

Nuclear Industry Association Response to the Department for Energy Security and Net Zero's Future of the Industrial Energy Transformation Fund consultation.

The Nuclear Industry Association (NIA) welcomes the chance to respond to the Department for Energy Security and Net Zero's Future of the Industrial Energy Transformation Fund consultation.

The NIA is the trade association and representative body for the civil nuclear industry in the UK. We represent around 250 companies operating across all aspects of the nuclear fuel cycle, including the current and prospective operators of nuclear power stations, international designers, and vendors of nuclear power stations, and those engaged in decommissioning, waste management and nuclear liabilities management. Members also include nuclear equipment suppliers, engineering and construction firms, nuclear research organisations, and legal, financial and consultancy companies.

Due to the diversity of our membership, our views in this submission will cover high-level, industry-wide matters. Our members may choose to make their own detailed submissions.

Executive Summary

1. To meet the challenge of climate change and help deliver Net Zero, the UK needs bold and urgent action in decarbonising industrial processes. Industrial processes require a significant portion of energy and many of these processes consume substantial amounts of heat. CO₂ emissions from heavy industry can be reduced by redesigning current energy intensive, and high-temperature processes to integrate and support the use of low carbon advanced nuclear technologies, such as Advanced Modular Reactors (AMRs) and Small Modular Reactors (SMRs). Advanced nuclear technologies are capable of supplying heat for hydrogen production and replacing fossil fuel-generated heat for industrial processes. The small size, modularity, and flexibility of AMRs and SMRs are a major benefit in deploying these low carbon socialised energy sources. A scaled-up IETF could be a vehicle for the UK Government to co-invest in advanced reactor projects with consortia of private industry to raise the required capital investment.

24. What type of support will industry need out to 2035 to enable energy efficiency and decarbonisation projects to be replicated and deployed at scale? Would any of the following provide an effective intervention: support for capital costs, operational costs, access to finance or information, clarity on grid capacity and connections or the availability of hydrogen, or capacity building?

2. The deployment of low carbon socialised energy sources, such as SMRs and AMRs, will be required to enable energy efficiency and decarbonise industrial processes. Nuclear reactors are our only source of clean, reliable heat proven at commercial scale. Across Europe, around a quarter of industrial processes depend on high-temperature heat (above 400°C), which could be generated by advanced nuclear technologies, such as AMRs which are expected to generate high-temperature heat in excess of 600°C.
3. A clear roadmap from Government for the deployment of advanced, high-temperature nuclear reactors is essential so that this technology can be used to support the decarbonisation of industrial heat and hydrogen at scale. To deploy these low carbon technologies as quickly as possible, support from Government is required specifically for funding, siting, technology adoption, siting, planning consent, people and skills, and capabilities.
4. Route to market: define the pathway to deployment for advanced reactors that are not chosen in the Great British Nuclear technology selection process.

- a. At the moment, it is not clear that there is any pathway outside the GBN selection: there is a risk therefore that technology vendors who are not chosen could wind down efforts in the UK and concentrate on the US, where support for advanced reactors is clearer and more substantial.
5. Funding: Continue to provide funding for AMR demonstrator and accelerate the AMR demonstrator project timeline. Be prepared to facilitate funding for the development of new commercial advanced nuclear technology projects.
 - a. The likely capital cost of nuclear projects is higher than the scale of the IETF to date, but the IETF could be a vehicle for providing Government co-funding as a “cornerstone” investor to give confidence to the private sector for First-of-a-Kind advanced reactor deployments.
 - i. It is likely that the deployment of advanced reactors for industrial decarbonisation could require consortia of industrial users to group together to provide the required capital investment, and the Government through a scaled-up IETF could facilitate the creation and coordination of such consortia.
6. Siting: Specify criteria for suitability of sites and work with industry to enable access to most suitable site in accordance with the most suitable project/ technology. A focus on sites with strong local support will reduce developer risk and condense the timescales involved. The smaller scale and consequent smaller requirement and impact of SMRs and AMRs means that a greater range of sites are potentially suitable for deployment.
7. Technology adoption: Recommend that technology adoption focuses on proven or well-progressed designs over novel designs which will require R&D.
8. Planning consent: Ensure the consenting processes is proportionate to the size, cost, and impact of the relevant technologies. A Net Zero Duty should be placed on relevant regulators to ensure regulation proportionate to the urgent need for more low carbon energy to mitigate climate change.
9. Licensing: Ensure that licensing processes take account of progress of licensing approvals in territories of comparable standing and between sovereign regulatory systems. The United States and Canada in particular are trusted jurisdictions and partners, and they have progressed further in evaluating advanced reactor designs.
10. People and skills: Develop the opportunity for projects to be delivered using UK skills and capabilities. There is a significant opportunity for the UK supply chain to deliver a range of technologies and Government can help with this by supporting the delivery of a national plan for development of industrial capacity and skills.

Further Information

The NIA is happy to provide more context or any clarifications desired on the content of our response and to ask our members where appropriate for additional information that may be useful.

Please contact Lauren Rowe, Policy Analyst for the NIA, at Lauren.Rowe@niauk.org to do this.