

## Written evidence submitted by Cavendish Nuclear

### Responder Information

#### Introduction to Cavendish Nuclear

Cavendish Nuclear, a wholly owned subsidiary of the Babcock International Group (BIG), is the leading UK-owned supplier to the UK nuclear industry.

Cavendish Nuclear operates across the full lifecycle of the UK nuclear sector:

- **New Build** – We play a major role in delivering Hinkley Point C providing project management, engineering, installation and commissioning support. In addition, we are a key partner in the development of Sizewell C.

We also support the development of Small Modular Reactors and Advanced Modular Reactors – for example through our MoU with Rolls Royce for support to RR SMR, our design and demonstration work on U-Battery and our MoU with X-energy to act as deployment partner for their HTGR in the UK. ([Cavendish Nuclear and X-energy to explore opportunities for High Temperature Gas – Cooled Reactors in the UK - Cavendish Nuclear](#))

- **Nuclear Services** – Provision of concept design detailed engineering and build/manufacture of bespoke plant and equipment. We provide operations and maintenance support to site licensees including leading in the development and management of site and project safety cases.
- **Decommissioning** – Provision of technical design, engineering and programme / project management; decommissioning of nuclear assets and waste / material management. Our decommissioning experience, in particular our recent role as PBO for the Magnox sites in the UK, gives us a clear perspective on the potential adoption of land adjacent to nuclear sites in the process of or due to enter defueling and decommissioning.

Our **reason for submitting evidence** is aligned to our strategic aims of supporting the UK nuclear new build programme as a major UK-based contractor and to contribute to the UK's Energy Security Strategy and Net Zero 2050. As outlined above, we have established positions on large GW plant and we are extending our support into the AMR and SMR markets.

### Response to questions

#### Q1

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

We believe nuclear power should play a key role in achieving net zero and UK energy security for the following reasons:

- The UK will need four times as much clean power, and 10 times as much clean energy, by 2050 to hit net zero.

- Nuclear is the UK's only proven source of clean, always-on, emissions-free power, and the only source that can produce low-carbon power and low-carbon heat.
- Nuclear is the most jobs-rich form of low-carbon energy: a large-scale project can sustain around 70,000 high-skilled, well-paid jobs.
- Nuclear is vital to UK energy security: it is the only source that doesn't rely on the weather, other countries or carbon.
- There is a huge challenge to decarbonise the energy sector, not just electricity; nuclear power will provide a strong supply of firm zero-carbon power to complement variable renewable generation. We need both to build a green economy.
- Countries like France and Sweden, and UK regions, with renewables and nuclear have the lowest emissions. Countries like Germany that are turning off nuclear have had to burn coal to cover the gaps.
- Nuclear helps sustain the UK's global leadership in science, engineering and advanced manufacturing.

## Q2

### **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?**

We were delighted to see the Sizewell C Project application being granted development consent by the Secretary of State for Business, Energy and Industrial Strategy.

The most important challenge for Government now is to introduce legislation for a new nuclear financing model. Financing is the costliest part of new construction, so Government support would drive investor confidence and make it cheaper to fund and build new stations. It is essential that Government gets the funding model right in order to secure financial investment; we have seen projects fail through application of the wrong model – see response to Q3.

## Q3

### **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?**

We believe the finance model is critical for ensuring a successful nuclear project. We have seen evidence of limitations of finance models leading to failed projects, such as Hitachi's project at Wylfa Newydd in Wales and Toshiba's at Moorside in Cumbria.

We believe the RAB model is the best model to deliver large scale single nuclear asset projects e.g. Sizewell C for the following reasons:

- It is an attractive alternative to CfDs as it reduces reliance on individual, overseas developers. CfDs may still have a positive role to play for some nuclear projects.
- The RAB model enables a level of risk-sharing between investors and consumers, reducing the amount of interest owed on loans, while also maintaining the incentive on the private sector to minimise the risk of cost and schedule overruns. This will help to lower the cost of capital – a key driver of overall project costs.
- Reducing the project costs ensures the burden on consumers is much lower over the life of the plant whilst helping to attract private sector investment into nuclear projects.
- The model has been proven at Thames Tideway Tunnel and Heathrow Terminal 5.

## Q4

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

We take the question to refer to both Light Water Reactor Small Modular Reactors (LWR SMRs) and near term deployment Advanced Modular Reactors (AMRs) such as the Xe-100 which is being deployed on a commercial basis internationally on the same timescales as the first LWR SMRs.

An important first practical step is for UK Government to empower and clearly define the remit of the newly formed Great British Nuclear (GBN). Below are some overarching thoughts on the potential philosophy of GBN:

- The UK Government will need to take a view on whether GBN will be most effective as an enabling organisation on behalf of Government and UK industry or whether it has a remit to act as an executive or delivery organisation
- Should GBN have executive or delivery powers, Government will need to ensure that its introduction supports rather than supplants ongoing developer propositions
- Its role should be to ensure that all aspects of UK government related to [civil] nuclear (policy, and government owned bodies act in concert towards development and execution of nuclear projects and the management of the UK nuclear estate
- GBN should therefore provide leadership and oversight of government nuclear policy – and related policies – to ensure that it is comprehensive and consistent

We welcome the creation by the Welsh Government of Cwmni Eginio. We consider that Cwmni Eginio may play a positive role in bringing SMR/AMR deployment to Trawsfynydd, in particular in concert with the plans for decommissioning at Trawsfynydd.

Deployment of nuclear capacity may be achieved through deployment of a comparatively small no. of large projects, a larger fleet of smaller projects (that may be swifter to execute and offer a more cost effective, flexible and efficient solution), or a combination of the two. Recognising this we would request that UK Government support GBN to deliver the following specific objectives:

- **Funding:** Provide (or facilitate) funding for projects to be developed to an appropriate level of maturity for investors to take on, recognising the different characteristics of large and smaller units (for example, on quantum of capital per project, length of construction/borrowing, and risk factors).
- **Siting and security:** Specify criteria for suitability of sites and work with industry to secure and allocate most suitable site to most suitable project/ technology; focus on sites with strong local support/sponsorship; GBN to carry out pre-work to ensure sites are suitable for development – to reduce developer risk and condense timescales; Government to provide site security requirements – noting these need to be pragmatic and proportionate to the characteristics and size of the technology.
- **Technology selection:** Government to define criteria for credible technology inc. GW, SMR, HTGR/AMR to allow industry to come forward with proposals; GBN to select appropriate technology to be developed in UK.
- **Planning consent:** Ensure the consenting processes are scaled to be proportionate to the size, cost and impact of the relevant technologies (e.g. the scale and cost of a DCO process for a 3.2GW project should not be borne by an 80MW project).

- **Licensing:** Ensure that licensing processes take appropriate account of progress of licensing approvals in territories of comparable standing in line with policy on international standards and desire for greater collaboration between sovereign regulatory systems (e.g. US, Canada, France).
- **People and skills:** Develop the opportunity for projects to be delivered by UK skills and capability; there is a huge opportunity for UK supply chain to deliver a range of technologies in one overarching enterprise; Government can help with this by supporting delivery of a national plan for development of industrial capacity and skills, to include curriculum, STEM and apprenticeships.

## Q5

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

There are three stages for the development of a new power station at Wylfa:

- Front end engineering and design phase, approx. 18 months, to determine cost estimate, schedule, supply chain strategy and execution plan. **£30m** funding for this phase is being sought through application for the Government's Future Nuclear Enabling Fund (FNEF) of £120m.
- In the absence of the Regulated Asset Base (RAB) model, taxpayer funding of approx. £1Bn would be required to progress to Final Investment Decision (FID).
- At the point that RAB is implemented, ideally prior to construction, taxpayer money will not be required, and consumers will bear the costs through their energy bills. The RAB model will ensure that the burden on consumers is much lower over the life of the plant due to the lower borrowing costs.

## Q6

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

A new nuclear power station at Wylfa offers significant levelling up opportunities to the North Wales economy. Specifically development of Wylfa will generate:

- 10,000 jobs at peak through construction, majority on-site; 10 year construction period
- £5Bn construction work to go to UK supply chain; driven by proximity principle which will maximise opportunities for companies closest to the site [*analysis by Horizon for first 2 years of construction estimated £3m contract awards to local firms*]
- Jobs for over 700 apprentices
- 900 jobs for 60+ years once the plant is operational plus 100s of others in the supply chain

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