

## **Written evidence submitted by the North West Nuclear Arc**

The North West Nuclear Arc (NWWNA) is a unique nuclear ecosystem, forming a cluster across north Wales and northwest England. It incorporates all the facilities and capabilities across the whole nuclear lifecycle (fuels, generation and decommissioning) and is committed to enabling next generation nuclear technology to help meet our national net-zero ambition. The cluster provides sustainable, clean energy to the UK and supports high value local jobs, livelihoods and business growth in some of its most disadvantaged places. NWWNA is also strategically vital in the UK's nuclear future. Geographically, it hosts over half of all candidate sites for future development, plus key assets such as the National Nuclear Laboratory, and the leading English and Welsh nuclear universities.

### **1. What role can, or should, nuclear power play in achieving net zero and UK energy security?**

The North West Nuclear Arc supports the UK and Welsh Government's ambitions to reach Net Zero by 2050. For the UK to achieve this goal there will be a need to decarbonise domestic, transport and industrial uses, in most cases this is likely to be achieved through electrification.

There are limitations associated with wind, solar and hydro energies, and therefore nuclear power is a key part of the energy mix, providing a reliable source of baseload energy to complement the renewable sources.

We support the UK Government's target of 24 GW of nuclear generation capacity by 2050 as nuclear power is a proven, safe and reliable technology. As well as achieving net zero and UK energy security, nuclear can also play a role in meeting the levelling up agenda by providing significant socio-economic growth opportunities, including job creation, skills and supply chain development for local communities and the wider regional and national economies.

The delivery of 24 GW of nuclear power clearly a huge opportunity for the UK supply chain and for high quality jobs in manufacturing and construction in the UK. It would also play an important part of the Government's levelling up agenda by distributing high quality jobs throughout England and Wales. The North West Nuclear Arc incorporates all the facilities and capabilities across the whole nuclear lifecycle from fuels, to energy production, management of waste and decommissioning and are supportive of the current 'nuclear renaissance' which is being seen in the UK.

**2. What are the main challenges to delivering the UK Government's commitment to bring at least one large-scale nuclear project to final investment decision by the end of this Parliament?**

There are a series of challenges associated with new nuclear; financing, someone to buy a new nuclear power station and a nuclear site licensee.

The costs of construction and the regulatory process are borne at risk with no commitment from the UK Government until the final investment decision is reached. This puts the risk on nuclear developers, which is not sustainable. Developers need UK Government to commit to projects at a much earlier stage to give confidence to developers that the project is supported. In particular, action needs to be taken during the current Parliament to identify specific nuclear projects for approval in the next Parliament, including Small Modular Reactors.

Currently, there are no new organisations in the UK which are capable of applying for/developing into an organisation capable of applying a nuclear site licence, other than

- a) EDF based companies who are supporting the Government's aim of bringing at least one large-scale nuclear project to final investment decision by the end of this Parliament with the Sizewell C project
- b) Cwmni Eginio – the company set up by Welsh Government to facilitate new development at Trawsfynydd

There are no other organisations currently functioning that are looking at site specific projects.

There are also discussions taking place surrounding the development of a nuclear site licensee for the RR SMRs, but hopefully the establishment of Great British Nuclear will help better understand and develop solutions for these challenges.

**3. How important is the finance model to ensuring a successful nuclear project, and is the regulated asset base (RAB) model the best one to deliver this?**

The RAB model provides a different risk profile for private investors that draws on the approach that has been used other sectors. The high levels of investment required in new nuclear makes it difficult to attract private investors and conventional financing won't work due to the risk profile (The Wylfa Newydd Horizon project is an example of this).

RAB financing provides a return on investment from the time the investment is made rather than when the plant starts to generate revenue. This significantly reduces the overall cost of financing and hence the cost of electricity, and the associated risk of the project. However, the funding still needs to be provided either by Government or the private sector.

Extending the RAB model to small scale nuclear projects, including the deployment of SMRs, would be a welcome move to support the industry. The Government should also consider granting RAB licence during the development phase of a project so that investors can start earning a return. This approach would also demonstrate commitment by Government in the project at an earlier stage and help to reduce the risk associated with projects.

**4. What practical steps can the UK Government take to support the nuclear industry in developing a range of nuclear technologies, including small modular reactors?**

The UK Government is already providing support for AMR & SMR technology development, through the UK SMR programme. It has also announced the Future Nuclear Enabling Fund (FNEF) that could provide up to £120m to help remove barriers to development. NWN believes that this should be targeted at specific projects rather than technology development to make sure there is a pipeline of projects that can meet the target of 24GW by 2050 – for example, Cwmni Eginno's work in getting new nuclear development at Trawsfynydd

Whilst these examples of funding are a welcome step forward, they are unlikely to be sufficient. Developers will need to secure other sources of funding and this will only be possible with a clear commitment and support from UK Government. This support should also include funding for university research projects to full scale testing facilities in conjunction with industry. This is an integral part of the nuclear sector and the North West Nuclear Arc houses key academic institutions, such as Bangor University, the University of Liverpool, Lancaster University and The University of Manchester as well as potential testing facility sites for facilities such as the UK National Thermal Hydraulics Facility and a Medical Radioisotope Research Reactor.

It is vital that there is long-term programme for the deployment of nuclear, including small scale projects, so that the industry has greater certainty in the future programme and required investment. This will allow developers and investors to plan and invest accordingly and will help reduce the risk profile associated with new nuclear build.

We hope this will be a key part of GBN's role and we look forward supporting the team where possible.

**5. What would the likely cost be to the taxpayer of the UK Government supporting the development of a new nuclear power station at Wylfa?**

It is unclear who is currently sponsoring the development at Wylfa and the role UK Government proposes to take.

It is critical to focus on benefits as well as cost for any project. The Government will benefit from tax generated by the construction, commissioning and operating of the power station.

Any potential new development will also be key in achieving the UK's Net Zero 2050 plans, which was added into legislation in 2019.

## **6. What is the potential economic impact for Wales of a new nuclear power station at Wylfa?**

According to the Horizon Nuclear Power Jobs and Skills Strategy published during the work on the Wylfa B project there would have been a peak of 9,000 jobs during the construction phase of the 2 ABWRs and 850 high-value, long term jobs during operation. Alongside this there would be countless supply chain opportunities which would provide an incredible opportunity for Wales. The potential increase to the GVA of the Welsh economy would be welcome and would help towards the UK Government's levelling up agenda.

The benefits for Wales would be unparalleled by any other projects proposed for the region, but would also have significant benefits for the North West of England and the wider UK nuclear sector. The North West Nuclear Arc is a unique nuclear sector cluster – spanning the North of England and North Wales. Incorporating all the facilities and capabilities across the whole nuclear lifecycle from fuels, to energy production, management of waste and decommissioning. NWNA is unique in the UK and widely recognised as a world class, self-contained, end to end nuclear system all within a very compact geography.

Our vision is that the NWNA nuclear cluster provides sustainable, clean energy to the nations of the UK and supports high value local jobs, livelihoods and business growth in some of its most disadvantaged places. Investment in Wylfa will be key for achieving this vision.

In any consideration of development in Wales, it is also important to include Cwmni Eginio . Work by Arup has identified that a SMR development at Trawsfynydd would add an extra £1.6B to the GVA of the North West Nuclear Arc area. Such a development at Trawsfynydd would bring economic benefit to the area in the vicinity of the plant, to North Wales and to the wider NWNA community

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