

## Written evidence submitted by Urenco Ltd

### ABOUT URENCO

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1. Urenco is an international supplier of enrichment services and fuel cycle products with sustainability at the core of its business. Operating in a pivotal area of the nuclear fuel supply chain for 50 years, Urenco facilitates zero carbon electricity generation for consumers around the world.
2. Headquartered just outside of London, Urenco's global presence ensures diversity and security of supply for customers through enrichment facilities in Germany, the Netherlands, the UK and the USA. Urenco is committed to continued investment in the responsible management of nuclear materials; innovation activities with clear sustainability benefits, such as nuclear medicine, industrial efficiency and research; and nurturing the next generation of scientists and engineers.

#### Urenco in the UK

3. Our Capenhurst facility located in the North West forms a central part of the 'North West Nuclear Arc', providing over 840 highly skilled jobs as well as supporting 40 apprentices and graduates to become the next generation of nuclear professionals.

### EXECUTIVE SUMMARY

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4. It is welcome that the Government has shown clear support for the continuation and expansion of the nuclear industry across the United Kingdom. The *British Energy Security Strategy* and the introduction of the *Nuclear Energy (Financing) Act*, as well as the launch of the Future Nuclear Enabling Fund, Nuclear Fuel Fund, and the confirmation of High Temperature Gas Reactors (HTGRs) as the technology of choice for advanced nuclear demonstration provide clear policy and legislative signals of the role of nuclear in the UK's future energy mix.
5. Energy security concerns triggered by the conflict in Ukraine have highlighted the need to move towards energy self-sufficiency and low-carbon domestic energy sources. With the cost of gas in Europe and the UK at record levels, it is essential that the UK seeks to maximise energy generation from low-emission sources, particularly nuclear energy, to achieve Net Zero and decarbonisation targets.
6. Wales has a range of potential nuclear sites with host communities that have long-term experience of operating nuclear power plants and have seen the benefits of generations of employment from these operations. We, therefore, welcome the opportunity to respond to this inquiry in to Wales' role in the UK Government's nuclear ambitions and to highlight the role of nuclear energy in achieving Net Zero and UK energy security.

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

### Achieving Net Zero

7. Nuclear power has a key role alongside renewables in the clean energy transition and accelerating the transition from fossil fuels through supporting both reliable, low-carbon electricity generation and the future production of hydrogen.
8. With a renewed urgency to transition the global economy to Net Zero, national governments and industry have increasingly focused on the need to decarbonise the power sector and energy intensive industries. Any plan to decarbonise the power sector must include a secure, domestic energy sector which includes a central role for nuclear energy and reduces reliance on fossil fuels and, thereby, exposure to volatile global wholesale energy prices.
9. Advanced and smaller reactors in particular present a significant opportunity to help decarbonise large sections of the economy in the future. These reactors typically have a higher temperature output, enabling them to contribute to decarbonisation through heat and hydrogen production, as well as through the production of low-carbon, reliable electricity generation. The use of modular manufacturing, as well as the physically smaller size of the units, means the designs are quicker and easier to design and build, which reduces both the cost and risk profile. Additionally, the more varied applications for such designs mean they can be more comparable to other forms of low / Net-Zero carbon energy sources.
10. Furthermore, the high temperatures produced by these units could be used directly for Foundation Industries such as steel, paper and pulp, glass, ceramics, chemicals and minerals, that require continuous and intense heat. Indeed, given that steel remains a key industrial sector in Wales, nuclear energy in Wales has a key role to play in the sector's decarbonisation.
11. Not only does this contribute towards the UK's Net Zero target but also benefits Wales economically by ensuring the continued operation of Welsh steel plants. Moreover, this level of decarbonisation could not be achieved through on-site renewable energy generation due to the challenge presented by intermittency and the lack of heat generation, which is necessary for many industrial processes.
12. While it will take some time before these reactor designs can be deployed to the grid, the Government must take the steps now in order to support the development of small-scale and advanced nuclear so that it will play a role in delivering Net Zero by 2050.

### Energy Security

13. Urenco welcomes the recently published British Energy Security Strategy which sets out how Great Britain will increase its domestic energy provision to ensure security of supply. In particular, we are encouraged that the Government has included nuclear power as a crucial part of the energy mix, accelerating delivery with up to eight new reactors.

14. For the UK and its Western allies to achieve energy security, investment in critical strategic infrastructure including expanding nuclear fuel conversion and enrichment capabilities is required to reduce the reliance on Russian nuclear fuel imports.
15. Overall, Russia supplies one third of global uranium enrichment demand. Urenco is therefore actively considering its enrichment capacity to respond to the potential disruption of Russian imports. However, any buildout of new enrichment capacity would require firm, long-term commitments from utility customers and policy signals from the UK Government on future Russian market access in order to allow Urenco to make the relevant commercial investment.
16. This comes as many countries – as part of the global energy transition - are also committing to increasing their use of nuclear energy and constructing new reactors which will also require additional enrichment capacity. The UK must, therefore, urgently reconsider its nuclear policies in response to the potential for interruption to Russian supply. Urenco's investment in refurbished or new uranium and enrichment facilities can be supported but long term clarity on the status of Russian supply into the UK and wider European market is urgently required to make this decision.

**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?**

17. No Urenco response.

**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?**

18. The RAB model is essential to reducing the cost of building the new nuclear capacity the UK needs if it is to meet its decarbonisation targets. The RAB model attracts patient capital as the long recovery period, coupled with a large consumer base, provides assurances to investors beyond the scope of contract for differences (CfD). The RAB model can also avoid the compounding of finance costs. This would bring down the overall cost of capital to developers compared to Hinkley Point C – and thus the total cost envelope to consumers.
19. While it is important to acknowledge that consumers will face some costs during the development and construction phases under the RAB model, the lifetime consumer benefit through reduced energy bills (Government estimates that RAB for nuclear will make the electricity system £30 billion - £80 billion cheaper, or £10 per household), and a significant increase in the likelihood that the UK will reach net zero by 2050, should outweigh the short-term risk to consumers.
20. The RAB model is already used widely in the UK to finance certain infrastructure projects, such as in the electricity, gas, and water networks. In 2016, it was also used to help secure funding for the Thames Tideway Tunnel (TTT) sewerage project. By allowing Thames Water bills to rise slightly to pay for the TTT, analysis estimates that the ~~project will be approximately~~ three times cheaper for consumers than initially envisaged<sup>1</sup>.

<sup>1</sup> <https://www.cps.org.uk/files/reports/original/210419162349-CPSBRIDGINGTHEGAP.pdf>

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

UK Advanced Nuclear Fuel Supply Chain

21. The Government confirmed in December 2021 High Temperature Gas Reactors (HTGRs) as the technology of choice for its AMR Research, Development & Demonstration Programme. In addition to clean, reliable, low-carbon electricity, the steam from HTGRs could be used in applications including clean hydrogen production, which is important for reaching Net Zero. However, HTGRs use new types of advanced nuclear fuel compared to large and small scale reactors which use fuel produced from existing techniques. The existing fuel supply chain will, therefore, require significant investment to meet this new demand for advanced fuels.
22. It is important that the UK develops its advanced fuel capabilities domestically as this will provide critical infrastructure in the UK and support the nuclear skills base, as well as ensure the UK security of supply. Indeed, in the Nuclear Sector Deal, the Government recognised “the strategic national importance of maintaining its fuel capabilities” and committed to working with the “UK nuclear fuel industry to ensure continued, commercial operation of these facilities to deliver future energy security as well as ensuring the UK nuclear fuel industry continues to deliver long-term UK economic benefit<sup>2</sup>”.
23. Urenco, therefore, encourages the Government to commit to requiring UK fuel for both the new domestic fleet of HTGRs as well as new large scale plants and small modular reactors. This will incentivise and enable investment in, and financing of, the UK nuclear fuel supply chain to meet the demand for current fuel requirements as well as advanced nuclear fuels. However, in parallel, the Government must also commit to the deployment of a certain number of HTGR units to provide economies of scale and make developing the advanced fuel supply chain domestically for these units commercially viable. This would help the nuclear fuel supply chain to understand the required investments needed to deliver the Government’s 10 point plan and its nuclear ambitions for new nuclear technologies.

Green Finance

24. The European Commission’s recent classification of nuclear energy as ‘green’ under their EU Taxonomy Regulation is a positive development and is central to driving sustained investment from institutional investors committed to financing Taxonomy-aligned economic activities.
25. To leverage private investment to meet the objectives of the British Energy Security Strategy, it is essential that the UK’s own Green Finance Strategy and Taxonomy recognises the whole nuclear supply chain as green. This includes generation as well as the related fuel supply chain and decommissioning activities. This will help provide a level playing field for investment in low-carbon energy technologies and accelerate the transition from fossil fuels.

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[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/720405/Final\\_Version\\_BEIS\\_Nuclear\\_SD.PDF](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/720405/Final_Version_BEIS_Nuclear_SD.PDF)

26. Currently, “green” and “sustainable” debt markets are available for infrastructure projects but there is no consistency as to whether nuclear falls within these definitions and it varies between banks and investors how they regard the sector. Classification of nuclear energy as green in the UK Green Taxonomy will address this ambiguity and provide the clarity required to leverage private investment.
27. Indeed, equal access to climate finance for the nuclear energy supply chain alongside other low-carbon energy sources is central to the development of the sector. We would, therefore, encourage the Committee in its final report to recognise that the UK’s financial policy framework in conjunction with the UK’s Green Taxonomy has a critical role in accelerating the transition from fossil fuels and securing energy supplies by ensuring equal access to climate financing for all low-carbon energy sources, including nuclear.

### Access to Talent

28. For the first time in decades, the UK is set to build a new fleet of nuclear reactors, as part of its continued transition to a Net Zero economy. This means that the UK will need increased numbers of highly-skilled people to build and operate the new fleet, as well as a skilled workforce to continue to run the existing stations, decommission the older ones, and safely process nuclear waste. However, an ageing workforce in the civil nuclear sector and a projected increased demand for specialist and generic skills across all parts of the nuclear industry, means action on skills is required now.
29. Indeed, as the Nuclear Skills Strategy Group, Nuclear Workforce Assessment 2021 highlights; the peak mobilisation of new workers (Construction and Engineering Construction) into the nuclear sector is expected to occur in the next two or three years with overlapping builds at Hinkley Point and Sizewell, with the possible addition of further developments at Trawsfynydd and Wylfa. This recruitment pressure will be further exacerbated by non-nuclear construction activities which pull on similar skill sets.
30. A new roadmap for nuclear skills is required to help ensure the UK can meet the demand for specialist and generic skills across all parts of the industry as it embarks upon its ambitious new build plans. Indeed, as the Government implements its British Energy Security Strategy and guides the Energy Security Bill through Parliament, any skills strategy must be agile and flexible to reflect these developments as well as be able to reflect the move from existing reactor technologies to advanced designs.

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

31. No Urenco response.

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

32. No Urenco response.

***For and on behalf of URENCO Limited***

*August 2022*