Written evidence submitted by BP plc (GRD0029)

Response to Welsh Affairs Committee inquiry on grid capacity in Wales

Summary

- bp welcomes this inquiry and the questions being considered by the Welsh Affairs committee.
- bp has a range of direct and indirect interests in electrification in Wales, from the bp Pulse network of electric vehicle (EV) charging infrastructure to the joint venture projects with EnBW for offshore wind and Lightsourcebp for solar development.
- bp are experiencing extended timelines to connect our offshore wind project in Wales as a result of grid restrictions. It should be noted that these restrictions are not unique to Wales.
- Long distance EV travel, EV consumers without access to off street charging and commercial EV fleets generally require access to public charging and high-speed charging hubs.
- bp believes sufficient resources should be allocated to ensuring connections and re-enforcements are put in place for EV charging hubs in a timely way, and in a way that responds to current and future consumer demand.
- In determining future EV charging infrastructure investments, bp believes that the focus should be on a "capacity first" approach instead of "flexibility first"- especially if consumer confidence for EV uptake is to be achieved.
- In bp's view, a key requirement is a forward-facing holistic network design for the grid, with the appropriate level of anticipatory investment in transmission and storage to match the projected growth in renewable energy generation, and industrial and consumer demand for electrical power.
- bp believes that clarity around holistic network design can play a key role in unlocking private sector investment, particularly around renewable energy generation and storage, including hydrogen.
- bp believes safety is a key issue that should be at the core of all strategic planning and policy and would like to see this explicitly referenced.

Responses to specific consultation questions

What are the current capacity issues facing the National Grid?

To give a specific example relating to the bp and EnBW Mona offshore wind development (see appendix below), the project applied for a 1.5GW grid connection during late 2020 and early 2021 with a requested connected date of 2027/28. Once issued, the associated Bilateral Connection Agreement (BCA) was dated for 2033 connection – over 5 years later than requested.

The BEIS OTNR and National Grid ESO Pathway to 2030 team then adopted the CION applications process in June 2021, introducing the Holistic Network Design (HND) process and setting out a new schedule. bp are awaiting the outcome of this review but are not expecting it to bring forward the connection date to earlier than 2030 – over 3 years later than requested.

How are the constraints on Wales' grid likely to be exacerbated as demand for renewable energy surges?

Without strategic intervention and anticipatory investment, it is probable that extended timelines for grid connections for major generating capacity will continue. This could reduce the attractiveness of investment into such projects if the grid capacity is less constrained elsewhere in the UK.

How can Wales unlock the grid and ensure that it is ready for future demand?

bp believes this should be an output of a strategic holistic network design.

bp welcome the work Ofgem and grid operators have been carrying out aiming to ensure that the energy system facilitates the roll-out of EV charging infrastructure by market providers such as bp pulse. bp sees the upcoming ED2 price control period as an opportunity for Distribution Network Operators (DNOs) to deliver EV infrastructure in an agile, timely way, driven by market demand.

bp believe the best way to achieve this is with anticipatory investment, and would suggest that the moment additional EV charging capacity is demanded by the market is much too late to begin the process of securing investment for it.

In bp's view, ensuring that EV infrastructure providers can continue to rollout infrastructure ahead of demand will drive forward the transition from ICE vehicles to EVs.

At the same time, bp recognise there is uncertainty in some areas. bp would favour automatic or agile uncertainty mechanisms, so that DNOs can respond quickly as specific demand crystallises. bp are also keen to ensure that DNOs are sufficiently resourced to respond quickly to the inevitable increase in demand in both engineering and administration.

What can be done to incentivise investment in grid flexibility, in particular vehicle to grid technology and 'smart' charging?

Many of those who already make use of at home or at work charging already likely use smart charging – and the government's Electric Vehicles (Smart Charge Points) Regulations 2021 (the "EV Smart Charge Point Regulations") require all new private charge points to have certain 'smart' features from 30 June 2022.

bp would note wider industry concern around the implementation of the EV Smart Charge Point Regulations. Whilst broadly welcome, the timescales for implementation currently in place will be hard for the sector to meet. Industry is seeking to work with the government and regulators to help ensure the smooth implementation of these regulations without disruption to charging point installations.

Emerging technologies, like 'vehicle to grid', will require closer collaboration between regulators and industry. bp's view is that too much focus on flexibility solutions may have the unintended consequences of delaying EV infrastructure roll-out in the UK. The development of new technology in a fast-evolving sector can mean that some stakeholders / investors, such as local authorities, are nervous about investing in technology that they fear could become quickly out of date.

bp believes that it is key that both charge point owners and charge point operators are appropriately incentivised to keep the infrastructure network adequately maintained and updated to help ensure consistency for consumers.

What should be done to ensure that the grid, particularly in rural areas, can cope with the extra demand that will be generated from the transition to electric vehicles?

The costs of local grid connection, particularly for the faster charge points, can be prohibitive for private investors. The lack of standardisation of connection costs can make it harder to plan effectively for a broader national rollout and risk leaving areas of the country behind.

For example, rural areas have historically had lower levels of private investment, which is likely due to lower expected utilisation pending increased adoption of EVs.

Where the grid connection costs are significantly above market rates or where utilisation is expected to be low, the case for private investment is significantly weaker. Such areas may therefore benefit, at least in the short term, from additional public investment – helping ensure a level playing field where all operators can obtain access to power at fair market rates.

As such, DNOs will play a significant role in ensuring that UK charging infrastructure is rolled out to meet market demand. bp believes it is vital that Ofgem both allows and ensures that DNOs are focused on delivery of high-speed charging connections at pace, and most of all are able to invest, whether that's in capex (the infrastructure) or opex (the people).

bp pulse is also looking at innovative technological solutions that could be deployed that would better enable rural or low demand areas access to EV charging infrastructure with less demand on large scale grid connections. Battery-integrated ultra-rapid chargers (the first of a kind in the UK), which only require a modest grid connection, can deliver ultra-rapid charging speeds of up to 150kW. This type of charger will help us to bring ultra-rapid charging to more places, in turn helping to level up the provision of EV charging across the country.

What level of anticipatory investment in grid capacity is required by the UK Government in order to ensure that Wales can deliver its decarbonisation roadmap?

bp believes this should be an output of a strategic holistic network design.

How can the UK Government, the Welsh Government and Ofgem work together to improve grid capacity?

bp believes the following objectives should feature in any strategic plan:

- **Risk management** is a key factor for any project and developers in the current regime and carries substantial risk in developing projects. In bp's view, the strategy should recognise all the key risk elements faced by current and future developers / users and ensure robust mitigation plans.
- **Scheduling of network installations, reinforcement and expansion** should be clear and pragmatic to ensure future developments / users are not physically constrained from a connection perspective or Transmission Entry Capacity (TEC) curtailed during operation, while existing developments / users are not penalised with excessive Anticipatory Investment (AI). In bp's view, the strategy should provide a clear roadmap for all foreseen developments / users as well as opportunistic interconnectors and maturing technologies.
- **Spatial planning** should be wide ranging and provide clear strategies for addressing environmental impact, social impact and risk management. Spatial planning also provides an opportunity to review anticipatory pre-investment in key areas. Spatial planning should also seek to alleviate the risk of planning and consent processes with pre-approved envelopes of development and area reservation identified.
- **Technology, reliability, availability, and cost** are further factors to be addressed, to help ensure flexibility is incorporated for developers, in any strategic approach.

bp Pulse overview

bp Pulse assembles and supplies electric vehicle (EV) charging equipment for domestic, commercial and public locations, operating home, commercial and public charging infrastructure, and providing the products and services that facilitate access to these. bp were one of the first companies to bring private investment to Wales for the installation of rapid chargers and were the first company to operate any ultra-fast chargers in Wales.

bp believe that any car or van user should feel that they can confidently access fast and convenient EV charging infrastructure, whenever they decide to transition to an electric vehicle.

That is why bp Pulse plans to invest £1 billion in electric vehicle charging in the UK over the next ten years, supercharging the roll-out of fast, convenient charging across the country.

The investment will allow bp Pulse to deliver more rapid and ultra-fast chargers in key locations, expand fleet products and services, and launch new home charge digital products and services to enhance the customer experience.

Our aim is to:

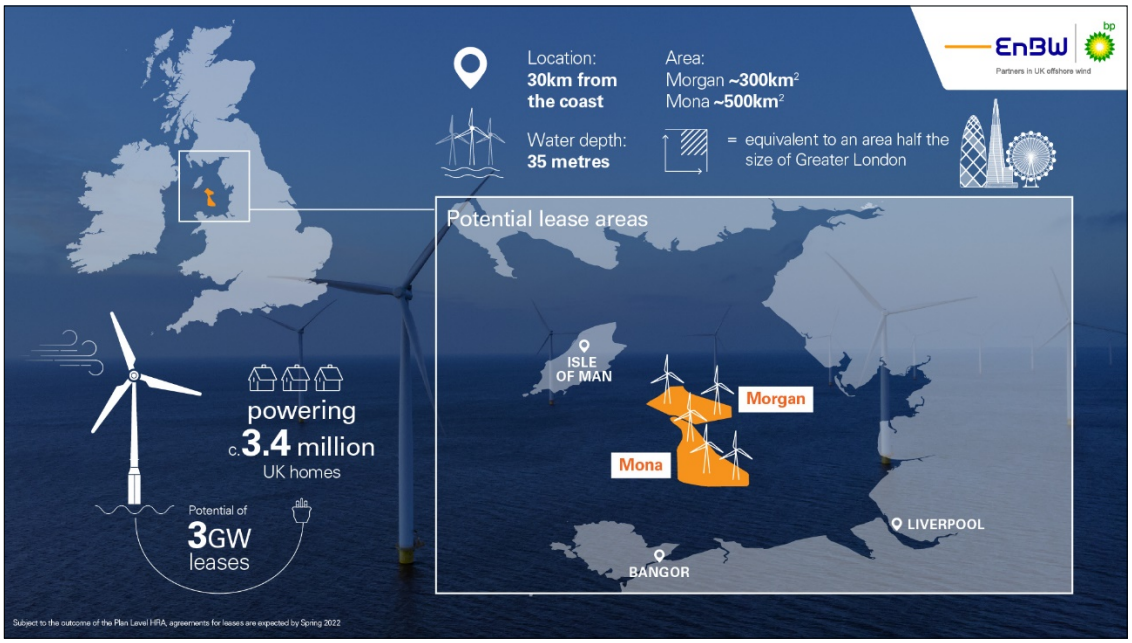
- Approximately triple the number of public charging points in our UK network.
- Accelerate the roll out of state-of-the-art 300kW and 150kW ultra-fast charging points that are able to provide EV drivers up to 100 miles of range in around 10 minutes of charging, depending on the model of electric vehicle.
- Upgrade our current EV charging technology across our public charging network to improve reliability
- Support hundreds of new jobs in the UK

Already the most used public charging network in the UK, bp pulse's investment will help serve the record number of new EV's joining UK roads.

bp pulse also aims to play a significant role in helping to electrify the UK's fleet vehicles and intends to help accelerate the roll-out of EV charging solutions to the UK's businesses. It is already working with the Royal Mail, Uber and emergency services in both London and Scotland.

Morgan and Mona overview

- **bp** and its partner **EnBW** are preferred bidders on two projects located in the Irish Sea in UK Offshore Wind LR4 (Morgan = Yellow North, Mona = Yellow South).
- The Mona project is partially within Welsh waters (outside 12nm) and anticipated to make landfall and grid connection in Wales.
- The partners intend to jointly develop and operate to the offshore wind farms to contribute to the **UK's 40GW target for 2030**.
- Work has started on the first of the **two wind farms** for it to be operational in autumn 2028
- The Morgan and Mona projects have a combined potential generating **capacity of 3 GW**, sufficient to power the equivalent of approximately **3.4 million UK households with clean electricity and making a material contribution to the UK government's ambition for 40GW of new offshore wind generation by 2030**.



Project timeline (indicative)

2021	• Habitats Regulations Assessment commenced by The Crown Estate (TCE)
2022	• Expected signing of Agreement for Lease with The Crown Estate
	• Onsite environmental studies and project planning
2023	• Application for Development Consent Order (DCO), Marine License
2025	• Contracts for Difference (CfD) auction for power off-take agreement
2026	• Expected Final Investment Decision (FID), TCE Lease
2027	• First grid connection for power export commissioning of offshore substations
2028	• Expected start – Commercial Operation Date (COD) for first project

Appendix – EnBW and bp company overviews

EnBW

Energie Baden-Württemberg AG (EnBW) is one of the largest energy supply companies in Germany and supplies electricity, gas, water and energy solutions and energy industry services to around 5.5 million customers with a workforce of more than 23,000 employees.

EnBW aims to be a sustainable and innovative infrastructure partner for customers, citizens and local authorities. With a focus on renewable energy and smart infrastructure solutions EnBW's objective is for half of the electricity it supplies to be from renewable sources by the end of 2025. This is already having a noticeable effect on the reduction of CO_2 emissions, which EnBW aims to halve by 2030. EnBW is aiming for climate neutrality by 2035.

EnBW has been involved in the operation of hydro power plants in the Black Forest for more than 100 years, and has a large and continuously growing number of onshore wind farms and solar PV in Germany, France and Sweden.

In addition, EnBW has already developed, constructed and operates four offshore wind farms in Germany (EnBW Baltic 1, Baltic 2, Hohe See and Albatros) with a total installed capacity of 945 MW, commissioned between 2011 and 2020. A further 900 MW offshore wind farm is currently under development with commissioning planned for 2025.

bp

bp is a leading global energy company – bp provide heat, light and mobility solutions for customers all over the world. Our purpose is to reimagine energy for people and the planet. bp has been based in the UK for more than 100 years and operates in over 70 countries around the world.

In 2020 bp set our ambition to become a net zero company by 2050 or sooner, and to help the world get to net zero. In 2020 bp also set out a new strategy to become an integrated energy company focused on delivering solutions for customers. By implementing this strategy bp expects to be a very different company by 2030.

In 2019, bp supported an estimated £9.7 billion gross value-added contribution to the UK's gross domestic product (GDP) and 90,100 UK jobs, meaning that an estimated 0.5% of UK GDP in 2019 was in some way reliant on bp's activities. Of this total, bp's direct UK operations – such as oil and gas fields, petrochemical plants, fuels retailing facilities and major offices – created a £4.2 billion gross value-added contribution to UK GDP and employed 15,780 people across the UK.

bp spent £7.1 billion with 3,100 UK suppliers: £5.2 billion on non-capital goods and services, supporting an estimated £3.9 billion indirect contribution to GDP and around 56,000 jobs; and £1.9 billion on capital goods, supporting an estimated £1.6 billion gross value-added contribution to GDP and around 18,000 jobs. In addition, bp spent £1.2 billion on contracts with UK-registered businesses operating overseas.

bp supports a rapid transition to a lower carbon future because bp believe it is in society's and bp's best interests. Bp agree on the need for the world to move to net zero emissions and support the climate goals of the Paris Agreement.

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