Department for Energy Security & Net Zero

Consultation on a new National Policy Statement for Fusion Energy

The UK Government's response to the consultation on its proposed approach to siting fusion energy facilities

Annex A – Consultation Responses

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Any enquiries regarding this publication should be sent to us at:
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Contents

1. Overview

This annex supplements Consultation on a new National Policy Statement for Fusion Energy, EN-8, the UK Government's response to the consultation on its proposed approach to siting fusion energy facilities, available at: www.gov.uk/official-documents.

The Government is grateful to all respondents to the consultation.

All responses to the UK Government's consultation on its proposed approach to siting fusion energy facilities with permission to be published are included in this annex. The responses are published exactly as they were received unless a respondent who wished for their response to remain anonymous included text that would explicitly identify them, or another anonymised respondent.

Responses that provided individual answers to the consultation questions are included in section 2.

Individual respondents are not named; their responses are in the 'responses received from individuals' section. Responses from respondents who asked for their response to be shared without identifying information are found in the 'anonymised responses' section.

2. Responses to consultation questions

Assystem Energy & Infrastructure Ltd

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Assystem agrees that the planning process for fusion energy facilities should be aligned with those already developed for other complex energy generation purposes. This baseline will enable the transfer of established knowledge, expertise, and practices to fusion energy facilities, thereby accelerating and simplifying the planning process.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Assystem concurs with the Government's proposal to include all fusion technologies in the NPS, and that this approach is important and the right policy. However, it must be noted that there are many variations of fusion technology under development. Though they share common characteristics, it is important that the NPS takes a broad, technology inclusive approach to regulation and consents.

Furthermore, Assystem agrees that the scope of the NPS for fusion energy does not include hybrid fission-fusion technologies, which will be considered as a nuclear installation.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

Assystem believes that an open-sited approach in the fusion NPS is important and the right policy signal. Fusion technologies are being developed for different applications, and the best site for a particular technology or application may not be suitable for others.

There are clear benefits for the Government to nominate and assign sites for use by developers, given the UK Government's strategy on distributing socio-economic opportunities across the country.

Providing clarity on siting and removing the question from the DCO examination on whether a site is suitable provides developers with certainty. Therefore, it is beneficial for a blend of sites to be nominated and used under certain criteria. There are also undeniable benefits to creating an environment in which high-value employment opportunities can be spread across multiple geographical areas.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

It is logical and beneficial from a sector perspective for any fusion energy facility, regardless of power output to be included in the fusion NPS framework. If low energy facilities are regulated at local council level, this would increase uncertainty and place a significant burden on individual local authorities to gain knowledge and experience of the varying technologies. Whereas in the national framework, the decision-making process will be made at the national level via PINS and by the designated Secretary of State.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Assystem believes that including both thermal and electrical facilities in the fusion NSIP process would clarify the situation for mixed-use facilities, which in turn can help strengthen the business cases for such facilities. Although the generation of electricity remains the most likely route to commercially viable fusion energy, the Fusion NPS should remain open to alternative energy outputs such as thermal heat or hydrogen production that are likely additional benefits of the technology.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

The definition in the Energy Act 2023 is suitable for distinguishing between fission nuclear facilities and fusion energy facilities. However, the definition does not clearly distinguish between large-scale fusion energy production facilities and smaller-scale research reactors.

Assystem believes that the Fusion NPS must differentiate between large-scale fusion energy facilities ('power stations') and research-focused reactors such as UKAEA's JET or those under development by private developers.

It is important that fusion technology developers can continue building small-scale and proof-of-concept reactors without the regulatory and consenting burden that will necessarily apply to full scale power plants. Indeed, there are learnings from the fission industry on the regulatory and consenting point that the fusion sector and the Fusion NPS must learn from.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Assystem agrees that the Government's proposal not setting a deployment deadline for fusion energy facilities is correct. While the benefits to deploying fusion energy are undeniable, the timescales for most fusion technologies reaching deployment and site development are uncertain. Adding a deployment deadline might create an initial rush of interest from fusion developers, but alternatively it might increase market uncertainty as the timelines of most technologies are unclear. If they started to slip to the point where they would encroach on an NPS deadline, the challenges faced by the developer in securing investment would be compounded.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

Currently, no other factors can be identified as reasonable alternatives for fusion energy facilities.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

The proposed criteria are comprehensive and cover all aspects for assessing site suitability for fusion energy facilities.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

There could be potential to include positive weighting for the re-use of brown field sites in the assessment process.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

Assystem argues that different fusion technologies should be treated equally using the same set of criteria. The benefits and disadvantages of any given technology would ultimately be assessed through the EIA based on the potential impacts at a proposed site and the proposed mitigations to be employed.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Assystem believes that it is important to use both EN-1 and EN-8 criteria to make an assessment recognising that there is opportunity to exclude unsuitable locations early (with EN-8). Developer engagement with local authorities and statutory bodies should be completed as quickly as possible for early stakeholder engagement purposes.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered.

15 Do you agree with the selection and definition of key sustainability issues?

Not answered.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered.

Commonwealth Fusion Systems

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Commonwealth Fusion Systems (CFS) agrees that aligning planning processes for fusion with other complex generation facilities makes sense today, especially at this stage of development and deployment of fusion energy facilities. A separate fusion National Policy Statement (NPS) will achieve a level of parity with other clean energy sources by ensuring fusion power plants can go through similar pathways and structures that are currently available for other sources of energy. At the same time, we hope the Government recognizes that further reforms, including to the energy market, permitting regimes, and resourcing of enabling bodies are going to be critical to accelerate timeframes to deployment of clean energy sources and ultimately combat climate change and achieve promised decarbonization goals.

CFS is a fusion energy company that spun out of MIT in 2018, with the goal of leveraging decades of proven fusion science, combined with the innovation and speed of the private sector to commercialize fusion energy on the fastest path possible. CFS is now the largest private fusion energy company in the world with over 850 full-time employees, 1500 temporary construction and contracting jobs, and more than $2 billion in private funding from the world's leading investors in clean energy. With offices in both the US and the UK, our mission is to commercialize fusion power at an industrial scale and at a speed to help solve some of the world's biggest challenges: climate change and energy security.

An hour outside of Boston, in Devens, Massachusetts, CFS is currently building SPARC, a fusion energy machine that will demonstrate commercially relevant fusion energy for the first time in history. SPARC is set to be operational in 2026 and will achieve net energy (Q>1) as soon as possible thereafter. On a parallel track we are preparing for commercialization and have started a global siting search for our first fusion power plant called ARC. Our path to commercialization anticipates ARCs on the market starting in the early 2030s, and growing at rapid scale after that to bring economical fusion energy to the world.

A 400MWe fusion power plant such as CFS' ARC would very likely be a Nationally Significant Infrastructure Project (NSIP) and as such we believe a development consent order (DCO) to be the appropriate consent mechanism, and a specific NPS to be an important enabler of a DCO application. While robust planning processes should never be compromised, creating a pathway for faster planning and permitting of fusion power plants in the country by streamlining timelines, and ensuring planning does not delay deployment, will be welcomed by CFS and the entire industry. Dedicating enough resources for the Planning Inspectorate (PINS) as well as sufficient fusion specific subject matter expertise and knowledge within relevant planning agencies will be fundamental policies that would need to be developed in parallel to the implementation of the fusion NPS to achieve the goal of scaling fusion energy deployment as fast as possible.

While we recognize that a fusion plant could be designated a NSIP under current processes without the need for a bespoke NPS, we believe that passage of NPS EN-8 would provide greater clarity to applicants on the characteristics of a likely successful planning application and most importantly provide an internal and external reference basis for the PINS assessors on the characteristics of a successful application. In turn, this will inform developers

deployment strategies and boost the prospects of developers bringing forward planning applications and proposals in the near term.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Fusion energy companies are working on different fusion mechanisms (i.e., magnetic confinement, magneto-inertial confinement, inertial confinement) and on multiple designs for fusion energy machines: tokamaks, stellarators, etc. Excluding some designs or technologies from this process will be counterproductive at this stage of development where companies have yet to prove net energy gain from their demonstration devices. CFS believes that the NPS should remain technology neutral and allow for multiple fusion technologies and fusion power plant designs to qualify once they are ready for commercialization. As currently drafted, our ARC power plant as a high-field tokamak, would be included as part of the NPS process and able to benefit from this streamlined planning process.

At the same time, we agree with excluding fusion-fission hybrids from the fusion specific NPS, as they would represent a fundamentally different proposition for all stakeholders, particularly host communities, to consider, and more properly fall under a fission NPS. We applaud the UK's leadership in continuing to ensure fusion is regulated differently than fission, and we welcome the creation of a separate NPS for fusion that recognizes the very different risk-profiles between the two energy sources. A separate fusion-specific NPS gives a clear signal of intent to developers that the UK considers fusion different than fission and strategically important to UK energy policy.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

An open-sited approach allows developers to be at the forefront of site selection which is critical to ensure optionality in the site selection process and better alignment between what the developer is looking for in a site and the developer's assessment of site characteristics. An open sited approach is much more aligned with the way CFS is currently approaching its global siting search for its ARC power plants. As CFS executes its global siting search, one of the most important site selection criteria is to "go where the local community wants us." An open-sited approach is better aligned with ensuring early engagement between the developer and the community ahead of any decision making to ensure that the local community is excited about the prospect and the project.

We believe that an open-sited approach where the NPS identifies generic discretionary siting criteria is the better solution to provide developers with the flexibility needed to choose the better site for their technology while clarifying what siting criteria and characteristics should be considered by developers for them to receive a positive development consent order. Restricting fusion to specific sites (or coming close to doing so when the alternatives principle is considered) could significantly reduce the potential for fusion to co-locate with current and future offtakers that require low-carbon generating assets - for example, data centers. This approach would not only potentially slow UK decarbonization, but could deter inward investment to the UK.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

Different fusion technologies will have different capacities and power output levels. CFS is designing ARC to be a 400MW net electric power plant, but other developers may be targeting different capacity levels. Allowing different fusion technologies with different capacities to qualify for the NPS process could allow developers to target different power output levels and expand design options to better fit customers' needs while keeping the needed certainty on the planning process. In the end, different capacities might be needed for different purposes but would still be required to achieve climate goals.

Limiting eligibility or applicability of the NPS based on electric generating capacity does not make sense for fusion also considering that there is no correlation between power output level and safety and environmental impact concerns in a fusion power plant.

At the same time, the NPS should not limit developers' optionality to choose a different planning pathway if that would allow them to speed up the planning process and thus deployment of their facility. CFS sees the NPS as a pathway to speed up permitting, but if being considered a NSIP could limit or delay deployment, developers should not be forced to pursue that route.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

The heat produced by certain fusion machines could either be converted to electricity or used directly, for example to address the industrial process heat market, which has historically been a challenge to decarbonize. We have seen interest in co-generation configurations that utilize the high-quality heat (600C) that could be produced by CFS' ARC. High-quality, carbon-free heat can also be an enabler for other technologies that can facilitate decarbonization or need to be decarbonized themselves, including carbon capture, clean hydrogen, and desalination technologies.

Allowing both thermal and electric facilities to be eligible for the NSIP process is helpful especially if developers would be able to change the use of its facilities without having to reapply for their DCO. Allowing for both use cases to be included within the same application would provide needed flexibility for developers that could opt for one use or another based on customer and market needs.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

We believe the current definition of fusion energy facility provided in the Energy Act of 2023 to be opaque with respect to the goal of differentiating between fusion power plants and fusion research facilities. The Energy Act of 2023 defines fusion energy facilities as a site: "used for the purpose of installing or operating any plant designed or adapted for the production of electrical energy or heat by fusion, and not also used for the purpose of installing or operating a nuclear reactor." Considering that research facilities used for fusion experiments would also

produce heat, the definition could be interpreted to include fusion research facilities that would then also fall under the NPS.

At the same time, we are not necessarily opposed to having research facilities qualify as NSIP if and to the extent that using this planning pathway would be beneficial for research institutions or private fusion developers working on their demonstration projects. As long as there is a recognition by the PINS of the different mission between research facilities and power plants, we believe in maintaining optionality for both types of facilities to choose the faster pathway towards deployment.

In the US, the Fusion Energy Act of 2023, which codified the Nuclear Regulatory Commissions' decision to regulate fusion machines as byproduct material within the Atomic Energy Act, included a new definition of fusion machines more clearly distinguishing between power plants and research machines. According to the language of the Fusion Energy Act: "The term 'fusion machine' means a machine that is capable of—"(1) transforming atomic nuclei, through fusion processes, into different elements, isotopes, or other particles; and "(2) directly capturing and using resultant products, including particles, heat, or other electromagnetic radiation." If the Government believes it would be critical for the PINS to distinguish between power plant and research facilities, we would advise the UK Government to amend the current definition of fusion energy facilities to include the concept of "capturing or using the heat" to better differentiate between fusion power plants and research facilities.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

While there have been major breakthroughs in fusion energy in the past decades, commercial fusion power plants are not yet under construction. At the same time, 87% of fusion developers are targeting the 2030s as their deployment timeline. CFS' path to commercialization anticipates our first ARC on the grid in the early 2030s, and scaling rapidly thereafter.

Including a deployment deadline to the NPS would advantage those fusion developers that are further along to the detriment of a flourishing fusion industry. In short, having a deployment deadline could ultimately limit eligibility for those developers that are at earlier stages of development. We do not believe that the inclusion of a deadline in NPS EN-6 had a meaningful benefit for the fission sector, and see no reason why this precedent would be applied to EN-8.

By setting specific deployment timelines the Government could also be seen as providing the wrong message of fusion being an 'interim' or 'time limited' source of energy. In reality, fusion is perhaps the ultimate energy source, being clean as well as baseload and developers and investors will want to know that the Government sees fusion as a key and long-term staple of UK energy supply.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

CFS believes that the principle of alternatives has been broadly addressed as part of the NPS and that adding other factors or criteria developers should consider in assessing alternatives would not be helpful or add to the NPS process which should provide certainty while allowing for flexibility. The criteria list considered in the fusion NPS is already very comprehensive,

especially considering that the general criteria provided in EN-1 would also be applicable to the fusion NPS.

In assessing the strategic merits of a site for a specific fusion facility, we additionally urge the Government to acknowledge that co-location with industrial offtakers, or location of a facility on retired or retiring coal plants or brownfield sites with available grid connectivity and infrastructure, will be incredibly significant commercial drivers for fusion plant projects. A direct reference to these factors in NPS EN-8 may be beneficial, while not necessary since these concepts are broadly subsumable under the criteria of "proximity to infrastructure."

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

10 Are there any additional criteria that should be considered in the assessment process?

No

Not as part of the NPS or the DCO process. Developers will look at technical criteria to ensure compliance and alignment of potential sites with their final designs. Those additional criteria may be technology specific and would likely be subsumable under the more general geological suitability criterion.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

Not at this stage. As the sector becomes more mature and there is greater understanding of the commercial and operational differences between technology types, there could be variance - but CFS does not believe this is needed at this stage of the fusion industry.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

The proposed model is reasonable and outlines a path for the developer to engage all relevant stakeholders to choose the best site for its technology before having to engage with the planning authority. We completely agree that the developer should engage with landowners, local authorities and abutting communities early to assess feasibility of a site and community perspectives on the project before starting any application. Engaging local communities via informal engagement as well as formal consultation is a priority in our site evaluation process. Following the described implementation process would have been the process CFS would have followed anyway prior to making final decisions on a potential site. Moreover, we view it as important to have the option to participate in pre-application engagements with PINS and to receive advice and counsel on how to complete a successful application resulting in a final DCO.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered.

15 Do you agree with the selection and definition of key sustainability issues?

Not answered.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered.

Cumberland Council

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

While it makes sense that all fusion projects should be considered centrally under a single regime, the Government should consider whether scope nevertheless exists to distinguish in some way between fusion energy projects with a lower power output to provide consistency with the position applicable to other types of energy project noting that projects with a power output below a specified threshold are not presently subject to the NSIP regime.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Yes

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

But see response to Q10 below.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

We suggest you consider including Residential Amenity as an additional criterion to capture specific potential impacts on nearby residents.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

We have no reason to challenge the proposed implementation model but would suggest the Government might establish a timetable for review of the NPS.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

No answer.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Don’t know.

15 Do you agree with the selection and definition of key sustainability issues?

Don’t know.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don’t know.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Don’t know.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Don’t know.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Don’t know.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

We do not propose to offer substantive views or comments on this section of the consultation.

Dalton Nuclear Institute

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The planning process for all complex energy plant have similar content – environmental impact, emissions, any safety impact beyond the station boundaries, visual impact, interaction with local communities, employment, etc.

There will be differences between different energy sources - and indeed between different fusion technologies. However, the overall principles are the same, so a common planning process seems appropriate.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

We believe that all projects for fusion power production need to be covered. But we feel that experimental devices - where use of tritium and energy output are both limited - need less control than devices clearly intended to use significant amounts of tritium and demonstrate power production.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

Broadly, yes. If our understanding of what is meant by "open sited" is correct (namely a developer led approach to any sites that offer suitable environments, e.g. access to cooling water, size of site, access etc) then we believe that this looks sensible. That is, provided constraints on toxic materials like lead and beryllium, and radioactive materials including tritium and activated structures, including waste stores, are consistent with siting.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

With some clarification, yes. We believe that all facilities that include the handling of tritium, and which would produce radioactive waste, should be included. However, some early-stage research facilities would not need to be included, such as the current (but not future) work of Tokamak Energy and First Light Fusion.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Yes. The potential range of coolants, and thus energy conversation systems and heat use, is very similar to advanced fission systems. These include the use of molten salts, high

temperature helium, molten metals (Li, Pb and alloys) and water/steam. Companies like Tokamak Energy are already looking to use of heat from fusion as well as electricity. As the energy systems minimise CO2 equivalent emissions, the benefit of cogeneration to widen the range of applications and increase flexibility for both fission and fusion power will be essential.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

No. We feel that further clarification is needed.

The only reference to fusion in the Energy Act 2023 is given below:

156 Fusion energy facilities: nuclear site licence not required

(1) Section 1 of the Nuclear Installations Act 1965 (restriction of certain nuclear installations to licensed sites) is amended as follows.

(2) After subsection (2) insert—

“(2A) Subsection (1) does not apply to a fusion energy facility.

(2B) In subsection (2A), “fusion energy facility” means a site that is—

(a) used for the purpose of installing or operating any plant designed or adapted for the production of electrical energy or heat by fusion, and

(b) not also used for the purpose of installing or operating a nuclear reactor.

In the discussion at the start of these notes it is clear that research fusion facilities and power productions facilities (both demonstration power plant and commercial power plant) have different levels of risk on safeguards and potential for misuse by making pure fissile materials. As such the Energy Act 2023 will need to be revised to make sure that adequate protection against such misuse is monitored. Safeguards protected materials would be easier to detect on fusion sites than on fission reactor sites, as actinides (and hence fertile and fissile materials) would not normally be on fusion sites. There would also need to be safeguards measures like those for fission reactors if the option of hybrid fission-fusion systems were to be explored and utilised.

7 Do you agree with the Government’s proposal to not set a deployment deadline for fusion energy facilities?

Yes

Yes – we agree with this approach. No magnetic confinement fusion facility has yet demonstrated continuous operation with net production of energy. No inertial confinement fusion facility has demonstration how targets can be assembled and imploded sequentially to enable effective continuous energy production. Predicted timescales for either route to progress to a demonstration plant range from optimistic to cautious. Deployment targets might be useful, but deadlines would be unhelpful.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

Sites suitable for fusion application are also likely to be attractive for fission and low-carbon manufacturing. Such sites have limited availability. Meeting the targets for net zero and the expansion of low carbon industry will require prioritisation and a system for optimising the use of sites. This will require other considerations, such as electricity and heat networks, and relationships with urban communities.

It must be recognised that fusion will have issues related to tritium release into the air and groundwater. Containing tritium is difficult as it is a small hydrogen isotope and like hydrogen can diffuse as an ion through structures and the energy conversion systems. Once it is part of water, e.g. in reactor coolants or in the energy conversion system, it is difficult to separate. Although the radiological impact of tritium is small the quantities of tritium in a fusion reactor are very large. A 1GWth reactor would need nearly 60kg of tritium a year and the inventory (source term) of tritium in a fusion reactor could be 20 kg which is approximately 7x1018 Bq. WHO (World Health Organisation) recommends limiting the dose from drinking water from tritium to 0.2mSv/year, which translates to a guideline limit of 7,000 Bq/litre. In 2023 Ontario decided to move from this limit to just 20 Bq/litre. Meeting such limits will prove very difficult for fusion plant, so considerations on ground water and location relative to urban centres may be needed.

Also, fusion will generate substantial quantities of ILW (intermediate level waste) and LLW (low level waste) from activation of structures (4 to 10 times the volume of fission reactor waste per unit energy delivered), because of the short life of plasma facing structures and the large volumes of material in the tritium breeding and energy capture structures. Even with the use of reduced activation materials, much of the waste will need storing for up to 100 years before this waste can be classified as LLW. However, very long-lived actinide waste from fission reactor spent fuel is absent and the heat generation of the waste is substantially lower than for fission waste. Fusion reactors may also have waste containing toxic chemicals, e.g. lead, beryllium, fluorides that will need safe storage or disposal. Enrichment of lithium is a process that could involve the use of mercury. The fusion sites may also need, beside waste storage, facilities for recycling materials for use in new reactors even if they have some residual radioactivity. CORWM have published a position paper on fusion waste.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

Yes – we agree.

Based on our assessment of the criteria, we feel that all relevant aspects are included in the proposal. The siting criteria are quite comprehensive.

10 Are there any additional criteria that should be considered in the assessment process?

Don’t know

We have not identified any additional criteria which should be included. Needs consideration.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

No – we believe that a single approach, with a single set of criteria, should be used irrespective of the specific fusion technology.

Magnetic and inertial confinement, as well as some systems that have aspects of both, share common requirements for tritium breeding and energy capture, so the breeding blankets and energy capture systems are similar in many respects. The main differences focus on:

- Magnetic confinement has safety issues on the magnetic forces on structures and the use of cryogenic coolants that can lead to thermal reactions with the energy conversion systems and hot blanket and first wall cooling systems. Rapid vaporisation of cryogenic coolants could lead to major structural failures and release of tritium or dispersion of activated first wall sputtered dust.

- Inertial confinement is done in pulses that range from one every sec to on every 10 seconds. The planned energy releases during these pulses is very large and would need to be larger as the pulse frequency decreases. The UK project First Light Fusion originally suggest pulse frequencies as low as one per minute, but when confronted with the reality of containing an energy release of around 100 tonnes of TNT per pulse for a 1 GWth reactor it increased the target frequency to one every 10 seconds and a proportionally lower energy release per pulse. The energy release is in the form of radiation, neutrons, gamma rays, ions and thermal radiation from infra-red to ultra-violet. This energy is converted to heat in the reactor structures quite rapidly and would result in a mechanical pulse loading by thermal expansion. Inertial confinement methods can use lasers, X-rays or shock waves to compress and heat the plasma. First Light Fusion current research uses a mechanical shock wave created by a 100g projectile fired like an artillery shell. It is not clear if the intention is to continue to use explosive driven shells in large power reactor, but if this the case sites would require large explosives stores and military levels of security. The First Light Fusion technology is currently only at an early stage with deuterium fuel and its seems unlikely that it will produce a competitive system in the medium term.

Recent progress has been made by the US thermonuclear weapons dual-use National Ignition Facility at Lawrence Livermore, using an indirect heating method driven by a 2 MJ laser pulse, with claims that Q>1, more energy released than used to create and compress the plasma, has been achieved. However, the energy needed to drive the laser system was not counted and thus amounts to more than 400 MJ, ~200 times the energy of the laser pulse. The laser system required for a power reactor would have to pulse every few seconds and would occupy a very large space, including the necessary pulsed energy storage system. The target is a tiny gold plated “hohlrauM containing a small sphere of fusion fuel surrounded by an ablative coating. The hohlraum focusses the laser beam and the target and drives and plasma pulse that compresses the fuel. Aligning a single target is easy but a slow process. Aligning a target every 1 to 5 seconds is a problem not yet solved. Such routes, although useful in designing thermonuclear weapons do not look viable for a civil power system in the foreseeable future and would require very large sites.

The safety assessment of sites clearly depends on the technology being used, but we believe that a single approach and a single set of criteria is the appropriate way to handle fusion

technology as a whole. In any event, the associated tritium handling, storage and processing of activated radwaste from structures will be a common theme.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Broadly yes. Needs consideration.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Environment Agency

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

We support the development of a fusion specific NPS. This would ensure that the process for fusion energy facilities is aligned with that of other complex energy infrastructure. It would also provide clarity for developers and decision makers, including regulators.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

We support a common approach being taken in planning decisions relating to the deployment of new fusion energy facilities subject always to a proportionate approach that takes account of impacts and risks arising from the proposals at a site. In general, the same considerations will apply to all technologies.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

In general we are supportive of an open-sited approach but note that this requires appropriate assessment of site-specific impacts. An open-sited approach in the proposed NPS could enable proposals to be brought forward to de-carbonise a range of industries. It will be important to ensure that there is good engagement with people living near all potential new sites that could be impacted by the proposals.

We welcome early engagement with developers, subject to cost recovery, to provide advice and relevant information where available, including on the environmental permits that may be required to enable site characterisation and for construction and operation.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

We support a common approach being taken to all fusion energy facilities, independent of capacity. This will ensure consistency of approach and clarity for developers.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

We support a common approach being taken in planning decisions relating to the deployment of new fusion energy facilities subject always to a proportionate approach that takes account of impacts and risks arising from the proposals at a specific site. An integrated approach to assessing the impacts and risks of the proposed fusion technology and the "conventional"

technology as deployed on the site would be required. The Environment Agency takes an integrated approach when determining applications for environmental permits for operation of a fusion energy facility. Clarity on the full intended scope of the project will be required at an early stage in its development.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Yes

Yes, although we note that the novelty of fusion technology may mean that future research sites may be complex and the impacts could be significant and comparable with energy production sites.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

The achievement of the UK's 2050 net zero goal will require significant development of low carbon energy sources over that period. We support the measures that improve long term planning towards that goal. Improved long term planning also assists us in planning and securing the resources we need for the future.

This approach also enables longer term planning for water resources allowing engagement with stakeholders on long term availability.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

We would welcome discussions on the scope of what should be considered as an appropriate alternative site, important considerations will be flood impact and management. Clarity on requirements to ensure that alternative sites are considered, and that the sites with acceptable risks are chosen, is needed in the NPS. This is because the most effective and cost-efficient way to manage environmental risks and protect the environment is to avoid sensitive and high risks locations in the first instance.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

We welcome that climate change resilience and adaptation is to be included. The NPS must be clear that impacts arising from climate change in combination across the criteria should be addressed. This could be addressed by having climate change resilience as a cross-cutting criteria which considers how this will change over time.

We consider that there is a need to strengthen the flood risk criteria. For example, areas of functional floodplain (Flood Zone 3b or areas likely to lie within FZ3b within the lifetime of development), water storage areas, or areas likely to be permanently or frequently inundated by the sea within the lifetime of the development as a result of sea level rise, are all likely to be

unsuitable for the siting of such facilities. Areas likely to be subject to coastal erosion during the lifetime of the development such as coastal change management areas are also likely to be unsuitable for the siting of such facilities. We would welcome discussions on the scope of what should be considered as an appropriate alternative site as part of a flood risk assessment.

The NPS should require the consideration of all sources of current and future flood risk. One such source could be reservoir flood risk. The NPS should be clear that the residual risks associated with dam failure should be assessed and safely managed. In addition, the NPS should be clear that applicants will need to assess the impact of the proposed development on any existing reservoirs.

The NPS should provide clarity on which vulnerability classification fusion energy facilities should be considered as set out in Annex 3 to the National Planning Policy Framework. The NPS should be clear whether fusion facilities will need to be designed to remain operational during flooding and, if so, which aspects of the development are considered essential to its safe operation, including factors such as transport routes for staff and materials in and out of the site.

We suggest that wording with regard to biodiversity net gain is amended to ensure appropriate consideration by developers. For example on Page 27 of the consultation document we suggest that it should state that:

- “A fusion energy facility land manager or developer [will] need to:”
- “conduct a survey of the onsite habitats [and develop a biodiversity plan for the proposal]”
- “provide a long term, [minimum 30 year]…”

The NPS should set out which aspects of the ‘nationally and internationally designated sites of ecological importance’ criteria will be most critical, such as avoiding harm to irreplaceable habitats, designated sites and deterioration of waterbodies.

The ‘land use planning’ criteria should consider the wider impacts of fusion projects on local growth and regeneration – for example, what will the impact be of water demands of a fusion energy facility from a source that is also needed for new housing, community facilities and commercial development? This should be part of the strategic assessment criteria.

We consider that developers should specify their proposals to reflect their full deployment of multiple fusion facilities and all infrastructure, including on-site energy production and pipeline / connection infrastructure linking to off-site facilities. This will ensure that the full impact of the proposal is assessed and that proposals are not perceived as “salaml sliced. This expectation will also enable developers to benefit from specifying shared facilities in their proposals and improving the overall sustainability of their proposed development. This should be taken into account in the size of site criteria and will have cross-cutting impacts across other criteria.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

We propose that water resources relating to construction and operation (not those for turbine condenser cooling), should be included as a criteria for consideration for site suitability in the

DCO. Demand on water sources in England is likely to increase at a time when climate change will reduce availability. Any energy facilities located inland will need to find water from existing sources (which are limited) or develop their own solutions (e.g. onsite reservoirs, working with water companies on using treated effluent etc). Additionally, we would want the companies to engage with regulators and water companies/regional water resource groups as early as possible in the process to reduce the likelihood of delays.

We consider that groundwater protection should be specified as a criteria in the NPS. This would be to avoid proposing a site that is located in Source Protection Zone (SPZ) 1, the most sensitive zone. We advise introduction of this additional criteria on groundwater because of the open-sited approach proposed. Complex fusion energy facilities may require significant excavation during construction including some where the technology is located primarily underground. Potential risks may arise from intrusion, contamination of the aquifer, and from groundwater ingress into the facility. While there is guidance that development on sensitive groundwater areas should be avoided, including a groundwater criteria in the NPS will ensure its early consideration and potentially avoid developers committing significant expenditure on site characterisation of an unsuitable site. More information on these zones can be found at Groundwater source protection zones (SPZs) - GOV.UK (www.gov.uk), Additionally, mapping showing SPZs can be found on MagicMap.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

As already stated we support a common approach being taken in planning decisions relating to the deployment of new fusion energy facilities subject always to a proportionate approach that takes account of impacts and risks arising from the proposals at the site. In general, the same considerations will apply to all technologies, therefore a separate set of criteria would only be required if the impacts from different technologies were significantly different to warrant this, otherwise we support a technology-agnostic approach.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Although we support the proposed implementation in general, we also note that there is need for clarity and early engagement with all relevant regulators to ensure that unsuitable sites are eliminated at an early stage so as to avoid nugatory expenditure by developers on characterising sites and minimise demands on regulatory and planning resources. We would welcome the expectation of early engagement with regulators and that high standards of safety, security, and environmental protection are to be expected. This is essential to ensure that there is a coordinated and consistent approach to regulatory and planning decisions for new fusion energy facilities.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Fusion Industry Association

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

FIA agrees that it is appropriate to integrate fusion facilities into the overarching policy framework for consenting major infrastructure facilities in the UK, and regards the NPS regime as an appropriate mechanism to achieve this.

Fusion facilities – while forecast to be lower cost and more fleet-oriented than GW-scale nuclear fission plants – will nonetheless be nationally significant infrastructure projects, and it is important that policy arrangements reflect this.

A priority for project developers – and for the technology companies which precede projects – is the existence of a demonstrable, certain, stable, low-risk route to deployment. That environment is vital to sustained private funding of technology and project development. A stable consenting regime will form a major component of this.

While existing NPS EN-1 could provide some guidance, establishment of an NPS specific to Fusion (EN8) will add significant certainty and clarity.

Nonetheless, it is of course important that the planning system into which fusion plants are allocated is highly functional and able to deliver time-bound, effective assessments. As such, it is essential that there is sufficient resourcing of the planning inspectorate to guarantee this.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

FIA agrees that all fusion technologies should be included within the provisions of EN8. Furthermore, the definitions and parameters applied should be sufficiently broad so that innovations and evolutions in the sector are catered for in advance, and there is no future scenario where planning procedures delay or impact the deployment of new and innovative technologies.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

FIA agrees that the Fusion NPS should be open-sited. This will allow the broadest possible market-led deployment of fusion plants, ensuring that where criteria are met there can be deployment.

FIA sees no benefit to a specific site list and an associated strategic siting assessment, as we believe all necessary conditions can be considered on a project by project basis under a criteria based regime.

Furthermore, FIA believes the experience of the UK nuclear fission sector in operating under the site-specific EN-6 NPS has potentially proved detrimental, artificially limiting the number of

potential deployment sites (in practice, though not de jure) and as potentially such driving up costs, possibly creating an artificial barrier to deployment, and reducing UK decarbonisation potential. It is important that the same challenge is not replicated for fusion plants.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Don't know

FIA broadly agrees with this intention, with some modest caution.

Agreement is based on the fact that a tried and tested DCO approval process – delivered by a well-resourced PINS – is likely to provide a stable and certain route to consent for any fusion project.

Caution is based on the fact that in closing down any potential for a small fusion unit to be consented under the Town and Country Planning Act (TCPA), Government is reducing the optionality for project developers, vs a scenario where small units can be consented under either TCPA or DCO, as is the case for some other technologies.

There is a link here to Question 6 and the definition of a commercial vs research facility, and the need to ensure proportionality in the arrangements, recognising that we cannot predict nor foresee all future needs of developers.

Moreover, it is vital that PINS is able to process a large volume of applications in a timely way – proportionate to their planning impact – and that there should be no scenario in the future where a fusion demonstration device is caught in a queue for approval behind a series of larger scale centralised generation assets.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

FIA agrees with the Government's proposal to include thermal and electrical facilities in the Fusion NPS. The Planning Act 2008 was passed to "make provision about, and about matters ancillary to, the authorisation of projects for the development of nationally significant infrastructure", and not to shape the future structure of domestic and industrial energy supply.

As the country races towards net-zero by 2050, it is increasingly clear that a whole system approach is required, with decarbonisation of both electricity and non-electrical energy supply. Notable in the latter are deep decarbonisation challenges associated with industrial process-heat, and creation of clean molecules for synthetic fuels and hydrogen.

Fusion offers a huge opportunity for all these technologies, to secure a sustainable, low-carbon, stably-priced energy supply. This can potentially be delivered via grid or direct offtake.

Establishing a planning regime which addresses the genuine project impact considerations of deployment, without limiting the manner of use of the energy generated, will ensure that NPS EN8 gives the broadest and most enduring policy certainty for deployment of fusion plants in pursuit of net zero.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

The Energy Act 2023 defines a Fusion Energy Facility as a "a site that is (a)used for the purpose of installing or operating any plant designed or adapted for the production of electrical energy or heat by fusion, and (b) not also used for the purpose of installing or operating a nuclear reactor."

FIA believes the separation of Fission from Fusion is important and should be retained.

FIA believes, however, that overall this definition lacks the specificity required to be certain that small research facilities with an impact for which the full DCO process is disproportionate, will not be drawn into the scope of the NPS. The important outcome, in the view of FIA, is to establish definitions which ensure that significant power plant developments, such as a commercial fusion plant, have the planning certainty of a DCO process - while equally ensuring that research facilities not requiring this type or level of process are not accidentally drawn into the DCO scheme in a manner disproportionate to their scale and nature.

If the intention of the Government is that modest-scale research facilities should not be drawn into the scope of the NPS, then FIA recommends that the wording be enhanced, potentially with reference to the scale and planning impact of a project (as well as its purpose), ensuring the best chance of proportionate application of the NPS for all parties.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

FIA agrees there should be no deadline set for deployment of fusion facilities within NPS EN8. There is no evidence to suggest that such deadlines would accelerate deployment nor that this will provide a more effective planning solution than an enduring NPS.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

FIA believes there should be suitable consideration of offtaker infrastructure in assessing suitable alternative sites.

While this can be judged as implicit in current wording, FIA argues that an explicit reference would aid developer confidence. While the existing principles of geopolitical suitability, proximity to wider infrastructure, and economic impact are a strong basis to make this argument within existing definitions, the sector would take added comfort from a more direct and explicit reference.

The current wording around alternatives was established in the UK planning process at a time when most electricity generating assets were developed for national grid offtake, and as such were broadly flexible in their deployment location.

In the current and future generating markets, there is an increased potential role for co-generation and captive generation for direct offtake from low-carbon assets. This role makes it vital that industrial plant operators can bring forward proposals for generating plants at or adjacent to their facilities, confident that these will be judged against the wider criteria and not excessively constrained by a principle of alternatives. Such a principle is impracticable when developing plants specifically to repower and decarbonise existing industrial plants - or plants being deployed at a strategic location for other reasons.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

FIA does not propose any additions to the outlined criteria.

10 Are there any additional criteria that should be considered in the assessment process?

No

FIA does not propose any additions to the outlined criteria.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

FIA does not propose different criteria for different technologies. As the criteria are impact based, any variation in technology leading to a variation in impact will be addressed via the proposed criteria.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

FIA recognises that the proposed approach for implementing the NPS is in line with norms and precedent, and in this context does not propose any variation.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Fusion Industry Taskforce (FIT)

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The Fusion Industry Taskforce (FIT) consisting of its affiliate organisations agrees that the planning process for fusion energy facilities should be aligned with those already developed for other complex energy generation purposes.

Accordingly, FIT agrees that a flexible, all-inclusive and open-sited approach is the most suitable to develop commercially viable fusion power plants in the UK.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

FIT agrees with the Government's proposal to include all fusion technologies in the National Policy Statement (NPS), and that this approach is important and the right policy. However, it must be noted that there are many variations of fusion technology under development. Though they share common characteristics, it is important that the NPS takes a broad technology inclusive approach to regulation and consents.

Furthermore, FIT agrees that the scope of the NPS for fusion energy does not include hybrid fission-fusion technologies, which will be considered as a nuclear installation.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

FIT believes that an open-sited approach in the fusion NPS is important and the right policy signal. Fusion technologies are being developed for different applications, and the best site for a particular technology or application may not be suitable for others.

There are clear benefits for the Government to nominate and assign sites for use by developers given the UK's Government strategy on distributing socio-economic opportunities across the country. FIT requests that the Government assigns sites in addition to the developer-led approach being consulted on.

Providing clarity on siting and removing the question from the DCO examination on whether a site is suitable provides developers with clarity. Therefore, it is beneficial for a blend of sites to be nominated and used under certain criteria.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

It is beneficial from a sector perspective for any fusion energy facility regardless of power output to be included in the fusion NPS framework. If low energy facilities are regulated at local

council level, this would increase uncertainty and place a significant burden on individual local authorities to gain knowledge and experience of the varying technologies. Whereas in the national framework, the decision-making process will be made at national level via PINS and by the designated Secretary of State.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

FIT believes that including both thermal and electrical facilities in the fusion NSIP process would clarify the situation for mixed-used facilities, which in-turn can help strengthen the business cases for such facilities. Although the generation of electricity remains the most likely route to commercially viable fusion energy, the Fusion NPS should remain open to alternative energy outputs such as thermal heat, or hydrogen production that are likely additional benefits of the technology.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Yes

The definition in the Energy Act 2023 is suitable for distinguishing between fission nuclear facilities and fusion energy facilities. However, the definition does not clearly distinguish between large-scale fusion energy production facilities and smaller-scale research reactors.

FIT believes that the Fusion NPS must differentiate between large-scale fusion energy facilities ('power stations') and research-focused reactors such as UKAEA's JET or those under development by private developers.

It is important that fusion technology developers can continue building small-scale and proof-of-concept reactors without the regulatory and consenting burden that will necessarily apply to full scale power plants.

There are clear learnings from the fission industry on the regulatory and consenting point that the fusion sector and the Fusion NPS must learn from.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

FIT concurs with the Government's proposal not to set a deployment deadline for fusion energy facilities.

While the benefits to deploying fusion energy are undeniable, the timescales for most fusion technologies reaching deployment and site development are uncertain. Adding a deployment deadline might create an initial rush of interest from fusion developers, but alternatively it might increase market uncertainty as the timelines of most technologies are unclear. If they started to slip to the point where they would encroach on an NPS deadline, the challenges faced by the developer in securing investment would be compounded.

However, once dates are clear it is imperative that the supply chain is brought into discussions. This is to ensure that the supply chain has capacity to meet the expected timelines and balance this with the competing demands of other industries. This includes the associated issues of investment, people and materials to deliver the wider timelines for the fusion sector.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

Currently, no other factors can be identified as reasonable alternatives for fusion energy facilities.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

The proposed criteria are comprehensive. However, when considering safety and environmental criteria, sustainability principles are needed to be understood and justified, for example for the requirement of rare or scarce resources in fusion technology.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

There could be potential to include positive weighting for the re-use of brown field sites in the assessment process.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

FIT believes that different fusion technologies should be treated equally using the same set of criteria. The benefits and disadvantages of any given technology would ultimately be assessed through the EIA based on the potential impacts at a proposed site and the proposed mitigations to be employed.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

FIT believes that it is important to use both EN-1 and EN-8 criteria to make an assessment recognising that there is opportunity to exclude unsuitable locations early (with EN-8). Developer engagement with local authorities and statutory bodies should be completed as quickly as possible for early stakeholder engagement purposes.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?Don't know

15 Do you agree with the selection and definition of key sustainability issues?

Don't know

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don't know

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Don't know

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Don't know

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Don't know

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Helion Energy

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Don't know

Helion supports the UK continuing to develop a proportionate, government wide approach for fusion, separate from nuclear fission.

A siting process that is technology inclusive and developer led is a good approach. Fusion power plants have the potential to be sited much more flexibly than other generation sources including nuclear fission power, fossil generation, wind, and solar. For example, one design of a Helion fusion power plant is anticipated to have the ability to be sited on land parcels as small as 20 acres, encompass less than 100,000 sq ft for the main generator building, and not use a thermal steam cycle allowing them to be sited near loads. This is a significant difference from the need for thousands of acres long distances from population centers.

Helion would like to better understand the planning process for complex energy generation facilities in the UK. Fusion power plants may not need to be subject to the same process and requirements as those facilities. The impacts from construction, operation, and decommissioning of a Helion fusion power plant are expected to be significantly more limited than other complex energy generation facilities. It is envisioned that Helion generators can be manufactured in factories, transported to the site, and installed with limited site work in common industrial buildings without a thermal steam cycle. During operation, we expect limited fueling delivery and waste removal infrastructure (i.e., delivery vans) and all emissions within standard regulatory limits. For decommissioning, Helion has performed initial studies that suggest costs on the orders of tens of millions of USD.

In Washington state in the U.S., where Helion will be deploying the world's first fusion power plant in 2028, we expect optionality to use local (city/county) led siting reviews, similar to other industrial activities in the state, or a state led consolidated process through the Energy Facility Site Evaluation Council. This model seems that it may also be possible in the UK where the option exists for fusion power plants to use a streamlined process under the NPS while keeping open the opportunity to permit plants through the Town and County Planning Act (TOCPA) with local authorities, similar to other infrastructure projects.

A clear siting process that can be exercised in an efficient and timely manner will give the fusion industry, investors, and the public the needed certainty to move forward with the deployment of commercial fusion energy in the UK.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Don’t know

See response to Question 1.

5 Do you agree with the Government’s proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Thermal and electrical facilities should be treated equally.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

The current definition reads ““fusion energy facility” means a site that is—(a)used for the purpose of installing or operating any plant designed or adapted for the production of electrical energy or heat by fusion, and (b)not also used for the purpose of installing or operating a nuclear reactor.” Additional clarity should be added to this definition such that fusion research facilities are not inadvertently included. A simple addition of the word ‘commercial’ prior to ‘production’ may suffice.

7 Do you agree with the Government’s proposal to not set a deployment deadline for fusion energy facilities?

Yes

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

Helion is not aware of other alternatives that should be evaluated.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

The criteria appear to cover the necessary aspects of siting a fusion power plant. Helion appreciates that the criteria are discretionary and that sites will not be automatically disqualified if they do not meet an aspect of the criteria.

10 Are there any additional criteria that should be considered in the assessment process?

No

Helion is not aware of additional criteria that should be considered.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Don’t know

Similar to question 1, Helion would like to better understand the siting process for complex energy generation facilities. It may be best that NSIP is optional and permitting for fusion power plants through the Town and County Planning Act (TOCPA) with local authorities, similar to other infrastructure projects, is allowed.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not that Helion is aware of.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Don’t know

15 Do you agree with the selection and definition of key sustainability issues?

Don’t know

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don’t know

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Don’t know

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Don’t know

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Don’t know

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

No

Historic England

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The development of fusion energy facilities (of any size) has the potential to impact on the historic environment. This includes archaeological remains, historic buildings, structures, areas and places. As the consultation highlights fusion facilities will be subject to a different (from nuclear fission) regulatory regime which allows for sites to be located closer to populated areas. This could increase the likelihood of impacts on the historic environment given the potential for heritage assets to be located adjacent to populated areas e.g. on brownfield sites. If fusion facilities are dealt with under the NSIP process this will ensure Historic England is consulted early in the process and help refine developers' siting considerations at the earliest opportunity.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

This will ensure all proposals will go through a robust, well-established process with an emphasis on early and thorough pre-application consultation with statutory consultees, including Historic England.

For reasons highlighted in our response to Question 6, we seek further clarity on why research facilities (presumably of all fusion technology types) are not included in the NSIP process. Whilst some of these facilities may be smaller in nature than energy generating facilities potential impacts on the historic environment remain.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Not answered.

Historic England recognises the Government's aim to adopt an open-sited developer-led approach to site selection. Given the developing nature of the technologies involved this seems a sensible approach, but only if there are robust criteria and effective scrutiny in place. We expand further on the criteria-based approach in our response to Question 9.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Not answered

But we query the exemption for research facilities in our response to Question 6.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

The inclusion of both thermal and electrical facilities within the remit of the NPS will potentially allow for consistency of approach and ensure relevant levels of expertise are used to scrutinise each proposal.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Not answered

Historic England believes the definition of a fusion energy facility in the Energy Act 2023 provides an adequate level of distinction between a fusion energy facility (for electricity and/or heat production) and a fusion research facility. However, from this consultation it is unclear why research facilities, including larger scale facilities, are not included within the NSIP process. The consultation acknowledges "..some research facilities such as JET and larger scale facilities planned by industry can be large and complex". Additionally, the consultation also recognises that "…local authorities may not have the specialist knowledge to scrutinise plans on the timescales for FOAK facilities. Designating a Fusion NPS will mean that knowledge can be built centrally to scrutinise across England and Wales rather than building expertise in each local authority".

As larger research facilities are not subject to the NSIP process local authorities with potentially little/no expertise will decide such applications. This appears contrary to the governments overall ambition firstly to speed up infrastructure development and secondly, specifically with regard to the nuclear fusion, to ensure the relevant expertise exists to scrutinise such applications. Furthermore, the consultation gives no indication of any additional resources or expertise that would be available to local authorities to decide an application for larger research facilities. Given that they are likely to be large facilities and similar technical considerations apply it seems logical to include research facilities in the NSIP process.

Regardless of the planning process used (NSIP or local planning), the construction of any fusion energy facility (research or otherwise) has the potential to have significant impacts on the historic environment and developers should be encouraged to consult with Historic England at the earliest opportunity.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Not answered

Historic England notes the government's intention of this approach is to increase siting opportunities and give developers greater flexibility and time to develop proposals prior to submission. It would be helpful to give greater consideration around the potential impacts of an unrestricted timeframe approach. For example, an unrestricted timeframe may cause greater uncertainty for other applications, particularly regarding cumulative impacts. One new facility may be acceptable, whereas multiple proposals over a longer timeframe in sensitive locations where there are limited options could result in additional harm to the significance of heritage assets.

This is of particular concern as paragraph 4.2.5 of the Overarching NPS for Energy (EN-1) indicates nuclear generation, as a low carbon energy source, will be considered a Critical National Priority (CNP). The glossary definition in EN-1 sets the policy presumption that "subject to any legal requirements. The urgent need for CNP Infrastructure…. will in general

outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy" (EN-1, Chapter 6, Glossary). Whilst recognising the importance of CNP infrastructure, there is concern that the emphasis on urgency and criticality of such infrastructure may establish a default position for planning weight in favour of it regardless of level of impacts, such as on the historic environment. It is essential that early assessment of impact is retained for CNP infrastructure. This is necessary to inform potential mitigation hierarchy noting that, where possible, avoidance is better than minimising or mitigating impacts on the historic environment.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Not answered

Please see our response to Question 9.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Not answered

In adopting a criteria-based approach for EN-8 the intention is to enable a greater number of possible locations for nuclear fusion sites to come forward. The proposed site-based approach of EN-8 potentially increases the risk for those seeking to bring nuclear power generation sites forward if it is not robust. If a criteria-based approach is adopted it is critical that historic environment considerations are factored in at an early stage, to reduce the risk in progressing further assessment of unsuitable sites. We are therefore concerned with the use of the term 'discretionary' in table 2 (with reference to Environmental Protection - 'Areas of amenity, cultural heritage and landscape value'). It appears to be used to mean that the criteria marked as 'discretionary' would not automatically (or in principle) rule out sites being taken forward, as it appears 'exclusionary' criteria might. However, it could be taken to mean that it is discretionary as to whether sites are assessed under those criteria listed in the second column, which presumably is not the case.

It is crucial that the criteria include specific reference to the historic environment, and that the criteria-based approach is as robust as the site-based approach of EN-6. In addition, we recommend that developers are instructed to undertake early engagement with statutory consultees such as Historic England, on any sites under consideration. Undertaking early engagement will help refine developers' site considerations at the earliest opportunity and align with the new tiered pre-application services described in the Planning Inspectorates' Pre-application Prospectus.

In identifying potential sites developers are advised to consider all "likely site plans and reasonable variations", including those elements additional to the proposed site boundary, e.g. car parks and access roads. It would be helpful to know if this refers to permanent car parks and access roads or those created for the construction phase as well. These elements, whether permanent or temporary, may impact further on heritage assets and the surrounding landscape so we welcome this approach.

Under the criterion for Areas of amenity, cultural heritage and landscape value, the consultation advises that developers would need to provide a high-level indication of how they would implement the mitigation hierarchy on local designated or non-designated areas of

landscape value. It would be helpful if this also clarified the intention to include designated and non-designated heritage assets.

We note that the legislative and policy requirements in relation to the historic environment are such that they must be taken into account. The criteria should therefore incorporate provisions to ensure that the historic environment is properly taken into account when assessing the suitability for a fusion energy facility.

10 Are there any additional criteria that should be considered in the assessment process?

Not answered

Please see our response to Question 9.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Not answered

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Not answered

We welcome the recognition that engagement should be led by developers who should engage with statutory bodies “at the earliest possible opportunity during the pre-application stage”. Early engagement with statutory consultees will be important to minimise risks for both developers and the historic environment and aligns with the approach outlined in the Planning Inspectorates’ Pre-application Prospectus (see our response to Question 9).

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

Historic England advises the following -

Amend the questions related to Objective 5 'Protect and enhance cultural heritage assets and their settings, and the wider historic environment' as follows;

Question 1. Insert 'Where possible seek to avoid impacts on designated heritage assets', conserve and enhance designated heritage assets and their settings (World Heritage Sites, Scheduled Monuments, Listed Buildings and structures…etc

Question 5. Add the following to Ensure appropriate archaeological assessment prior to development 'to establish the significance of archaeological remains and the impact of the proposed development (on the significance)'.

Add a further question, 'Ensure adequate archaeological mitigation prior to and/or during development i.e. to consider if archaeological remains identified by the assessment will be impacted, damaged or disturbed by the development)'.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Kent County Council

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Kent County Council (hereafter referred to as the County Council) considers that by aligning the process with other complex energy generation facilities, it will create a level of consistency in how stakeholders can engage in the process.

However, the complex nature of fusion energy projects will still need to be considered, and the need for high levels of assessment, engagement and examination must be maintained throughout the process. As the technology develops and more information becomes available regarding these projects, there may be need for additional assessments or documentation. However, the County Council considers that by following a common process generally (that is adjusted where necessary to account for the specialist nature of the projects), this will encourage understanding, and allow more stakeholders to engage.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Don't know

The County Council notes that this question on page 21 refers to the NSIP process, however on page 34, it refers instead to the NPS process.

In respect of the Government's proposal to include all fusion technologies in the NSIP process, the County Council does recognise the strategic nature of energy needs, particularly in the context of the housing and economic growth ambitions for Kent but also matters relating to energy supply and security, including the role of nuclear developments. The County Council therefore believes that designating clear policy to support the delivery of nuclear capacity is a matter of urgency.

However, the County Council would like to use this opportunity to continue to raise its general concerns with the current NSIP regime and the treatment of local authorities which may affect the ability to engage.

The County Council has proactively engaged in the NSIP process across a diverse range of projects. However, the NSIP regime, despite ongoing reforms, does not adequately support councils in their engagement in the process. Proper funding to ensure adequate resources and expertise are appointed to the projects cannot be secured. The County Council is therefore concerned that if all nuclear projects were to proceed through the NSIP regime, the constrained resources of officers engaged in the NSIP processes will be placed under increasing pressure, without proper financial support. Unless reforms genuinely address this ongoing problem of under resourcing, the outcome is likely to be further delays to delivery and negative impacts for communities. Full cost recovery mechanisms as proposed as part of the 'Operational reforms to the NSIP consenting process', and now implemented, must be extended to include local authorities to ensure adequate resources can be applied to the projects and that councils' duties to their communities can be fulfilled.

The technologies that are being proposed are specialised in nature and support must be provided to local authorities whether or not they are the determining authority to ensure they

have adequate expertise and resources to assess the projects either within, or impacting on, their areas.

In respect of the Government's proposal to include all fusion technologies in the NPS process, a NPS must provide clear and certain policy direction around the growth of nuclear power and projects. Applicants and developers need to have a policy framework to inform site selection and the development of deliverable proposals.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

Given that the future technology (or technologies) to be used in fusion energy facilities are still not fully developed, the County Council agrees with the Government's open-sited approach in the fusion NPS process. Compared to fission projects, the siting of fusion facilities is likely to be less restrictive technically and in terms of securing the support of the local community. The County Council therefore agrees that the prior identification of sites for future fusion energy facilities would be unnecessarily restrictive and difficult to apply as an all-encompassing approach without disadvantaging some nascent technologies and stifling innovation.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Don't know

The County Council notes that this question on page 22 refers to the NSIP process, however on page 34, it refers instead to the NPS process.

In respect of whether the County Council agrees with the Government's proposal to include all fusion energy projects, independent of capacity, into the fusion NSIP process, it would draw attention to commentary raised in respect of question 2, noting the need for appropriate support to ensure proper resourcing of local authorities. This is especially if all fusion projects are to be included, as this will of course further increase the number of NSIP projects in the pipeline.

In respect of whether the County Council agrees with the Government's proposal to include all fusion energy projects, independent of capacity into the fusion NPS process, it considers that nuclear fusion projects, no matter their scale, will share some commonality with regards to their impacts and issues. However, these may be much more significant where the proposal is of a larger scale. The County Council agrees that creating a consistent policy approach through an NPS will help to ensure that projects that come forward are appropriately sited, developed, and managed with clear guidance, direction and a framework to ensure consistency.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

The County Council agrees, due to the technical complexities with the proposals, it is important where possible that consistency in process can be delivered, to ensure that stakeholders are informed and able to engage. Drawing attention to the challenges raised in question 2, the County Council would also reference that the differences between these types of facilities must

be clear in policy and in their assessment through the NSIP process to ensure the challenges and impacts can be examined effectively.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

The County Council has no comments on this question.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

The County Council agrees with the Government's proposal to not set a deployment deadline for fusion energy facilities. Fusion technology is still under development, and the deployment of fusion energy facilities are at least a decade away. It would be impractical to set deadlines at this stage.

However, the County Council considers that it is important to ensure that long term strategic direction provides certainty and consistency to emerging technologies which may be forthcoming. It is recognised that the Government has clear goals in the delivery of nuclear energy. Therefore, although there is not proposed to be a time limit on deployment, the NPS should seek to support a steady stream of new nuclear developments to support growth.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

The County Council welcomes the Government's renewed commitment to nuclear power and support for the development of future fusion facilities. However, the County Council is keen to stress that its support for fusion should not detract from the need to secure the future of Dungeness in Kent as a site for a fission reactor. Nuclear fission remains critical for UK energy security, regardless of the future development of fusion technologies, and Dungeness is a ready made site for this. With its existing grid connections, access to cooling water, experienced workforce and supportive local community, the County Council urges Government to ensure that Dungeness will play a key role in meeting our future energy requirements through the deployment of small modular reactors (SMRs) or a larger facility.

The favourable conditions for siting a new fission reactor at Dungeness would also apply for a future fusion facility at the site. If a SMR is built at Dungeness, then it could be replaced in due course by a fusion reactor as the technology develops and complements or (potentially) supersedes fission as a form of energy generation.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

The County Council believes that, given the current stage of development for fusion technology, the proposed criteria are necessarily broad in scope and suitable as an

overarching guide for assessing the suitability of sites for future fusion energy facilities. However, these criteria will need to be refined as the technology develops (for example, there is still uncertainty around waste streams that will be created, impacts of multiple devices etc.).

The County Council considers that the criteria should also continue to focus on brownfield development opportunities on former energy sites, as well as consideration of the wider context of local energy need from growth and infrastructure.

As the Lead Local Flood Authority, Kent County Council agrees that the new NPS does not require inclusion of flood risk as an exclusionary criterion (as per page 23 of the consultation document) and that existing requirements for the application of the Sequential/Exception Test and site specific Flood Risk Assessments are sufficient to ensure that flood risk is considered and methods proposed to manage it.

As the Highway Authority for Public Rights of Way (Kent) we advise that the potential impacts on the PRoW network are considered and planned for when assessing the suitability of sites for fusion energy facilities.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

The County Council would recommend that in addition to development being encouraged on brownfield sites, there should be consideration of sites that have prior energy or nuclear use and where some of the infrastructure required to support nuclear developments may already be available.

The County Council would also draw attention to the essential consideration of wider energy needs of a local area when considering a location for a nuclear development, including needs arising from residential growth as well as large scale infrastructure types which have a high energy need, such as ports.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Don’t know

The County Council believes that this will depend on the different fusion technologies that emerge. It is currently too early to adequately answer this question.

The County Council recommends that councils should continue to be engaged as the criteria is developed given their understanding of local issues and impacts which could be usefully fed into the development of the criteria.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Don’t know

The County Council has no comments on this question.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

20 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

National Trust

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The National Trust considers that there are merits in aligning the planning process for fusion energy facilities with other complex energy generation facilities as a means of providing certainty not only to the development industry promoting them, but also to interested, and sometimes directly affected, parties such as ourselves. Ensuring consistency in approach for planning across these complex, challenging, changing and large-scale proposals could deliver benefits to all involved in providing certainty and consistency.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

The National Trust supports the proposal for all fusion technologies to be considered within the NSIP regime. This is an emerging technology which is highly likely to require specialist knowledge and understanding for its consideration through the planning process. The NSIP regime and consideration by PINs of these proposals provides the opportunity for knowledge and experience to be built to ensure robust examination of them. The NSIP regime also ensures that this is undertaken in a collaborative manner and front-loaded to enable early and continued engagement with interested parties.

We do see that there may be challenges if some elements of fusion technologies were considered through Town & Country Planning regime applications, given current resourcing and skills issues in Local Planning Authorities. We would question whether it would be possible to secure the necessary knowledge and expertise to properly assess and consider such complex proposals or elements of them.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Don't know

The National Trust can understand some advantages of the proposed open-sited approach for the fusion NSIP process.
Given the emerging nature of this technology and that different plants may have varying locational influences, the Trust can understand the reason for empowering developers to assess and identify potential sites.

We recognise that this approach aligns with the emerging approach for the new EN-7 NPS on nuclear power and aligning fusion energy with this is likely to secure quicker, better delivery of new fusion energy plants as a result of a market/developer led approach, where this less constrained approach means that all sites can be considered against criteria and not just those listed in an NPS. Additionally, this more flexible, agile approach would allow for a quicker response to technological advances and any opportunities that this might present.
However, as it stands, nuclear energy is one of the few major infrastructure sectors that currently takes a truly strategic and spatial approach in its NPS, allowing for holistic

consideration of sites and associated infrastructure, such as grid connections. The value of this should not be lost in the quest to embrace new technologies and a developer led approach of the emerging fusion energy sector. We would encourage consideration of the integration of any new NPS with the Strategic Spatial Energy Plan at the very least.
The new NPS should bring forward clear criteria and guidance for consideration of new sites, there is a need to consider grid connection, strategic oversight, cumulative impact and geographic clustering, as well as any potential conditions needed to support fusion energy facilities.

Clear criteria and standards will not only benefit stakeholders with an interest in siting but also those developers who seek to take projects forward, allowing them to minimise risk in bringing forward unsuitable sites.

If not, there is the risk that the interpretation of criteria within the emerging NPS is likely to vary, especially when considering the strategic merits of a nominated site and the discretionary criteria. This could in turn lead to longer examination periods with challenge to a decision to site in a particular location where a developer might focus on sites which are not suitable. This is particularly in relation to discretionary criteria, and it is unclear how this could be resolved without clear revisions through the whole decision-making process to limit the risks and delays associated with this occurring.

Government must also consider how it will address the potential risk of cumulative impacts on a given area which might be amenable to significant fusion plant development. One advantage of including identified sites within a new NPS is that it can ensure no one area becomes the single focus and that a holistic approach can be secured in relation to significant pieces of infrastructure associated with fusion energy plants, such as grid connections or proximity to high heat users, allowing for integration and minimising of effects.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

The National Trust can see significant merit in bringing all fusion proposals, irrespective of capacity, under the NSIP regime. We consider that this will provide certainty to developers in this emerging technology market but will also build confidence and capability in their consideration.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

The National Trust considers it sensible to ensure that both potential aspects of fusion energy are included in the NSIP process. Again, this gives certainty to scheme promoters and allows the building of confidence and capability for both areas as part of the consideration process.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Not answered

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Not answered

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

The National Trust does have some concerns regarding the current scope of the key points laid out in the consultation document. As with all energy and heat generating proposals connections into distribution networks are going to be a critical locational factor and a key consideration for alternatives. This does not seem to be currently covered in the list provided. Furthermore, there is no indication of in-combination effects as being something that an assessment of alternatives should cover. With many of the new energy technologies we are seeing clustering appearing in certain location across the country. While this can have advantages in terms of driving innovation and holistic approaches for aspects such as connections to the distribution network, there are also risks that it can result in greater harm to nature, heritage and landscape. We do consider that this should be included in the approach to assessment of alternatives in the final NPS.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

The National Trust does not consider that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities.

10 Are there any additional criteria that should be considered in the assessment process?

The National Trust considers that additional criteria and/or amplification of the criteria are required to enable assessment of fusion energy facilities:
• Marine Protected Areas and Highly Protected Marine Areas – these important marine designations should be included in the assessment criteria as some proposals may seek to secure cooling from the sea.
• Irreplaceable Habitats – the scope of the ecological criteria should be widened to specifically identify irreplaceable habitats. This would link back to the consideration of irreplaceable habitat in Overarching National Policy Statement for Energy (EN-1) and will also align with requirements in relation to the Biodiversity Net Gain hierarchy.
• Setting of heritage assets – it is considered that the recognition that the setting of heritage assets needs consideration should be clearer than currently stated. This will also enable a close link to be provided with para 5.9.3 of EN-1. It is also suggested that the additional heritage protection introduced in the Levelling Up and Regeneration Act are reflected in the final NPS i.e.: inclusion of Registered Parks and Gardens.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Not answered

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Not answered

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Natural England

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

In the absence of a strategic environmental assessment of suitable sites, NE advises that there should be thorough environmental assessments of alternative sites at the individual project level.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Natural England would support a more strategic approach across infrastructure, building on the Strategic Spatial Energy Plan and how that might link to the work being undertaken by the Chief Planner's taskforce looking wider across other infrastructure sectors and integration with spatial planning. This is particularly relevant where co-location is being considered.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

Consideration of indirect cooling approaches for all sites, coastal and non-coastal.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

Natural England welcomes the inclusion of early consideration of Biodiversity Net Gain. Given the anticipated timescales involved with drafting this NPS, and the publication of further government BNG policy and guidance for NSIPs, Natural England's advice is that the draft EN-8 should fully and accurately reflect latest policy developments.

We advise including the following:

- Clarity that the mitigation hierarchy must be followed (avoid, mitigate, compensate) and that BNG requirements will be in addition to this.
- Reference to the Nature Recovery Network and Local Nature Recovery Strategies.
- Reference to Nature-based Solutions under Climate change and adaptation.
- The potential impacts of cooling water on protected sites.
- The potential impacts associated with BNG and bird strike close to civil aerodromes (not just close to military activities)

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Natural England suggests that it would be useful for EN-8 to refer to all of the generic impacts and assessment principles in EN-1, and to make clear their relevance to fusion energy.

Natural England advises assessing the wide range of environmental net gains listed in EN-1 (including biodiversity net gain, improvements to air or water quality, landscape enhancement, increased access to natural green space and the enhancement, expansion or provision of trees and woodlands, nature-based solutions and green infrastructure), rather than limiting this to just biodiversity net gain.

Natural England advises including Best and Most Versatile (BMV) agricultural land and soils of high sensitivity (i.e. peat - whereby the peat may not be located in a designated location) for consideration in the assessment process.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

Natural England would not suggest limiting the assessment criteria at this early stage for any particular technology.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

We strongly agree with early engagement with Natural England. We agree with the more streamlined approach to the NSIP process, aligned with the reforms.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Natural England recommends including the following:

- The updated National Planning Policy Framework (December 2023)
- National Infrastructure Assessment 2023 (rather than 2018)
- Government response to the Managing radioactive substances and nuclear decommissioning policy consultation (this is now available)
- The Green Infrastructure Framework in full (rather than just the introduction)
- The Statutory Metric for BNG (no longer metric 4.0)
- Biodiversity and the Natural Environment:
    - Local Nature Recovery Strategies Policy Paper (June 2023)
    - Nature Recovery Networks
    - Delivering 30by 30 on land in England (December 2023)
    - Natural Capital approach
    - Healthy soils
    - Strengthen the ‘contribute’ text to require delivery
    - Management of Hedgerows (England) Regulations 2024
- Nature Based Solutions for climate mitigation and adaptation (within multiple themes: Biodiversity and the Natural Environment; Greenhouse Gas Emissions; and Adaptation to a Changing Climate)
- Noise impacts at sea as well as on land:
- Land Use, Soil and Agriculture
    - The protection of Best and Most Versatile agricultural land (not best value). This is because the ALC system is based on the inherent soil and site properties and not the current ‘value’ of the land. This is in line with the 25YEP and the National Planning Policy.
    - The protection of peat soils.
    - Suggested rewording Bullet 5 on page 34 from ‘Ensure appropriate management and storage of soils during construction’ to ‘Ensure the sustainable management, storage and use of soils during construction’.
- Landscapes and Townscapes:

    - The duty within the Levelling Up and Regeneration Act to further the purposes of protected landscapes.

- Social themes:
    - Access to natural green space
    - The protection of public rights of way including national trails and the King Charles III England Coast path

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

No

Natural England has the following comments and queries on the relevance and detail of baseline data:

- What consideration will be given to local designations – e.g. Local Wildlife Sites?
- The discussion in the summary on pages 37 and 38 talks about 'prevent, reduce or compensate for' any negative effect. We advise using the mitigation hierarchy terms 'avoid, mitigate, compensate'. In addition, we would welcome a move towards delivering beneficial effects (environmental outcomes).
- Areas of Outstanding Natural Beauty are now named National Landscapes
- There are more irreplaceable habitats to be considered (not just ancient woodland and ancient and veteran trees).
- Natural England suggests adding the following:
    - The Broads (with National Parks)
    - Green Infrastructure mapping data
    - Irreplaceable habitat and priority habitat data
    - Peat maps
    - Agricultural land classification maps

15 Do you agree with the selection and definition of key sustainability issues?

No

Natural England supports the inclusion of biodiversity as a key sustainability issue, recognising a declining trend. We highlight the importance of assessing impacts at a landscape scale, including fragmentation and isolation of habitats and species.

We advise including the risks of climate change to nature and nature recovery.

We can clarify that is agricultural land (rather than soil) which is graded, using soil, site and climatic characteristics and interactions.

We advise including consideration of soil health and the delivery of soil ecosystem services beyond the provision of food. This would require sustainable soil management.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Yes

Natural England recommends using the following additional data.

Biodiversity:

- Proposed SACs, potential SPAs, proposed Ramsar sites and areas secured as sites compensating for damage to a European site.
- Protected species (protected under the Wildlife and Countryside Act, Habitats and Species Regulations.)
- Priority Species and Priority Habitats (rather than the current reference to Priority Species and their habitats).
- Local as well as national data sets. Data could be collected from local sources, e.g. records centres and Local Nature Recovery Strategy maps (when available)
- Wetlands Bird Survey (WeBS) data from the British Trust for Ornithology

Air Quality:

- Air Pollution Information System (apis.ac.uk)

Communities and wellbeing

- People and Nature Survey data
- Green Infrastructure mapping data.

Soils & Agricultural land:

- The strategic scale 1:250,000 Provisional Agricultural Land Classification (ALC) mapping does not differentiate Grade 3 into Subgrades 3a and 3b; therefore, the extent and location of BMV (Grade 1, 2 and 3a) cannot be determined from this mapping, however it does provide a strategic guide to land quality, primarily to support regional and county level planning. In England, a map assigning the likelihood of BMV agricultural land has been created as a companion to the Provisional ALC maps. The best agricultural land (Best and Most Versatile) has greater protection than non-BMV land. BMV agricultural land is normally determined as a result of detailed ALC site survey. The inclusion of 'high likelihood' of BMV; and the main peat areas to the baseline data is recommended.
- Peat map / peaty soils location data

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

No

Natural England wishes to note the following:

Biodiversity:

- Biodiversity Net Gain requirements for NSIPs are currently under development and so cannot yet be fully reflected
    - We support following the mitigation hierarchy
    - We recommend the inclusion of Protected Species, Priority Species and Priority Habitats.
    - We welcome the inclusion of natural capital and wider ENG.
    - We welcome the inclusion of Local Nature Recovery Strategies/Nature Recovery Networks.
    - Explicit reference to Nature Based Solutions for climate mitigation and adaptation would be a useful addition here.

Greenhouse gas emissions and Climate Change adaptation:

- We welcome the inclusion of Nature Based Solutions and the particular reference to woodland creation, peatland restoration and Natural Flood Management.

Air Quality:

- We advise strengthening the implications and opportunities in relation to protected habitats and protected species. The focus currently appears to be on air quality for human health.

Water Environment:

- Impacts on water resources, water quality and water temperature could lead to adverse effects on protected habitats and species.

Soil and Contaminated Land

- We advise avoiding development on Best and Most Versatile agricultural land.
- We advise that there should be sustainable management, storage and use of soils during construction.

Landscapes, Waterscapes and Townscapes:

- There are opportunities for landscape enhancements to be secured where effects are on protected landscapes (National Landscapes and National Parks). We note the importance of protecting the setting of (as well as considering direct effects on) National Landscapes and National Parks.
- We have some concerns around the implications of the text on page 69, where it is stated that “the NPS should recognise the difficulty of achieving landscape protection…”.
- Natural England advises considering impacts on tranquillity during construction, operation and decommissioning.

More could be said about the interactions of effects, which can be significant.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

No

Natural England suggests the following changes:

- Objective 2 –including a guide question to encourage the use of Nature Based Solutions for climate adaptation.
- Objective 3 (biodiversity) Including guide questions about protecting and enhancing internationally designated sites (SPA, SAC, Ramsar)
- Objective 3 – rephrasing the second guide question – to protect all important habitats and protected species, not just those on local wildlife sites.
- Objective 3 – including supporting the delivery of Local Nature Recovery Strategies.
- Objective 3 – changing the wording to Priority Habitats and Priority Species.
- Objective 3 – strengthening the guide questions that start with 'minimise', with reference to the mitigation hierarchy (avoid, mitigate, compensate).
- Objective 3 –including Irreplaceable Habitats
- Objective 4 – including the avoidance of compensation sites
- Objective 6 – seeking to further the purposes of National Landscapes and National Parks
- Objective 6 – rewording the guide question on 'reduce tranquility' to make it positive (e.g. protect tranquillity)
- Objective 6 – Including the protection of dark skies
- Objective 8 – Including the avoidance of adverse air quality effects on Habitats Sites and Sites of Special Scientific Interest.
- Objective 9 – including sustainable soil management and protecting and enhancing soil health.
- Objective 11 – including promoting access to nature for people and improving local Green Infrastructure provision

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Natural England makes the following suggestions:

- Identifying what other plans and programmes are included in the in-combination/cumulative assessment.
- Recognising the importance of an iterative AoS – with assessors and those preparing the NPS working together.

- Setting out how alternatives will be identified and assessed.

Sizewell C

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Sizewell C (SZC) agree that the planning process should be aligned with other complex energy generation facilities. The more shared understanding and cohesion of process that can be facilitated between planning assessments of major and complex energy generation projects, the more efficiently and quickly projects can be approved and completed.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

SZC agree that all fusion technologies should be included in the NPS process. It is practical to have a single centre of expertise to deal with new and (relatively) unproven fusion technologies, as the range of the technologies available means that it is important to not inadvertently block progress. The UK government should remain open to all forms of fusion and not stifle any potential specific forms reactor design as the different technologies progress towards commercial viability.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

SZC agrees with the proposal for a developer-led approach that is facilitated by robust criteria for the fusion NPS process.

SZC note that there may be sites that, based on the criteria, are suitable for both fusion and fission technologies. From this perspective, it will be important to earmark preferred sites for new nuclear fission deployment as part of the UK's drive towards net zero and delivering up to 24GW of nuclear, within a nuclear strategy and pipeline. In the short and medium term, it would potentially be unsuitable to place fusion at existing fission sites. Where a certain site has been identified for new development, these sites are all undoubtably required in a much shorter timescale than fusion generation is likely to be sanctioned, and scalable, to see as part of the Government's 24GW nuclear roadmap.

This will be important within the National Energy System Operator's (NESO) publication of a Strategic Spatial Energy Plan (SSEP). This plan will bridge the gap between Government policy and infrastructure development plans. To do this successfully, it will need to assess where low carbon generation developments, including nuclear, are likely to be sited in order to identify the much-needed transmission network investment. This will mean that the Government must define how fusion fits in the SSEP.

One risk is that sites are chosen on the basis of factors which don't include considerations of where siting offers the greatest system value. For example, it would be sub-optimal for fusion

generators to select sites in the North of Scotland, it is known there is a massive challenge of system congestion and that this is likely to persist and worsen in the coming decades. It is easy to see how this could happen if developers are expecting generation to be ultimately supported by a mechanism such as a CFD.

Perhaps the criteria could be widened a little to reflect the wider system need rather than purely the connection. It might be that sites close to former coal or gas power stations in England and Wales could offer the best potential where there is existing grid infrastructure and indeed a local acceptance of power generation as an industry, and possibly even some skills which can be re-used.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

SZC agrees with this proposal.

There is little benefit to be gained from excluding projects below a certain capacity threshold particularly when the technology is immature. It would be much more beneficial to keep all fusion energy facilities in the NPS process thereby ensuring clarity and more certainty to developers, whilst building capability within the national planning authority.

It would also seem a poor use of resources to have individual local authorities build the expertise to deal with such planning applications, particularly when the expertise is sparse, an indeed, there is a strong likelihood that permissions would be duly delayed if they had to do so.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

SZC agree that both thermal and electrical facilities should be included in the fusion NSIP process. Fusion energy, like fission energy, has great potential for both power generation and heat output. Fusion technology has the potential to supply high-grade heat and directly supplying to co-located industry could present an efficient use of this heat and a greater opportunity.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

Disagree.

The definition of a fusion energy facility in the Energy Act 2023 is not clear in distinguishing between a fusion energy facility and a fusion research facility. The only definition of a "fusion energy facility" is to 'be designed or adapted for the production of electrical energy or heat' (156 (2B) (a)). "...designed and adapted for the production of electrical energy and heat" could capture both research and energy facilities - given this ambiguity further definition or supporting guidance would be useful.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

SZC is supportive of not setting deployment deadlines for fusion energy facilities. There would be limited benefit of a deployment deadline, coupled with a risk that new facilities might not deliver on their full potential if they are under pressure to hit arbitrary timelines - setting artificial timescales could lead to sub-optimal decisions in the development cycle. There is also a risk that the policy could be 'timed out' and cease to be useful.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

SZC have no other suggestions of factors for developers. It will be important that the assessment of planning applications consider the massive benefits of dispatchable, low-carbon energy provided by fission power and fusion power.

Nonetheless, assessing reasonable alternatives is challenging for large, complex energy infrastructure. SZC suggest guidance on a limit of what comparison of alternatives is expected.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

Yes, the proposed criteria are extensive enough and cover all necessary aspects for assessing the suitability for fusion energy facilities.

The benefits of co-locating fusion with heavy industry present a significant opportunity for the sustaining the long-term decarbonisation of UK industry. It will be important that the fusion NPS enables this, recognising that existing health and safety regulations will ensure the highest standards of safety are met.

10 Are there any additional criteria that should be considered in the assessment process?

No

No.

SZC stress the importance in ensuring that in terms of siting and investment, in its current state of technology readiness, fusion should not be favoured over fission. Whilst fusion shows extreme promise, reducing the number of potential fission projects by allocating a site (with potential for both fission and fusion) to a fusion site too early in the development of fusion, could create a bottleneck and reduce the potential capacity of Britain's low carbon electricity generation. This applies to both SMR and giga-watt fission.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

No, SZC feel that it would be counter-productive to be too prescriptive or rules-bound for fusion technology, recognising the current level of technical progress - it is important to welcome and support all forms of fusion technology at this stage.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Broadly, SZC is supportive of the proposed model for the implementation of the fusion NPS, subject to the comments above.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

No comments from SZC for the AoS.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

No comments from SZC for the AoS.

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

No comments from SZC for the AoS.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

No comments from SZC for the AoS.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

No comments from SZC for the AoS.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

No comments from SZC for the AoS.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

No comments from SZC for the AoS.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

No comments from SZC for the AoS.

The Institute of Acoustics

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The Institute of Acoustics agrees that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities. The Overarching National Policy Statement for Energy (EN-1) has proven effective in controlling the impacts of noise and vibration for other energy infrastructure projects, and this approach is well-suited for fusion energy facilities as well.

Whilst there are many technological differences between fusion and other power generation facilities, the likely sources of noise and vibration are very similar. Both types of facilities have large rotating machinery such as turbines and generators, pumps and compressors for cooling systems, transformers, and other mechanical and electrical equipment. Noise from any associated road and rail transport routes will also be similar; furthermore, construction noise and vibration from activities like piling, groundworks, and heavy vehicle movements would also be comparable.

The similar noise sources mean that the assessment methodology and mitigation approaches set out in EN-1 can be readily applied to fusion power plants. EN-1 requires applicants to include a noise and vibration chapter as part of the Environmental Statement where noise and vibration impacts are likely to arise.

2 Do you agree with the Government’s proposal to include all fusion technologies in the NSIP process?

Yes

The Institute of Acoustics agrees with the Government's proposal to include all fusion technologies in the same EN-8 National Policy Statement. As outlined in our response to the previous question, the noise and vibration sources are likely to be similar across different types of fusion power plants, just as they are comparable to other power generation facilities. Given these similarities, it is appropriate to assess and manage the acoustic impacts of various fusion technologies through the same NPS framework that has proven effective for other complex energy generation facilities.

3 Do you agree with the Government’s proposal to take an open-sited approach in the fusion NSIP process?

Yes

The Institute of Acoustics agrees with the Government's proposal to take an open-sited approach in the fusion National Policy Statement (NPS) process. Provided the noise and vibration assessment principles outlined in the Overarching National Policy Statement for Energy (EN-1) are followed, an open-sited approach allows for the selection of the most optimum location for fusion energy facilities.

The open-sited method enables developers to identify sites that best suit their specific fusion power plant technologies and requirements while considering a range of factors, including noise and vibration impacts. By following the robust assessment framework laid out in EN-1, developers can thoroughly evaluate the noise and vibration effects of their proposed sites and incorporate appropriate mitigation measures into their designs.

4 Do you agree with the Government’s proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

The IOA agrees with the Government's proposal to include all fusion energy facilities, independent of capacity, in the same EN-8 National Policy Statement. As outlined in our response to previous questions, the noise and vibration sources are likely to be similar across different types of fusion power plants. Due to these similarities, it is appropriate to assess and manage the acoustic impacts of fusion energy facilities, independent of capacity, using the same assessment methodology.

5 Do you agree with the Government’s proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Taking into account the importance of climate change and the impact that fusion energy could have on the reduction of carbon emissions, the IOA agrees with the Government’s aim to streamline the planning process for fusion energy projects by including them within the NSIP regime.

The process provides a clear and consistent framework for assessment and ensures that the national importance of fusion energy development is recognised. The extensive consultation with local stakeholders that is a requirement of the NSIP process serves to ensure that local views on noise and vibration are considered.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

The IOA is agnostic on this issue. From an acoustic perspective, the key considerations for assessing and managing noise and vibration impacts will be factors such as the scale of the facility, its location relative to sensitive receptors, the specific design and layout of the plant, and the effectiveness of any mitigation measures employed. These factors are likely to be more influential than whether the facility is classified as a research or commercial energy generation site.

7 Do you agree with the Government’s proposal to not set a deployment deadline for fusion energy facilities?

Yes

In terms of noise and vibration, the absence of a deployment deadline is unlikely to have a significant direct impact. The assessment and management of acoustic impacts will still be a key consideration in the planning and consenting process for fusion energy facilities, regardless of when they are deployed. The principles and requirements set out in EN-1 will continue to apply, ensuring that noise and vibration are thoroughly assessed and mitigated as needed in order to comply with the Government's overarching policy on noise (the Noise Policy Statement for England (NPSE)).

A rigid deadline could put undue pressure on the industry and lead to suboptimal decision-making. Not setting a deployment deadline ensures that the regulatory framework for fusion energy, including the proposed National Policy Statement (NPS), can be developed and implemented in a measured and comprehensive manner. This is likely to provide better outcomes in terms of noise and vibration.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

In assessing reasonable alternatives for fusion energy facilities, developers should primarily focus on the factors and principles outlined EN-1. EN-1 provides a comprehensive framework for considering alternative sites and technologies, which is applicable to fusion energy projects.

From a noise and vibration perspective, EN-1 requires developers to assess the acoustic impacts of their proposed projects and consider alternative sites or designs that could minimise these impacts. This includes evaluating the potential effects on sensitive receptors, such as residential areas, schools, and hospitals, and exploring options to avoid significant adverse noise and vibration impacts and to mitigate and minimise adverse noise and vibration effects within the context of Government policy on sustainable development.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

The IOA believes that the assessment criteria outlined in EN-1 provide a solid foundation for evaluating the suitability of sites for fusion energy facilities. EN-1 sets out a comprehensive framework for assessing the impacts of energy infrastructure projects, including noise and vibration, which should be the primary basis for determining the appropriateness of a site for a fusion power plant.

EN-1 requires developers to conduct a thorough noise and vibration assessment as part of the Environmental Statement. This assessment must identify noise-generating aspects of the project, predict the expected noise levels, evaluate the effects on sensitive receptors, and propose appropriate mitigation measures. The criteria in EN-1 ensure that the acoustic impacts of a proposed site are fully considered and that any significant adverse effects are adequately addressed and avoided.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Please refer to the answer to the previous question.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

The IOA is satisfied that the assessment criteria laid out in EN-1 is sufficient to assess different fusion technologies.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

The IOA agrees that a developer-led approach to site selection can be successful, provided that is guided by the strategic criteria outlined in the NPS. This model aims to provide clarity and certainty to developers, regulators, and communities on how the planning process for fusion energy facilities will be carried out. However, from a noise and vibration perspective, the new NPS for fusion energy (EN-8) should rely on the existing Overarching National Policy Statement for Energy (EN-1) to provide a consistent and robust framework for assessing and managing acoustic impacts.

EN-1 sets out clear and comprehensive policies and guidelines for the assessment of noise and vibration impacts from energy infrastructure projects. It requires developers to conduct detailed noise and vibration assessments as part of the Environmental Statement, which must include:

- a description of the noise-generating aspects of the project;
- identification of noise-sensitive receptors;
- predictions of how noise levels will change due to the project;
- an assessment of the effects on sensitive receptors; and
- proposed measures to mitigate noise impacts.

These requirements ensure that the potential noise and vibration impacts of a project are thoroughly evaluated and that appropriate mitigation measures are put in place to protect local communities and the environment and that the requirements of the Government's overarching noise policy are met.

EN-1 also emphasises the need to consider the cumulative effects of noise and vibration in combination with other impacts, such as air quality and traffic. This holistic approach is crucial for understanding the overall impact of a project on the surrounding area and for identifying any potential interactions between different types of impacts.

Furthermore, EN-1 sets out clear expectations for the decision-making process, stating that the Secretary of State should not grant development consent unless they are satisfied that the proposals will:

- avoid significant adverse impacts on health and quality of life from noise;
- mitigate and minimise other adverse impacts on health and quality of life from noise; and

- where possible, contribute to improvements to health and quality of life through the effective management and control of noise.

These requirements align with the NPSE. Consequently, by relying on these established policies and guidelines from EN-1, the new fusion-specific NPS (EN-8) can ensure that noise and vibration impacts are assessed and managed consistently and effectively for fusion energy projects.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

The AoS includes a small number of noise and vibration-related policies, plans, or programmes, including:

- WHO Guidelines for Community Noise (1999)
- WHO Night Noise Guidelines for Europe (2009)
- WHO Environmental Noise Guidelines for the European Region (2018)
- Environmental Noise (England) Regulations 2006 as amended by The Environmental Noise (England) Amendment Regulations 2018
- JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys 2017
- JNCC Statutory nature conservation agency protocol for minimising the risk of injury to marine mammals from piling noise 2010
- Noise Policy Statement for England (NPSE):
- TAN 11: Noise 1997
- PAN 1/2011 Planning and Noise
- Environmental Noise (Scotland) Regulations (2006) as amended by The Environmental Noise (Scotland) Amendment Regulations 2018

These are high-level documents and are generally not directly used to assess the impacts of construction and operational noise and vibration of nationally significant infrastructure projects in the UK.

The Appraisal of Sustainability (AoS) scoping report does not explicitly mention a number of noise and vibration-related policies and guidance, which are integral to the noise assessment framework in EN-1. These are:

- Noise and Soundscape Action Plan 2018 to 2023: The Welsh Government’s overarching policy on noise.
- Planning Practice Guidance for Noise: This guidance provides advice on how planning can manage potential noise impacts in new development proposals. It covers aspects such as assessing noise levels, mitigation measures, and acceptable noise standards.

- Environmental Protection Act 1990 (Part III): This act deals with statutory nuisance, including noise nuisance, providing a framework for managing noise pollution through local authorities.
- Control of Pollution Act 1974: This act includes provisions for controlling noise from construction sites and other operations, allowing local authorities to impose noise control measures.
- The Noise Insulation Regulations 1975 (as amended): These regulations require noise insulation to be provided for buildings affected by high levels of noise from new or altered roads.
- The Noise Insulation (Railways and Other Guided Transport Systems) Regulations 1996: These regulations require noise insulation to be provided for buildings affected by high levels of noise from new or altered railways.

In addition to the omitted policy and guidance documents above, the AoS also omits the following British Standards that also appear in EN-1:

- BS 4142: Methods for rating and assessing industrial and commercial sound.
- BS 6472: Guide to evaluation of human exposure to vibration in buildings (1 Hz to 80 Hz).
- BS 8233: Guidance on sound insulation and noise reduction for buildings.
- BS 5228: Code of practice for noise and vibration control on construction and open sites, which is divided into parts including:
- BS 5228-1: Noise
- BS 5228-2: Vibration

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

No

The AoS places emphasis on the importance of Road and Rail Important Areas and Quiet Areas defined by strategic noise mapping created under the Environmental Noise (England) Regulations 2006. There are, however, other noise sources that can influence the baseline environment. Consequently, in practice, baseline data used for the assessment of most nationally significant infrastructure structure projects must rely on project and site-specific surveys of the existing environment and consideration of existing noise sensitive receptors. This can include locations that are particularly sensitive to noise, such as residential areas, schools, hospitals, parks, and areas valued for their soundscape or landscape quality, including marine life.

The IOA endorses an assessment approach that is more in line with the Overarching National Policy Statement for Energy, EN-1.

15 Do you agree with the selection and definition of key sustainability issues?

Yes

The IOA agrees that the following noise and vibration sustainability issues from the AoS are important:

- disturbance from construction and operational noise and vibration on nearby receptors, which include residential areas, schools, hospitals, parks, and areas valued for their soundscape or landscape quality;
- development affects the historic environment through loss, damage or changes to setting for instance from visual intrusion, increased traffic, noise, or air pollution; and
- the loss of tranquillity due to noise and vibration

The IOA would also add the importance of considering the effects of construction and operational noise and vibration on local wildlife, including marine life, especially on protected species.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Yes

The Overarching National Policy Statement for Energy (EN-1) provides detailed guidance on the collection of noise and vibration baseline data as part of the environmental assessment process for proposed energy infrastructure projects. The IOA recommends the use of baseline data more aligned with EN-1.

To satisfy EN-1, the applicant must describe the existing noise environment, which includes the current levels of noise at different times of the day, evening, and night, as well as seasonal variations if relevant. This involves deploying noise monitoring equipment at various strategic locations within the study area to gather representative data.

The noise assessment should identify noise-sensitive receptors such as residential areas, schools, hospitals, and other community facilities. This is crucial for understanding the potential impacts on human health and well-being. The assessment must also consider areas particularly valued for their soundscape or landscape quality.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Yes

The IOA agrees that there are opportunities to:

- avoid harm to heritage assets due to excess noise and vibration;
- minimise noise and vibration from construction and operational activities on residential amenity and on sensitive locations, receptors and views; and
- minimise issues that can affect communities and their facilities including air, noise and light pollution, as well as vibration.

The IOA would also like to highlight that, through the effective management and control of noise, it is possible to more generally:

- avoid significant adverse impacts on health and quality of life from noise;

- mitigate and minimise other adverse impacts on health and quality of life from noise; and

where possible, contribute to improvements to health and quality of life through the effective management and control of noise.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

No

The IOA believes that, whilst the objectives and decision-making questions are important, they should be made more general to reflect the decision-making guidance in EN-1, which states that through the effective management and control of noise, it is possible to:

- avoid significant adverse impacts on health and quality of life from noise;#
- mitigate and minimise other adverse impacts on health and quality of life from noise; and
- where possible, contribute to improvements to health and quality of life through the effective management and control of noise.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

The IOA agrees that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

See previous question responses.

UK-Ireland Nuclear Free Local Authorities

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

If this includes adherence to the planning regime applicable to nuclear fission projects, this would be logical and consistent.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

That would be logical and consistent.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

No

As in the previous consultation on the proposed NPS for fission plants, this consultation document proposes a fundamental change in siting policy for fusion energy facilities from a strategic approach to an open sited one that is developer based and criteria led, whereby developers identify potential sites and then apply an assessment of criteria to them.

We oppose this approach for fusion, as we did fission. This enables Government to evade the challenge of selecting potentially suitable sites for fusion energy facilities and lays the burden on developers who may be ill-equipped to undertake the task. We believe that Government should assess potential sites consistently on a national basis, rather than charging developers with assessing individual sites on an inconsistent basis; furthermore, many will have no capacity nor credibility to consult effectively with potential host communities.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

That would be logical and consistent.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

This would be logical and consistent.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

We believe that fusion energy and research facilities should treated the same for the purpose of the NPS.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Setting a deadline is unlikely to make any significant difference to the deployment of fusion energy facilities.

We have been ten years away from the achievement of fusion energy sustainably, at scale, and economically seemingly in every decade in the last half century.

The known technical challenges remain tremendous, and the economies remain uncertain.

The new UK Government backed 'STEP' (Spherical Tokamak for Energy Production) prototype fusion energy plant, planned for the West Burton site in Nottinghamshire, will only begin operations in 2040.

The revised plan for the commencement of operations at the International Thermonuclear Experimental Reactor now aims for 'a scientifically and technically robust initial phase of operations, including deuterium-deuterium fusion operation in 2035 followed by full magnetic energy and plasma current operation'. The previous baseline, established in 2016, was for first plasma in 2025. This is a giant international collaborative project.
Neither of these are commercial fusion energy facilities.

An indicative timescale might provide a framework to prospective developers, but frankly at this time, and for the near future, fusion energy remains a complete fantasy, something akin to the timeless promise of alchemy.

Fusion will contribute nothing to providing affordable electricity for domestic consumers now, nor would it address the need for affordable electricity to facilitate the decarbonisation of industry and transport now, nor will it provide the necessary green energy to meet the challenge of achieving Net Zero in the critical next five years. Renewables WILL.

Consequently, the Nuclear Free Local Authorities would prefer that the government reemploy in the short term all its resources towards the gathering of fusion energy through an already proven, cheap, and completely safe mechanism, and one that generates zero radioactive waste – namely solar power.

The new Labour Government has committed to tripling the generating capacity of solar power to 50 GW by 2030. This, though a challenging, goal is achievable. Indeed, we should aim to go beyond that by seeking for every new home, every industrial building, every public building, every academic institution and every large carpark to be routinely equipped with solar panels, and in rolling out a funded programme of retrofitting solar on our existing infrastructure as a national emergency.

We should all instead get behind that, rather than this never-never fusion delusion.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Don't know

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

Impact of multiple devices

In cases where a potential cluster of such facilities could be located on a single site, strategic assessment and permission must be based on the overall development footprint and generating capacity at the site. The overall impact of the maximum development at a site in terms of cooling water, land footprint, defensive measures, radioactive waste, transmission, and transportation etc must be assessed.

Groundwater

Nuclear facilities often discharge radioactive materials into the ground. Historic nuclear operations at Sellafield and Dounreay have contaminated land, beaches, and watercourses in their vicinity. It is critical to avoid the risk of seepage to groundwater by appropriate protections, including banning nuclear development in sensitive areas. Developers should provide an assessment of how they would prevent such groundwater contamination.

Related to groundwater protection is the need to ensure that there shall be sufficient water supplies to meet the needs of households, businesses and farming in the area surrounding a fusion energy facility as well as meeting the needs of that facility. Lack of potable water for the lifetime operation of Sizewell C was a reason for the qualified rejection by PINS of the proposal. At times of water shortage, demands of nuclear activity must not take priority over other users and there should be a requirement that potable supplies will be available into the far future under conditions of climate change.

We believe that the criteria should include a requirement that developers demonstrate that there is, and will remain, an adequate supply of potable water to meet the demands of all potential consumers for the lifetime of nuclear operations at a site, and, if this is not so, how the operator will meet its own water needs independently.

Nationally and internationally designated sites of ecological importance and
Areas of amenity, cultural heritage and landscape value:

In our view there should be an absolute prohibition on the location of fusion energy facilities within the fifteen National Parks, Areas of Outstanding Natural Beauty (AONBs), World Heritage Sites, and in such recent creations as HM The King’s National Nature Reserves.

In 1810, Wordsworth described the Lake District as a "sort of national property in which every man has a right and interest who has an eye to perceive and a heart to enjoy". This sentiment would be shared by millions of British citizens who have a deep-seated attachment to our National Parks and the many other areas of great beauty or historic significance with which our nation is blessed. They are all immensely valued and are a tremendous source of national pride and an un-paralleled educational resource.

The National Parks Act of 1949 outlined the purpose of their creation: ‘conserving and enhancing the(ir) natural beauty, wildlife and cultural heritage’ and ‘promoting opportunities for

the understanding and enjoyment of the(ir) special qualities by the public'. Lord Sandford who chaired the National Parks Policy Review Committee which reviewed national parks of England and Wales in between 1971 and 1974 stated that: 'The two purposes of national parks are, in short, 1. conservation of the natural environment and 2. access for the public'. The Environment Act 1995 slightly amended these objectives to 'firstly, conserve and enhance the natural beauty, wildlife and cultural heritage of the area and, secondly, to promote opportunities for the understanding and enjoyment of the special qualities of the area by the public'.

The construction and operation of any nuclear power plant in such spaces would be enormously damaging and completely detrimental to these intended purposes.

Any nuclear power plant will be large and intrusive, standing stark against the beauty of the locality. Their operation comes with the possible risk of an accident and will certainly lead to radioactive contamination of the local environment. Their construction and operation would be massively detrimental to the peace and quiet enjoyed by residents and tourists. Consequently, there would be an impact on visitor numbers and the tourist economy.

Precedence for the exclusion of a national park from nuclear development was established when a decision was taken to exclude consideration of the Lake District National Park as the potential location for the Geological Disposal Facility. This recognised the importance of preserving this outstanding World Heritage Site from development.

Given this precedent has been set we can see no justification for permitting any other future nuclear development (fission or fusion) in any National Park, AONBs, World Heritage Site or King's National Nature Reserve within the UK.

Access to suitable sources of cooling

We strongly believe that the development of fusion energy and research facilities should be ruled-out in locations where there is insufficient access to any required external cooling water, specifically where:

- There is insufficient volume of water, for example, in estuarial locations.
- There is a severe risk of detrimental impact on marine life and environment.
- Access to cooling water is technically difficult to achieve, for example, by long pipelines to the sea.
- Cooling towers would be necessary which would totally destroy the landscape and amenity.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Impact on marine environment

An extra criterion should be a required assessment for coastal and estuarial sites of the impact on marine habitats. We believe the perceived need for nuclear energy cannot override the

protection of the marine environment. There should be a test which bars development in circumstances where significant damage will be caused to the integrity of marine ecosystems.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

It would be logical and consistent to apply the same criteria on all technologies.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Yes, this seems logical. We look forward to commenting in response to the consultation on the draft NPS in 2025.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Wildlife and Countryside Link

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Not answered

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Not answered

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

No

We disagree with the proposal in this consultation (regarding siting fusion energy facilities) – and in a previous consultation on siting new (fission) nuclear power stations beyond 2025 – to shift nuclear siting policy to an open-sited developer-led approach.

A strategic, spatial approach to planning infrastructure enables better environmental assessment, in particular the assessment of indirect and in combination effects and the consideration of alternatives, and supports better strategic environmental mitigation. Strategic spatial planning of infrastructure provides wider benefits, including visibility and scrutiny opportunities to local authorities and local communities, and more certainty to developers about potential regions for development.

The proposed move away from a strategic spatial approach for identifying nuclear sites is also inconsistent with the Government's wider approach to planning energy infrastructure (for example, through the Strategic Spatial Energy Plan (SSEP)) and counter to the advice of the National Infrastructure Commission to develop spatial plans for infrastructure.

In our view, the alternative open-sited approach proposed in this consultation is not well justified, especially given the large potential environmental impacts of this type of infrastructure. If the next Government proceeds with a developer-led approach, there should be clear guidance and support from Government to ensure any proposed developer-led approach to siting fusion energy projects joins up with the SSEP.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Not answered

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Not answered

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Not answered

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Not answered

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Not answered

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

The strategic site assessment criteria set out in this consultation document are not sufficient to ensure appropriate sites are selected by developers for fusion energy facilities.

The 'Safety and Security' criteria, in particular Flood Risk and the 'Environmental Protection' criteria, should be made exclusionary, rather than discretionary.

We welcome the existing 'Environmental Protection' criteria, including on protected landscapes, but we urge the next Government to add species, in particular protected species, Local Wildlife Sites, and irreplaceable habitats, for example ancient woodland, as site assessment criteria.

Strong planning protections for Local Wildlife Sites and irreplaceable habitats should be included in National Policy Statements as they are important for nature's recovery and their protection should be considered at the outset of infrastructure planning. Including them in the exclusionary assessment criteria would also enable this to happen.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

The strategic site assessment criteria set out in this consultation document are not sufficient to ensure appropriate sites are selected by developers for fusion energy facilities.

The 'Safety and Security' criteria, in particular Flood Risk and the 'Environmental Protection' criteria, should be made exclusionary, rather than discretionary.

We welcome the existing 'Environmental Protection' criteria, including on protected landscapes, but we urge the next Government to add species, in particular protected species, Local Wildlife Sites, and irreplaceable habitats, for example ancient woodland, as site assessment criteria.

Strong planning protections for Local Wildlife Sites and irreplaceable habitats should be included in National Policy Statements as they are important for nature's recovery and their protection should be considered at the outset of infrastructure planning. Including them in the exclusionary assessment criteria would also enable this to happen.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Not answered

12 Do you agree with the proposed model for implementation of the Fusion NPS?

No

We have several additional environmental concerns regarding the implementation of this proposed policy, if the next Government is to proceed with this proposed open-sited developer-led approach.

Currently, developers do not always provide the right environmental information during the pre-application stage of the NSIP planning process. In addition, advising individual developers on the application of the site assessment criteria will require capacity, resources and expertise from statutory consultees, including the Environment Agency and Natural England.

As DLUHC has acknowledged, statutory consultees in the planning system are under-resourced, making it difficult to provide comprehensive advice in a timely manner (https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-nsip-reforms-action-plan/nationally-significant-infrastructure-action-plan-for-reforms-to-the-planning-process#fn:4). In this context, we are concerned that the proposed process where developers apply the site assessment criteria and screen sites at the pre-application stage, with advice from regulators as appropriate, will not be robustly conducted and not result in the identification and appropriate consideration of environmental concerns during the developer-led site assessment process.

If the next Government proceeds with this new developer-led approach to siting nuclear power stations, it should address the additional burden on statutory consultees by sufficiently funding these key advice bodies.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

We disagree with the consultation's approach to proposed EN-8 which will not allow full consideration of reasonable alternatives at a strategic spatial level. This prevents robust and specific comparison of alternative sites and assessment of indirect and in combination effects.

Due to the proposed open-sited approach, consideration by DESNZ in the Appraisal of Sustainability (AoS) and Habitats Regulations Assessment (HRA) of the proposed fusion energy NPS and the consideration by developers in Environmental Impact Assessment (EIA) and any HRA required when bringing forward projects will be necessarily high-level and non-spatial, because no specific sites will be identified. This means that the consideration of reasonable alternatives at the strategic level will not be specific or comprehensive or be able to compare alternative sites (this is acknowledged in the consultation document), which could mean that harm to the natural environment is not always avoided as well as or as much as it could be. In addition, without identifying specific sites, environmental assessments are unable to assess indirect and in combination effects with any specificity.

3. Anonymised Responses to consultation questions

Anonymised Response A

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

No

An oil spill accident is very bad for the environment but still happens. Structures do fail and we can expect failures with fusion energy too. How catastrophic that would be?

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

No

Fusion technologies need to be analysed by itself. There is no comparison or similarities with any system so far.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Don't know

How far from people, water, sea , fauna , flora and air can this be implemented? open-sited or indoors?

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

No

I am in favour of generating energy with incineration with super filters to avoid CO2 and other poisons to air emission

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

No

I think we do not have capacity to construct fusion process without human or structural failure. See the RAAC crisis. At the time was thought as totally sound and secure!

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

semantics?

7. Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

No

all needs to be under total time and place control.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

human failure, security failure and structure failure

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Don't know

10 Are there any additional criteria that should be considered in the assessment process?

Yes

because we can does not mean we should.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

fusion if goes wrong the effect is only one

12 Do you agree with the proposed model for implementation of the Fusion NPS?

No

i believe there is enough renewable resources. no fusion is necessary.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Further research on the costs of fusion against investment in renewables and research for other means to develop sustainable energy

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

No

not for me no. otherwise i would be inclined to accept it

15 Do you agree with the selection and definition of key sustainability issues?

No

sustainability also means clean but not deadly if something goes wrong

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don't know

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

No

there is no geographical information to start with? to get planning permission for a wind turbine there is a large planning process with exact reference grid! everything under to sun for planning purpose needs the proposed exact (or as near as possible) location.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

No

I am against fusion energy and so cannot agree with the NPS EN-8.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

No

Fusion energy is not comparable to any other energy so far, because of the consequences

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

NO FUSION ENERGY! we have water, sun and wind resources that can be harnessed and improve our relationship with Earth and its natural process.

Anonymised Response B

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The Anonymised Response B would agree that fusion energy facilities should be aligned and maintained in-line with other complex energy generation facilities. By doing this it will maintain consistency for all those involved in the process.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Given that fusion technology is still at a very early stage of development, the NPS should include all fusion technologies. This will enable flexibility within the system. It maybe that in the longer term this could be reviewed if it becomes clear that a single technology or technologies become common place.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

The Anonymised Response B agrees with the proposal to take an open sited approach. This is due to the range of emerging technologies and the differing needs of these technologies, such as site size and location. The individual companies are therefore best placed to undertake the selection. The site selection process should however to subject to the appropriate criteria being considered to protect local communities and the environment (i.e. sites close to large centres of population, flood risk, ecological or heritage impacts) as is the case with the other energy NPSs.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

By capturing all fusion energy facilities in the NPS process, this will maintain consistency in the approval system. At this early stage in the development of fusion it will also remove the burden for local authorities in terms of understanding new and very complex technologies

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

See answer to question 4.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

The Anonymised Response B is not suitably qualified to comment on whether the definition set out in the Energy Act 2023 is appropriate.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

It is not considered necessary as there is already significant investment and momentum in fusion. This is in terms of STEP, but also from private companies who are identifying challenging but rapid timescales.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

The list identified would appear to be comprehensive and in line with what would be expected.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

No additional comments as this point.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Proposals should prioritise previously used land, avoid greenbelt, protected landscapes and higher quality farmland and be located where they can assist with regeneration and levelling up.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Don't know

Without seeing detailed information regarding each type of fusion technology, it is difficult to fully answer this. However, it would appear that one set of criteria covering all fusion technologies would be adequate at this stage in the process.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

No additional comments

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

No. It would appear that all the relevant documents have been identified.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Yes

No additional comments

15 Do you agree with the selection and definition of key sustainability issues?

Yes

The baseline data looks comprehensive

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

No

No additional comments

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Yes

No additional comments

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Yes

No additional comments

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

No additional comments

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

No additional comments

Anonymised Response C

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The Energy Act 2023 confirmed that Nuclear Installations Act 1965 will not apply to fusion energy. Instead, the decision has been made to develop proposals for a separate Fusion National Policy Statement (NPS) and process all fusion energy projects via the NSIP process.

We understand from this scoping document that safety and environmental criteria associated with fusion energy are very different from that of fission. Given that the planning process for fusion energy should be proportional to the risks posed, then it seems logical that fusion energy is considered differently to nuclear fission and be subject to a different regulatory process.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

We understand that the open-sited approach is appropriate for fusion energy proposals given that a successful shift towards fusion energy in England is yet to be realised. Delivery of fusion energy facilities on the ground is still some years off and, therefore, it is essential the approach to siting has the flexibility to adapt to changes in policy and land use over the longer term.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

We understand from the scoping report that the government is proposing to consider all fusion energy proposals, regardless of scale of output, under the NSIP regime. This would mean that smaller fusion energy developments (i.e. which fall under the 50MW threshold which would normally be required in order to be categorised as an NSIP) are subject to the same regulatory approach as larger proposals (50MW and over) under the Planning Act 2008. We agree that this has its benefits in that it would ensure consistency in approach across all fusion energy proposals that come forward.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Don't know

No comment.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

No comment

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Yes. The siting of fusion energy facilities must be carefully considered ensuring the environmental considerations of proposed sites are fully assessed according to the mitigation hierarchy. This can only be assured via early planning and dialogue with the statutory (and other) environmental bodies such as ourselves. Therefore, it is imperative that a delivery deadline is not set which may lead to hurried applications and inappropriate siting and development

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Not answered

Yes. The Anonymised Response C asks that a new section for trees and woodlands is added to the EN-8 Fusion Energy Strategic Siting Assessment Criteria to reflect the Governments statutory binding target to increase tree canopy and woodland cover to 16.5% of total land area in England by 2050, as set out in the government's Environmental Improvement Plan 2023 and required through the Environmental Targets (Woodland and Trees Outside Woodland) (England) Regulations 2022.

Trees and woodlands generally

Currently, the EN-8 scoping document lists a number of technical and environmental aspects for developers of fusion energy proposals to consider in the very early stages when developing proposals and considering siting implications (p22-31). A number of the environmental criteria listed could be met, at least in part, via delivery of improvements and/ or creation of trees and woodland. These include: consideration of BNG (p27); Climate Change and Adaptation (p27); Nationally and internally designated sites of ecological importance (p29); Areas of amenity, cultural heritage and landscape value (p30). However, the importance of trees and woodlands as a consideration is thereby inferred and not made explicit in the EN-8 specific siting criteria.

Further, and whilst we understand that development proposals must also be viewed in the context of EN-1 Overarching National Policy Statement for Energy' (NPS EN1, March 2023) which does reference 'the enhancement, expansion or provision of trees and woodlands' as part of wider environmental gains and benefits to communities outside BNG and the importance of 'tree planting and woodland creation' as part of LNRS, only the EN-8 strategic siting criteria are proposed for use in the early stages of site assessment and identification (p32 'Implementation of a Fusion NPS'). This would mean that tree and woodland considerations would not be required to be implicitly assessed as part of the site screening process. Therefore, the Anonymised Response C believes EN-8 Fusion Energy Strategic Siting Assessment Criteria should be revised to include a new section explicitly for trees and

woodland protection, enhancement and creation. To ensure trees and woodlands are considered at the site selection stage.

Ancient woodland, ancient and veteran trees

We note, further, that whilst EN-1 makes clear the irreplaceability of ancient woodland, ancient and veteran trees and the need to avoid adverse impact on these sites, these are not mentioned at all in EN-8. We consider that the EN-8 site selection criteria should make reference to these irreplaceable resources to ensure proposals for fusion energy developments, in their early development stages, in order to avoid any losses in line with the mitigation hierarchy.

To align with the NPPF we would anticipate that the NPS will apply the same level of protection to all types of ancient woodland. This includes ancient semi natural woodlands (ASNW), plantations on ancient woodland sites (PAWS), ancient wood pasture and parkland (AWPP) and infilled ancient wood pasture and parkland (IAWPP). We consider that this should be specifically stated within the NPS.

Biodiversity Net Gain & Irreplaceable Habitats

BNG (p27) - We note that work currently is being undertaken by Defra to create a definition and a list of irreplaceable habitats as part of the wider implementation of BNG policy. We suggest that the description of irreplaceable habitats included in the NPS seeks to align with or refer to the emerging Defra definition if possible. If the NPS is published before work on this list is completed we suggest including a reference to Keepers of time ancient and native woodland and trees policy in England (2022). This presents the most recently published policy position in relation to ancient woodlands, and ancient and veteran trees including descriptions of their importance and up-to-date definitions. Please note that ancient woodlands are important for their cultural and historic value as well as their undisturbed soils and biodiversity value and the importance as carbon stores.

We welcome the reference in the section of the report on BNG P.27 to the policy in EN1, for applying BNG to future energy developments, however we strongly recommend that there should be a policy commitment within the NPS, requiring BNG for future Fusion developments covered by this NPS. Specifically, we would like to see a commitment to using the BNG Framework that applies the Government's Biodiversity Metric, BNG Register for offsite enhancements and methodologies for assessing habitat condition.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

No. The Anonymised Response C asks that a new section for trees and woodlands is added to the EN-8 Fusion Energy Strategic Siting Assessment Criteria to reflect the Governments priority to increase tree canopy and woodland cover to 16.5% of total land area in England by 2050 as set out in the government's Environmental Improvement Plan 2023. (see response for Q8).

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Yes. The Anonymised Response C asks that a new section for trees and woodlands is added to the EN-8 Fusion Energy Strategic Siting Assessment Criteria to reflect the Governments priority to increase tree canopy and woodland cover to 16.5% of total land area in England by 2050 as set out in the government's Environmental Improvement Plan 2023. (see response for Q8).

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

no further comment

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes. We welcome the consideration of all fusion applications as part of the DCO process and the need for projects to be considered against both the general assessment principles and siting criteria contained in EN1 as well as the more explicit EN-8 criteria. However, we do note (p32) that only the strategic siting criteria of EN8 are required by developers to screen potential sites, and enter into early dialogue with statutory consultees. For this reason, the Anonymised Response C asks that a new section for trees and woodlands is added to the EN-8 Fusion Energy Strategic Siting Assessment Criteria to reflect the Governments priority to increase tree canopy and woodland cover to 16.5% of total land area in England by 2050 as set out in the government's Environmental Improvement Plan 2023. (see response for Q8) and to meet the Government’s commitment to protect ancient woodland and ancient and veteran trees as an irreplaceable habitat.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

no comment

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

no comment

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

no comment

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

no comment

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

no comment

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

no comment

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

no comment

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

no comment

Anonymised Response D

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

We broadly agree with this statement. However, nuclear site licensing arrangements (as per a fission facility) shouldn't apply to a fusion site. If this was the case it would contradict clause 156 of the Energy Act 2023. There are critical differences between the fission and fusion which result in very different levels of hazard. The level of risk is greater for a fission site due to the potential for significant power excursions due to uncontrolled super-critical events, the challenge in managing decay heat, and the production of long-lived high-level radioactive waste. None of these hazards apply at fusion facilities, as such there is a clear rationale for applying a different licensing arrangement similar to those applied for other complex energy generation facilities. However, government should be aware that there are some risks associated with fusion facilities that are substantively different from those produced by other complex energy generating technologies (excluding fission). In particular the production of low and medium level radioactive waste and the need to manage high levels of gamma and neutron radiation. The adequacy of the planning process for managing these risks is outside the scope of this review but needs to be carefully considered. DESNZ should work across government departments to assess the adequacy of the planning process to effectively meet the needs of fusion sites.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

We agree with this proposal. Different technologies for achieving fusion energy production should not be differentiated in the planning process, with the exception of fusion-fission hybrid reactors which we agree should be considered as nuclear facilities, regulated by the ONR and follow the planning and licensing process for nuclear facilities.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Don't know

The proposed open-sited approach will provide the maximum opportunity for communities to bid for a site in their area. However, we would like to draw the Government's attention to concerns that one of the proposed future uses of fusion heat, to run de-salination plants, would require sites to be close to the sea. This could create a natural monopoly for coastal sites and undermine any sense of an open sited approach.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

We agree with this proposal. There are specific risks that come with fusion energy which remain significant even with smaller facilities. As a result, there is a concern that if the NSIP

process only applied to fusion sites over a given capacity then it would be possible for a local planning authority to agree the construction of a small scale local fusion facility without proper consideration of the risks (ie the production of low and medium level waste, management of high energy plasma, neutron shielding etc). Conversely, setting a threshold could also lead to unrealistic capacity claims to gain access to the preferential planning process for NSIPs.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Yes, both electrical and thermal facilities should be included. One of the potential benefits of fusion energy is the high-grade, GHG-emission-free heat which can be provided. The planning process should not give preferential treatment to either electrical or thermal output over the other.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

We encourage the Government to revisit this definition. In its current form the definition is not clear enough in areas such as fusion research facility consideration. Future fusion facilities will be used to perform some research, and all will generate heat from fusion reactions, so according to the current definition in the Energy Act 2023 a fusion facility built purely for research would still meet the definition because it will produce "heat". We worry that this is an unintended consequence of the NPS EN-8. We are concerned that the definition is currently too ambiguous which could lead to exploitation against the will of the government and spirit of the legislation. For example, the definition makes it permissible for a fusion energy facility to be built first as a fusion research facility and only later turned into a fusion energy facility. If that facility never became primarily used for the production of electricity or heat, there are questions over what the consequences would be under the planning laws. The definitions of NSIPs under the Planning Act 2008 do not include any kind of scientific infrastructure as far as we can see. The current definition could make it potentially easier to receive development consent for a fusion energy facility than a fusion research facility. It would be better to include all fusion facilities, whether primarily for research or for energy production, under the fusion NPS.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

We support and agree with this proposal. However, we would like to refer back to the answer to question 6. If a facility starts as a research facility with the intent to become an energy generation facility, then timescales may be beneficial as an incentive to achieve the stated intent.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

There are a number of areas that developers should consider.

• The following areas should be taken into account:

o The management and transportation of medium level waste,
o Physical and cyber security arrangements in the local area,
o Security of supply, - The extent to which the energy provided is dependent on external factors such as the wind, sun or imported goods, services and technologies.
o Flood risk, - In the context of climate change impact, which for example is expected to increase in London with increased rainfall and rising sea levels.
o Coastal erosion, which is greater than expected along the East Coast due to increased winter storms, hot weather and cracking of the sand-based coast. This is a particular issue if coastal siting is required for water access for cooling.

• The scale of the impact from these factors may have bearing on the assessment of the most suitable technology solution to meet the needs.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

There are a number of aspects that have been overlooked in the proposal document and in EN-1. It is important that the government must assess all potential threats to fusion energy facilities and explore in detail how they can mitigate these concerns within legislation and the licencing and planning processes. It is of vital importance that on top of the existing issues raised in the documents the following concerns are also acknowledged when assessing the suitability of sites for fusion energy facilities:

• Emergency access – both for worst case scenario accidents (particularly events such as fire, uncontrolled chemical release or turbine disintegration) and for security incidents (i.e. control of the site being taken by a terrorist group).

• Vulnerability to low likelihood / high impact events (i.e. a tsunami) – credible sources of such events, the scale thereof, and thus the potential for designed mitigations and emergency preparations should form part of the assessment process.

• Radiation directed skyward should be considered in siting fusion facilities, as usually less shielding is provided above a fusion device than at ground level. This differs from what is usually seen with fission power plants and therefore may be an unforeseen matter to consider.

• The potential effect of radio-frequency heating and current-drive systems to radio-tele-comms, civil and military radar, radio telescopes, and other facilities and infrastructure using radiofrequencies should be considered in the siting assessment. This applies primarily to magnetic-confinement fusion devices, however, should also be considered for others fusion technologies depending on how they achieve fusion conditions.

• The likelihood of extreme heat and the impact this may have on fusion projects. Extreme heat

may amplify risks such as land subsidence, general water demand, and population changes.

• In addition, there are a number of criteria which are mentioned at a high level within EN-1 but which do not appear to capture specific areas of risk which would apply to a fusion energy facility:

o Safety - EN-1 section 4.13 covers accidents at a generic level, however, a fusion energy facility would need the consideration of a number of specific risks which are not well covered at present and would benefit by being drawn out in more detail here. For example, fire and uncontrolled chemical release could both pose particular challenges due to unusual substances which would be expected to be found on a fusion site. Similarly, turbine disintegration events could generate high speed missiles which would represent a hazard both on site and to nearby public and industry, as they would at any electricity generating site with a turbogenerator.

o Security concerns – EN-1 addresses these, however, given the high profile status that the first generation fusion facilities would hold, it should be expected that terrorist, cybercriminal, or hacktivist groups would consider such facilities to be particularly attractive targets. Equally the status of these facilities in demonstrating the UK's position on the world stage would also mean that a successful attack (even if there were no wider consequences) could lead to a great deal of harm to national prestige and reputation. As such particular attention should be provided to ensuring the robustness of security arrangements. As such both physical and cyber security aspects should be considered, in line with critical national infrastructure.

o Effect on marine life – EN-1 Section 4.5 addresses the marine environment, however, this does not adequately address the potential impact on marine life due to increases of local water temperature where water is returned to the sea after being used for condenser cooling, as should be considered for any energy generating facility that uses seawater for cooling.

• Criteria should not only be considered in a restrictive sense, but also in an opportunistic sense, similar to how biodiversity gain is considered. Regarding cooling:

o Developers should be encouraged to integrate their cooling systems with district heating systems, rather than consider low-grade heat as a waste product.
o Greater use of newly created water bodies adjacent to proposed plants which would not only provide the required cooling to the energy facility, it could also provide a dedicated water supply as the demand for water increases, as well as part of a plan for enhanced biodiversity gain that would be lost during the construction process on green field sites.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

There are a number of aspects that have been overlooked in the proposal document and in EN-1. It is important that the government must assess all potential threats to fusion energy

facilities and explore in detail how they can mitigate these concerns within legislation and the licencing and planning processes. It is of vital importance that on top of the existing issues raised in the documents the following concerns are also acknowledged when assessing the suitability of sites for fusion energy facilities:

• Emergency access – both for worst case scenario accidents (particularly events such as fire, uncontrolled chemical release or turbine disintegration) and for security incidents (i.e. control of the site being taken by a terrorist group).

• Vulnerability to low likelihood / high impact events (i.e. a tsunami) – credible sources of such events, the scale thereof, and thus the potential for designed mitigations and emergency preparations should form part of the assessment process.

• Radiation directed skyward should be considered in siting fusion facilities, as usually less shielding is provided above a fusion device than at ground level. This differs from what is usually seen with fission power plants and therefore may be an unforeseen matter to consider.

• The potential effect of radio-frequency heating and current-drive systems to radio-tele-comms, civil and military radar, radio telescopes, and other facilities and infrastructure using radiofrequencies should be considered in the siting assessment. This applies primarily to magnetic-confinement fusion devices, however, should also be considered for others fusion technologies depending on how they achieve fusion conditions.

• The likelihood of extreme heat and the impact this may have on fusion projects. Extreme heat may amplify risks such as land subsidence, general water demand, and population changes.

• In addition, there are a number of criteria which are mentioned at a high level within EN-1 but which do not appear to capture specific areas of risk which would apply to a fusion energy facility:

    o Safety - EN-1 section 4.13 covers accidents at a generic level, however, a fusion energy facility would need the consideration of a number of specific risks which are not well covered at present and would benefit by being drawn out in more detail here. For example, fire and uncontrolled chemical release could both pose particular challenges due to unusual substances which would be expected to be found on a fusion site. Similarly, turbine disintegration events could generate high speed missiles which would represent a hazard both on site and to nearby public and industry, as they would at any electricity generating site with a turbogenerator.

    o Security concerns – EN-1 addresses these, however, given the high profile status that the first generation fusion facilities would hold, it should be expected that terrorist, cybercriminal, or hacktivist groups would consider such facilities to be particularly attractive targets. Equally the status of these facilities in demonstrating the UK’s position on the world stage would also mean that a successful attack (even if there were no wider consequences) could lead to a great deal of harm to national prestige and

reputation. As such particular attention should be provided to ensuring the robustness of security arrangements. As such both physical and cyber security aspects should be considered, in line with critical national infrastructure.

o Effect on marine life – EN-1 Section 4.5 addresses the marine environment, however, this does not adequately address the potential impact on marine life due to increases of local water temperature where water is returned to the sea after being used for condenser cooling, as should be considered for any energy generating facility that uses seawater for cooling.

• Criteria should not only be considered in a restrictive sense, but also in an opportunistic sense, similar to how biodiversity gain is considered. Regarding cooling:
o Developers should be encouraged to integrate their cooling systems with district heating systems, rather than consider low-grade heat as a waste product.

o Greater use of newly created water bodies adjacent to proposed plants which would not only provide the required cooling to the energy facility, it could also provide a dedicated water supply as the demand for water increases, as well as part of a plan for enhanced biodiversity gain that would be lost during the construction process on green field sites.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

There shouldn’t be a separate set of criteria for different fusion technologies for reasons outlined in previous answers. However, it is acknowledged that radio-frequency interference may not be a significant consideration for some fusion technologies.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

We agree with this proposed model.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response E

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Maintaining such alignment will provide clarity on the planning regime for fusion energy.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Although there are different technological approaches, each fusion technology is aiming to achieve the same goal. A technology inclusive approach to the NSIP process will be more efficient, and will provide developers with clarity (and confidence for investors).

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

Not only does this align with the approach taken in other energy NPSs, this would likely result in more potential sites for the deployment of a fusion energy facility.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

The thermal and electrical output of FOAK facilities is not currently known so it makes sense to include all fusion energy facilities within the fusion NSIP process. Furthermore, this would allow a consistent approach and ensure it is more streamlined than otherwise if planning applications were under the purview of (differing) local authorities.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

The definition of a fusion energy facility in the Energy Act 2023 is one that is used for the purpose of producing electricity or heat by fusion. Therefore, the MW thresholds should be inclusive of both electrical and thermal output so both are incorporated into the NSIP process.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

A fusion energy facility is a device used to produce electrical power or heat from the energy released in a fusion reaction. The purpose of a fusion research reactor on the other hand is not

to produce electricity or heat, but instead to perform services valuable to fusion material research. Hence the definition is NOT suitable for distinguishing between the two.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Harnessing the energy from a fusion reaction for commercial gain is an incredibly complex process. This is something that will take time to achieve as the industry / each developer is pushing technological boundaries, and hence one should not place any time restrictions on this.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

Public support - developers should canvass the opinions of local communities and bring them on the journey from the beginning to ensure continued support. It is imperative that the level of knowledge/understanding of fusion technology by the general public is increased.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

Flood risk is a very important consideration, but I think that a wider range of external hazards should also be included when assessing the suitability of sites for fusion energy facilities.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

See response to previous question.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

It would be very beneficial to streamline the Strategic Siting Assessment Criteria and have a common set of criteria. It could be that not all criteria are applicable to all fusion technologies, but this would come out of the assessment process.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

The list of PPPs looks to be very comprehensive. I have not identified any omissions relevant to the scoping of the AoS.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Yes

15 Do you agree with the selection and definition of key sustainability issues?

Yes

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don't know

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Yes

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Yes

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

This is a reasonable approach as it will ensure compatibility between assessments.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

N/A

Anonymised Response F

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Local Government and the public are badly informed by the media with only bad stories about new technologies. The proposed approach should help avoid local blockages on planning.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Yes

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

Via government it is worth looking at strategic positioning of facilities for military and experimental use in the new age of lasers, rail guns, and other energy weapons that can do some huge amounts of power.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

10 Are there any additional criteria that should be considered in the assessment process?

No

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Yes

15 Do you agree with the selection and definition of key sustainability issues?

No

This is of such importance that biodiversity should not be included.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

No

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Yes

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Yes

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered.

Anonymised Response G

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

We support the introduction of the proposed new Fusion National Policy Statement (NPS). The Strategic Spatial Energy Plan (SSEP), that we expect to be commissioned to deliver soon, will be a GB-wide plan for the future locations of electricity and hydrogen technologies that meet net zero and deliver security of supply.

We strongly encourage that the development of a Fusion NPS be progressed in a way that ensures appropriate alignment with strategic energy planning initiatives described in the recent Transmission Acceleration Action Plan, in particular the proposed SSEP.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Not answered

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Not answered

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Not answered

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Not answered

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Not answered

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Not answered

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Not answered

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Not answered

10 Are there any additional criteria that should be considered in the assessment process?

Not answered

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Not answered

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Not answered

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response H

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities. All of these facilities contain hazards which need to be controlled, and siting is a part of this control, to ensure that the risk associated with these hazards can be demonstrated to be ALARP and also justifiably small in comparison to the benefit of the energy generation that is provided. The focus should be on the hazards presented and management of the risks associated with these hazards in a way that is technology agnostic.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

All fusion technologies have the potential to generate both radiological and industrial hazards, where the associated risks must be managed and demonstrated to be both acceptable and ALARP, when considering siting. The fact that some technologies might find the process of this demonstration more straightforward, because the hazards are demonstrably less, or the hazards are inherently well controlled, does not remove the requirement to provide an adequate justification of this.

Therefore, yes, all fusion technologies should be required to provide this justification and hence should be managed within the same process.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

No

Site suitability cannot be justified simply on the basis of a proposed project being a "fusion system and not another alternative. Siting must take account of the hazards to be generated by the facility and the effectiveness with which the risks associated with these hazards can be shown to be managed and reduced.

The issue of "fusion being safer than fission" cannot be taken in isolation. The hazard associated with radioactive materials in a fusion plant must be managed on the basis of the absolute risk associated with that radioactivity and associated radiotoxicity. The scale in respect of these with respect to a fission plant is not relevant to the assessment.

The risks associated with a large scale fusion power plants are still largely unquantified and postulated in literature (ref: https://doi.org/10.1016/j.fusengdes.2019.111377). The radiotoxicity associated with the tritium inventory in a large (GW scale) fusion power station will be well in excess of the limiting value requiring compliance with REPPIR, as is acknowledged in the NPS consultation document. It would be senseless to agree, in principle, to the use of sites for which it may then prove difficult to provide effective compliance with these regulations. Further

evidence is needed to demonstrate that an open-sited approach is the best method to take forward at this stage.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

No

As indicated above (question 3), it is difficult to justify fusion as being treated differently just because it is fusion. It makes sense that fusion is aligned with other technologies and that only facilities with a generated output of more than 50 MWe should be included in the NPS – The use of the NPS approach is, after all, set up to manage nationally significant infrastructure projects in the energy sector. It is not clear why it would be appropriate for small fusion devices to be viewed as nationally significant infrastructure if they did not meet the established criteria (>50MWe).

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

The impact of a facility is largely dependent upon its physical size, and the risks posed by hazards within the facility. These are not readily differentiated by the ability, or not, to generate electricity, especially as all current fusion concepts will require significant electrical power for internal use, regardless of that which might be available for export from the site.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Yes

The intent of these National Policy Statements is to support the Planning legislation when considering nationally significant infrastructure projects within the energy sector and the Energy Act 2023 definition, along with the 50 MW generation criterion, should be enough to adequately distinguish between those facilities with large physical impact where the management of hazards is imperative to demonstrate acceptability and those facilities that are physically smaller and where specific management to reduce the risk associated with hazards is not required because of the already small, generally acceptable, scale of those hazards.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

The suitability for a site for deployment of a particular technology does not generally change significantly over time, unless there as substantial other changes in respect of the site. If a site is selected, it makes sense that other development is constrained to allow the site in question to remain committed to fusion development.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

As stated the factors appear aligned with other energy sources. It is important that this remains so and that fusion does not get to be treated differently just because it is fusion (it should be treated based on the hazards it produces for the gain received (i.e. energy)).

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

The range of the criteria identified do cover all aspects necessary for site assessment, but the scope of the locational characteristics and population densities criterion is not judged to be currently acceptable.

Assessment of any constraint on site development that is associated with local population density must be made on the basis of comparison of absolute risk. In this regard the difference between fission and fusion is not relevant. Any practical fusion energy facility will, in terms of likely technology in the immediate future, come under REPPIR (as acknowledged in the consultation document) and hence the requirement proposed in NPS EN-7 that “The purpose of assessing the population surrounding proposed sites is to minimise the risk to the public in the unlikely event of an accident involving the spread of radioactive materials beyond the site boundary” remains equally applicable to a fusion power station.

It is worth noting that, in terms of volatile and mobile radioisotopes that will be of most concern in terms of doses to the general public following an uncontrolled release, the collective dose associated with tritium from a large fusion power plant could well be broadly comparable to the collective dose associated with iodine-131 in one of the smaller SMR designs. The whole fuel cycle for tritium must be considered (i.e. the entire site tritium inventory at any one time) – there is a large body of scientific literature in Fusion Engineering and Design journal that provides details of mass balance equations that demonstrate tritium storage on site for a ~1GWe fusion power plant is between 10 – 500 kg (depending on assumptions used in fuel cycle efficiency, errors in modelling, fuel burn fraction in the fusion core, etc). Without more detailed design and engineering development effort, the actual position within this range remains unknown, but it is more likely to be at the higher end than the lower.

The impact of an uncontrolled release of a significant fraction of the tritium inventory in a large fusion power plant would probably align with the “major accident” definition in the COMAH Regulations. However substances that emit ionising radiation are outside the scope of the COMAH Regulations because of the existing “….stringent nuclear legislation which ensures at least and equivalent level of safety” (ref: para 70, HSE guidance to COMAH Regulations). The decision to take all fusion facilities outside of the Nuclear Installations Acts effectively means that they might be to some extent unregulated with respect to this issue unless there is further change to legislation. It is not clear that the requirements of the Ionising Radiation Regulations (2017) to perform a risk assessment is entirely appropriate for the scale of radiological hazard in a large fusion plant. Equally, as stated in the guidance to REPPIR (para 120), the main purpose of these regulations cover the arrangements in place to mitigate the consequences of an emergency.

It does not feel comfortable that fusion should effectively be unconstrained on siting largely because of a legislative technicality when a significant hazard can readily be shown to exist.

10 Are there any additional criteria that should be considered in the assessment process?

Don't know

As indicated passim, it is important not to select assessment criteria just because it is fusion. The selection must be made against an absolute assessment of the actual criteria of interest. Stating fusion is “safe” does not make it “safe”. For power plant devices, clear evidence and assessment is needed that is based upon operational experience in similar facilities (not experimental fusion reactors, such as JET as these are very limited in its radiological risk portfolio). The studies of EU-DEMO1 safety and radiological risks might be taken as a starting point.

It is important to understand that whilst there may be the perception of significant differences between the impact of fission and fusion plants, the nature of the impacts to the public are similar (radiological release, with severity depending on degree and absolute risk). This suggests that there should be a common asset of assessment criteria used for both technologies. If fusion can readily be shown, for any criterion, to have a much reduced impact, then this will be reflected in the assessment and use can then be made of the corresponding lower level of constraint.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

It may well be that different fusion technologies will generate different assessment results, but, as indicated passim, it is the assessment against absolute criteria, not respective consideration between different fusion devices, or between fission and fusion, that is important.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

It makes sense that for all significant energy infrastructure projects, the implementation is in line with EN-1 and a relevant policy statement for the technology. Fusion should be treated in this way and alignment with the process for other energy technologies maintained.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Don't know

15 Do you agree with the selection and definition of key sustainability issues?

Don't know

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don't know

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Don't know

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Don't know

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Don't know

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Did not answer

Anonymised Response I

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Anonymised Response I agrees that the planning process should be aligned with other complex energy generation facilities. There is close alignment with other low-carbon technologies that are within responsibility of PINS, in terms of scale, benefits and local impacts.

A common planning approach to major energy projects will mean that relevant organisations will be able to use a retained understanding of shared processes which will expedite the planning and delivery of major projects.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Anonymised Response I agrees that all fusion technologies should be included in the NSIP process.

The nascency and the range of the technologies available means that including all fusion technologies in the NSIP process is important so as not to inadvertently block technological progress. The UK should remain open to all as the different technologies progress towards commercial viability.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

Anonymised Response I agrees with the proposal for a developer-led approach that is facilitated by robust criteria.

Anonymised Response I is a land-owner and is happy to engage directly with prospective developers and fusion technology companies on the potential use of its land.

Anonymised Response I note that there may be sites that are suitable for both fusion and fission technologies. It will be important to earmark preferred sites for new nuclear fission deployment as part of the UK's drive towards net zero and delivering up to 24GW of nuclear, within a nuclear strategy and pipeline.

This will be important within the National Energy System Operator's (NESO) publication of a Strategic Spatial Energy Plan (SSEP). This plan will bridge the gap between Government policy and infrastructure development plans. To do this successfully, it will need to assess where low carbon generation developments, including nuclear, are likely to be sited in order to identify the much-needed transmission network investment. The SSEP and the network plans that flow from it are likely to have status in planning. Anonymised Response I understand that

the SSEP aims to be long-term as well as future-proof in order to facilitate maximum investment. This will mean that the Government must define how fusion fits in the SSEP.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

Anonymised Response I agrees with this proposal.

There is little benefit to be gained from excluding projects below a certain capacity threshold. It would be much more beneficial to keep all fusion energy facilities in the NPS process thereby ensuring clarity and more certainty to developers, whilst building capability within the national planning authority.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Anonymised Response I agree that both thermal and electrical facilities should be included in the fusion NSIP process. Fusion energy has great potential for both power generation and heat output.

The NPS document refers to both desalination and hydrogen production as potential uses of high-grade heat. Whilst Anonymised Response I recognise that these are examples of heat applications, Anonymised Response I notes that existing desalination and hydrogen technologies benefit from lower-grade heat, such as that provided from available Pressurised Water Reactor (PWR) nuclear technology.

Fusion technology has the potential to supply high-grade heat, i.e. several hundred degrees. Directly supplying to co-located industry could present a more efficient use of this heat and a greater opportunity.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

The definition of a fusion energy facility in the Energy Act 2023 is not clear in distinguishing between a fusion energy facility and a fusion research facility.

The only definition of a "fusion energy facility" is to be designed or adapted for the production of electrical energy or heat (156 (2B) (a)). However, it could be argued that "fusion research facilities" could be designed or adapted for the production of electrical energy or heat, albeit in some different way to the spirit in which the Energy Act 2023 was drafted. For example, as fusion technology progresses there will likely be demonstrator devices that produce a heat output, but not on a commercial or usable scale.

There exists ambiguity in the definitions, and therefore supporting guidance would be helpful.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Anonymised Response I is supportive of not setting deployment deadlines for fusion energy facilities. There would be limited benefit of a deployment deadline, coupled with a risk that new facilities might not deliver on their full potential if they are under pressure to hit arbitrary timelines. There is also a risk that the policy could be 'timed out' and cease to be useful, as was the case for EN-6.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

Anonymised Response I has no other suggestions of factors for developers, it will be important that the assessment of planning applications considers the massive societal and environmental benefits of dispatchable, low-carbon energy provided through high energy density forms of generation, such as nuclear power and fusion power.

Anonymised Response I experience has shown that assessing reasonable alternatives is challenging for large, complex energy infrastructure. Further guidance would be welcomed on how developers can apply this principle at a strategic level.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

The proposed criteria are extensive enough and cover all necessary aspects for assessing the suitability for fusion energy facilities. Anonymised Response I also supports the decision to not apply the 'semi-urban' or any demographic criterion to fusion.

With the recent publishing of the Management of Radioactive Substances and Nuclear Decommissioning policy, Anonymised Response I recognises that the wording on waste management can now be updated. Anonymised Response I recommends that references to fusion requiring geological disposal facilities is removed.

The benefits of co-locating fusion with heavy industry present a significant opportunity for the sustaining the long-term decarbonisation of UK industry. It will be important that the fusion NPS enables this, recognising that existing health and safety regulations will ensure the highest standards of safety are met.

10 Are there any additional criteria that should be considered in the assessment process?

No

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

It would be counter-productive to be too prescriptive or rules-bound for fusion technology, recognising the current level of technical progress.

It could also be interpreted that the UK prefers specific technologies. It is important to welcome and support all forms of fusion technology at this stage.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

BROADLY AGREE

Anonymised Response I is supportive of the proposed model for the implementation of the fusion NPS, subject to the comments above.

It is worth noting that the broad responsibility of NESO will mean that there needs to be a clear definition of its role in the development of energy infrastructure. This potentially means including fusion energy facilities within the SSEP and the consideration of how to plan grid development in line with the potential to incorporate fusion power.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Yes

15 Do you agree with the selection and definition of key sustainability issues?

Yes

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

No

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Yes

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Yes

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered.

Anonymised Response J

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

The world requirement for Fusion Power is significant – if successfully commercialised, it is the last energy source the world will need. Fusion has the potential to be at least 20% of the composition of clean base load energy by 2050 and will contribute to both Energy Security and exiting countries from Fuel Poverty. The world cannot meet 2050 decarbonisation and climate targets without it.

Today, the race to develop commercial fusion is highly active, fiercely competitive and brilliantly collaborative on a global scale. For over six decades, Britain's dedicated efforts in fusion research have positioned us as a leader to date in this critical field. However, the landscape is shifting. Global challengers are rapidly advancing in both technological innovation and funding levels. Our hard-won lead cannot be taken for granted and today we find ourselves at a critical juncture. We either do what we've done in the past – innovated and then been overtaken – or we take the opportunity for the UK to demonstrate true fusion leadership by being clear on how to invest to maintain our lead.

Against this backdrop, Anonymised Response J welcomes the development of a National Policy Statement (NPS) for fusion energy. As a company, we have made significant progress in creating a viable and highly promising alternative method for fusion – inertial fusion energy – in only a decade of rigorous research and development. This rapidly advancing technology has the promise to deliver a reliable source of clean baseload electricity, with the physics behind inertial fusion already well proven.

Other countries are pursuing this approach and demonstrating significant progress. Our ambition is to continue advancing this work in the UK rather than elsewhere, contributing to the nation's efforts to lead the fusion race.

To maximise our chances of success, we believe the NPS should enshrine the following key principles:

Support for multiple fusion technologies: The NPS should ensure genuine Government support for both magnetic and inertial fusion technologies currently under active development in the UK. This approach will increase the likelihood of a successful breakthrough and reflect the rapid progress made on inertial fusion, even though it is a significantly younger technology compared to the 60 years of research into magnetic confinement.

Clear siting guidelines for fusion plants: To avoid potential delays similar to those experienced with grid connections for other types of commercial power plant, the NPS must develop and publish clear guidelines for the siting of fusion plants. Given the power capacity of individual commercial fusion plants will likely be in the hundreds of megawatts, rather than gigawatts, a sizeable fleet will be needed. Understanding and planning for this now will be important to a successful, quicker rollout.

A coordinated cross-departmental approach: A coordinated and joined-up approach across both the Department for Energy Security and Net Zero (DESNZ) and the Department for Science, Innovation and Technology (DSIT) will be essential to making progress on fusion

research and development. Both departments have a role to play we believe, and bring complementary skillsets and expertise.

An ambitious target date for commercial fusion: Establishing a target date for the first commercial fusion plant, such as 2040, will catalyse investment, research and focus towards achieving this goal. This should be ambitious yet achievable to drive progress and demonstrate the UK's ongoing commitment to leading in fusion energy.

In answer to question one - Yes, we agree. This alignment would lead to a more streamlined and efficient planning process whilst ensuring fusion plants are considered alongside other power-generating sites.

It is also important to emphasise that fusion power plants pose much lower risks in terms of waste, radiation and related effects compared to nuclear fission plants. This distinction should be reflected in the planning process, without aligning fusion energy facilities with the Office for Nuclear Regulation (ONR).

Additionally, the planning system must be highly functional and able to deliver timely, effective assessments. Sufficient resources for the planning inspectorate are essential to guarantee this.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Yes, we agree. We firmly believe that backing multiple approaches, rather than focusing on a single technology, offers the best opportunity to maintain Britain's competitive edge in the fusion race. This strategy will also increase the likelihood of developing the most effective technology to deliver reliable, clean, baseload fusion energy.

Government funding and policy support have typically favoured magnetic confinement over inertial fusion. While this has historically been understandable given magnetic confinement's longer history, the rapid rate of progress of inertial fusion now merits rebalancing this.

It is, therefore, essential that the principle of plurality is at the heart of the NPS.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

No

We understand the rationale behind the Government's proposal to take an open-sited approach but would urge a degree of caution. Commercial fusion at scale will require multiple sites to be built and brought online rather than just a few. There are clear parallels with the conventional nuclear industry and the deployment of small modular reactors, as opposed to a few large multi-GW traditional fission reactors.

In practice, this means that site selection will need to be a priority. Issues around securing grid connections, which can be subject to long delays, and conducting the necessary planning and permitting checks outlined in the NPS document, will need to be considered in this timeframe.

We agree it is essential to emphasise the significant differences between hosting a fission plant and fusion plant in communities, particularly in terms of risk factors and safety levels.

Given fusion plans have significantly lower risk factors, this should be clearly communicated to host communities.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

We broadly agree with this intention. However, we believe that different types of fusion technology require different levels of attention. While smaller fusion plants, or mini plants, may be less expensive and benefit from economies of repeatable build, larger plants such as those projected by Anonymised Response J (100MW+) should not be overlooked. Including all fusion energy facilities in the NPS process, independent of capacity, would ensure a comprehensive approach that balances the benefits of quicker deployment and funding attraction with the development of more impactful, larger-scale facilities.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Yes, we agree. By accommodating both types of facilities, the NSIP process can enhance the versatility and market appeal of fusion technology, making it more attractive to a broader range of stakeholders and furthering its commercial viability.

While production of electrical power is likely to be a primary focus of commercial fusion plants, our own experience at Anonymised Response J has shown us how the research and development process to reach commercial stage is creating a much broader range of potential use cases – both for fusion power directly, and some of the innovations required to realise a commercial power plant.

Enshrining flexibility therefore feels pertinent as a way to encourage and accelerate progress towards commercial fusion power, but also support its wider usage in other potential areas.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Yes

Yes, we believe the current definition is suitable for the purpose of the NPS. The Act's definition clearly distinguishes between fusion energy facilities and fission facilities, acknowledging that fusion facilities do not involve fissile materials and present significantly lower hazards and waste. We support maintaining this approach as it provides a proportionate regulatory framework that encourages innovation and development in the fusion energy sector.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

No

No, we do not agree. We believe that a combination of societal imperatives for clean, cost-effective and secure energy, the rapid progress being made by companies such as Anonymised Response J in inertial fusion energy, and the increasingly likely predictions made

by many fusion companies about timescales to reach commercial power demonstrate that fusion is likely to become a commercial reality sooner than anticipated.

As a result, we believe setting a deployment deadline for commercial fusion of 2040 – or at the very least a well-defined ambition or target date around this – would reinforce confidence among fusion company developers, attract more certainty among current and potential fusion investors, and serve as a guiding objective to drive the commercial development of this technology forward.

Without such a target or deadline, some or all of these important factors may suffer.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

We agree with the points raised in the NPS. We would additionally emphasise the value, at least initially, of clustering fusion-related facilities together, as had been proposed for the Culham site. This approach can create a positive accelerator effect through the establishment of a centre of excellence for fusion.

In addition, given that commercial fusion will likely involve tens of plants at a sub-1GW scale rather than a handful of multi-GW plants as seen with conventional fission, one of the most critical factors to consider will be the ability to secure a grid connection quickly and efficiently. This factor is essential for the timely deployment of operational success of fusion energy facilities.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

The proposed criteria are comprehensive and align with the expectations for suitability assessments of other commercial power plants.

While grid connections are included in the criteria, it is important to emphasise the significance of this factor for the timely deployment and operational success of fusion energy facilities. Given the nature of commercial fusion, which will likely involve lots of sub-1GW plants rather than a handful of multi-GW plants as seen with conventional fission, securing a grid connection quickly and efficiently will be particularly important.

Furthermore, the current grid connection capability in the UK does not yet support the rollout of clean baseload energy. This limitation must be addressed to ensure the successful integration of fusion energy facilities into the national grid.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

See our answer to question 9.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Yes

Yes, there should be a separate set of criteria. You cannot compare magnetic confinement with inertial fusion as they are fundamentally different processes. MCF involves a continuous process similar to a furnace, while ICE operates in pulses. Such differences present unique challenges and requirements for each technology. Therefore, separate or a range of criteria would ensure a fair and effective assessment of each technology.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Yes, we agree. As above, it aligns with what would be expected for any other commercial power plant, and we do not foresee any obvious challenges. The model appears to be well-structured to support the development and deployment of fusion energy facilities effectively.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered.

15 Do you agree with the selection and definition of key sustainability issues?

Not answered.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered.

Anonymised Response K

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Such an integrated approach seems appropriate.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Such a comprehensive approach seems appropriate.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

This seems reasonable. Having an open-sited approach could hopefully accelerate the identification of suitable sites.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

Such a comprehensive approach seems appropriate.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Such a comprehensive approach seems appropriate.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Bearing in mind that the way forward is somewhat speculative avoiding a deadline seems appropriate.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

I don't think so. The four bullet points listed on page 23 will already be onerous for developers to meet, especially the first bullet point where it states:

"Developers are expected to conduct a thorough assessment of the proposed site and compare it to other potential solutions to achieving their development."

It is helpful that the reference to public feedback has been included in the fourth bullet point.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

However, I have detailed comments on two of the aspects.

On page 23 it is stated:

"Developers will have the responsibility of demonstrating that they have considered reasonable alternative sites if they wish to develop in a high-risk flood zone."

However, I urge that fusion energy facilities in a high-risk flood zone be excluded.

On page 25 it is stated:

"The UK Government and devolved administrations published a consultation in March 2023 to update policies on managing radioactive substances and nuclear decommissioning. This includes proposals to allow the disposal of intermediate level waste in near surface disposal facilities. The UK Government and devolved administrations expect to publish the final policy in 2024.

If the proposals in the managing radioactive substances and nuclear decommissioning consultation were to be implemented, it's possible that waste from fusion energy facilities could be disposed of in near surface facilities and may not need geological disposal facilities."

However, in my view, the prospect of disposal in near surface facilities is disturbing, and therefore geological disposal is to be preferred. Near surface disposal could potentially be vulnerable to attack by terrorists?

10 Are there any additional criteria that should be considered in the assessment process?

Don't know

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response L

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes
Anonymised Response L agrees that fusion energy should be subject to the same broad planning framework as other complex energy generation facilities, a decision which would provide increased certainty to the fusion industry and allow the development of fusion knowledge within the planning system. Indeed, the development of knowledge and capability within the relevant regulatory authorities was raised in the 2022 Fusion Regulation Consultation Response as an important element of a fusion regulatory framework.

Anonymised Response L is clear that there are no safety or environmental reasons that fusion energy facilities should be subject to a separate framework to other (non-fission) complex energy generation facilities. There is a high degree of confidence in the bounding 'worse case' scenario of fusion energy facilities (with regards to designs currently in development) in terms of safety and environmental hazard, as described in UKAEA's Technology Report (Fusion Technology Report (available at: https://scientific-publications.ukaea.uk/wp-content/uploads/UKAEA-RE2101-Fusion-Technology-Report-Issue-1.pdf)). This underpinned the 2021 UK consultation on Fusion Regulation.

However, fusion energy facilities represent a first-of-a-kind technology with unique characteristics that differentiate it significantly from established energy generation methods. There are still many uncertainties regarding the specific technical, environmental, and safety implications of fusion energy. For these reasons, the detail of the planning process and how this is implemented should remain under review while fusion energy technologies mature and uncertainties reduced, to ensure full consideration of all relevant factors and to mitigate unforeseen issues effectively.

Anonymised Response L notes that the consultation proposes two primary factors in the consideration of bringing fusion energy into the NSIP planning process: clarifying the process for developers, and where the expertise exists to scrutinise their plans. Anonymised Response L seeks to address these factors in its answers to questions 2, 4, 5 and 6 on defining fusion energy facilities in scope. Anonymised Response L would suggest that other factors – such as whether the planning process is judged to be proportionate to the industrial scale and hazard of the facilities in scope or whether large fusion facilities are considered to be nationally significant in and of themselves regardless of energy output – should also be considered as important factors in bringing fusion energy into the NSIP process.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

---This response should be considered alongside Anonymised Response L's other responses to the questions on key criteria proposed to determine which fusion facilities should be in scope of the NSIP process, see questions 4, 5 and 6.---

On the basis of the proposed approach to technology inclusivity on page 19 of the consultation, Anonymised Response L agrees that all fusion energy facilities should be included in the NSIP

process regardless of their technological approach. Anonymised Response L agrees with the proposed exclusion of fusion technologies which use fissile material.

Anonymised Response L assumes that the statement on page 19 of the consultation – “fusion does not create very long-lived or high activity waste and has a comparatively low radiological profile” – is intended to be taken as a comparison with nuclear fission. Anonymised Response L notes that page 25 provides further detail on this issue.

3 Do you agree with the Government’s proposal to take an open-sited approach in the fusion NSIP process?

Yes

Anonymised Response L supports the proposal to take an open-sited approach in the fusion NSIP process, in line with the reasoning set out on page 19 of the consultation. Anonymised Response L notes that there are many practical implications of this for fusion developers to consider. Further information is set out in the consultation response from Anonymised Response M.

Anonymised Response L welcomes the recognition of the need to consider implications of multiple devices being sited together. An open-sited, developer-led approach should not hinder this, although it may require greater coordination between prospective fusion developers at an early stage.

More broadly, Anonymised Response L would suggest that this issue of co-location is given more consideration in subsequent documentation, to provide clarity to fusion developers. This should cover issues such as how the NSIP process would address scenarios of multiple fusion facilities being located at a single site and/or multiple users of the output of those facility/facilities, and whether there are implications of development take place either simultaneously or sequentially. This is of particular relevance to questions 4 and 6. The implications of other major industrial facilities being co-located may also need to be taken into account.

4 Do you agree with the Government’s proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

---This response should be considered alongside Anonymised Response L other responses to the questions on key criteria proposed to determine which fusion facilities should be in scope of the NSIP process, see questions 2, 5 and 6.---

Anonymised Response L supports the proposed approach, noting that this question relates to the use of Mega-Watt (MW) thresholds in the NSIP framework. The consultation states that, given that a commercial fusion facility has yet to be constructed, the precise electrical and/or thermal output of first-of-a-kind (FOAK) fusion energy facilities is not currently known. Anonymised Response L would add that, prior to technology maturity and fleet deployment, developers of demonstration fusion energy facilities may be unable to define targeted output in MW terms on a consistent basis. Any implications on capacity of co-location of multiple facilities at a single site would need to be addressed, in line with Anonymised Response L comments at question 3.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

---This response should be considered alongside Anonymised Response L other responses to the questions on key criteria proposed to determine which fusion facilities should be in scope of the NSIP process, see questions 2, 4 and 6.---

There are choices and uncertainties associated with both the technology approaches to and applications of fusion energy. Nonetheless, it is known that there are enough commonalities between a fusion energy facility designed to produced heat (for various applications) and one designed to produce electricity (either for localised or national distribution), in terms of the factors assessed within the NSIP process, for both groups of fusion energy facility to be brought within the one fusion NSIP process. This would fulfil the stated aims of providing clarity to industry and consolidating fusion capability within the planning system.

There is a diverse range of potential products and outputs from process heat (from fusion or other energy sources), such as hydrogen, steel and textiles. Each would have varying implications for the site. Not all of these may be fully known at the outset of the project, particularly during the prototype generation of fusion energy facilities. This will add complexity to the site selection process for developers. These factors would need to be accounted for in the NSIP process.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

---This response should be considered alongside Anonymised Response L's other responses to the questions on key criteria proposed to determine which fusion facilities should be in scope of the NSIP process, see questions 2, 4 and 6.---

Anonymised Response L notes the following sentence on page 20 of the consultation document: "The Government does not intend to include research fusion facilities within the NSIP process but recognises that some research facilities such as JET and larger scale facilities planned by industry can be large and complex. Anonymised Response L assumes that the rationale for this policy position is that a Fusion NPS should be aligned to other NPS which are focused on energy generation. Anonymised Response L recognises that this approach may be appropriate for the current UK context and planned fusion facilities, given that the UK's STEP prototype fusion power plant in development is targeting the generation of electricity by fusion energy, as are other private sector initiatives.

Anonymised Response L believes however that there would be benefits for fusion developers, and the UK's evolving national fusion strategy, if all stages of the fusion development process requiring large-scale infrastructure are included within scope of a Fusion NPS. This is regardless of whether they generate useable energy. This would see the inclusion in the NSIP process of "large and complex" research facilities - one example of such is ITER, under construction in France. This approach would recognise that such facilities involve strategically valuable technology, high capital costs and extensive infrastructure requirements, and support the UK's aims to achieve long-term commercial advantage in fusion energy technology – even though these facilities may not generate net energy themselves. One approach to

implementing this would be for DESNZ to determine any large or complex fusion facility as nationally significant based on its strategic importance, and/or draw on existing technical criteria elements within the UK's regulatory framework as applied to fusion, or use a combination.

This approach would still support the development of STEP and other energy generating fusion facilities, while avoiding some of the challenges described in relation to the Energy Act 2023 definition. This is as follows:
"fusion energy facility" means a site that is—
(a) used for the purpose of installing or operating any plant designed or adapted for the production of electrical energy or heat by fusion, and
(b) not also used for the purpose of installing or operating a nuclear reactor."
Without further clarity or guidance, Anonymised Response L regards this as insufficient in itself for distinguishing between a fusion energy facility and fusion research facilities for the purpose of this NPS. This definition does not specify the export of the fusion energy generated by a fusion energy facility, and so would not distinguish between what could be described as a fusion research facility from a fusion energy facility.

Nonetheless, assuming that there is no change to the proposed approach, that only energy generating fusion facilities should be in scope of the NSIP process, then Anonymised Response L'sview is that the Energy Act 2023 definition provides a useful starting point, on the basis that further guidance would be provided.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

At this stage, fusion remains an insufficiently mature technology (with multiple potential applications which are not yet fully understood) to enable the setting of meaningful deadlines for siting purposes. This is not to say that the UK should not set strategic or programme targets for fusion energy deployment, which help to define programme goals and drive progress. However, these should be kept separate from legally binding deadlines in regulatory and/or planning regimes, in view of the technical uncertainties and challenges involved in developing a fusion energy facility to the point of deployment.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

The current statements are sufficiently comprehensive and inclusive as a starting point for developers. suggests that DESNZ should consider whether to set an expectation on developers that they should consider co-located industries and alternative uses for fusion energy facilities when assessing reasonable alternatives.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

Anonymised Response L welcomes the thorough consideration of the proposed criteria for assessing fusion energy facility sites. Anonymised Response L proposes a number of

additional topics as potential criteria for assessing the suitability of sites – see answer to question 10.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Anonymised Response L proposes that developers are required to address a number of additional factors, which could be incorporated into existing criteria or used to form additional ones. Anonymised Response L does not expect that these would have a major impact on siting assessments, given the hazard profile of fusion.

• Ability to ensure an adequate security boundary for safe containment of materials subject to export/security controls/concerns, in particular tritium;
• Local environment compatibility, specifically considering seismic activity and other potentially consequence factors;
• As mentioned previously, any implications of co-location at a single site would need to be addressed, in line with Anonymised Response L's" comments at question 3. In terms of the siting assessment process, implications for materials processing and recycling and reuse would be particularly relevant.

Anonymised Response L suggests that developers should be expected to make use of suitability qualified and experienced professionals in carrying out their assessments.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

While each approach to fusion energy will present different challenges and opportunities, Anonymised Response L believes a Fusion NPS should set out a single overarching approach as much as possible to site evaluation. Nonetheless, there should be an expectation that fusion developers must demonstrate how the assessments undertaken are specific to the individual facility and site in question. As fusion technologies mature, this may necessitate evolution of the criteria proposed, and/or further detail published. Anonymised Response L suggests that DESNZ should therefore keep this under review.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

No

Anonymised Response L is supportive of the overall principles of how a Fusion NPS would be implemented. However, Anonymised Response L suggests that, while fusion technology continues to mature towards commercialisation, a greater degree of iteration and flexibility is incorporated into the process that is to be implemented by the Fusion NPS. At the point of commercial operations of fusion energy facilities, a more linear approach – in line with other mature energy technologies – should be adopted for efficiency. Anonymised Response L welcomes the consultation's openness to reflect wider considerations in the implementation of the Fusion NPS.

Anonymised Response L notes that the Planning Inspectorate are in the process of consulting

on an enhanced pre-application service for Nationally Significant Infrastructure Projects. This could support a more fusion-relevant process.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

No. Following a review of the Polices, Plans, and Programmes (PPP) against the Anonymised Response L legislation register and obligations, no additional PPP were identified beyond those already covered by the AoS.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Yes

The key environmental aspects Anonymised Response L would expect to see have been included within the baseline data scope. However, as the emerging fusion industry continues to develop, we recommend a review of how this baseline data is collected, how the analysis on this data is conducted, and a response be given identifying how suitable / achievable this analysis is with respect to fusion.

15 Do you agree with the selection and definition of key sustainability issues?

Yes

Yes, Anonymised Response L agrees with the issues identified, subject to the same recommendation noted in Q2, for these to continue to be reviewed as the industry develops and better understanding of impacts becomes available.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

No

At the time of review, Anonymised Response L has not identified any additional baseline data of note.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Yes

Anonymised Response L considers the implications and opportunities identified as relevant and applicable. However, in some cases there are likely to be challenges worth noting, in relation to fusion.

For example, the Greenhouse Gas Emissions (page 53) state “Construction, operation and decommissioning of fusion power stations should be Net Zero with negative emissions removals employed, both technological and nature-based, for any residual emissions”. From an operational perspective this is an appropriate requirement. However with regards to construction (and decommissioning to a degree), this is likely to be a challenge.

Construction of fusion facilities has a very high embodied carbon footprint and would require extensive offsetting to reach net zero. The concern is that the current UK offsetting market is

not yet mature and resilient enough to handle requests at this scale.

Similarly, while setting the infrastructure requirements for low embodied carbon would indeed encourage clean technologies and materials within the supply chain, there is the concern that the supply chain would not be ready on time and this would lead to certain suppliers being excluded and options being limited. This is particularly challenging given the novelty of the industry and materials needed.

As fusion is a new industry, the related supply chain for low embodied carbon materials, and for large scale offsetting, can both be considered immature and fragile in their establishment and resilience. Anonymised Response L wishes to highlight this risk and suggests that a more flexible approach is considered to the net zero policy that does not place the UK supply chain at a competitive disadvantage with regards to fusion facility construction.

Another example for consideration is the Water Environment (page 63). It states “Fusion energy may involve the requirement for large quantities of water to be abstracted for cooling purposes and this water also needs to be discharged back to the environment – potentially while being of relatively high temperature and contaminated with antifouling agents. The NPS should seek to protect marine receiving waters from such threats.” It is recommended that rivers and lakes are also considered, in addition to marine waters, and that suggestions are included for effective protection and prevention routes.

Anonymised Response L is developing a separate lessons-learned report to help inform the development of a Fusion NPS which will note effective strategies and approaches Anonymised Response L has used throughout JET’s operational lifetime. Amongst these is Anonymised Response L’s” approach to managing water and heat. To summarise; the waters are allowed to cool and be filtered through an onsite system of holding tanks, dilutions with trade effluent, and processed over filter beds so as to remove contaminants, activity, and heat prior to discharge.

Currently Anonymised Response L discharges are consented by the local water authority (Thames Water) and permitted by the Environment Agency. Anonymised Response L would recommend that a review is conducted to confirm that current discharge-related legislation is fit for purpose for future fusion energy facilities. If flexibility to heat and pollutants is something the NPS wishes to establish for future fusion energy facilities, Anonymised Response L wishes to note that consultation with the regulators and other key stakeholders would be required, and revisions to legislation would be likely, for instance with regards to temperature limits at point of discharge. Anonymised Response L stands ready to support any further work by the Department of Energy Security and Net Zero on this issue.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Yes

Fundamentally the Anonymised Response L agrees, with the caveat that aspects raised in our responses to previous questions need to be considered and the objectives and decision-making questions also adapted accordingly.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

The scoring scheme proposed is a reasonable approach, however there is a concern that the questions to be scored may not be appropriately worded. Compared to the wording of the questions in this consultation, a broader approach is needed to ensure the questions have the flexibility for an emerging industry, and the alignment to fusion specific concerns and controls. Anonymised Response L recommends the wording for questions be amended with fusion in mind, and a review schedule to set to ensure the terminology is updated as the technology matures.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

No.

The response to the consultation was compiled by the Environment and Sustainability team of the Anonymised Response L. As the world's largest fusion R&D organisation, with a long history of operational tokamaks, Anonymised Response L is uniquely placed to provide direct insights into the expected challenges and considerations of fusion. This applies both to the technical challenges of designing and developing a fusion plant, and to the novel challenges of navigating legislation amendment and compliance, regulatory oversight, and supply chain capability. This is in addition to the challenges inherent in establishing a new industrial sector and the uncertainties that come hand in hand with establishing any new technical development.

Broadly speaking, the AoS for NPS EN-8 is mostly fit for purpose. However, Anonymised Response L would recommend that a strong fusion focus be placed on the approach. For instance, the questions in this consultation were directly relating to the specific content of the current AoS, and less about the AoS approach to fusion / suitability to be assessing fusion.

Questions and concerns relating to traditional energy sectors may not be applicable nor suitable as standard assessment criteria for fusion. Similarly, standard setting for a new industrial field that is still getting established may need to be flexible and occasionally novel in its approach, to ensure the standards and requirements are fit for purpose, achievable, and non-ostracising for the UK supply chain.

Anonymised Response M

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Anonymised Response M agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities as it establishes the principle for fusion to operate in the same context as other energy generation facilities. This will allow for commercial fusion to play a role in sustainable energy production in the future. The NPS will ensure that the STEP programme has a clear justification for the project and thus able to plan the Development Consent Order around that justification. Therefore, noting the prototypic nature of STEP, and other fusion plants, we agree with this process.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

The STEP programme is working to progress the design of the spherical tokamak. The technologies that are developed as part of the STEP programme will have applicability for a range of approaches to achieve fusion, not just within the spherical tokamak design, and will thus stimulate the development of UK fusion expertise and industry as well as the UK supply chain. Furthermore, Anonymised Response M agrees with the proposed exclusion of fusion-fission hybrids; STEP will not be such a device.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

The STEP programme held a two-year exercise to find the location of its site. Using an open sited approach, the programme held an open call for nominations where all nominees were provided with the same opportunities to present relevant information, using consistent methodology and sufficient equitable datasets. These were then assessed through two phases, one for all the nominees and the second for those shortlisted. The programme had a positive experience of this process and found that it encouraged strong community support of the programme from key local stakeholders which we have continued to build on through the programme's lifecycle. This approach allows for a wide range of sites to be considered across the breadth of the country.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

Anonymised Response M broadly agree with this proposal as fusion energy facilities should be determined based on the strategic importance to the nation rather than their specific rated capacity. Anonymised Response M suggests that the proposal should be inclusive of prototype energy producing plants (e.g. STEP) as well as the successor commercial plants that will follow in years to come. Anonymised Response M that due to the early maturity of fusion

technology, demonstration fusion energy facilities may be unable to define targeted output in MW terms on a consistent basis.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

The range of potential outputs from fusion energy plants is broad, including thermal and electrical but also medical isotopes and doped silicon which could be produced from direct use of the neutrons generated. Anonymised Response M suggests that this proposal should include fusion energy facilities, that are prototypes or commercial in nature, that are aimed at, or concepts for, producing a sellable commodity from fusion energy. This allows for the consideration of all outputs from fusion energy facilities.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

There is some complexity surrounding the current definition which Anonymised M recommends will need further work. More detail is set out in the Anonymised Response L response. Non-net energy generating, large facilities may also benefit from the NSIP process, so it would be helpful to consider this in the definition. Anonymised Response M also notes that there may be fusion research facilities that are significant in scale which recirculate energy but not a net positive energy facility which should be considered in this definition.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Anonymised Response M agree with this proposal, given the wide reaching potential benefits of fusion energy facilities when they are deployed and bearing in mind the current maturity of technologies associated it would not be appropriate to set an artificial deadline. Anonymised Response M agrees with the Anonymised Response L suggestion that the UK should set strategic or programme targets for fusion energy deployment, which help to define programme goals and drive progress. However, these should be kept separate from legally binding deadlines in regulatory and/or planning regimes, in view of the technical uncertainties and challenges involved in developing a fusion energy facility to the point of deployment.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

However, we would recommend that there is a tighter use of language in this process to make it clear that the assessment is of the location where the facility will be sited rather than an assessment of the technology being deployed. Anonymised Response M agrees with the bullet pointed list set out in page 23 for assessing reasonable alternative sites.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

The proposed criteria for assessing the suitability of sites for fusion energy facilities reflects that used for the site selection exercise for STEP.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Anonymised Response M suggests that social and economic benefits associated to the construction and operation of the fusion energy facilities should be considered within the criteria. When evaluating the impact that STEP would have on the West Burton area the STEP programme considered factors such as the potential for job creation, skill development and stimulation of industry in the area.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

Anonymised Response M does not think there should be a separate set of criteria for different fusion technologies as of yet, due to the current maturity of the technology. There will be some of the criteria which is more relevant depending on the type of technology that is chosen but Anonymised Response M agrees that the current criteria is broadly applicable to all fusion technologies at present (noting previous comments on fusion/fission hybrids). There may be scope for a more bespoke set of criteria to be developed in the future as the technologies develop.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Anonymised Response M agrees with the proposed model for implementation. The formal process is necessarily linear and the guidance surrounding this process should recognise the benefit of iterative engagement will all parties. Anonymised Response M has experienced first-hand that early engagement with local and industry partners is fundamental to the success of a project, through the STEP site selection process.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

No. Following a review of the Policies, plans and Programmes (PPP) against the UKIFS legislation register and obligations the only omission to section 3 is the Ionising regulations 2017 which links to the justification of practice that is currently being drafted on the basis of a multi technology approach of which STEP is one of the applicable technologies.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Yes

The key environmental aspects Anonymised Response M would expect to see have been included within the baseline data scope. However, as the emerging fusion industry continues to develop, Anonymised Response M recommends a review of how this baseline data is collected and how the analysis on this data is conducted. The STEP programme is a case in point here in terms that a prototypic facility may require much wider and detailed depths of baseline collection/analysis over a number of areas. The rationale is that fusion will introduce new materials and new challenges with respect to construction and raw material selection/usage.

15 Do you agree with the selection and definition of key sustainability issues?

Yes

Anonymised Response M agrees with the issues identified, subject to the same recommendation noted in Q2, for these to continue to be reviewed as the industry develops and better understanding of impacts becomes available.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

No

At the time of review, UKIFS has not identified any additional baseline data but as time progresses and new materials and processes are developed then this will most certainly change.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Yes

Anonymised Response M consider the implications and opportunities identified as relevant and applicable. However, in some cases there are likely to be challenges worth noting, in relation to fusion.

For example, the Greenhouse Gas Emissions (page 53) state “Construction, operation and decommissioning of fusion power stations should be Net Zero with negative emissions removals employed, both technological and nature-based, for any residual emissions”. From an operational perspective this is a suitable requirement, however with regards to construction (and decommissioning to a degree), this will be a challenge. With a prototypic design the emphasis will be staged learning on carbon footprint reduction that is extracted from the prototype to the commercial reality stages of fusion power generation. STEP/UKIFS are committed at an early stage to build in carbon and sustainability models at an early stage so that every opportunity during material and technology selection is taken and we can challenge the current supply chain to derive the best option. The construction of fusion facilities has a very high embodied carbon footprint and would require extensive offsetting to reach net zero.

The concern is that the current UK offsetting market is not yet mature and resilient enough to handle requests at this scale but this will significantly change as the STEP programme heads into construction in the next decade. Because of the novelty and scarcity of some fusion related materials it may be that it is impossible to look for alternative low carbon cost products. As fusion is a new industry, the related supply chain for low embodied carbon materials, and for large scale offsetting, can both be considered immature and fragile in their establishment and resilience.

Anonymised Response M wishes to highlight this risk and suggest that a more flexible approach to the net zero policy with regards to fusion facility construction and also consider that nearly all global fusion concepts are at least one iteration from a commercial plant where low cost carbon energy can contribute towards a Net Zero end point.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Yes

Fundamentally Anonymised Response M agrees, with the caveat that aspects raised in the responses to previous questions need to be considered and the objectives and decision-making questions also adapted accordingly.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

The scoring scheme proposed is a reasonable approach, however there is a concern that the questions to be scored may not be appropriately worded. Compared to the wording of the questions in this consultation, a broader approach is needed to ensure the questions have the flexibility for an emerging industry, and the alignment to fusion specific concerns and controls. Anonymised Response M recommends the wording for questions be amended with fusion in mind, and a review schedule to set to ensure the terminology is updated as the technology matures.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

No. The AoS for NPS EN-8 is generally fit for purpose. However, Anonymised Response M would recommend that a strong fusion focus be placed on the approach with respect to emerging technologies and novel raw materials that will need to be developed for STEP.

The current AoS relates to known technologies and understanding that will have commonality to fusion but will not account for some of the FOAK materials and behaviours that will be experienced in a fusion power plant.

Questions and concerns relating to traditional energy sectors may not be applicable nor suitable as standard assessment criteria for fusion, these will need to be judged and assessed for their applicability, examples of this are; emission limits, containment principles, Best Available Techniques etc. As no environmental permit has ever been granted for an operating power plant driven by fusion technology there needs to be a degree of flexibility in the journey of its evolution.

Anonymised Response N

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

We support the approach of recognizing that nuclear fusion poses a lower level safety hazard than nuclear fission. This results from:

• The reaction products from nuclear fission include long-lived highly active isotopes, whereas nuclear fusion reaction products have short-to-medium half-lives.

• The fission reaction continues to produce decay heat even after reactor shutdown has been initiated. The nuclear fusion reaction is instantly quenched following shutdown initiation.

Nevertheless, nuclear fusion does produce irradiated material and creates a class of radiological hazards that is not present in other (non-nuclear) energy-raising technologies. In addition, there are potential hazards associated with the processing and storage of the various isotopes of hydrogen, and there may be hazards associated with various chemicals such as lithium and beryllium.

The consultation document rightly draws attention to the internationally leading position on nuclear fusion regulation that the UK Government has taken. At this stage it is not obvious that the USA and French regulators have taken / will take the same position. In addition, if (as seems possible) structural integrity design codes such as ASME (USA) or AFCEN (France) support a fission-oriented approach for fusion applications, the UK may have to follow suit. There should be a continued review of whether the UK is taking a consistent regulatory approach to international markets for nuclear fusion.

In summary, we do regard nuclear fusion as an intermediate level of hazard between nuclear fission and other energy technologies, and would support taking advantage of that position, consistent with maintaining access to international markets and their regulatory and design code requirements.

2 Do you agree with the Government’s proposal to include all fusion technologies in the NSIP process?

Yes

We consider that the range of hazards and infrastructure requirements associated with magnetic confinement fusion and inertial confinement fusion of deuterium and tritium are likely to be broadly similar. In addition, we agree that these cases are likely to bound the characteristics of other possible fuel forms. We therefore support the Government position.

3 Do you agree with the Government’s proposal to take an open-sited approach in the fusion NSIP process?

Yes

There are likely to be several constraints on suitable sites for a commercial nuclear fusion plant. On the reactor side, the preferable features of a location include:

• A suitable source of cooling, most likely water-based
• Suitable connections to the electricity grid.
• Suitable transport links to enable large components to be shipped to site.
• Availability of suitably experienced staff or infrastructure to support recruitment.
In addition, if benefit is to be taken from the nuclear heat, possible uses could include:
• District (domestic) heating
• Process heat to support chemical plant (including hydrogen generation)

Both of these sets of considerations will influence the assessment of the suitability of candidate sites. Whilst we support the concept of an open-sited approach since not all realisations of commercial nuclear fusion can be envisaged at present, in practice only a limited number of sites in the UK are likely to be suitable. An open-sited approach is sound, but in practice there are likely to be only a limited number of suitable sites.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

We consider that the range of hazards and infrastructure requirements associated with fusion plant reactors are generic and not dependent on the scale of energy production. There is therefore no basis for excluding smaller facilities from the requirement, so we support the Government proposal.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Nuclear fusion and nuclear fission are the only energy sources that are able to provide electrical power and heating power at scale. There is therefore a strong financial incentive to take advantage of heat energy. It is a matter of engineering design and market assessment how the balance of the reactor output is deployed toward electricity generation and toward heat donation. As a result, we believe that the Government's proposal to include both thermal and electrical facilities in the NSIP process is sound, and represents the only consistent way to proceed,

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

The hazards and most of the infrastructure requirements associated with an energy-producing reactor and a research reactor are broadly similar. Both classes of reactor create potential chemical and radiological hazards and will produce heat. It may be problematic to justify a different approach between research and energy reactors. Note that the Dounreay fast (fission) reactors were built as research and demonstration reactors but provided power generation to the grid too. There is therefore ambiguity in how to define an energy-producing reactor compared to a research reactor, and we suggest that they could be treated similarly

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Despite recent progress in developing nuclear fusion reactors and the significant development of private sector investment, there are still significant development challenges associated with commercialising nuclear fusion. These include:

• Development of suitably resilient materials and fabrication technologies that can withstand neutron irradiation fluxes and energies that are far in excess of those experienced by the nuclear fission sector.
• Closure of the fuel cycle such that the reactor can breed its own tritium which does not occur naturally.

Whilst these technology challenges may not be insurmountable, the current technology and commercial readiness levels of possible solutions are still immature. As a result, it is not reasonable to set a deployment deadline for an energy system that is not fully developed.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

Developers should also consider the following aspects:

• At the end of plant life, there will be significant inventories of highly neutronated materials that will require safe storage and ultimate disposal. In addition, during reactor operation inventories of irradiated materials will accrue. This will be driven by components that have reached the end of their expected irradiation life and will need to be swapped out, and inventories of materials resulting from operation of the fuel cycle. The storage and transport of such irradiated material should be considered.
• In cases where heat use is intended, some of the heat users will themselves be categorised as COMAH sites. The colocation of radiological and chemical explosion hazards should be considered.
• The availability of a suitably skilled local workforce and the infrastructure to support their recruitment will be important. In the past these factors constrained recruitment to Dounreay.
• A key advantage of nuclear fusion (and fission) over other non-carbon-based energy raisers is their low impact on the landscape. This benefit would not apply to wind, solar or tidal energy.
• For export potential of the developed technology to international locations, nuclear fusion is potentially suitable for location in other territories even if they are not suitable for solar power or wind power. However, non-proliferation precautions of, for example, tritium and deuterium need to be considered

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

Most aspects have been considered. As detailed above, the following aspects should also be considered:

• Colocation with a COMAH site.
• Recruitment of suitable staff.
• Landscape impact.
• Non-proliferation.
• Vulnerability to attack from hostile entities.

10 Are there any additional criteria that should be considered in the assessment process?

Not answered

There are a number of additional aspects to consider when assessing the suitability of sites for fusion energy facilities:
• Consideration should be given to credible accident scenarios. These include not just radiological contamination (which is low consequence compared to nuclear fission). It should also include recognition of operational and chemical accident consequences. These may include, inter alia:
o Processing and storage of hydrogen isotopes.
o Beryllium inventories
o Lithium inventories
• Possible impact of radio-frequency electromagnetic interference resulting from the magnetic confinement of the plasma.
• Effects on the local electricity grid of possible instabilities of the electrical supply and demand from a fusion reactor.
• Nuclear proliferation concerns if the technology is exported to international markets that become hostile to the interests of the UK and its allies.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

The classes of hazard and infrastructure requirement for the various forms of fusion power are generic, and we see no need to set different criteria for different forms of fusion technology.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

In general, Anonymised Response N supports the proposed model. We suggest that UK regulatory policies towards nuclear fusion should take account of the emerging position taken by likely potential export markets. The UK should ensure that it adopts a position that is informed by developments in international markets.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Did not answer

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Don't know

15 Do you agree with the selection and definition of key sustainability issues?

Don't know

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don't know

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Don't know

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Don't know

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Don't know

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Did not answer

Anonymised Response O

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

Subject to comments on Q6 below

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

The Energy Act 2023 definition does not draw a distinction between a production facility and a research facility. It refers to "….any plant designed or adapted for the production of electrical energy or heat by fusion…"

Given the current status of various fusion technologies it is certainly possible that there could be a stage of development in which a fusion prototype plant is built which is intended to generate electricity or heat in limited quantities or for short periods but not at a scale that allows export of the produced energy, which might for example be stored at the facility for use between energy production runs. In our view such a facility would clearly be a research and development facility, not an energy production facility.

We would suggest that the definition of a fusion energy facility for the NPS should include that it has been designed to be a net exporter of energy.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

Given the current stage of fusion technology development, it is expected that different technology developers will seek sites for the deployment of their specific technology. The draft refers to the assessment of “alternative solutions and/or sites”, it must be clear that a developer may be required to consider alternative sites for its specific technology but there should be no requirement to consider alternative technical options – the current objective is to deploy a range of different technologies to demonstrate and prove capability.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

10 Are there any additional criteria that should be considered in the assessment process?

No

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

Not at this time, technologies may evolve that justify different criteria at some future point.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

We are not aware of any omissions

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Yes

The list is comprehensive.

15 Do you agree with the selection and definition of key sustainability issues?

Yes

The key issues are common to any significant development.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don't know

We are not aware of additional data.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Yes

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Yes

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Anonymised Response P

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Not answered

It is difficult to comment on proposals for siting and planning facilities for a technology such as fusion energy that does not currently exist in practice, could come forward in different ways, and will be some years from being ready for deployment commercially. There is limited and insufficient information available as to how it will work, and its implications for siting requirements and potential environmental impacts. Until such information is available it is not possible to have confidence in any proposal to adopt a market-led approach to siting over a strategically and spatially planned one.

There is little information currently available to allow a full understanding of the scale, nature and operational requirements of nuclear fusion power stations, and their deployment is unlikely for some years yet. It is therefore unclear as to why consultation on the approach to their location is being undertaken now. Insufficient information and evidence has been made available to give any confidence that a move from a strategically planned approach to a market-led one is appropriate for this technology as the potential of significant environmental impacts cannot be discounted. A strategic and spatial approach to their location and connection to the grid should therefore be taken.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Not answered

There is little information currently available to allow a full understanding of the scale, nature and operational requirements of nuclear fusion power stations, and their deployment is unlikely for some years yet. It is therefore unclear as to why consultation on the approach to their location is being undertaken now.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

No

As was the case in our earlier response to consultation on the siting for future (fission) nuclear power stations beyond 2025, the Anonymised Response P disagrees with the proposed move to a market-led criteria-based approach to the siting of future nuclear fusion generating plants, and urges the Government to take a strategic spatial planning approach.

Strategic spatial planning of infrastructure provides wider benefits, including visibility and scrutiny opportunities to local authorities and local communities, and more certainty to developers about potential areas and locations for development. It is particularly important given the long-term sustainability issues around coastal change. Suitable sites would be best determined strategically to allow the most sustainable options to be identified (i.e. those that can be developed with least need for hard engineering and disruption to natural processes.) Moving to a criteria-based approach would expose greater areas of coastline significant for nature and its recovery to the prospect of development risk.

For these reasons, the Anonymised Response P has long called for a strategic and spatial approach to energy infrastructure planning, and indeed the National Infrastructure Commission (NIC) now recommends the same. We welcomed that the UK Government itself recognised the importance and benefits of a strategically planned approach through committing to develop a Strategic Spatial Energy Plan (SSEP). Therefore, the proposal by the previous Government to u-turn away from the existing strategic spatial approach for identifying both fusion and fission nuclear sites is puzzling and inconsistent with the UK Government's wider approach to planning energy infrastructure, and counter to the NIC's advice. The alternative and market-led proposal set out within this consultation is not well justified nor is its case evidence-based. This is a concern given the potential for significant and long-term potential environmental impacts.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Not answered

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Not answered

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Not answered

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Not answered

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Not answered

The Anonymised Response P disagrees with the proposed move to a market-led criteria-based approach to the siting of future nuclear fusion generating plants, and urges the Government to take a strategic spatial planning approach.

The scale of infrastructure investment and delivery necessary to enable a transition to genuinely low carbon and renewable energy generation is great. Given the nature and climate emergency, our move to low carbon technology must not be at the expense of nature. This demands a proper and robust strategic and spatial approach to infrastructure planning that enables better strategic level environmental assessment, in particular assessment of indirect and in combination effects and consideration of alternatives.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

Under the proposed market-led criteria-based approach, the consultation proposes that all environmental protection criteria are discretionary. Given the nature and climate emergency, it is imperative that greater weight and significance is afforded to these, and negative impacts to areas of international and national importance for nature conservation should be classified as exclusionary. This would also align with the Westminster and Welsh Governments' environmental commitments and targets, including (for England) in relation to the Environmental Improvement Plan. The presence of protected species, and irreplaceable habitats, should be added as site assessment criteria.

We do not consider that the strategic site assessment criteria set out in this consultation document are sufficient to ensure that only appropriate sites are selected by developers for fusion energy facilities. Strong planning protections for designated sites for nature conservation and irreplaceable habitats should be included in National Policy Statements as they are important for nature's recovery and their protection should be considered at the outset of infrastructure planning. Including them in the exclusionary assessment criteria would also enable this to happen.

10 Are there any additional criteria that should be considered in the assessment process?

Not answered

If the Government is to proceed with this proposed approach, we would highlight additional environmental concerns around its implementation. Currently, developers do not always provide the right, or adequate, environmental information during the pre-application stage of the NSIP planning process. There is also considerable scope to tighten-up the acceptance criteria for nuclear power NSIP applications, with for example the Sizewell C application being poor and in part incomplete. The bar for acceptance of such applications seems to be currently set too low, allowing the application to proceed but in doing so making the Examination difficult for all parties because of all of the formal changes and additional information that had to be provided and responded to in a short time frame.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Not answered

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Not answered

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

While we note the proposals for an Appraisal of Sustainability (including SEA) and Habitats Regulations Assessment for the proposed NPS EN-8, these assessments will be necessarily high-level because no particular sites or regions are identified. We disagree with the proposed approach to strategic level environmental assessment which will not allow for the consideration of reasonable alternatives at a strategic spatial level. This means that they will not be able to assess indirect and in combination effects in any specificity, seriously compromising the effectiveness and robustness of such approaches. This may therefore lead to harm to nature and the environment through poorly sited development that could otherwise have been avoided through more robust strategic direction.

The scale of infrastructure investment and delivery necessary to enable a transition to genuinely low carbon and renewable energy generation is great. The nature and climate emergency that we are in requires that any move to low carbon technology must not be at the expense of nature. This demands a proper and robust strategic and spatial approach to infrastructure planning that enables better strategic level environmental assessment, in particular assessment of indirect and in-combination effects and consideration of alternatives. Greater spatial planning enables the proper application of the mitigation hierarchy and avoids the risk of abortive costs associated with any developer interest in environmentally unsuitable sites.

BNG requirements must exceed 10% and a thirty- year maintenance duration: Given the scale and duration of major infrastructure projects such as nuclear power stations, and their environmental impacts, the Government must go beyond a 10% mandatory minimum net gain and increase the current 30-year maintenance period for the BNG regime yet to be introduced for NSIPs. We suggest the same requirements be applied in Wales, where Planning Policy Wales requires a net benefit to biodiversity from all developments. This is necessary to ensure the delivery of genuine gains for nature from these often environmentally damaging projects rather than simply avoid no net loss.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response Q

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

We support the development of a new standalone National Planning Statement (NPS EN-8) that provides private industry, Spherical Tokamak for Energy Production (STEP), statutory consultees, local communities and potential developers clarity on the planning framework for fusion energy facilities.

We agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities and also treated differently from nuclear fission facilities."

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

We agree with the need for a clear process to be set out for developers and a clear approval process, along with sufficient expertise to scrutinise plans and proposals.

We agree with the proposal to include all fusion technologies in the NPS process where planning considerations require specialist knowledge and expertise of the technology, which is unlikely to be available across all local planning authorities. Centralised decision-making therefore should help the pooling of required expertise and resources, which should deliver better informed, more consistent and quicker determination of applications.

Such expertise may be centralised at UK Government level or, for schemes in Wales, by the Welsh Government. You should consult the Welsh Government on this matter.

Similarly, the environmental regulators will need to consider how to grow and brigade expertise in fusion to ensure staff are competent to determine the necessary permits and regulate the activities once operating. These regulatory activities are currently devolved in the UK. In developing any new NPS, we encourage Government to consult relevant statutory consultees and regulators to understand what expertise requirements they may require enabling robust and timely decision-making at project stage.

Notwithstanding the above, the NPS EN-8 should clearly set out which fusion energy projects fall under the National Significant Infrastructure Project (NSIP) regime as it applies to Wales, as it may differ to that in England.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Not answered

An open-sited approach to identify and assess considered sites requires careful consideration of environmental risks. The NPS EN-8 should therefore provide clear direction to steer development to the most suitable locations, and away from inappropriate locations. Existing Welsh planning policy sets out where certain forms of development would be inappropriate,

and this should be reflected in any open-sited approach promoted in the new NPS:

In Wales, the planning policy framework in relation to development and flood risk is set out in Planning Policy Wales (PPW) and Technical Advice Note 15 (TAN 15): Development and Flood Risk (2004). TAN 15 states that particular flooding consequences may not be acceptable for particular types of development. Industrial development such as power stations are described as highly vulnerable development, which should not be permitted in Zone C2 flood risk areas (as set out in the development advice map). As such, the NPS EN-8 should steer development away from C2 flood risk areas. The Flood Map for Planning (FMfP) should be considered as it is the best available information on current and future flood risk. It also includes information on coastal erosion risk, which should be taken into consideration for any development proposal at the coast.

The NPS for fusion energy should be consistent with PPW, which advises that proposals in statutory designated sites, and sites containing protected species and habitats which are irreplaceable, as a matter of principle, are unacceptable and therefore must be excluded from site searches undertaken by developers. In wholly exceptional circumstances and only where development is considered to be appropriate and is not likely to damage a Site of Special Scientific Interest (SSSI), and there is broad and clear agreement for mitigation and enhancement as part of a development plan should development be proposed. It will be wholly exceptional for development to be justifiable in sites containing irreplaceable habitat.

In determining whether an open-sited approach should be applicable in Wales, we recommend that you discuss with the Welsh Government how the NPS EN-8 should best reflect these policy aspirations in Wales particularly if schemes are unlikely to come forward through the development plan process.

Additionally, the NPS EN-8 should encourage applicants to consult on considered locations, including alternatives at the earliest opportunity, and should confirm that other consents may be required. Applicants should be encouraged to consult relevant regulators at the earliest opportunity. The Generic Design Assessment (GDA) process for assessing new nuclear reactor designs allows the environmental regulators to engage with interested parties early to technically assess, from an environmental protection perspective, relevant topics to de-risk the eventual environmental permit application(s). It may be useful to explore whether a similar process would be beneficial for regulating fusion technologies. We would welcome further discussion on this matter.

Notwithstanding the above, given the scoping nature of this consultation it would have been beneficial for it to also explore the risks and opportunities for an alternative spatial NPS approach to site selection for fusion energy development e.g. as part of an assessment of alternatives considered in the Appraisal of Sustainability (AoS).

4 Do you agree with the Government’s proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Not answered

This question refers to facilities in England only and therefore we do not have a view on whether all proposals should be subject to the NPS process. Notwithstanding this, whatever policy framework is applied in England, it should ensure that potential effects on the environment in Wales, are adequately considered as part of the consenting process. For example, if there was a thermal plume that entered Welsh waters.

We would add that the Committee on Radioactive Waste Management (CoRWM) reviewed the challenges associated with waste from fusion in 2021. We recommend that Government consider the issues raised in that review.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

We agree that applying the same process to all fusion energy facilities, independent of specific technology, is appropriate and as long as this specifically excludes any fusion-fission hybrid technologies. This approach is in line with the definition of a fusion energy facility in the Energy Act 2023, where these hybrid facilities are not included within the scope of this proposed NPS EN-8, and they would be considered nuclear installations requiring a nuclear site licence and covered under a new NPS EN-7 Designation of new nuclear siting.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Yes

We agree with the definition of a fusion energy facility, as provided in the Energy Act 2023 and it is suitable for distinguishing between a fusion energy facility and fusion research facility for the purpose of the NPS EN-8.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

We agree that setting a deployment deadline would place time pressures on developers that could hinder the development of technologies that could avoid or mitigate environmental harm or result in developments coming forward that have not adequately considered site selection or have not been informed by a thorough application of the mitigation hierarchy or step-wise approach.

As commented earlier on an open-sited approach, while the NPS EN-8 may support new technologies in areas that may otherwise be overlooked it is essential that a robust process to enable inappropriate site proposals (for whatever reason) to be rejected.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

Please refer to our response to question 3 which indicates relevant national planning policies that are aimed to steer inappropriate development away from certain locations in Wales.

Additionally, the step-wise approach in paragraph 6.4.15 of PPW ((Maintaining and Enhancing Biodiversity) also sets out when alternatives should be considered at project stage in relation to schemes in Wales. This expectation should be reflected in the NPS EN-8 where it applies in Wales so as to ensure consistent application.

The NPS EN-8 should also refer to the Water Environment (Water Framework Directive) (England and Wales) 2017 Regulations that requires the consideration of alternatives in the derogations process.

Aside from potential impacts to ground and surface waters developers should, at the design stage, factor in water availability, even where the use of water may be considered non-consumptive.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

NPS EN-8 Criteria: Flood Risk considerations and requirements (page 24):
- The general approach of PPW, supported by the TAN 15, is to advise caution in respect of new development including alternative sites in areas at high risk of flooding, and where there is a higher risk of coastal erosion. There is a precautionary framework to guide planning decisions, which directs new development away from areas at high risk of flooding. Although the consultation document has ruled out making areas of flood risk an exclusionary criterion it must be clear that relevant UK Government and Government policy documents and the relevant tests will still apply.

- Any new NSIP proposal would be treated in the same way as any other planning application in areas at risk of flooding. It is our view that under the existing TAN 15 would consider fusion energy proposals as highly vulnerable development (HVD). HVD should not be permitted in Zone C2 of the DAM i.e. areas of the floodplain without significant flood defence infrastructure. For all other development in Zone C1 (defended) or C2 a flood consequence assessment will need to be submitted. The acceptability criteria set out in TAN 15 must be satisfied, for example, structures to be flood free in a design event, and no increase of flooding elsewhere.
- The FMfP should be considered as it is the best available information on current and future flood risk. It also includes information on coastal erosion risk, which should be taken into consideration for any development proposal at the coast. The defended zone is useful in that it allows for HVD development to be considered even if in Zone 3. However it should not be seen as ‘safe’ as defences can overtop or fail during a breach. These scenarios would need to be assessed fully.

- While NRW has no role in advising on the risk of inundation from reservoirs, if development is within the inundation area, then this would need to be a consideration and where discussions are held between the developer, determining authority and reservoir undertaker.
- Impacts of climate change need to be fully assessed, not only in terms of risks and consequences but also in terms of the type of mitigation and adaptation needed in the longer term, for example the need for additional land to enable future mitigation measures. The FMfP provides a generic projection of flood extents only and therefore the most up to date information on climate change should be used to inform a flood consequence assessment

NPS EN-8 Criteria: Locational characteristics and population densities (page 24):
-The following statement “For fusion, safety regulations are imposed by the Health and Safety Executive (HSE) in Great Britain, the Environment Agency (EA) in England and Natural Resources Wales in Wales (NRW)” could be misleading. The HSE are the safety regulator. The role of the environmental regulators could be clarified with the addition of the suggested bold text below.

- For fusion, safety regulations are imposed by the Health and Safety Executive (HSE) in Great Britain, environmental aspects are regulated by the Environment Agency (EA) in England and by Natural Resources Wales in Wales (NRW).
-In addition, the UK environmental regulators are currently responsible for regulating security of sealed sources. As the Office for Nuclear Regulation are unlikely to regulate fusion, consideration should be given to identifying the appropriate authority for regulating security on fusion sites.

NPS EN-8 Criteria: Hazard Waste Management (page 25):
-NRW considers that Government ensures suitable capacity and effective arrangements exist for the management, storage and disposal of Intermediate Level Waste (ILW) from existing, legacy and new nuclear developments including fusion to meet the net zero and energy security ambitions set in policy.
-Welsh Government policy considers the ongoing storage of ILW does not provide a permanent disposal solution and leaves future generations an enduring burden to take responsibility for the safe and secure management of these materials. Ongoing ILW storage does not meet a responsibility to future generations of Wales or fulfil the goals of the Well-being of Future Generations Act.
-NRW are supportive of current managing radioactive substances and nuclear decommissioning policy to allow disposal of ILW in near surface facilities if safe to do so, subject to all regulatory permissions and in a way that will not adversely affect the current and future generations of Wales.
-NRW expects that all radioactive waste will be managed optimally by applying Best Available Techniques to minimise environmental impact, particularly if demonstrated that the waste cannot be feasibly managed at a higher level in the hierarchy and is destined for disposal.

NPS EN-8 Criteria: Size of site to accommodate construction and decommissioning (page 25-26):
-In deciding on sites, developers could consider the previous history of a location, including local skills and willingness to support such a project. In Wales, there are nuclear sites in the decommissioning phase which could be identified as potential locations for fusion energy development. Additionally, the existing infrastructure e.g. grid connection and proximity to services will be important to consider. We note the NPS EN-8 does consider these aspects in broad terms.
-If development is located in area at risk of flooding, the size of the site should also be informed by land requirements to support flood risk mitigation and adaptation measures during the lifetime of development.
-The NPS EN-8 should also consider requirements for any works required within the water environment, and also any land requirements to achieve Net Benefit for Biodiversity (NBB) (where a facility is proposed in Wales).

NPS EN-8 Criteria: Transport Infrastructure (page 26):
-Accessibility matters should consider risks and consequences from flooding. A Flood Consequence Assessment (FCA) should demonstrate that access to and egress from a fusion energy facility can remain operational during a flooding event i.e. safe for users (employees and visitors) to use an evacuation route. Clarity should also be provided on any potential impact if a facility cannot be accessible for a period of time.

NPS EN-8 Criteria Grid Infrastructure (Page 27):
-Consideration of this siting criterion should include the consideration of the cumulative impacts of the proposed fusion energy development and associated transmission infrastructure

required to connect to the grid when comparing alternatives.

NPS EN-8 Criteria Biodiversity Net Gain (page 28), international and national designated sites of ecological importance (page 29):
-The consultation document refers to Biodiversity Net Gain (BNG) as one of the criteria proposed for specific consideration for fusion energy facilities. However, the NPS EN-8 should also refer to the NBB approach taken in Wales and require applicants to demonstrate how proposals achieve NBB.

-In Wales, a NBB is the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than before through securing immediate and long-term, measurable and demonstrable benefit, primarily on or immediately adjacent to the site. It is based on a qualitative approach that emphasises proactive consideration of biodiversity and wider ecosystems resilience that is embedded in a placemaking context early in the design process. The Diversity, Extent, Condition, Connectivity and Aspects of ecosystem resilience (DECCA) framework for evaluating ecosystems resilience based on the attributes of diversity, extent, condition, connectivity and adaptability must also be taken into account.

The application of the step-wise approach based on avoidance, minimisation, mitigation or restoration, compensation and enhancement, with long term management secured at each step, is the means of demonstrating how NBB has been secured. A green infrastructure statement, proportionate to the scale and nature of the development, should be submitted with all planning applications and must be used to demonstrate how the step-wise approach has been applied.

The following requirements will need to be taken into account as part of proposed fusion energy projects:
• Commission suitably qualified ecologists and engage with local authority ecologists, Natural Resources Wales, the third sector and communities
• Undertake pre-application surveys, research and data searches to establish the baseline state of biodiversity and ecosystems resilience
• Pre-emptive site clearance should not be undertaken before submitting a planning application
• Provide long-term management plans setting out immediate and ongoing management of the site, future monitoring arrangements and funding mechanisms to achieve the management plan’s objectives, and
• All developments must deliver a net benefit for biodiversity and ecosystems resilience from the baseline state
-In addition, it would be beneficial if the proposed NPS EN-8 provided clarification on how fusion energy projects would be considered against the assessment criteria of both BNG and NBB in a cross-boundary context.

NPS EN-8 Criteria: Climate Change and adaptation (page 27):
-We note the proposed NPS EN-8 will set out the process for reviewing climate change impact and mitigations and should also be read in conjunction with the overarching energy NPS EN-1. While the consultation document refers to a set of climate projections to support planning decisions, the NPS EN-8 should provide clarity on all aspects of climate change impacts to be considered, including flood and heat risks.
-Climate projections for sea level rise, peak river flow and peak rainfall differ in Wales and as such reference to the Welsh Government guidance (currently Climate change allowances and flood consequence assessments (CL-03-16) | GOV.WALES) should be made. Please Note: NRW colleagues are currently working with the Welsh Government to update the climate

change projections for peak river flow and peak rainfall.
-Applicants' proposals for fusion energy should set out what adaptation measures they are incorporating and at what stage e.g. clarify any use of a trigger point that initiates further adaptation action, any requirements for adaptation located outside of the development boundary, and any potential impacts adaptation measures have elsewhere.

NPS EN-8 Criteria: Groundwater (page 28):
-Consideration should be given to the approach to land contamination as set out in PPW, paragraphs 6.9.1-6.9.21. It remains the responsibility of developers to put forward preliminary information, specialist investigation and assessment, and remedial measures required to deal with any contamination. A de-risking approach is advised that unlocks barriers such as land contamination.
-PPW also recognises the two areas of interface between the planning system and the contaminated land regime. However, a planning authority will need to be satisfied that any actual or potential contamination can reasonably be overcome. Planning authorities should assess the nature, scale and extent of land contamination which may pose risks to the development itself, health and the environment.

NPS EN-8 Criteria: Areas of amenity, cultural heritage and landscape value (page 30):
-The proposed NPS EN-8 should be explicit that activities located outside the boundaries of National Parks and Areas of Outstanding Natural Beauty can affect the purposes of the designations. The NPS EN-8 should clarify that such adverse effects should be avoided.

NPS EN-8 Criteria: Access to suitable sources of cooling (page 29-30):
-The consultation states "both the access to suitable cooling and the mitigation of the impacts on the environment will be considered as part of the fusion siting process and any design choice must be compliant with marine licensing requirements." This gives the impression that all cooling waters will be sea or estuarine waters. However, in other parts of the document it refers to abstraction from rivers and lakes. We recommend that design choice should also be compliant with the Water Environment (Water Framework Directive) Regulations and River Basin Management Plans in terms of water availability (freshwater) to protect water security and adhere to principles to the sustainable management of natural resources (SMNR).
-Whilst this section mentions marine licensing there is no mention of the abstraction licensing regime which would influence the amount of water available to abstract from surface water for cooling purposes. This should be rectified in the NPS EN-8.
-At the project level a developer will need to model thermal plumes and compare to standards set out in the Water Framework Directive and its Regulations and also demonstrate that there will be enough flow remaining in the river for ecological needs. This should be reflected in the NPS EN-8.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Please refer to our earlier comments in answer to Questions 8 and 9.

In addition, the NPS EN-8 should recognise a need for the Secretary of State to consider implications for projects to address requirements of PPW, Welsh National Marine Plans, relevant Technical Advice Notes and Marine Planning Notices which apply in Wales.

In its proximity criteria, the NPS EN-8 could include waste storage and disposal locations.

Given the potential for moderate volumes of active wastes, the proximity to a waste facility (either interim decay storage or disposal) may be a factor. In their 2021 review of fusion wastes, CoRWM for example cited the potential for some wastes to remain active beyond 100 years. (Refer to source: CoRWM, November 2021. Preliminary Position Paper: Radioactive Wastes from Fusion Energy).

We recommend that the NPS EN-8 refers to the avoidance of adverse effects upon species strictly protected under the Conservation of Species and Habitats Regulations 2017, the Wildlife and Countryside Act 1981, Biodiversity lists, and the duty to take steps to maintain and enhance biodiversity under section 7 of the Environment (Wales) Act 2016.

It is not clear why designated shellfish waters have been omitted from the consultation.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Not answered

As the technology is still in development it is difficult to identify potential criteria. The policy needs to be flexible enough to allow for new information to be considered as the technology evolves. For example, there is ongoing work to characterise the types and quantities of wastes arising from fusion operations which may inform future criteria (Ref. CoRWM, 2021).

Although fusion technologies are still under development, and as such a definitive understanding of radioactive wastes arising is yet to be established, we acknowledge that adoption of the waste hierarchy for High Level Waste (HLW), and potential heat-generating fusion-derived radioactive wastes which could fall under the HLW classification, may enable alternative fusion waste management solutions for these future technologies.

The NPS EN-8 should clarify that there are different criteria for thermal discharges to water in comparison for discharges to air.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Not answered

We have no comments to make on the proposed model for implementation.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

National PPPS Cross – thematic (AoS scoping report, page 22 – 25 and Appendix A, Table 2, page 10-43):
- Reference is made to the Environment Act 2021 under ‘national’ policies, plans and programmes. However this should be included in the section devoted to devolved administration/local for England.
The Levelling Up and Regeneration Act 2023 should potentially be included here as it contains the provisions for Environmental Outcomes Reports, which cover cross-cutting themes.
- Whilst BNG is referenced here due to provisions in the Environment Act 2021, the comparable legislation for Wales is Section 6 of the Environment (Wales) Act 2016, which is covered under Wales (cross- thematic, page 67). NBB is a policy requirement within PPW relating to the Section 6 duty for public authorities to seek to maintain and enhance biodiversity in the exercise of their functions and in so doing promote the resilience of ecosystems. As

such, it is more appropriately referenced under Environment (Wales) Act 2016 (page 67) and PPW (page 70).
- We also note that this section refers to the Planning Act 2008, the Town and Country Planning and Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2018, Environmental Assessment of Plans and Programmes Regulations 2004, and Planning Practice Guidance – Natural Environment 2019. The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 should be added to the first column and beneath the reference to England regulations.

Key Policies, Plans and Programmes– Regional Wales (Appendix A, Table 3 – page 67-86):
Wales, Cross – Thematic (Appendix A, page 67-77):
- NRW exercises its functions so as to ensure the SMNR, which contributes to the well-being of future generations of Wales, and, for this reason, it acknowledges the AoS sets out in the proposed policy.
- A fusion energy development in Wales will both benefit and impact future generations. We further encourage the AoS process to align itself particularly to the principles of SMNR set in the Environment (Wales) Act 2016 that include public participation, building resilience, consideration of scale, opportunities for multiple benefits and consideration of the short, medium and importantly long-term consequences.
- Additionally, following the principles of SMNR to the best extent possible when undertaking an AoS will contribute to the well-being goals set in the Wellbeing of Future Generations (Wales) Act 2015.
We encourage the nuclear industry to interpret the well-being goals and principles of SMNR as indicative of national aspirations in Wales which are in broad alignment with national and international sustainability aspirations.
- We recommend that TAN 14: Coastal Planning is added to list of Technical Advice Notes (TANs) as it is likely to be relevant to the consideration of fusion energy projects.
While reference is made to the revised TAN 15 i.e. TAN 15: Development, Flooding and Coastal Erosion 2021 this has not yet been published and reference should be made to the current TAN 15 ‘Development and Flood Risk’. The intention of the revised TAN 15 is to replace the existing TAN 14 Coastal Planning.
- Wording in the first paragraph under the column titled ‘Implication for the AoS,’ makes it sound as though only surface water needs to be managed effectively. Although addressed in the next paragraph, it should be clear that flooding risks and consequences, including impact on third parties must be appropriately managed as well as potential impact of coastal erosion.

Wales, Water Environment (Appendix A, page 83):
- We are pleased to see references to the Flood and Water Management Act 2010 and National Strategy for Flood and Coastal Erosion Risk Management in Wales 2020. However, the AoS objectives against the National Strategy seem to be focussed on coastal erosion risk. The AoS should consider all objectives of the National Strategy, which is wider than coastal erosion.
- Reference is made to Flood Risk Management Plans in England and the Environment Agency only. Please find information to plans in Wales in the hyperlink Natural Resources Wales / Flood risk management plan 2023 to 2029.
- Reference is made to the Flood Water Management Act 2010 where the key objectives seem to focus on drainage charges and maintaining supplies, but this is only a small part of it. The implications should refer to flood risk management for the protection of, rather than benefit of people and homes.

Section 3.3, Environment Themes (AoS, page 31-35):
Biodiversity and the Natural Environment:

- We recommend revisions to the wording of certain themes to reflect the Welsh context for NBB, ecosystems resilience, and irreplaceable habitats:
• Amendments to second bullet point: “Protect and enhance endangered or important/priority species and habitats, including irreplaceable such as Ancient Woodland, and Ancient and Veteran trees and other example habitats highlighted in PPW (Edition 12, page 149).
• Amendments to fifth bullet point “Protect, maintain and where possible enhance natural habitat resilient ecological networks and green infrastructure, to avoid fragmentation and isolation of habitats networks.”
• Amendment to sixth bullet point: “Contribute to the achievement of Biodiversity Net Gain, with a minimum 10% required, and/or deliver a Net Benefit for Biodiversity where development leaves biodiversity and the resilience of ecosystems in a significantly better state than before.”
• Amendment to eighth bullet point: “ Support Promote ecosystems resilience.”
Greenhouse gas (GHG) emissions
- While carbon dioxide (CO2) has been singled out here, there is increasing evidence that the global warming potential of methane (CH4) is higher than previously understood and refrigerants are also an issue. Therefore it would be best not to focus solely on CO2 as a theme and consider all Greenhouse gas emissions (GHGs).
Adaptation to a Changing Climate and Flooding:
- We recommend:
• A change in wording from ‘Avoid development in floodplains when possible’ to ‘Avoid developments in areas of flood risk or coastal erosion where possible’
• Reference to Shoreline Management Plans (SMPs) is added to the statement ‘Help meet objectives of Local Flood Risk Management Strategies and Flood Risk Management Plans, allowing for climate change.’
• A change in wording ‘Utilise Natural Flood Management’ to include reference to the “and nature-based solutions at the coast.”
Natural Resources and Waste
- This theme should be renamed as “Natural Resources, Material Resources and Waste” because natural resources include air, water and soils.
- A bullet point should be added to “Adopt and promote the Waste Hierarchy.”

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

More care should be taken to ensure that the AoS explains how the identified baseline information and trends will inform the AoS.

AoS Table 1 Summary of national baseline information, Climate change (page 38) and Appendix B, Adaptation to Climate Change (page 54)
• We recommend that clarity is provided on what is included in the indicator for ‘flood risk’ i.e. projected spatial extent, projected increase in flows and sea level rise.
• Coastal erosion risk mapping data could be used in addition to flood risk data at the coast.
• The AoS should also refer to the relevant national policy framework that applies in Wales for development and flood risk, together with a reference to relevant flood risk areas and datasets.
• The Committee on Climate Change (CCC) note it is almost certain that England will have to adapt to at least 1m of sea level rise at some point in the future” (Appendix B, page 54). Although taken from the CCC, there is a similar statistic for Wales from the CCC which notes “The sea level around Cardiff is predicted to rise by up to 0.8 m under medium† emission scenarios by 2100” Adapting-to-Climate-Change-Progress-in-Wales. We recommend that the document is more inclusive since it covers both England and Wales and the issues identified

and need for adaptation are applicable to both nations.
• There is reference to properties at risk in Wales at current levels (2022) and projection to the 2080s (Appendix B, page 57). It is not clear where the CCC got their data from as it seems to differ from the data NRW hold i.e. report states 46,000 fluvial risk, yet our figures for fluvial (dated 2021) is closer to 90,000. Most recent property counts can be found in our Annual report Natural Resources Wales / Flood risk management annual report 2022 to 2023. Please Note: these figures will change again in July/Aug when we publish the 2023/24 report (indication is that these will figures increase).
• There is reference to the number of assets and length of existing infrastructure networks located in areas and the increase in exposure of these to high risk of flooding (Appendix B, page 59). Our view is that this information misses the point. Although we have a very good and robust network of defences, the majority have a present-day Standard of Protection against 1:100 (rivers) and 1:200 (sea) but do not take account of the impacts of climate change. This means as risks from climate change increase there is also a risk of overtopping and failure from breach. There is also more pressure on investment to keep pace with climate change to ensure the Standard of Protection is maintained. This may not be feasible in some places.
• We refer to Appendix C and baseline map. Our view is that the legend is poor, and it is difficult to understand some of the datasets e.g. “Flood Zone 3” does not state what this means. What is are surface water flooding squares? Are Zone 2 flood extents referring to 0.1% to 1% chance of flooding? It would also be useful to time stamp the map, or state what release date they are showing for the FMfP e.g. May 2024 as the FMfP is updated every 6 months.
• The document states that “In England and Wales, flood risk is assessed under the National Planning Policy Framework (NPPF)135 (Appendix B, Page 61). Flood risk from rivers and seas is categorised into three zones136 for planning purposes (noting that the NPPF further subdivides Flood Zone 3 into 3a and Functional Floodplain 3b (land where water has to flow or be stored in times of flood)):” This is incorrect for Wales.
• PPW is not led by the NPPF, rather PPW and TAN 15 applies. Currently there is Zone C2, C1, B and A as defined by the DAM, but this will move to flood zones as shown on the FMfP once the revised TAN 15 comes into force. These zones differ to the ones in England as they include climate change projections and assume no defences are in place (English zones are present day only). We also have an additional mapped zone called TAN 15 Defended Zone. This indicates areas that benefit from Risk Management Authority managed and maintained defences that have a minimum Standard of Protection of 1:100 (rivers) and 1:200 sea. More information on the FMfP data can be found here Natural Resources Wales / Flood Map for Planning and Development Advice Map.
• Under the section on SMPs there is reference to Flood Zones 2 and 3 across Wales (Appendix B, page 63-65). We recommend that clarity is provided on what this means. The reference takes you to Flood Risk Assessment Wales (FRAW) map, which maps flood risk as high, medium and low, not zones. It is not clear why this is included in the SMP section where a better reference would be the coastal erosion risk maps.

Biodiversity and Ecosystems (AoS, page 41, Table 2, Figure 1)
• Clarity should be provided for the reference to ‘Saline lagoons (Wales).’
Water (AoS, page 43, Table 2, Figure 9)
• Designations should also refer to estuaries and coastal water bodies in accordance with the WFD and regulations.
• Sensitive areas under the Urban Wastewater Regulations and Bathing Waters have been omitted.
• Shellfish waters apply in England and Wales.
• All areas classified as protected areas under the WFD will need to be considered in a WFD assessment at project level.

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

AoS, Table 5-1, Summary of key sustainability issues (page 46-52):
Biodiversity (page 46):
- Key sustainability issues should better reflect the situation in Wales and consider the list of habitats and species of principal importance for Wales. We refer you to Section 7 of the Environment (Wales) Act 2016 and the State of Natural Resources Report (SoNaRR) for Wales. The approach in Wales to NBB and ecosystems resilience, including the consideration of the DECCA framework, should also be included.

- Risks to the 'wider green infrastructure networks' from development is included, but this should also recognise the importance of maintaining and enhancing ecosystems resilience and Resilient Ecological Networks (RENs) by improving diversity, extent, condition and connectivity. Future Wales defines RENs as "…networks of habitat in good ecological condition linking protected sites and other biodiversity hotspots across the wider landscape, providing maximum benefit for biodiversity and well-being. Such networks have existing, or potential for, healthy resilient ecosystems which provide a range of important ecosystem services as well as allowing the movement of species across landscapes in response to climate change."
- The biodiversity targets highlighted in the table are all derived from the Environment Act 2021, and it is recommended that any specific targets set for Wales are identified.
Information in relation to issues affecting marine receptors is limited. The AoS should include reference to indirect effects of changes to physical processes and water quality, disturbance of sensitive species and habitats, risk of introduction of non-native species, entrainment of fish and other species through water extraction, population implications of thermal discharge. And the potential risk to intertidal habitats and species from infrastructure and operations at the coast should be considered.
- In addition this theme should promote the sustainable use of resources and natural assets.

Greenhouse gas emissions in the energy sector (page 53-56):
- The fusion energy NPS EN-8 has the opportunity to promote low-carbon or zero-carbon construction and engineering innovations. Any fusion energy facility will require the production and deployment of large quantities of metals and concrete. The NPS EN-8 should refer to innovative methodologies to minimise construction emissions:
• Low Carbon Concrete Routemap | Institution of Civil Engineers (ICE)
• Materials Processing Institute joins industry experts in world's first zero-emissions cement trial in the UK - 9 February 2023 (mpiuk.com)

Resources and Waste (Page 71-74)
- We recommend that an objective is inserted relating to residual waste target.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

We refer you to our response to Question 2.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

AoS, Table 5-1, Summary of key sustainability issues, page 45-84
Table 5.1 should also reflect Welsh legislation or policy. For example, the Environment (Wales) Act 2016.:
Biodiversity:
- Examples of irreplaceable habitats in third paragraph (page 47) should include those highlighted in PPW (Edition 12) and PPW's 'wholly exceptional' requirement for development on such habitats should be reflected in the text.
- The fourth paragraph should be amended to reflect the need to identify opportunities to restore existing habitats and deliver NBB in Wales. We suggest amending the paragraph as follows:
"The NPS should explore opportunities for new habitat restoration, creation and enhancement associated with fusion energy developments, e.g. through the use of appropriate locally native species in landscaping plans and the delivery of Biodiversity Net Gain (BNG) and Net Benefit for Biodiversity (NBB). The potential for biodiversity creation in brownfield sites should also be taken into account. There should therefore be achievement of NBB now in Wales and BNG in England when legislation is commenced in due course."
The fifth paragraph also needs to refer to NBB as follows:
"The NPS should also set out the need for development of fusion energy facilities to consider and seek to provide improvements to natural capital and ecosystem services (i.e. achievement of wider environmental net gain/benefit) when considering how to achieve BNG and NBB."
The need to safeguard and enhance resilient ecological networks should be highlighted as an opportunity and the need for habitats and species to adapt to a variety of pressures, not just climate change, should be recognised. As such it is recommended that the sixth paragraph, first and second bullet points are amended as follows:
• "integration and enhancement of the wider green infrastructure network contributing to the Nature Recovery Network/Resilient Ecological Networks;
• creation of cohesive habitat networks to help habitats and species to adapt to the consequences of climate change and other pressures;"

Adaptation to a changing climate
We recommend the inclusion of opportunities that provide flood risk benefits for existing communities through adaptation and resilience measures.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

AoS, page 86, Table 1 AoS Framework:
- No.1 Consistent with the national target of reducing carbon emissions to Net Zero by 2050
We recommend that the second question "Reduce direct and indirect emissions of all greenhouse gases, including carbon dioxide, during construction, operation and decommissioning?" is split into two questions so that it is more specific and reflects a more widely understood way of defining direct and indirect emissions:
• "Minimise Scope 1 and Scope 2 emissions of all greenhouse gases, including carbon dioxide, during construction, operation and decommissioning?"
• "Minimise Scope 3 emissions of all greenhouse gases, including carbon dioxide, during construction, operation and decommissioning?"

-No.2 Maximise adaptation and resilience to climate change

Flood zones differ between England and Wales and this difference should be reflected in the AoS.
- The AoS should identify that the potential for increased investment needs to ensure risk can be managed over full lifetime of development.

- No. 3 Enhance biodiversity and ecological networks, deliver biodiversity net gain, protect and support ecosystem resilience and functionality
The objectives and decision-making questions should reflect Governmental policy aspirations including that of the Welsh Government and therefore recommend the following changes to objectives and questions:
“Enhance biodiversity and ecological networks, deliver BNG and NBB, protect and promote ecosystem resilience and functionality.”
“Protect and enhance the Nature Recovery Network/Resilient Ecological Networks?”
“Promote new habitat creation, enhancement or restoration and linkages with existing habitats?”
“Increase the resilience of biodiversity and ecosystems to the potential effects of climate change and other pressures?”
“Deliver a minimum 10% net gain in biodiversity for any new major infrastructure development, or if within Wales deliver a net benefit for biodiversity where development leaves biodiversity and the resilience of ecosystems in a significantly better state than before?”
No.14 Promote sustainable use of resources and natural assets:
- There is an opportunity for waste to be transported by low-emissions vehicles, but it could go further and direct that local waste disposal should form part of the site selection process. Disposal facilities very close by, or even as part of the same site, would avoid emissions upon disposal, as well as the risks involved in transporting low-level and intermediate waste through communities or over long distances.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

We have no comments to make in answer to this question.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

We have no further comments. However, more care should be taken so that the AoS and the NPS-EN 8 is reflective of relevant legislation and planning policies that relate to Wales only.

Anonymised Response R

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Yes. Anonymised Response R's view is that it makes sense for fusion energy facilities to be considered as Nationally Significant Infrastructure Projects (NSIP), especially those at large scale. There is also the potential for experimental and intermediate fusion facilities – especially where the is the potential to continue to use the same site for future power plants – to be considered NSIP.

Most critically, Anonymised Response R welcomes the consideration of fusion power, separately from nuclear fission.

Fusion energy facilities have the potential to be critical to the future of sustainable power and are more than significant in these terms. Moreover, the complexity of fusion power, and the infrastructure required to deliver it, make considering their planning applications a significant exercise, and would be resource intensive for the relevant authority. Therefore, labelling fusion power facilities as 'nationally significant' will help in efficient decision making through highlighting the benefits of the projects, and by allowing their consideration through the Development Consent Order (DCO) process. DCO will allow for the full consideration of constraints and opportunities (and potentially land acquisition) in a dedicated and time bound process, something which is unlikely to be achieved through the standard approached under the Town and Country Planning Act, considered by a local planning authority.

Anonymised Response R welcomes the Government's continued support for fusion. The proposed National Policy Statement would clearly demonstrate that support and could help to direct the delivery of new commercial fusion facilities. Tokamak Energy also notes that the Government's support for fusion and the NSIP will be material in demonstrating the public benefits of schemes when seeking planning consent.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Yes. In Anonymised Response R's experience this approach is appropriate. Where thermal fusion plants are likely to be most suited to on site heat generation for industrial process, and as such will be located in industrial areas, power generating plants will most importantly need a connection to the grid.

However, there are limited planning reasons why different fusion technologies would be treated in different ways – i.e., safety, amenity, and environmental impacts, will all need to be considered, and the way the technology 'works' is not necessarily a material consideration.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

Yes. Anonymised Response R welcome this very positive approach, to identifying new sites for fusion power.

Anonymised Response R would note that access to power, the grid, and complementary technologies should be seen as beneficial for new fusion facilities. Moreover, access to a strong and diverse workforce is key to realising the ambitions for fusion power.

For the future of commercial, affordable, and widely achievable fusion power to be realised an 'open-sited' approach which would allow for all and any sites to be available for consideration in the first instance, is vital. The exercise would likely involve a process to filter out unreasonable or unacceptable sites very quickly, so in practice there are likely to be only a few places where fusion power can be delivered today, but in the future this could change.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

Anonymised Response R agree with this approach, but suggests that there is scope to include experimental, and intermediate plants in the NPS.

Anonymised Response R expects to be able to deliver thermal and electric power via fusion on a commercial scale in the coming years, this will require significant investment, and cross-agency collaboration, it will also require an evolving understanding through relevant guidance and legislation. In the Consultation document Government explains that:
For the purposes of clarifying that fusion facilities will not fall under the definition of a nuclear installation, the Energy Act 2023 defines fusion energy facilities as: "used for the purpose of installing or operating any plant designed or adapted for the production of electrical energy or heat by fusion, and not also used for the purpose of installing or operating a nuclear reactor." The Government does not intend to include research fusion facilities within the NSIP process but recognises that some research facilities such as JET and larger scale facilities planned by industry can be large and complex.

We suggest that there is the potential benefit for fusion at experimental and intermediate sites to recognised through the NSIP process, in that early 'parameters' for fusion facilities could be agreed, with Planning Inspectors, through the DCO process and detailed planning consents then become more of a formality as specific projects are delivered. This might create the disbenefit of a longer timeframe for the decision making for the next fusion plant (compared to a planning application via the
LPA), but for subsequent projects the timeframes could be quicker.

However, it is right that the appropriate planning rigour, as set out in the NPS and followed through the DCO process is applied to all relevant fusion power proposals.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Yes. Anonymised Response R firmly believe that there are significant benefits in including both thermal and electrical power plants as NSIP in the fusion NPS. Apart from there practical siting – thermal near to the end user (industrial sites) and power with access to the grid – there is little to differentiate in planning terms between the two different types of plants and their

outputs. A positive and progressive approach to delivering all types of fusion is key to future investment in the technology and its commercial delivery in England.

Anonymised Response R also note that Government is suggesting putting an output threshold of 50 MW on fusion facilities, whereby any which produce more than this will be considered NSIP. The Government explains is reasoning as follows:
“As a commercial fusion facility has yet to be constructed, the precise electrical and thermal output of first-of-a-kind facilities is not currently known. It is expected that these facilities will exceed the 50 MW threshold to be categorised as NSIP, but some private companies have ambitions to develop small scale devices to power energy intensive facilities such as data centres.”

Therefore, Anonymised Response R understand that, from a planning perspective at least, the proposals appear to be a reasonable approach. Setting a threshold where the likely effects will be more significant, and the benefits more publicly tangible, means that the DCO process will be most appropriate

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Yes

Yes. Anonymised Response R have responded to this question, in part, where is it considered at question 4 above. However, Anonymised Response R would note that the Energy Act 2023. States the following:
“fusion energy facility” means a site that is—
(a) used for the purpose of installing or operating any plant designed or adapted
for the production of electrical energy or heat by fusion, and
(b) not also used for the purpose of installing or operating a nuclear reactor.”

It is not clear how this definition clearly differentiates between a fusion energy facility and/or an intermediate fusion (or research) facility.

Anonymised Response R is broadly supportive of intermediate facilities being included in the NPS and being considered as NSIP. This would allow for the life cycle of delivering fusion power to all be included in a single DCO application.

7 Do you agree with the Government’s proposal to not set a deployment deadline for fusion energy facilities?

Yes

Yes. Anonymised Response R’s initial view on this question is that it would agree that not having deadlines is reasonable, today. Since Anonymised Response R is in the vanguard of fusion technology delivery, it is discovering what the timetable might be, somewhat as it undertakes the work. Anonymised Response R might be in a strong position to help update the NPS, if timetables are required in the future, but for now, it is sensible not to dictate when such fusion facilities should be delivered. This is one of the most supportive statements that the Government can give to fusion technologies, that is it important to get right, and not to rush it.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

Yes. Anonymised Response R's view is that there are not any other 'headline' factors which it is necessary to consider beyond the four bullet points set out in the consultation:
• Developers are expected to conduct a thorough assessment of the proposed site and compare it to other potential solutions to achieving their development. This assessment should consider various strategic factors, including but not limited to geological suitability, environmental impact (such as ground and surface water), safety, proximity to existing infrastructure such as transport connectivity, and potential social and economic implications.
• The developer should demonstrate strong strategic merits that make their chosen site a compelling choice for fusion development in comparison to alternatives.
• The site should also be evaluated for its compatibility with the specific fusion technology and facility being considered.
• Developments should consider public feedback and concerns when evaluating the strategic merits of their proposed site.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Yes

Yes. Anonymised Response R believe that the criteria which Government sets out are very comprehensive, and there are no obvious gaps, or unreasonable matters.

Anonymised Response R note that the criteria are: Flood risk; Locational characteristics and population densities; Hazardous waste management; Size of site to accommodate construction and decommissioning; Impacts of multiple devices; Transport Infrastructure; Grid Connection; Biodiversity Net Gain; Climate change and adaptation; Groundwater; Proximity to military activities; Proximity to hazardous facilities; Proximity to civil aircraft movements; Nationally and internationally designated sites of ecological importance; Access to suitable sources of cooling; Areas of amenity, cultural heritage and landscape value; Public Rights of Way; Land Use Planning; and Public Support.

10 Are there any additional criteria that should be considered in the assessment process?

No

No. There are none, so far as Anonymised Response R is aware, and the criteria set out in the consultation – as set out in response to question 9 – are those which we would expect to see.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

No. Anonymised Response R's view is that there are no planning reasons for separate criteria.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Yes. Anonymised Response R understand that the process for implementing the NPS is as expected, and a reasonable one, the intention is for as much of it as possible is to be 'front loaded' as shown in this diagram from the consultation document. (document included in pdf version)

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Did not answer

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response S

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Not answered

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Not answered

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Not answered

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Not answered

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Not answered

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Not answered

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Not answered

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Not answered

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Grid Connection:
We note that the consultation document says that fusion energy facilities will need to connect into the transmission network, and this is dependent on the capacity of the grid network. As stated in NPS EN-1 (at 4.11.5), prospective applicants for nuclear fusion facilities should liaise with National Grid to secure a grid connection. We would recommend conversations take place as early as possible to ensure the grid connection and facility itself is planned in tandem and that EN-8 should include wording to this effect to encourage this engagement . Connections applications can then be submitted via the Electricity Systems Operator on their website via

their Connections Portal.

In respect of grid connections, we recommend that EN-8 should reflect points made in EN-1 encouraging prospective applicants for nuclear fusion, (specifically at 4.11.6, 4.11.7 and 4.11.8), to coordinate applications, such that new generating stations and related infrastructure (including grid connections) are contained in a single application to the Secretary of State or in separate applications submitted in tandem which have been prepared in an integrated way. We acknowledge that there are some occasions where it may not be possible to coordinate applications as stated in EN-1 at 4.11.8. This might include the grid connection element of the project, leading to a standalone application for this.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Connecting to the Grid for demand (prior to energy generation):
The consultation document sets out that there will be unique considerations for fusion power plants as these facilities could require a grid connection to 'ramp up' the fusion process before generating electricity and supplying it back to the grid.

EN-1 has recently introduced the Critical National Priority (CNP) policy presumption for low carbon infrastructure which sets out the urgent need for this infrastructure and that this will generally outweigh residual impacts not capable of being addressed by the mitigation hierarchy. The CNP applies to low carbon infrastructure for energy generation, including nuclear generation and to all 'electricity grid infrastructure and associated works such as substations'. 4.2.5 of EN-1 goes on to say that with regard to grid infrastructure that 'this is not limited to those associated specifically with a particular generation technology, as all new grid projects will contribute towards greater efficiency in constructing, operating and connecting low carbon infrastructure to the National Electricity Transmission System.'

Acknowledging that there may be occasions where it is not possible to coordinate applications, there could be circumstances where nuclear fusion facilities need to proceed with a separate application to connect to the grid, initially just to provide power, prior to the subsequent ambition of connecting to supply electricity generation back into the grid. The CNP definition is clear it applies to 'all grid infrastructure' irrespective of whether this is to connect energy generation or if it is initially just for the purposes of supplying power, which in this context would then ramp up the fusion process. For the avoidance of doubt, we would therefore recommend EN-8 clarifies that in such instances the 'grid connection' component would still constitute CNP and benefit from this policy presumption.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Not answered

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Not answered

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response T

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Not answered

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Not answered

Whilst National Policy Statements and the NSIP process appears to provide some of the consistency and assurance to the market around the planning process, we don't consider that it necessarily creates the capacity locally nor does it mitigate against the impacts of having to have specialist staff in place to support the determination of complex and niche planning applications. Each Host Local Authority is still required to engage in the process and therefore procure their own specialist consultants if they don't have the specialism in house. This whole process still requires time and resources and in the case of managing NSIPs in a committee system, it also creates a further layer of governance, outside the established Local Planning Authority function. This means that the NSIP process driven by NPS's doesn't actually provide the resource efficiencies it is claimed.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Not answered

Whilst an open sited – developer led approach will open up greater opportunities for facilities to be located across the country, it also drives negative behaviour from the markets, delivering facilities that are purely cost driven, through ease of delivery (be it close to an existing grid connection, existing supply of water etc), which may mean that rather than sites being spread across the country for a shared benefit what actually happens is that sites are all selected in a small area and without any policy guidance on cumulative impacts on landscape, the economy or communities. As such, an area can become oversaturated - this has been seen very specifically with solar NSIPs.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Not answered

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Not answered

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Not answered

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Not answered

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Not answered

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

We are concerned that for fusion plants, if there isn't better policy framework for site selection criteria, consideration of local plans or local community impacts, there is a very real chance of the value added from these facilities being lost, particularly as they provide much more opportunity than a solar array. It is already abundantly clear that there are many, many opportunities presented by the STEP programme including social, economic, infrastructure, skills and environmental. An open sited developer led approach will not provide the best opportunities for harnessing the co-benefits of a facility and with the consenting process through a Development Consent Order happening at a national level there is significant reliance on the fusion developer/provider to consider and implement social value opportunities. Equally these facilities, because of the labour, skills and supply chain required to make them function could completely skew an existing and buoyant economy providing another key service to the country. For example, many of these sites will require large amounts of skilled labour, which without proper consideration could pull skilled labour from existing industry, skewing the labour market and impacting the viability of an existing sector. Without a baseline requirement there is every chance these will be missed or be distributed inequitably across the Country, being determined by developer will rather than local need.

10 Are there any additional criteria that should be considered in the assessment process?

Not answered

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Not answered

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Whilst we agree that there is a need for a more strategic approach to the provision of national infrastructure, there needs to be greater recognition of the value of the local context and policy, be it national or local needs to be clear on the minimum requirements in terms of delivering both the facility but also the co-benefits, not run rough-shod over existing up to date and adopted Local Plans and be cognisant of other uses in the area and cumulative impacts where specific areas have the desired attributes of the businesses and developers delivering these facilities.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response U

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

But we do not agree that the planning process currently proposed for fission power plants in the 'new approach to siting facilities' is appropriate for reasons set out in our response to Consultation on the New Approach. In short we do not consider a developer led, open sited, criteria based approach is likely to identify sites beyond those already identified in EN-6. We believe a strategic approach by government using strategic siting criteria remains the most likely to identify sites (if any) that are safe, secure and acceptable.

Please note that Anonymised Response U does not support the expansion of nuclear energy and, therefore, does not consider any site potentially suitable.

2 Do you agree with the Government’s proposal to include all fusion technologies in the NSIP process?

Yes

3 Do you agree with the Government’s proposal to take an open-sited approach in the fusion NSIP process?

No

As indicated above we consider a strategic siting approach to be preferred. We think it more likely that a developer led open sited approach is likely to result in sub-optimal siting and identification of unsuitable sites.

4 Do you agree with the Government’s proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

Yes, in the NSIP process but we do not support the NSIP process as currently presented.

5 Do you agree with the Government’s proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

There is no evident distinction between the two for the purposes of NSIP.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

In view of the problems with fusion technology and the long timescales involved in seeking to develop a credible and workable technology it seems imprudent to set any time scales. There is little point in setting a timescale for a technology that is tantalisingly always fifty years from implementation.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

No

Fusion, as with fission, is not necessary or needed as an integral element of the UK's energy mix for achieving net zero. It is unlikely to make any contribution to the Government's aims.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Don't know

How can one possibly know the answer to this disingenuous question?

We wish to comment on the following criteria:

Flood Risk
We consider this should be an exclusionary criterion. We do not agree with the approach adopted in EN-7 and believe Climate Change impacts will render some sites unsustainable in the long run.

Locational characteristics
We do not consider the population criteria adopted for fission plants should be relaxed in the case of fusion. It is not clear that fusion plants are distinctively less hazardous and that there is evidence that the public are any more open to fusion technologies. The semi-urban criterion should continue to apply.

Hazardous waste management
The statement that 'fusion does not produce any high-level or very long-lived waste' is assumptive and contentious. In any case, the issue of hazard should not be judged in relativistic terms in the case of nuclear hazards; careful and specific assessment must be made rather than judgement based on essentially subjective categories. Waste are likely to be in store on vulnerable sites far into the next century and perhaps indefinitely.
Consequently, there should be an exclusionary criterion on radioactive waste management that requires scrutiny of the credibility and acceptability of proposals of adaptive management and understanding of potential conditions of site integrity in the unknowable conditions of the far future.

Climate Change
As stated in our response to EN-7 we consider there should be a separate criterion for Climate Change:
For reasons of overall impact, existential threat, societal change, adaptation, mitigation and

resilience, an overriding criterion of Climate Change should be included in the site assessment criteria . The Climate change criterion must be exclusionary. Related criteria such as flooding and coastal processes should remain separate but contributory assessments.

10 Are there any additional criteria that should be considered in the assessment process?

Don't know

See previous.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Don't know

Again, it is difficult to know. This must depend on the type of technology but it is difficult to identify specific criteria for specific technologies at this very early stage.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

No

As indicated Anonymised Response U does not agree with an open sited, criteria based, developer led approach. It follows that we do not agree with the proposed model of implementation.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response V

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Yes

Anonymised Response V agrees that the planning process for fusion energy facilities should follow the overarching policy framework for other complex energy generation facilities in accordance with existing National Policy Statement (EN-1).

A dedicated NPS regarding fusion, as a result of an appropriate process of public consultation and parliamentary scrutiny, will help legitimise future fusion power plant projects. Therefore, it is important that particular considerations relevant to any fusion power plant application are generally agreed upon and commonly understood through the public consultation on fusion policy.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Yes, Anonymised Response V agrees that the new EN8 should include all fusion technologies, with definitions and parameters broad enough to accommodate future innovations and prevent delays in deploying new technologies

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

Yes, Anonymised Response V supports an open-sited Fusion NPS to enable broad and market-led deployment of fusion plants evaluated on a project-by-project basis. Giving private sector developers the possibility to screen potential suitable sites, using a criteria-based approach, as defined by the specific NPS, would make the process more efficient, rather than following a site nomination or strategic site assessment process to identify potential sites.

4 Do you agree with the Government's proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

Yes

Anonymised Response V is not against the inclusion of all applications for fusion projects in the Country, including those which currently fall below the threshold level, within the national infrastructure planning regime. However, we suggest keeping the door open to lower-capacity units being approved via either the local (Town and Country Planning Act 1990) or national (Development Consent Order) processes, as it will maximize flexibility during the energy transition period. A new assessment on this approach should be done in the future.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Yes, Anonymised Response V supports including thermal and electrical facilities in the Fusion NPS. This is coherent with the UK's need for a comprehensive approach to decarbonising and aiming for net-zero by 2050, addressing challenges in both electrical and non-electrical energy, such as industrial process heat and clean fuel production. Fusion technology offers a significant opportunity for a sustainable, low-carbon energy supply to be consumed across different sectors and uses.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

Anonymised Response V agrees with the Government to not include the fusion research facility within the NSIP process. Nevertheless, the definition of fusion energy facility, as provided in the Energy Act 2023, is not sufficient to distinguish between facilities destinated toward commercially viable fusion projects (including FOAK), classified as NSIP and considered for DCO process, and research facilities operated primarily for research, development, and educational purposes, outside of DCO application. Eni believes that additional clarification is needed in the NPS for fusion that will aid developers and PINS in the implementation stage.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Anonymised Response V welcomes the absence of any time limits for the deployment of fusion facilities, along with the flexibility in site selection that opens up more siting opportunities.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

Other factors that may be considered include whether the areas are industrial clusters or former industrial and brownfield lands that may be suitable for redevelopment, with implications in terms of local and regional growth associated with the fusion facility, and how it can be part of low-carbon strategy in the region.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Don't know

10 Are there any additional criteria that should be considered in the assessment process?

Don't know

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

Anonymised Response V does not propose different criteria for different technologies.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Anonymised Response V does not propose any variation to the proposed implementation of a Fusion NPS process. Nevertheless, Anonymised Response V welcomes any further effort in the development of strategies to maximise the efficiency of the planning and approval process.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

Anonymised Response W

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Don't know

If the planning process for fusion energy facilities is to be ‘aligned’ with that for other ‘complex energy generation’ projects, it may be asked why a separate NPS is nonetheless considered necessary for fusion energy, even though the technology is admitted still to be at the ‘prototype’ stage and therefore is not guaranteed to progress to viable commercial generation (at which point a separate NPS might be justified according to the reasons given in the Consultation: pp. 12-14).

2 Do you agree with the Government’s proposal to include all fusion technologies in the NSIP process?

No

Including in the NPS process all emerging fusion technologies might appear to have the advantage of ensuring a uniform approach to project applications, but implies a centralisation of decision-making through the NSIP route that would leave only an advisory role for Local Planning Authorities (LPAs), which with their knowledge of local circumstances might however be better placed to assess in accordance with centrally-prescribed guidance at least those smaller schemes that use repeat ‘model’ technologies.

3 Do you agree with the Government’s proposal to take an open-sited approach in the fusion NSIP process?

Don't know

The proposed move away from the policy that has until recently been followed for nuclear generation suggests a less prescriptive and therefore more flexible approach to facility siting that accords with that for other NPS-ruled energy infrastructure; but such an approach would pass to mainly private-sector developers the initiative in selecting sites for development, which may lead to the promotion of unsuitable sites (despite the use of ‘strategic siting’ criteria) and, by “leaving it to the market”, may not produce the increase in capacity sought.

4 Do you agree with the Government’s proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

No

Including in the NPS process all emerging fusion technologies might appear to have the advantage of ensuring a uniform approach to project applications, but implies a centralisation of decision-making through the NSIP route that would leave at most only an advisory role for LPAs, even though they might be better placed to assess proposals using their knowledge of local circumstances. There is therefore a case for a generating capacity threshold before the NSIP regime applies (as is currently the case for solar-energy schemes), thereby allowing LPAs a meaningful role in assessing smaller schemes - in accordance with centrally-prescribed guidance or specialist agency advice - whilst relieving the Planning Inspectorate of the need to assess proposals for small-scale ‘devices’ to power energy-intensive plant such as data centres. Given that fusion energy is considered to present a much lower level of

radiological risk than nuclear fission, there moreover appears an even stronger case for a capacity threshold given that the need for centralised control - commonly justified on safety and security grounds (where LPAs supposedly lack the required expertise) - is correspondingly less.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

No

Inclusion of all fusion projects within the NSIP regime – regardless of their size or purpose (including those mainly for thermal and industrial purposes) - might appear to have the logic of ensuring consistency and uniformity through a centralised consent regime, and it is claimed relieve LPAs of the burden of examining proposals that they are ill-equipped to scrutinise (Consultation p. 14). However, such a change would not only further reduce the ability of LPAs - if properly resourced and advised - to control major industrial development in their areas (contrary to democratic principles of local accountability and control), but also mean that valuable local insights would be lost from the site assessment process simply for the sake of national uniformity. It might also be noted that such a further centralisation of the planning system by widening the scope of the NSIP regime would only add to the workload of the Planning Inspectorate at a time when it is already facing increased resourcing pressures, whilst LPAs might have little reason for 'competing to host fusion facilities' if excluded from any meaningful role in the planning process (cf. p. 14).

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

Don't know

Although it is welcome that the Government intends to leave for LPA decision the approval of fusion research facilities, the Energy Act defines a fusion energy facility only as one 'used for the purpose of installing or operating any plant designed or adapted for the production of electrical energy or heat by fusion', without defining further whether such production needs to be the facility's main purpose and whether on a commercial basis; and thus for the purposes of the NPS the statutory definition may not be adequate to allow research facilities with some generating capacity to be legally differentiated from commercial generating stations.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

An unrestricted time-frame approach would likely lead to more sites coming forward with fewer proposed for unsuitable locations (cf. Consultation p. 21) but, because applications could be made over an unlimited period, fusion facility deployment could also be expected to proceed over a longer period as developers would not have the impetus to nominate sites to meet a particular deployment deadline.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Yes

The Consultation states (p. 22) that ‘Applicants should thoroughly consider the strategic merits of a nominated site in comparison to other alternative solutions, which may include alternative sites… [and] are expected to conduct a thorough assessment of the proposed site and compare it to other potential solutions to achieving their development’. This assessment should consider ‘various strategic factors, including but not limited to geological suitability, environmental impact (such as ground and surface water), safety, proximity to existing infrastructure such as transport connectivity, and potential social and economic implications’ – to which factors there could be usefully added consideration of impacts on heritage assets, BMV farmland, protected landscapes and wildlife habitats. (The potential for alternatives to be considered would however appear to be somewhat limited by the stipulation in NPS EN-1 # 4.2.23 that ‘The Secretary of State should not refuse an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site…’).

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

Don't know

It is impossible to know with certainty that each of the proposed criteria cover every possible aspect required for site assessment; but given the risk of chemical contamination from fusion facility operations groundwater protection should arguably not be an excluded criterion that falls only to be considered during the environmental permitting process.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

There is an absence of any criterion that in the process of site selection would prioritise the use of brownfield sites over greenfield development (in line with much that has been promised in the field of LPA planning), whilst it is also disappointing that neither do Climate Change or Biodiversity Net Gain feature in the table of ‘Proposed high-level siting criteria’ in Annex 2.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

Yes

Despite the differences that are acknowledged to exist between the emerging technologies (p. 14), the Consultation seems rather to ignore these and to focus instead on capacity by insisting that ‘criteria will be developed to be suitable for different fusion technologies independent of the output of that facility’ (p. 22). Given that the different technologies give rise to different planning considerations, for example regarding the type and extent of the component structures required as well as the amounts of radioactive waste produced, it might therefore be appropriate to develop separate sets of criteria for those technologies that would be used for large-scale power generation for the electricity grid and those that would be used for small-scale energy or heat production for a single on-site consumer.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

No

Although it is claimed that the assessment criteria ‘should provide reassurance to public bodies and wider society that sites which could have unacceptable impacts… would not go forward within the planning system’ (p. 32), this claim is less reassuring when viewed in the light of the earlier assertion that ‘All criteria outlined in this section [except where relating to military activities] are discretionary… meaning that sites will not be automatically disqualified if they fail to meet an aspect of the criteria’ (p. 22).

Despite the increased centralisation of decision-making inherent in the proposed model, it is claimed that ‘Developers will be responsible for engaging with statutory bodies, the local authority and landowner of the site and interested parties’ (p. 32); but it is not explained whether such “engagement” would allow LPAs much more than an advisory role with the right to be consulted along with their communities on only such minor aspects of a project as Biodiversity Net Gain (given that evidence of public support would not be a criterion for granting consent to fusion power plants: p. 31).

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

I was unaware that there was an additional consultation on the Appraisal of Sustainability and so am unable to answer this question.

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Don't know

I was unaware that there was an additional consultation on the Appraisal of Sustainability and so am unable to answer this question.

15 Do you agree with the selection and definition of key sustainability issues?

Don't know

I was unaware that there was an additional consultation on the Appraisal of Sustainability and so am unable to answer this question.

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Don't know

I was unaware that there was an additional consultation on the Appraisal of Sustainability and so am unable to answer this question.

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Don't know

I was unaware that there was an additional consultation on the Appraisal of Sustainability and so am unable to answer this question.

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Don't know

I was unaware that there was an additional consultation on the Appraisal of Sustainability and so am unable to answer this question.

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Don't know

I was unaware that there was an additional consultation on the Appraisal of Sustainability and so am unable to answer this question.

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

I was unaware that there was an additional consultation on the Appraisal of Sustainability and so am unable to answer this question.

Anonymised Response X

1 Do you agree that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities?

Not answered

Anonymised Response X agrees that the planning process for fusion energy facilities should be aligned and maintained with other complex energy generation facilities, but with due consideration given to the technological and operational needs of fusion.

Whilst there is at present no precedent on the layout and characteristics for a fusion power plant, the general characteristics such as the infrastructure and operational requirements are known. These include the core operational buildings and systems, such as central generation and reaction halls and fuel extraction and exhaust infrastructure, but also associated fuel recovery and recycling plant, maintenance facilities and radioactive waste control and storage systems.

These facilities are complex and require specialist knowledge to scrutinise proposals effectively. Given the nascency of commercial fusion technologies at scale and the inherent technical complexity of a fusion facility, local authorities may not have the specialist knowledge to scrutinise plans in the timescales required to meet both government's net zero commitments and the aspirations of the emerging industry. Anonymised Response X agrees that designating a new FENPS will mean that this knowledge can be built and consolidated centrally, providing an effective and consistent scrutiny framework across England and Wales.

Furthermore, Anonymised Response X considers that the FENPS should clearly recognise that nuclear facilities operate in a highly regulated sector. Applicants, Examining Authorities and decision-makers should assume that these processes will operate effectively to manage potential risks within the regulatory framework. The NSIP process should not seek to duplicate these processes and unnecessary 'double regulation' of such matters during the development consent order ("DCO") examination or in the DCO itself should be avoided. Such duplication would introduce significant delay in new fusion proposals being approved, built out and brought into operation with little or no substantive benefit.

In particular, full weight should be given to all evaluative assessments undertaken by the relevant expert fusion energy regulators – HSE, ONR and the EA – as to the safety case, risks and attributes of the particular fusion technology selected. Such expert judgements should be followed in the planning process unless there are compelling, evidence-led reasons to justify a different approach. Conversely, speculative assertions as to the potential impact of novel fusion technologies which are not supported by an objective evidence base and robust analysis should be given little or no weight in the planning process.

However, due to the geographical limitations of the NSIPs system under the Planning Act 2008 and the cross-UK need to bring forward fusion facilities at pace, it will also be vital for government to ensure that the FENPS is aligned (where possible and appropriate) with the priorities and policies of the devolved administrations across the whole of the UK.

2 Do you agree with the Government's proposal to include all fusion technologies in the NSIP process?

Yes

Anonymised Response X agrees that all fusion technologies should be included in the FENPS process. As fusion does not create very long-lived or high activity waste and has a comparatively low radiological profile, other sustainability impacts may be greater than the radiological considerations – and these other impacts are likely to apply across the board regardless of the exact technological solution selected.

Moreover, as we describe above, fusion is a nascent energy sub-sector. Anonymised Response X considers that it would be inappropriate for the FENPS to seek to distinguish between the current emerging technologies. To do so would potentially prevent the development and exploitation of new fusion technologies in the future by inadvertently excluding them from the Anonymised Response X process and interfere with the operation of the market.

Inclusion of all fusion technologies from the outset will enable the industry to bring forward all viable and feasible technological solutions which can then be assessed on a level playing field, and help government to develop relevant evaluative and comparative expertise as new NSIP applications come forward. This will ensure that the FENPS is appropriately 'future-proofed' without inadvertently restricting technological innovation.

Anonymised Response X agrees that it would be appropriate for the FENPS to adopt the definition of a fusion energy facility from the Energy Act 2023. This would provide a consistent and aligned planning and regulatory framework.

3 Do you agree with the Government's proposal to take an open-sited approach in the fusion NSIP process?

Yes

Anonymised Response X supports the proposed open-sited approach for the new FENPS, which accords with the
approach taken in other NPSs within the Energy ("EN") suite, including the proposals for a new EN- 7.

This will allow developers to identify, shortlist, assess, select and promote those sites which are best placed to meet the technical requirements of the specific fusion technology selected and potential cluster, co-location synergies, noting the proposal to include all fusion technologies within the FENPS process which, as we set out above, NIPA supports.

Identification of sites within the FENPS would be overly restrictive, especially in light of the emerging state of fusion technology and the differing characteristics of different technologies. This would only serve to potentially frustrate the previous government's goal of allowing all feasible technologies to be brought forward on an even-playing field basis by the market and facilitating innovation.

Anonymised Response X notes that the consultation paper intimates that the previous government anticipated that siting will be determined by adherence to robust criteria or justification of approach against technical considerations. If an open-sited approach is to be taken, NIPA considers that the draft criteria should be subject to further detailed consultation in

due course prior to their inclusion in the FENPS.

As part of this further consultation, the Government should also engage with the whole fusion sector in order to identify any sector-specific ‘associated development’ typologies or classifications which would merit inclusion in the FENPS where appropriate. Where the requirement to provide such associated development would materially distinguish between potential sites, this should be factored into the developer’s site-sift process.

4 Do you agree with the Government’s proposal to include all fusion energy facilities in England, independent of capacity, in the fusion NSIP process?

No

Anonymised Response X has concerns regarding the proposal to include all fusion energy facilities within the scope of the new FENPS regardless of capacity. This does not align with other types of energy NSIP which are subject to clear thresholds and then open to being directed into the DCO consenting process when below those thresholds should they be demonstrated to be projects of national significance.

Whilst Anonymised Response X notes that some private companies have long-term ambitions to develop small scale devices to power energy intensive facilities such as data centres, the omission of any lower threshold at all runs the risk of the NSIPs process – with all of its attendant procedural and information requirements – capturing developments of more local or regional significance, resulting in a disproportionate consenting process. This is also aligned with the previous government’s ambition that the introduction of the FENPS should not inadvertently restrict technological innovation.

Moreover, Anonymised Response X notes the previous government’s stated rationale for an all-inclusive FENPS whereby the burden of examining a planning application would fall on local planning authorities and could lead to delays in the assessment of planning applications. In this regard, it should be noted that the National Planning Policy Framework does refer to NPSs being material planning considerations in the development plan and development management decision-making processes, and therefore it is important that the FENPS provides the appropriate planning policy context across all planning regimes.

Whilst this is aligned with the desire to develop a consistent, expert assessment body on a national basis, this sits uncomfortably with the proposal to exclude fusion research facilities from the NSIPs process and policy. As the consultation paper acknowledges, fusion research facilities can themselves be large and complex, yet as things stand, the proposed approach would potentially lead to smaller-scale energy generation fusion facilities falling within the NSIPs process, whereas larger scale and more complex research facilities – which will carry many of the same (if not greater) potential impacts and hazards – would still fall to be dealt with by local planning authorities.

In these circumstances, Anonymised Response X recommends that the proposals be amended to:

Impose a minimum capacity threshold which fusion proposals must meet in order to fall within the NSIPs process; and

Bring fusion research facilities above a certain scale or capacity (established by reference to objective criteria) within the scope of the FENPS and DCO consenting regime.

Should a capacity threshold be set, Anonymised Response X recommends that this should be set at 50MW so as to align with other types of onshore energy NSIPs. This approach would also not preclude fusion proposals below the 50MW threshold from being consented through the DCO process on a case-by-case basis through the giving of a section 35 direction under the Planning Act 2008.

5 Do you agree with the Government's proposal to include both thermal and electrical facilities in the fusion NSIP process?

Yes

Anonymised Response X agrees with this proposal.

6 Do you think the definition of a fusion energy facility, as provided in the Energy Act 2023, is suitable for distinguishing between a fusion energy facility and/or fusion research facility for the purpose of this NPS?

No

For the reasons set out above in response to question 4, Anonymised Response X does not agree that attempting to distinguish between fusion energy facilities and fusion research facilities is justified on the rationale set out in the consultation paper.

7 Do you agree with the Government's proposal to not set a deployment deadline for fusion energy facilities?

Yes

Whilst Anonymised Response X supports the approach of not setting a fixed deployment deadline for fusion energy
facilities, it nevertheless notes the urgency and importance of providing new domestic large scale clean energy generation capacity for both low-carbon and domestic energy security purposes; the importance of this cannot be underestimated.

Accordingly, Anonymised Response X considers that the anticipated timescales for implementation and bringing new generation capacity on-stream should be included as a relevant consideration within the FENPS to be used when assessing individual applications and the positive weight to be given to early delivery. Those NSIPs which would bring forward new capacity sooner – whilst still satisfying all other relevant assessment and siting criteria – should be given significant positive weight in the consideration and determination process.

8 Should developers consider any other factors in assessing reasonable alternatives for fusion energy facilities?

Anonymised Response X agrees with the former government's proposal to follow practice and precedent from other energy generating facilities subject to the EN NPSs with similar characteristics and agrees that there are unlikely to be a significant number of areas that are wholly unique to fusion.

However, as set out above, once more detailed draft criteria have been developed, these should be the subject of further consultation with the public and all relevant stakeholders prior to the new FENPS being designated.

Moreover, Anonymised Response X considers that the FENPS should make clear that in

conducting this assessment, including comparison with alternative solutions with reference to the strategic siting criteria, the purpose of the assessment is to evaluate the relative merits of alternative sites only, i.e. in terms of the sites' suitability for and compatibility with whichever fusion technology has already been selected or is otherwise under consideration and any other co-locational beneficial need and criteria.

9 Do you believe that the proposed criteria cover all aspects necessary for assessing the suitability of sites for fusion energy facilities?

No

Grid Connection:
Generating stations connect into either the transmission or distribution networks or, on occasion, directly to users. The technical feasibility of exporting electricity from a generating station depends on the capacity of the grid network to accept the likely electricity output, as well as the voltage and distance of the connection.

In this regard, it will be important to align grid development priorities with planned or proposed energy-generating infrastructure, including fusion facilities. This is vital to ensure that grid connection and capacity do not become a barrier to the rapid delivery of new fusion energy generation. The development and delivery of suitable grid connections and upgrades should, accordingly, be prioritised and aligned with the Government's wider infrastructure priorities, including those in the new FENPS.

Even if the precise route of a connection has not been identified, in accordance with Section 4.10 of EN-1, any application to the Secretary of State should include information on how the generating station is to be connected and whether there are any particular environmental issues likely to arise from that connection.

Those impacts should be factored into the applicant's assessment of alternative sites.

Groundwater:
Infrastructure development can have adverse effects on the water environment, including groundwater, inland surface water, transitional waters, coastal, and marine waters. Accordingly, Anonymised Response X considers that all elements of the water environment, water resources, and water quality should be dealt with on a consistent basis in the new FENPS; i.e., this should not be limited to consideration of groundwater effects only.

Where the project is likely to affect water quality or resources, the applicant should undertake an assessment as required in Section 5.16 of EN-1. The assessment should particularly demonstrate that appropriate measures will be put in place to avoid or minimise the adverse impacts of abstraction and discharge of water (including cooling water, where relevant).

The applicant's assessment should, in particular, describe:

The existing quality of waters affected by the proposed project and the impacts of the proposed project on water quality, noting any relevant existing discharges, proposed new discharges, and proposed changes to discharges;

Existing water resources affected by the proposed project and the impacts of the proposed project on water resources, noting any relevant existing abstraction rates, proposed new abstraction rates, and proposed changes to abstraction rates (including any impact on or use of mains supplies) and also demonstrate how proposals minimise the use of water resources and water consumption in the first instance;

Existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the proposed project and any impact of physical modifications to these characteristics;

Any impacts of the proposed project on water bodies or protected areas (including shellfish protected areas) under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and source protection zones around potable groundwater abstractions;

How climate change could impact any of the above in the future; and any cumulative effects.

Proximity to Civil Aircraft Movements:
It is essential that new energy infrastructure is developed collaboratively alongside aerodromes, aircraft, air systems, and airspace so that safety, operations, and capabilities are not adversely affected by new energy infrastructure. Commercial civil aviation is largely confined to designated corridors of controlled airspace and set approaches to airports. The approaches and flight patterns to aerodromes can be irregular owing to a variety of factors, including the performance characteristics of the aircraft concerned and the prevailing meteorological conditions.

Large aircraft crashes are a rare event in the UK, but the risk across the country is not uniform. Certain civil aerodromes and aviation technical sites, selected on the basis of their importance to the national air transport system, are officially safeguarded to ensure that their safety and operation are not compromised by new development.

Areas of airspace around aerodromes used by aircraft, including taking off or on approach and landing, are described as “obstacle limitation surfaces” (“OLS”). All licensed and certificated civil aerodromes regulated by the Civil Aviation Authority (“CAA”) must comply with the OLS. These are defined according to criteria set out in relevant CAA guidance, which are in turn based on binding international standards and regulatory practices adopted as annexes to the Chicago Convention, to which the United Kingdom is a signatory and which constitute international law obligations.

Aerodromes that are officially safeguarded will have officially produced plans that show the OLS. Care must be taken to ensure that new developments do not infringe these protected OLS, except where an aerodrome operator has considered the development and either determined there to be no adverse impact or agreed an acceptable mitigation can be put in place, as these encompass the critical airspace within which key air traffic associated with the aerodrome operates.

Anonymised Response X considers that, in assessing and sifting potential sites, the new FENPS criteria should make clear that infringement of an OLS should be avoided if practicable by new fusion facility developments.

Moreover, under The Air Navigation (Restriction of Flying) (Nuclear Installations) Regulations 2016, existing nuclear power stations in the UK are afforded some protection from aviation activity by the establishment of a Restricted Area at each location. Aviation activity within any Restricted Area is limited to that specifically permitted by the Regulations. Typically, such Restricted Areas have a radius of two nautical miles and extend vertically to 2,000 feet above the surface, although they vary between named sites. The Government should give careful consideration as to whether the Regulations should be revised to take account of new fusion generation facilities.

In the meantime, Anonymised Response X considers that applicants should be expected to assume that a given site would be subject to the same Restricted Area safeguarding requirements, with associated impacts on civil aviation. This should be made clear in the new FENPS.

Access to Suitable Sources of Cooling:
Suitable options for cooling systems will need to be assessed and evaluated. To the extent that different cooling options are compatible with more than one fusion technology, the applicant's site selection assessment should assess each option based on the technology requirements of the project to be brought forward, considering all practicable cooling technologies in that context to establish the comparative performance of sites and the potential environmental impacts which may differ depending on specific site location, characteristics, and the environmental sensitivity of the area.

In particular, the design of water-cooling systems for fusion energy generating stations may have additional impacts on water quality, abstraction, and discharge. Where these types of impacts are the same or similar to those associated with fission nuclear facilities, they should, where appropriate, be assessed on an equivalent basis to the existing EN-NPSs to ensure consistency.

In addition to the mitigation measures set out in Section 5.16 of EN-1, the design of water-based cooling systems should also include any intake and outfall locations, and the assessment should consider how options compare in terms of avoiding or minimising such adverse impacts.

Areas of Amenity, Cultural Heritage, and Landscape Value:
The main structures for a fusion energy facility, including the main halls, ancillary facilities, cooling infrastructure, and water processing plant, are likely to be large, although the overall size of the development will inevitably be dependent on technology and design. Night-time lighting for continuous operation will also have an impact on visual amenity.

As a result, fusion facilities will inevitably have a greater or lesser degree of impact on the surrounding landscape and visual amenity, although Anonymised Response X notes that other large-scale energy facilities have become increasingly sensitive to the surrounding environment and, particularly, the potential visual impact. This context-sensitive approach to design should be continued and encouraged.

Anonymised Response X considers that the FENPS should make clear that the assessment of landscape value includes an assessment of the visual impact of new fusion facilities. The applicant should include a landscape and visual impact assessment as part of the Environmental Statement, as set out in Section 5.10 of EN-1.

The applicant should also consider the design of the plant, including the materials to be used, and the visual impact of the plant, as set out in Section 5.10 of EN-1 in the context of the local landscape. This may include the design of buildings to minimise negative aspects of their appearance through decisions in areas such as size, external finish, and colour of the plant as far as compliance with engineering and environmental requirements permits. The precise architectural treatment will need to be site-specific.

The need for good design will be particularly important where a nationally designated landscape is affected. For development proposals affecting designated landscapes, the Secretary of State should be satisfied that measures to further the purposes of the designation are sufficient, appropriate, and proportionate.

Mitigation should be implemented to reduce the visual intrusion of the buildings in the landscape and minimise the impact on visual amenity as far as reasonably practicable. For proposals affecting designated landscapes, the applicant should also consider how the scheme will further the purposes of the designation through its design, delivery, and operation. These measures could potentially go beyond the mitigation measures needed to minimise the effects of the scheme.

Hard and soft landscaping and all suitable visual treatments should be considered, although where the existing landscape is more industrial, design could involve other forms of visual impact mitigation appropriate to the location.

If, having regard to the considerations in respect of other impacts set out in EN-1 and the new FENPS, the Secretary of State is satisfied that the location is appropriate for the project, and that it has been designed sensitively (having regard to NIC design guidance and given the various siting, operational, and other relevant constraints) to minimise harm to landscape and visual amenity, the visibility of a fusion energy generating station should be given limited weight.

Public Support:
Given that the consultation paper states that “public support will not be a formal criterion for the consent of fusion power plants,” it is not clear why this has been included within the list of other assessment criteria.

Anonymised Response X agrees more widely that the siting of fusion power plants should not be subject to a formal “public support” policy requirement, as is the case for the siting of radioactive waste geological disposal facilities (which are consented under s.30A of the Planning Act 2008).

Anonymised Response X therefore recommends that the new FENPS omits reference to “public support” in the context of setting out the assessment criteria.

Should it be considered desirable to include material on this topic in the FENPS, then this should be in a separate section of the FENPS to make clear that public support (or, indeed, opposition) is not in itself an assessment or determining criterion.

10 Are there any additional criteria that should be considered in the assessment process?

Yes

Socio-economic impacts:

The construction, operation, and decommissioning of energy infrastructure may have socio-economic impacts. Fusion energy generating facilities are likely, in many cases, to involve large-scale construction projects at the beginning of their life.

There are likely to be positive effects of local economic significance (including for both core construction and wider supply chain) as well as potentially significant effects at the regional scale, especially where there are clusters of potentially suitable sites for new fusion facilities. This will need to be weighed against the potential impacts of a site or sites hosting multiple devices. There may also be negative effects.

The applicant should identify at local and regional levels any socio-economic impacts associated with the construction, operation, and decommissioning of the proposed new facility.

This assessment should demonstrate that the applicant has taken account of, amongst other things, potential pressures on local and regional resources, demographic change, and economic benefits.

The applicant's assessment should consider all relevant socio-economic impacts, which may include:

The creation of jobs and training opportunities. Applicants may wish to provide information on the sustainability of the jobs created, including where they will help to develop the skills needed for the UK's transition to Net Zero;

The contribution to the development of low-carbon industries at the local and regional level as well as nationally;

The provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;

Any indirect beneficial impacts for the region hosting the infrastructure, in particular in relation to use of local support services and supply chains;

Effects (positive and negative) on tourism and other users of the area impacted;

The impact of a changing influx of workers during the different construction, operation, and decommissioning phases of the energy infrastructure. This could change the local population dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport, and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and cumulative effects - if development consent were to be granted for a number of projects within a region and these were developed in a similar time frame, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region.

Moreover, where the development of a new fusion facility would have particular socio - economic benefits for economically more deprived areas, Anonymised Response X considers that these should be considered favourably when assessing both relative site selection and the overall merits of specific projects which come forward.

In particular, the Secretary of State should consider any relevant positive provisions the applicant has made or is proposing to make to mitigate impacts such as any legacy benefits that may arise, as well as any options for phasing development in relation to the socio-economic impacts.

11 Do you think there should there be a separate set of criteria for different fusion technologies?

No

NIPA considers that a consistent set of criteria across all fusion technologies is most appropriate. This aligns with the technology-neutral focus of the proposed FENPS and maintains sufficient flexibility to assess individual proposals on their own merit, noting that the assessment itself is a discretionary one.

This means that the examining authority and the decision-making minister would retain the

flexibility to place more or less weight on any given criterion in order to take account of its particular relevance to a given site, technology or proposal.

12 Do you agree with the proposed model for implementation of the Fusion NPS?

Yes

Anonymised Response X supports the proposed developer-led approach to site sifting which also aligns with the
approach adopted in respect of other types of NSIP (including the proposals for EN-7) and provides consistency.

However, Anonymised Response X notes that the consultation paper intimates that even if a site is judged to be
potentially suitable this “does not guarantee that development consent will be granted to a particular project, nor does it override environmental permitting requirements”.

Anonymised Response X considers that the new FENPS should make clear that this is without prejudice to the ability for a fusion facility DCO to modify the application of, or disapply, permitting requirements where this is supported by appropriate reasoning and justification. This also aligns with the need (discussed in more detail above) to avoid unnecessary ‘double regulation’ of the sector.

13 Have there been any omissions of policies, plans or programmes relevant to the scoping of the AoS?

Not answered

14 Do you agree that the baseline data that have been, or will be collected, are relevant and of sufficient detail to support the AoS?

Not answered

15 Do you agree with the selection and definition of key sustainability issues?

Not answered

16 Are there any key baseline data available that have not been identified that are, or could be, use in support of the issues?

Not answered

17 Do you agree with the implications and opportunities that have been identified for the emerging NPS EN-8?

Not answered

18 Do the AoS objectives and decision-making questions provide a sound framework against which to assess the sustainability performance of the emerging NPS EN-8?

Not answered

19 Do you agree that aligning the assessment scale of the emerging NPS EN-8 with that of the AoS of EN-1 to EN-5 is a reasonable approach?

Not answered

20 Do you have further suggestions regarding the scope of the AoS and its proposed assessment of NPS EN-8 on fusion energy?

Not answered

This consultation is available from: www.gov.uk/government/consultations/fusion-energy-facilities-new-national-policy-statement-and-proposals-on-siting

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