

Overview

1. Ofgem welcomes this opportunity to contribute to this inquiry into the Renewable Energy Generation in Wales¹ and the Welsh Government's Renewable Energy Deep Dive.
2. There is a high degree of alignment between the ambitions of the Welsh Government Deep Dive recommendations², and Ofgem's strategic change programmes, which are focused squarely on helping deliver the UK and devolved governments' net zero targets.
3. Whilst major strategic decisions about the mix of generation technology and its location are matter for Governments and for developers, Ofgem's mechanisms and policies aim to ensure the conditions are in place once such decisions are in place.
4. This paper sets out the key Ofgem policies, mechanisms, and vectors of engagement which we expect to play a major role in turning this alignment into delivery over the coming months and years.
5. The Welsh Government Renewables Deep Dive recommendations which relate to the Grid (number 5 and 6) and to Innovation (number 21) are closely linked to Ofgem's programmes of work on:
 - a. Low Carbon Infrastructure
 - b. Energy Systems Governance
 - c. Full Chain Flexibility
 - d. Strategic Innovation Fund
 - e. Regulatory Sandbox
6. The unprecedented recent rise in global gas prices has shown that we need to go further and faster in pursuing GB and Wales' climate goals and in diversifying our energy supply, to protect ourselves from similar future price shocks.
7. Ofgem looks forward to continuing our strong working relationship with Welsh Government, and with energy stakeholders across Wales, in helping deliver a net zero economy at the lowest cost to consumers.

Ofgem in Wales

8. The Gas and Electricity Markets Authority (the 'Authority'), consists of non-executive and executive members and a non-executive chair, and operates through the Office of Gas and Electricity Markets ('Ofgem'), which is a non-ministerial government department. In this paper, the terms Ofgem and the Authority are used interchangeably.
9. The Authority determines strategic direction, sets policy priorities, and makes decisions on a wide range of regulatory issues, including price controls and enforcement.
10. Our objective is to protect consumers' interests now and in the future by working to deliver a greener, fairer energy system. We do this by:
 - Working with governments, industry, and consumer groups to deliver a net zero economy, at lowest cost to consumers
 - Stamping out sharp and bad practice, ensuring fair treatment for all consumers, especially the vulnerable

¹ [Renewable energy generation in Wales \(senedd.wales\)](https://www.senedd.wales)

² [Renewable energy deep dive: recommendations \[HTML\] | GOV.WALES](#)

- Enabling competition and innovation, which drives down prices and results in new products and services for consumers.

11. As Great Britain's energy system transitions towards a more decentralised model, so too must our capabilities to adapt to a rapidly changing energy landscape. This includes listening to the voices of consumers and stakeholders across Wales.
12. Ofgem's presence in Wales is increasing. Our Wales-based team will be joining thousands of UK Government civil servants at the new Tŷ William Morgan hub offices in central Cardiff.
13. Ofgem engages with a wide range of energy stakeholders across Wales. This includes industry, innovators, politicians, engineers, and consumer groups. We also work closely with Welsh Government on a range of energy issues, including a quarterly roundtable working group, Ofgem's Large Users Group, our Net Zero Advisory Group. Ofgem is also represented at the Welsh Government's Fuel Poverty Advisory Group and Hydrogen Reference Group.
14. The most recent development on this front is Ofgem participating on Welsh Government's recently-announced working group³, which aims to take a strategic view of gas and electricity network planning.

Low Carbon Infrastructure

15. The transition to net zero requires a major transformation of the energy sector: the continued decarbonisation of power; the electrification of most surface transport; and the moving to low carbon energy sources for heating our homes and workplaces. In some areas, there is broad consensus on the direction of travel – for example, the accelerating deployment of renewable power and electric vehicles. However, there remains some uncertainty on key questions such as the role of hydrogen in heat, and how much nuclear power and carbon capture, usage, and storage (CCUS) will be needed.
16. Through our 'Low Carbon Infrastructure' strategic change programme, Ofgem will ensure that the necessary enablers are in place to facilitate a more coordinated approach to the transition of GB's and Wales' network infrastructure for net zero. We will play an active role in ensuring efficient investment in the networks, while keeping costs to consumers as low as possible.
17. Our 'Low Carbon Infrastructure' strategic change programme addresses three key strategic themes:
 - a. Network planning** - Ensuring there is a system-wide strategic network plan in place, which forms the basis for strategic needs cases for investment in network infrastructure and guides decisions on capacity and location of interconnectors.
 - b. Network investment and disinvestment** - Delivering necessary investment at best value-for-money for consumers, to deliver high levels of network reliability while meeting new sources of demand and managing the impacts of climate change. We will continue to do this through competition, where possible, and, where not, using an efficient regulatory model (e.g. price control or the cap and floor regime).
 - c. Enabling new technologies** - Enabling new technologies that could lower the cost of the net zero transition for consumers in the future. This includes providing funding for innovation in network technology and evidence development on hydrogen; and developing new regulatory models for CCUS and new nuclear generation infrastructure.

Wales' Energy Grid

18. One key theme of Ofgem's engagement with energy stakeholder in Wales has been around the issue of how network companies are able to invest in anticipation of future projects and manage the risk of assets becoming stranded.

³ [Welsh Government and network operators to work together on plan as UK first for integrated energy grid for net zero | GOV.WALES](https://gov.wales/welsh-government-and-network-operators-to-work-together-on-plan-as-uk-first-for-integrated-energy-grid-for-net-zero/)



19. Grid infrastructure typically follows the development of generation projects. Developers seek connection to the transmission or distribution network, and the network companies are obliged to offer terms for connection, which will include local works and any necessary reinforcement to enable access to the wider electricity market.
20. Ofgem expect the networks to take a whole-system approach and work together to design optimal network solutions that maximise the use of existing infrastructure and minimise costs/environmental impacts for new build.
21. Ofgem's role is to ensure companies are funded to meet these obligations, and we have agile mechanisms in place to provide funding where these are not covered as part of existing price controls. In making such decisions, Ofgem will consider the need for the investment, and whether the options presented, and associated costs represent the most economical solution. We also consider the likelihood of the projects going ahead to minimise the risk of stranded assets if need does not materialise.
22. For renewable generation projects, Ofgem will consider whether projects have received planning consent and sufficient financial support (for example, success in CfD auctions) to proceed. However, Ofgem's approach to approving anticipatory investment is shifting. Our position is to remain open to anticipatory investment as long as clear and robust evidence of need, potential costs and benefits is provided.
23. For example, the Shetland link was approved in April 2020⁴ having been previously denied approval. All energy consumers pay for the cost of investment in new network capacity through their energy bills and Ofgem ensures that it obtains the best deal possible for them. In October 2019, Ofgem was unable to approve SSEN's original proposal for the link because the Viking Energy Wind Farm project had failed to win a subsidy in the UK Government's Contract for Difference Auction. In January 2020, SSEN submitted its revised proposal, taking account of updated progress of planned windfarms, as well as potentially increased electricity demand on the Shetland Isles.
24. Also, in support of the net zero transition Ofgem has recently consulted on improvements to Network Planning⁵, proposing that the ESO (and FSO) become responsible for strategic planning of the transmission system across GB, both onshore and offshore. An example of this type of activity can be seen in Ofgem's involvement in the Offshore Transmission Network Review (OTNR), which aims to bring about greater coordination in the development of offshore energy networks and produce a holistic network design⁶.
25. Major strategic decisions about the mix of generation technology and its location are matter for Governments and for developers. Once this is clear, it is a key piece of enabling evidence that informs Ofgem's assessment of network company proposals. Ofgem anticipates that the new Welsh Government-led strategic grid group will contribute towards this evidence base.
26. Welsh Government announced a new working group to focus on the future energy grid in Wales on 13 September 2021⁷. The aim of this group is for Welsh Government and network operators to work together on planning an integrated energy grid for net zero and developing a strategic approach to gas and electricity network planning. Ofgem's Chief Engineer will provide independent and impartial advice to support the development of options.

⁴ <https://www.ofgem.gov.uk/publications/ofgem-approves-600mw-shetland-transmission-link>

⁵ https://www.ofgem.gov.uk/sites/default/files/2021-11/Consultation_Electricity_Transmission_Network_Planning_Review_v2.pdf

⁶ <https://www.ofgem.gov.uk/publications/consultation-changes-intended-bring-about-greater-coordination-development-offshore-energy-networks>

⁷ [Welsh Government and network operators to work together on plan as UK first for integrated energy grid for net zero | GOV.WALES](https://www.gov.wales)



27. However, while Ofgem are open to considering an anticipatory 'build-first' approach, with more appetite for risk, we must remain mindful that our role is to strike a deal on behalf of every household billpayer in Wales. Any funding for anticipatory investment needs to align with the granting of planning consents for new infrastructure, which must also be supported by strong evidence of need.

RIIO

28. Our RIIO-ED2 price controls will cover a 5-year period to 2028, which applies to Distribution Network Operators (DNOs), who transport electricity locally to homes and businesses in Wales and have a crucial role in eliminating harmful carbon emissions from the energy sector in line with Welsh Government targets.
29. Ofgem's new RIIO-2 network price controls will make a large contribution to Welsh Government's climate change ambitions by enabling greater levels of investment in energy infrastructure, while keeping bill payments steady for Welsh consumers over the next 5 years.
30. The Gas Distribution RIIO-2 package includes more robust plans to drive a step change in funding and protections for consumers in vulnerable situations, including funding of £132 million across GB- with around £12.55m in the Wales & West Utilities network region.
31. As part of the Electricity Distribution Price Control review, which is currently ongoing, Ofgem will be hosting six Open Hearings in March 2022 – one for each Distribution Network Operators (DNO). This includes Wales' DNOs, Western Power Distribution on 18 March 2022 and SP Energy Networks on 24 March 2022.
32. The Open Hearings will provide an opportunity for Ofgem and stakeholders to hear submissions and evidence on various aspects of the Business Plans. These would then allow us to listen to arguments from the companies, the enhanced engagement Groups and from other interested stakeholders in favour of, or against company proposals. This will enable us to gain a better understanding of the issues in an open and transparent way as well as strengthen the voice of consumers in the price control process.
33. The DNOs propose a significant increase in investment to reinforce existing grids to support growth in demand from electrification of heat and transport, together with growth in renewable generation connected to these grids. These are driven by their forecasts of growth in connected generation and demand, informed by stakeholder needs and developers wishing to connect. The DNOs are also proposing to create Distribution System Operator capabilities within their regions (including Wales) that will plan and operate their networks to accommodate these needs, whilst harnessing the flexibility required to deal with the intermittency of renewables and manage network constraints to optimise utilisation of existing infrastructure.

Energy Systems Governance

34. A considerable proportion of the Welsh Government's Renewable Energy Deep Dive focuses on institutional and governance structures. As the energy system undergoes an unprecedented transition, it is right to take a fresh look at these structures – including Ofgem's own role – and consider whether those structures remain fit-for-purpose.
35. To facilitate the transition to a more flexible, data-enabled, net zero energy system, we believe that there is a case for stronger strategic oversight and better whole system coordination, which will require changes to existing governance procedures, codes, standards, and licensing arrangements.
36. Ofgem also welcomes the UK government's intention to provide a Strategic Policy Statement for Ofgem, which along with any forthcoming legislation, will set out the government's energy policy priorities of relevance to Ofgem. We also look forward to working with the Energy Digitalisation Taskforce and BEIS to determine how best to reflect their recommendations in our work, where relevant.



37. Whilst we recognise that these questions are primarily for governments, Ofgem has a role to play in contributing to the debate in our role as the independent regulator, and in delivering and/or overseeing some elements of organisational change.
38. Ofgem continues to work alongside BEIS on policy development for key projects, such as reviewing energy codes and their governance arrangements – which we consulted jointly on with BEIS in July 2021 – and following our review of GB System Operation in January 2021, which recommended an independent system operator, we consulted alongside BEIS (in July 2021) on proposals for an expert and impartial Future System Operator (FSO)⁸.
39. Recognising the role that the Electricity System Operator (the ESO) would have if there were a FSO transition, Ofgem set out in September 2021 that, as part of the next iteration of its business plans, we expected the ESO to be making the necessary preparations for potential future system operation changes.
40. The aims of this strategic change programme are:
- Establishing a vision for energy system governance, with a clear view of areas for potential institutional reform, grounded in the changes we are seeing across the energy system and the pursuit of our other strategic priorities, such as data and digitalisation and full chain flexibility.
 - This includes, for example, consideration of FSO functions, including the interface between the ESO and the Distribution System Operators (DSOs), as well as DSO governance arrangements at a local level, including how local energy planning decisions are made.
 - Implementing institutional and functional reforms, to reflect any recommendations from ongoing work from the Energy Codes Review.
 - Continuing to ensure that Ofgem’s medium and longer-term goals drive our organisational shape and the functions we undertake, and we continue to evolve our regulatory model in a way that makes us a better fit for delivering our part of net zero and the energy transition.
41. Our ‘Energy Systems Governance’ strategic change programme will help shape Ofgem’s role in the energy system transition, transforming Ofgem’s capabilities to become a more adaptive regulator, that can flexibly respond to a rapidly changing energy landscape. During 2022/23, we will identify any strategic changes required relating to how we regulate, including developing new regulatory approaches related to any additional responsibilities given to us by UK Government.

Full Chain Flexibility

42. A smart and flexible energy system⁹ is essential to hitting the UK and Welsh Government’s net zero climate goals, while keeping energy bills affordable for everyone. Being smart and flexible in how we generate, use and store energy will support the decarbonisation of power, heat, transport, and industry sectors.
43. As we change the way we fuel our cars and heat our homes, demand for electricity will increase from millions of new electric vehicles and heat pumps. Being more flexible in when we use electricity will help avoid the need to build new generating and grid capacity to meet this demand, resulting in significant savings on energy bills, estimated as up to £10 billion per year to 2050. Consumers will be able to play an active role, taking up new tariffs and smart appliances like smart electric vehicle chargers, so they can save money by using electricity at cheaper times.
44. In summer 2021, Ofgem and BEIS published the Smart Systems and Flexibility Plan (SSFP) setting out a vision, analysis, and work programme for delivering a smart and flexible electricity

⁸ [Review of GB energy system operation | Ofgem](#)

⁹ [Full chain flexibility | Ofgem](#)

system that will underpin our energy security and the transition to net zero. The 'Full Chain Flexibility' strategic change programme encompasses Ofgem's actions from the SSFP.

45. The Plan sets out reforms to:

- Removing barriers to flexibility on the grid for storage and interconnectors
- The markets and signals needed to bring forward and reward flexibility
- How we facilitate flexibility from consumers (including products, tariffs and how we regulate smart appliances load controllers)
- The data and digital architecture required to underpin planning and markets (including greater network visibility and monitoring, cyber and data privacy).
- BEIS and Ofgem are currently working on refreshing the Smart Systems Forum, which we expect to reconvene in early 2022.

Innovation

46. The Welsh Government Renewable Energy Deep Dive also focuses on whether the regulatory environment is conducive to enabling innovation in support of the wider recommendations. We welcome further engagement from Welsh Government and stakeholders across Wales, and operate several policies and services designed to foster innovation.

47. Ofgem has set up the Strategic Innovation Fund¹⁰ to ensure that funding is focused on tackling the biggest challenges in the energy transition.

48. In addition, we have allocated existing network innovation spending to enable trials of hydrogen in networks, to seek to enable hydrogen as a potential low-carbon energy system, and to inform UK and devolved government decisions on heat.

49. The Innovation Link was set-up to help innovators understand the regulatory implications of their propositions and, where possible, to support innovators in trailing and bringing to market new products, services, and methodologies. We operate the "Fast, Frank Feedback" service, helps innovators understand what regulations mean for their specific circumstances. This is provided on a bilateral, confidential basis.

50. In July 2020, Ofgem launched a refreshed and expanded Energy Regulation Sandbox service: the Sandbox recognises that innovative business models in the interests of consumers may be blocked by current rules. Through the Sandbox, Ofgem works with innovators to see whether it is possible and desirable to provide regulatory relief. The Sandbox offers innovators a tweaked version of today's rules, not an alternative energy system in which to operate.

51. The refreshed Sandbox incorporates derogation tools from the industry's Balancing and Settlement Code and the Distribution Connection and Use of System Agreement. As well as continuing to support innovators to carry out trials, the Sandbox now offers enduring support for those businesses ready to bring new products and services to market, by providing (where appropriate) derogations and confirmations.

¹⁰ <https://www.ofgem.gov.uk/publications/new-ps450m-fund-unlock-cutting-edge-innovation-across-gas-and-electricity-networks>

