Nuclear Industry Association Response to the Department for Energy Security and Net Zero's "Approach to siting new nuclear power stations beyond 2025' consultation.

The Nuclear Industry Association (NIA) welcomes the chance to respond to the Department for Energy Security and Net Zero's 'Approach to siting new nuclear power stations beyond 2025' consultation.

The NIA is the trade association and representative body for the civil nuclear industry in the UK. We represent around 280 companies operating across all aspects of the nuclear fuel cycle.

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

Executive Summary

- The NIA welcomes positive intent in the 'Approach to siting new nuclear power stations beyond 2025' consultation and the recognition of the importance of nuclear to the energy sector.
    - Nuclear is essential to the UK's future energy technology mix as the only single technology that can provide clean, firm, and sovereign electricity, as well as providing a source of clean heat at scale.
    - Nuclear currently supplies around 15% of our electricity from just over half a square mile of land, and according to United Nations' analysis, nuclear has the lowest lifecycle carbon, lowest land use, and lowest impact on ecosystems of any electricity source.[1]
    - The civil nuclear sector has a long history of delivering innovation and investment, creating high skilled jobs, and providing low carbon power across the UK.
- We strongly support the Government's proposal to empower developers to identify and nominate potential sites for nuclear development that meet specified criteria and to move away from a prescribed list of designated sites alone.
- We would strongly recommend the Government to give EN-6 designated sites special recognition in the forthcoming National Policy Statement and enact policy mechanisms to safeguard their use for nuclear development in the interim.

Question 1: EN-6 applies only to GW scale projects. In this consultation we propose EN-7 applies to GW scale projects, and in addition SMRs and AMRs. What is your view on the government proposal to expand the range of technologies covered by the new nuclear NPS?

a) We **strongly agree** that Small Modular Reactors (SMRs) and Advanced Modular Reactors (AMRs) should be included in the new National Policy Statement for new nuclear power generation to meet our net zero goals, and welcome the Government's commitment to all nuclear technologies.
b) We agree that proximity to military activity should remain exclusionary.
c) Research reactors, such as zero-power reactors, test reactors and criticality experiments, and fusion projects should be considered within the new nuclear NPS. The Government should consider the inclusion of these projects and explicitly state how they will manage requests for such projects in the EN-7.
d) There are various differences in terms of infrastructure requirements and social and environmental impacts between GW-scale reactors, SMRs and AMRs which have not been addressed in the consultation. We could encourage Government to acknowledge these in the

[1]United Nations Economic Commission for Europe (2022), *Carbon Neutrality in the UNECE Region: Integrated Life-cycle Assessment of Electricity Sources*. Available at: https://unece.org/sites/default/files/202208/LCA_0708_correction.pdf. Accessed: 26 February 2024.

new NPS. For instance, the Government should give consideration to the population density surrounding potential nuclear sites.

Question 2: EN-6 includes government assessed potential sites. In this consultation we propose EN-7 empowers developers to assess and identify potential sites using robust criteria. What is your view on the government proposal to shift its nuclear siting policy to a criteria-based approach.

a) We **agree** with the Government's proposal to shift its nuclear siting policy to a clear criteria-based approach and support the Government empowering developers to assess and identify sites. We would further support all aspects of the policy being discretionary to maximise the benefit of EN-7.
b) The criteria will need to be fit-for-purpose to take into account the different characteristics, risks and consequences of different technologies at different sites. Applicable criteria may be affected by the different operational characteristics, such as coolant temperature and pressurisation in different rector types. Therefore, the Government must take a discretionary, risk-based approach, whereby even if one technology type may be unsuitable for a particular site, other technologies should not automatically be excluded.
c) We note that there is a lot of value associated with the Government providing support to specific sites for the deployment of new nuclear, which should continue to include the government assessed EN-6 identified sites. However, the consultation does not set out proposals for reserving those sites, and we encourage the Government to maintain its clear support for and special recognition of EN-6 sites. Given that nuclear is critical to the UK's energy security and net zero goals, it is crucial that we preserve the strongest possible presumption in favour of planning consent being granted for development on these sites.

Question 3: EN-6 includes a time limit on deployment of new nuclear power stations. In this consultation we propose EN-7 is not time restricted to support long-term planning. What is your view on the government proposal to shift its nuclear siting policy to an unrestricted timeframe approach?

a) We **agree** with the proposal that EN-7 should not be time restricted and encourage the removal of artificial timelines for deployment of new nuclear. We would, however, encourage the Government to prioritise proposals for new nuclear that will help reach the 24GW by 2050 target as set out in the British Energy Security Strategy.
b) We also encourage the Government to stipulate its ambitions for other applications of nuclear, such as direct delivery of heat and power to industrial sites and for hydrogen production.

Question 4: The NPS aims to deliver increased flexibility to diversify nuclear sites to help meet our Net Zero ambitions, while ensuring that siting of new nuclear power stations is appropriately constrained by appropriate criteria. To what extent do you agree that the key policy proposals outlined in this section (extending the NPS to new technologies, adopting a criteria-based approach to siting new developments, and by removing the deployment time limit to open up more siting) achieve these aims?

a) We **agree** with the proposals outlined as they will help the future deployment of new nuclear. A more flexible approach to siting is essential so that the full benefits of advanced nuclear technologies can be realised.

Question 5: Do you agree that legislation should be brought forward to include all nuclear fission projects within the NSIP regime in England, including reactors with a generating output of less than 50MW and reactors that only produce heat or synthetic fuels such as hydrogen?

a) We **agree** in general, with important further considerations.
b) Mechanisms should be included within EN-7 to ensure the pragmatic application of planning processes are applied to all smaller reactors.
    - The inclusion of these reactors with an output of lower than 50MWth will bring into consideration test and experimental reactors, which will potentially operate for a very short period.
    - However, the process and timelines for nationally significant projects are inflexible. Site assessments should take into account the differences between smaller reactors and those with a larger output, particularly that the impact on local communities and the surrounding environment is likely to be much lesser or insignificant. There must be a proportionate approach to planning through the Development Consent Order (DCO) process.
    - Further, nationally significant projects typically incur high costs when entering the DCO process, but such costs should be proportionate to the size and scale of those smaller reactor types. In particular, if single reactors are deployed, they should not carry the burden of high costs, and we suggest they are assessed under local planning rules, subject to the FOAK risk and fleet rollout being approved in principle.
c) We would encourage Government to reconsider the exclusion of medical radioisotope research reactors given the national importance of this topic.

Question 6: Do you have any evidence or technical information regarding fission reactors which only produce heat or synthetic fuels that may be useful to help inform whether they should be included in the nuclear NPS beyond 2025? (Free text, 300 words)

a) No.

Question 7: Do you agree that we have correctly identified the criteria that are impacted by our proposed key policy changes?

a) We **agree.** However, we would request clarity on ‘semi-urban’ criteria, including on what basis this may be modified or revoked, and how the government will grow public support for nuclear technologies while also prescriptively limiting their application.

Questions 7a-7d. If you wish to, please provide any comments to further expand on or explain your responses to the question in this section in relation to the following: (free text, 300 words)

7a - Flooding, tsunami and storm surge and coastal processes

7b - The default position for consideration of flood risk is that developers should first consider alternative sites or solutions at the national level unless there is a policy reason why the scope should be narrowed to focus on the regional or local level instead. Where flood or coastal erosion risk is identified, and an alternative site is not viable, options and mitigations will be considered in more detail through the flood risk assessment. We intend to consider whether there is policy justification to narrow the focus to a more regional or local level as part of the NPS but would welcome any suggestions or evidence that would support our consideration and help us to define their scope.

7c - Locational characteristics and population densities

7d - Other criteria that are impacted upon that have not been identified above.

7a

i. We welcome the Government's recognition that coastal locations may not be necessary or appropriate for ANTs.

7b

i. We would encourage Government to narrow the focus to a more regional/local level as this would be more appropriate approach for ANTs as these technologies are likely to be focused on meeting local rather than national needs. For example, an AMR could supply high temperature heat to an industrial cluster.

7c

i. The retention of the 'semi-urban' discretionary criteria, which is applicable to GW-scale projects, does not acknowledge the different operational parameters associated with AMRs and is at odds with the opportunities that advanced nuclear technologies provides. For instance, AMRs offer great potential to provide clean heat, power and hydrogen to industrial clusters, which are nearer to population centres and thus might not meet these criteria. Foreclosing these possibilities would not be proportionate to the very low and rigorously regulated risk profile of these technologies.
ii. In the US, the Nuclear Regulatory Commission introduced technology-inclusive and risk-informed criteria to assess population-related issues in siting advanced reactors in its revised General Site Suitability Criteria for Nuclear Power Stations Regulatory Guidance.
iii. In January 2024, it was announced that the Finish nuclear regulator, STUK, would place the onus on those applying for a licence for a nuclear power plant to indicate to the authorities what kind of protection zones would be needed to guarantee safety rather than using zonal requirements independent of technology.
iv. We would encourage the Government to follow Finland's and the US's approach and replace its semi-urban criteria with technology-inclusive and risk-informed criteria to assess population related issues for the siting and deployment of AMRs.

Question 8: Do you agree that we have correctly identified that these criteria are embedded in EN-7, EN-1 and within wider guidance?

a) We **strongly agree**.
b) We note that a benefit of the EN-6 approach was that a strategic assessment had already been undertaken to support nuclear new build at designated sites and development on those sites formed part of government policy. This reduced the risk of challenge at Development Consent Order or through Judicial Review.
c) We would encourage similar benefits being delivered to EN-7 sites to mitigate against potential challenges faced by prospective vendors at those sites.

Question 9: Do you agree that we have correctly identified that these criteria do not require any significant development?

a) We **agree** in principle, however we have made some cautionary statements against 9a, 9c and 9g.

Questions 9a-9h, If you wish to, please provide any comments to further expand on or explain your responses to the question in this section in relation to the following:

9a - Proximity to military activities

9b - Proximity to major hazard sites and major accident hazard pipelines

9c - Proximity to Civil Aircraft Movements

9d - Nationally and internationally designated sites of ecological importance

9e - Areas of amenity and landscape value and Cultural heritage

9f - Size of site to accommodate operation

9g - Access to suitable sources of cooling

9h - Other criteria that are without significant development but have not been identified above.

9a and 9c

i. The Government should acknowledge that there it may be advantageous to have ANTs situated close to existing operations if there is a military/civil aviation requirement for power generation, particularly if military vehicles and civil aircraft move to synthetic fuels in the future.

9g

i. The use of air cooling in SMRs is a possibility for micro reactors. As such, this should included in the proposed text, which currently only notes the air cooling of AMRs.

Question 10: Do you agree with the approach we have proposed in regard to the other matters that were considered in EN-6 and will need considering in EN-7? Please indicate your levels of agreement with the position set out in the Consultation.

a) We **agree**.

Questions 10a-10f. If you wish to, please provide any comments to further expand on or explain your responses to the question in this section in relation to the following:

10a - Merits of a nominated site in comparison to other alternative solutions: Do you have any suggestions or evidence for what should or should not be included as part of the government's consideration of reasonable alternatives at the strategic level?

10b - Radioactive waste management

10c - Impacts of multiple reactors

10d - Ownership of sites

10e - Biodiversity Net Gain

10f - Other matters that should be considered further as part of the criteria-based approach.

10a

i. We **agree** with the proposed approach.
ii. However, we would encourage that a collaborative approach is undertake between the Government, GBN and industry in site identification to facilitate smooth and effective implementation of nuclear expansion for both on-grid power and other heat-based applications. We do not want unnecessary conflicts over siting access and use to obstruct the UK's overall energy security and net zero goals.

10c

i. Some sites may be developed in phases by multiple technology providers and with the removal of deployment windows, it may be hard to foresee the full maximum layout for a single developer. This should be considered in the proposed guidance.
ii. Additionally, we believe that early developments should not be allowed to sterilise other parts of a site, preventing future use by others.

Question 11: The 'Implementation' section describes how the new policy approach will be implemented. What are your views on the proposed model for implementation?

a) We **agree** with the proposed approach.
b) We would welcome further clarification on the role of GBN in the implementation process and guidance on how developers will interact with the regulators.
c) We would also urge clarity on the future of EN-6 sites.
d) We would further welcome clarification from Government on how the forthcoming Strategic Spatial Energy Plan for energy infrastructure will be implemented in line with the new policy approach.

Question 12: What, if any, help from government or GBN would you expect to see to support developers with site identification?

a) Strong support for new nuclear projects, building on commitments made in the British Energy Security strategy, the Powering Up Britian strategy and the Civil Nuclear Roadmap would be welcomed from Government.
b) We endorse developers having the option to identify and propose sites to GBN for their own use. However, the Government and GBN should play a leading role in site identification, suitability and allocation to developers to ensure a nationally coordinated approach in meeting energy security and net zero ambitions.
c) Adequate levels of resourcing to GBN, including those from industry, is required to support developers with site identification.

Question 13: Is there any additional information, perspective, or consideration that you believe is important to the development of the nuclear NPS, which may not have been adequately addressed or is missing from the consultation document?

a) The Government should consider allowing potential vendors who have been matched to potential nuclear sites to have access to site specific information (e.g. site surveys, site characterisation) associated with those sites. Such information would enable them to understand the impact of the site on their standard design and support in de-risking new build deployment. This would facilitate in reducing cost and schedule times for new nuclear programmes.
b) We encourage the Government to also consider EN-6 sites where valuable work will have been undertaken as part of previous Development Consent Order applications, to share the information with future developers in order to de-risk future projects.

Question 14: Please identify the sectors or interests you represent in relation to the siting of new nuclear power stations.

a) The NIA is the trade association and representative body for the civil nuclear industry in the UK. GW-scale, SMR and AMR vendors are all included in our membership.

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.