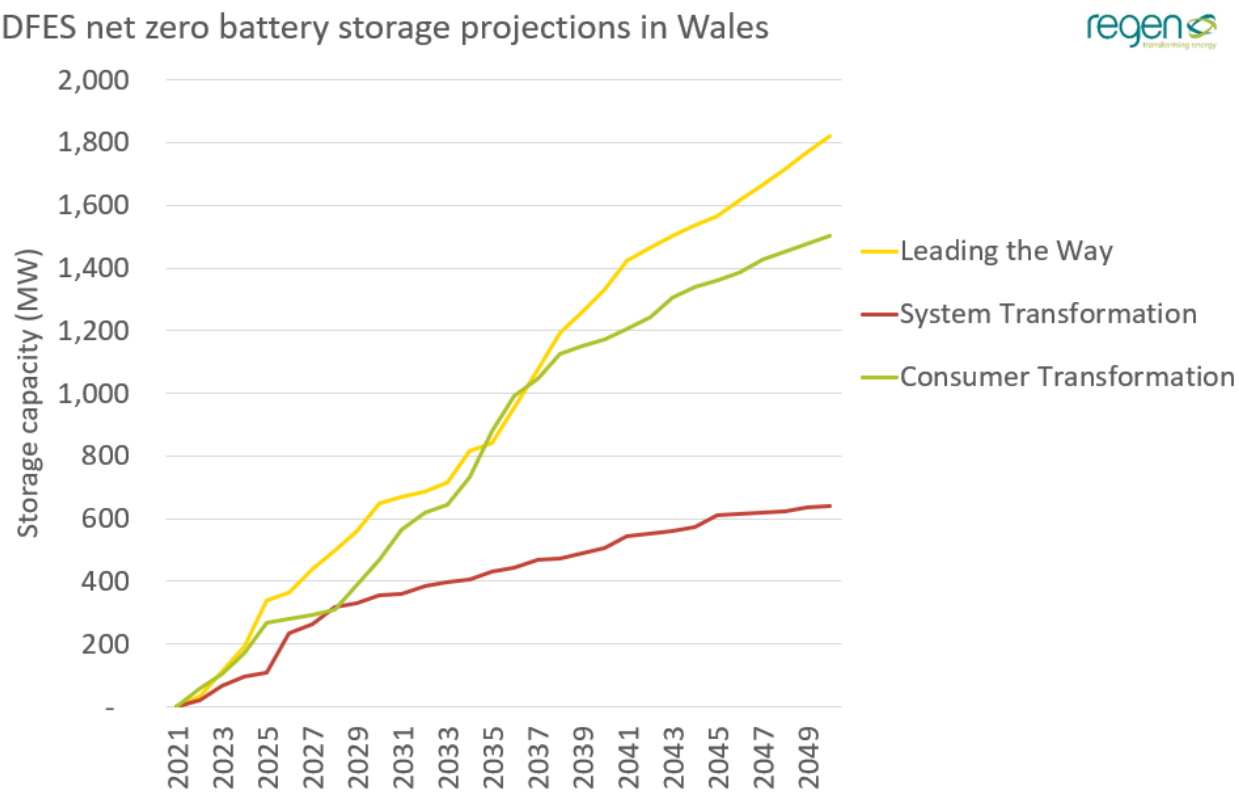
4.2 Battery Storage

The development of commercial-scale battery storage across Great Britain is driven by the growing need for flexibility on the electricity system. Projects provide services to the electricity grid, including the balancing of supply and demand and providing fast-response services, such as Dynamic Containment. Storage promotes resilience in the energy network and will be an important component in ensuring the UK's electricity self-sufficiency. There are barriers to new storage projects in Wales, including grid constraints and the way the system currently treats batteries as generation that will supply at peak times.

In Wales, there are currently 11 projects with a capacity greater than 150 kW with planning permission or under construction in Wales, and another nine projects with applications that have been submitted – two of which have a planned capacity of almost 50 MW.

Despite the ever-growing pipeline of prospective projects, the proportion of sites that will move through to commissioning in the next 5 to 10 years is unclear. A number of national commercial markets and revenue opportunities are targeting battery storage projects, such as the relatively recently reformed trio of commercial frequency balancing

services, reformed ‘Quick’ and ‘Slow’ reserve services and the Network Option Assessment pathfinders. While ongoing network constraint issues could delay the deployment of many battery projects, such issues also strengthen the business case for considering flexible assets such as batteries differently within the wider energy system.



Leading the Way, System Transformation and Consumer Transformation are National Grid ESO’s net zero scenarios in the Future Energy Scenarios publication[3]. The Distributed Future Energy Scenarios for Wales use the same scenario framework and estimate that battery storage in Wales could reach over 1.8 GW by 2050.

There remains uncertainty as to where commercial and grid-services battery storage will be sited within the UK. But a variety of other business models and sectors are estimated to see an increase in storage deployment, for example, behind the meter storage in domestic or non-domestic settings and co-located with renewable energy.

Currently, there is uncertainty over which of the three net zero scenarios will prevail. Of the three scenarios outlined above, Consumer Transformation and Leading the Way show the greatest similarity until 2035. While we do not suggest a target for installed battery storage for the reasons outlined, we will continue to encourage the deployment of storage solutions to support a more resilient energy system.

[3] https://www.nationalgrideso.com/fes-2020-new-scenario-framework

5. Socio-Economic Benefits

5.1 A just transition

Our Net Zero ambitions will have a large impact on the Welsh economy and our communities as the shift in demand for goods, service and skills evolves. We want to ensure a just transition which provides economic opportunities for Wales, and delivers benefit for businesses, communities and citizens across Wales.

To different extents, the transition to net zero will have implications for jobs at all skill levels and across all occupational groups. The current system will be challenged by and create opportunities from:

- Displaced jobs as we see the transition from one sector to another.
- New and emerging jobs that relate directly to the transition to net zero.
- Jobs that will need enhanced skills or competencies.
- Existing jobs that will be needed in greater numbers as the result of the transition to net zero.

The written statement that accompanied the publication of the deep dive into renewable energy's recommendations made clear that, as we transform our energy generation to sustainable renewable generation, we must "learn from previous industrial revolutions where Wales' natural assets were used with little lasting long-term benefit to our communities."

In December, we launched a call for evidence on a Just Transition to Net Zero Wales. Key aspects of the call are to seek evidence to identify best practice, wherever that may be found, for the implementation of a just transition in Wales; identify the impacts and opportunities across our society and economy; and identify the infrastructure and support we need to ensure a just transition.

5.2 A skilled workforce

We are also developing a Net Zero Skills Action Plan, to be published by the end of February 2023, which will include a range of actions aimed at delivering and supporting the immediate and future skills needs for our net zero journey.

The energy sector in Wales is undergoing a profound transformation. We have transitioned away from the use of coal for power and are in the middle of a shift from a centralised, fossil-fuel based system to a more dispersed, renewables-based system. We are also seeing new renewable electricity technologies coming forward, such as floating offshore wind, which offer Wales the potential to be at the forefront of the industry. We will be transforming the way we heat our homes and businesses, which will lead to a phase out of traditional gas-fired boilers and oil-fueled heating systems to low carbon alternatives. And this transformation will require strong supporting economic infrastructure.

All of these changes offer huge opportunities, but there are skills challenges we need to overcome.

We will use the Net Zero Skills Action Plan to set out our actions in supporting the sector to upskill and reskill. We are determined to support businesses in Wales to take advantage of these new opportunities, and our citizens in securing decent jobs delivering an energy system to support Wales' decarbonisation pathway.

5.3 Monitoring Progress

The Office for National Statistics (ONS) provide estimates of the size of the UK's low-carbon economy through the Low Carbon and Renewable Energy Economy Survey (LCREE), including data on turnover and employment. In 2020, businesses active in the UK low carbon and renewable energy economy generated approximately £41 billion in turnover, with employment of around 207,800 full-time equivalent (FTE) employees. From the survey, the majority of this activity took place in businesses classified within the manufacturing, energy supply and construction industries.

In 2020, the low-carbon economy in Wales accounted for an estimated turnover of around £2 billion and approximately 11,300 permanent jobs. Low-carbon electricity accounted for just over £650 million in turnover (around 30% of the total turnover in the Welsh low-carbon economy), in addition to providing just under 2,000 jobs (roughly 15% of the total jobs within the low-carbon economy)[4].

	Turnover (£ billions)			Employment (FTE)		
	Estimate	Lower CI	Upper CI	Estimate	Lower CI	Upper CI
UK	41.2	38.6	43.9	207,800	189,000	226,700
England	32.6	30.0	35.1	171,100	153,200	189,000
Scotland	5.5	5.1	5.8	20,500	16,800	24,100
Wales	2.2	2.0	2.5	11,300	9,400	13,200
Northern Ireland	0.9	0.7	1.1	5,000	3,900	6,100

Source: Office for National Statistics - Low Carbon and Renewable Energy Economy Survey

Proposal 6: We will track the growth (turnover and employment) in the low-carbon energy sector in Wales using the Low Carbon and Renewable Energy Economy Survey. We will supplement this data with information from industry leaders and representative organisations. We will use this data to measure the success of our implementation plans to upskill the workforce and support economic growth in Wales.

[4] Note that the LCREE estimates for turnover and employment in the low-carbon electricity sector in Wales has had a coefficient of variance (which is a measure of the error around an estimate) that has previously ranged from between 9-30%. Where necessary, we will treat these estimates with caution.

6. Consultation Questions

Question 1

Do you agree with Proposal 1, to will retain the scope of the previous generation target, focussing on generating electricity to meet future demand? Please indicate Yes/No
If no, what alternative target would you propose?
Please provide evidence to support your statement.

Question 2

Proposal 2 states: That Welsh Government use the CCC's Balanced Pathway as a basis for Wales' electricity demand projections when setting renewable energy targets. We will also incorporate 9% transmission losses into our projections.

Do you agree with this proposal? Please indicate Yes/No
If no, what alternative methodology and data source would you propose?
Please provide evidence to support your statement.

Question 3

Proposal 3 states: That Welsh Government set a target for us to meet the equivalent of 100% of our annual electricity consumption from renewable energy by 2035 and to continue to keep pace with consumption thereafter.

Do you agree with this proposal? Please indicate Yes/No
If no, please indicate how this target should be changed i.e. should the target date be changed, and to what; or should the percentage change, and to what?
Please provide evidence to support your statement.

Question 4

Proposal 4 states: That Welsh Government set a target for at least 1.5GW of renewable energy capacity to be locally owned by 2035, excluding heat pumps.

Do you agree with this proposal? Please indicate Yes/No
If no, what alternative target or targets would you propose?
Please provide evidence to support your statement.

Question 5

Proposal 5 states: That Welsh Government a target of 5.5GW of renewable energy capacity to be produced by heat pumps by 2035, contingent on scaled up support from the UK Government and reductions in the cost of technology.

Do you agree with this proposal? Please indicate Yes/No
If no, what alternative target or targets would you propose?
Please provide evidence to support your statement.

Question 6

Proposal 6 states we intend to track the growth (turnover and employment) in the low-carbon energy sector in Wales using the Low Carbon and Renewable Energy Economy Survey. We will supplement this data with information from industry leaders and representative organisations. We will use this data to measure the success of our implementation plans to upskill the workforce and support economic growth in Wales**.**
Do you agree with this proposal? Please indicate Yes/No
Is there any alternative source of data we should be considering?

Question 7

Can you explain whether any of the proposals could be altered to have positive effects or increased positive effects on:

(a) opportunities for people to use the Welsh language;
(b) treating the Welsh language no less favourably than the English language;
(c) ensuring no adverse effects on opportunities for people to use the Welsh language; and
(d) treating the Welsh language no less favourably than the English language.

Please provide evidence to support your answer

Question 8

We have asked a number of specific questions. Do you have any other issues that you wish to bring to our attention, which are not captured by the above questions? Please provide evidence to support your answer.

Please use the consultation response form to respond to the above questions.