House of Commons

Energy Security and Net Zero Committee

Planning for fusion

Fourth Report of Session 2026–27

HC 571

Energy Security and Net Zero Committee

The Energy Security and Net Zero Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Department for Energy Security and Net Zero and its associated public bodies.

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The Committee is one of the departmental select committees, the powers of which are set out in House of Commons Standing Orders, principally in SO No. 152. These are available on the internet via www.parliament.uk.

Publication

This Report, together with formal minutes relating to the Report, was Ordered by the House of Commons, on 27 October 2026, to be printed. It was published on 3 November 2026 by authority of the House of Commons.
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Fusion energy in the UK

1. The history of fusion energy research in the UK is outlined on the UKAEA website,[1] beginning with work at Aldermaston and Harwell. The UKAEA began work on the Zero Energy Thermonuclear Assembly at Harwell in 1957 and opened Culham Laboratory as a purpose-built home for Britain's fusion research programme in 1965. Culham was chosen to host the JET facility as the centre of EU research in the fusion energy in 1977. Conservative and Labour governments in recent years have shown increased interest in developing the UK's fusion research and delivery capacity, and the current Government announced £2.5bn to support UK fusion energy research.

Consultation and scrutiny

2. The Government launched a consultation on the need for a National Policy Statement on fusion energy in May 2024 and published its response on July 17.[2] Its response highlighted economic opportunity represented by fusion and noted that private companies were talking about how to deliver commercial fusion plants in the 2030s. In June 2025, in its Industrial Strategy,[3] the Government noted fusion energy as a key focus backed up by a £2.5 billion commitment.

On 8 June the Government published its draft National Policy Statement for fusion energy (EN-8)[4] and a written Ministerial Statement indicating timelines for a further consultation and a timeline for Parliamentary scrutiny.[5]

3. The Committee has already scrutinised updates to five core energy National Policy Statements (EN-1 to EN-5) and a new National Policy Statement (EN-7 for nuclear power) that replaces EN-6. We ran a short call for evidence on the draft NPS for fusion energy from 24 July to 18 August and received five submissions. We visited Culham campus to hear about the current state of research and investment in fusion energy and held an oral evidence

1 https://www.ukaea.org/about-ukaea/history/
2 DESNZ, Fusion energy facilities: new National Policy Statement and proposals on siting, 8 May 2024
3 DESNZ, The UK Government's response to the consultation on the proposed approach to siting fusion energy facilities, 17 July 2024
4 DESNZ, Draft national Policy Statement for fusion energy generation, 8 June 2026
5 Publication of the draft National Policy Statement for Fusion Energy Generation EN-8 HCWS92, 8 June 2026

session on 9 September with representatives from industry, regulators, and Government.[6] We would like to thank everyone who contributed to our inquiry.

Fusion in the UK

4. While fusion energy has been the subject of scientific interest since the mid twentieth century, the engineering and materials difficulties in utilising fusion as an energy source far exceeded those of utilising nuclear fission. Nuclear programmes, globally, built fission reactors and fusion was relegated to academic programmes and government facilities. In 1977, the then EEC, chose the Culham campus in the UK to host the Joint European Torus (JET). The JET facility has spent most of the intervening period increasing its performance, taking measurements and running experiments on using fusion to generate energy. The big challenge for fusion has been achieving a reaction that generates more energy than needs to be used get the reaction going. That, despite advancements in materials and engineering, has still to be demonstrated, the current record is the generation of almost 70% of the energy used.[7]

5. JET was a European project and finished operations in December 2023, with decommissioning expected to last until 2040.[8] The UK left EURATOM, the EU's nuclear energy agency, as a result of Brexit and, subsequently, withdrew from the ITER project which was seen as the follow-up to JET. Currently ITER is a collaborative project between the 27 member countries of the European Union, China, India, Japan, Korea, the Russian Federation, the United States and Switzerland.[9] The UK has its own programme, STEP, which seeks to build a fully functional fusion reactor in West Burton, a programme expected to end in the mid 2040s.[10] UK Fusion Energy (UKFE), a wholly owned subsidiary of the UK Atomic Energy Authority (UKAEA)[11] Group, will lead the delivery of the STEP programme.

6. In March this year, the Government published its strategy for fusion in the UK. Its objective was to

6 ESNZ Committee, oral evidence, 9 September 2026
7 https://www.ukaea.org/about-ukaea/history/
8 https://www.ukaea.org/work/jet-decommissioning-and-repurposing/
9 https://www.iter.org
10 https://stepfusion.com
11 UKAEA is an executive non-departmental public body, sponsored by the Department for Energy Security and Net Zero.

> Accelerate growth of the UK fusion industry to capture the economic and strategic benefits of fusion through a globally competitive supply chain; UK based power plant design, subsystems and systems integration capabilities; and demonstrating commercial viability through STEP.[12]

7. In our visit to the Culham Campus, we were told that UK Fusion Energy (previously known as UKIFS) had submitted over 100 patents, 47 of which had been filed. This was to establish the value of fusion research even before building a reactor that generates more energy than it consumes. Paul Methven, Chief Executive Officer of UK Fusion Energy Ltd, told us that the UK should be looking into fusion as an export opportunity as much as a source of firm, clean power.[13] Written evidence from the Fusion Industry Taskforce supported that objective:

> The objective should not simply be to make the UK an attractive place to build a fusion plant, but one of the best places in the world to develop, engineer and deliver fusion programmes.[14]

8. In its written statement announcing that the draft National Planning Policy Statement had been laid, the Government indicated that one of the key drivers for the NPS was to encourage private investment in UK fusion energy. The Minister said that the NPS:

> will help ensure that the planning system in England and Wales is ready to support future fusion energy projects. This will support the growth of the UK fusion industry, enable innovation and skills, and reinforce the UK's position as a leading destination for fusion investment. [15]

The purpose of National planning policy statements

9. National Policy Statements are designated under the Planning Act 2008 to set out the Government's policy for nationally significant infrastructure projects (NSIPs). They establish the need for development and the principles for assessing applications for Development Consent Orders (DCOs). Once designated, an NPS provides the primary basis for making decisions on DCOs. Currently, the Planning Act requires that an NPS must undergo public consultation and parliamentary scrutiny.

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12 DESNZ, A New Energy Revolution: The UK's Plan for Delivering Fusion Energy, March 2026

13 Q27

14 Fusion Industry Taskforce (NPP0004)

15 Publication of the draft National Policy Statement for Fusion Energy Generation EN-8 HCWS92, 8 June 2026

10. We had some concerns about whether fusion needed to be drawn out into an NPS of its own. Minister Shanks, when challenged on the need for an NPS for fusion indicated that consultation indicated a demand for a fusion NPS that was separate from EN-7 (nuclear fission) but addressed unique issues that would not be covered under the more generic energy infrastructure EN-1 (Overarching National Policy Statement for energy). He acknowledged the danger of proliferation and did not believe that this opened the door to an NPS for every new technology, "The aim is […] not to create a planning statement for every single technology, but where there are unique circumstances—as is the case with fusion—it has its own particular statement".[16] David Sandford, Deputy Director, Department for Energy Security and Net Zero, confirmed that the trigger for introducing an NPS at this point was driven by investor confidence and sending a message to industry as it was about planning rules.[17]

11. There is little doubt however that the NPS has been welcomed by the industry. Tris Denton, speaking on behalf of the Fusion Industry Association (FIA) told us:

> I think this is a very good national policy statement. I think it gives great confidence to technology companies and their investors and their developers. That means we can hopefully see the UK in the first wave of fusion build.

There have been very few voices raised against the NPS in either the Government's consultation or in writing to this inquiry. However, the FIA had some concerns about whether the NPS had sufficient clarity on regulatory sequencing which is central to investment confidence.

> The interaction between regulatory justification, the Health and Safety Executive and Environment Agency, and the development consent process would benefit from sharper clarity on timing. These interfaces and decision points govern when projects and their supply chains can commit and contract with confidence.[18]

We also had some concerns raised by Ishtiaq Hussain about the lack of detail associated with the NPS that might bring clarity to "identifying the principal planning, safety and environmental interfaces, the appropriate stages for engagement and the respective responsibilities of decision-makers and regulators".[19]

16 Q59
17 Q64
18 Fusion Industry Taskforce (NPP0004)
19 Mr Ishtiaq Hussain (Student – Computer Science at Solent University) (NPP0001)

12. **CONCLUSION**
We recognise the value that the industry has placed on the Government producing this Planning Policy Statement but have concerns that this misses the point of these planning documents. The Minister was satisfied that this NPS will not lead to more special pleading for industry specific planning policy statements. We do not agree.

13. **RECOMMENDATION**
We recommend that the Government ensures it has better mechanisms for providing individual industries with confidence in the planning system, possibly by better funding the planning system to ensure it has the capacity needed to address new first of a kind energy infrastructure.

14. **RECOMMENDATION**
We also recommend that future technology specific planning guidance be in the form of non-statutory appendices to EN-1.

The distinction between fusion and fission

15. A key aspect of our consideration of the NPS was the distinction drawn between nuclear fusion and nuclear fission. Both technologies feature the generation and management of radiation and radioactive waste, both feature large infrastructure costs and their financing is likely to have similar features due to the large upfront costs and physical footprint. The Written Statement laid on the publication of the draft NPS for Fusion Energy (EN-8), noted that "EN-8 has a different scope to EN-7 which is the National Policy Statement for Nuclear (fission) Energy Generation".[20] The Energy Act 2023 also ensures that the planning regime addresses the siting and construction of reactors in a different way to fission reactors.

16. All of the witnesses we spoke to were confident that fusion had to be addressed separately to fission, most often justified due to the lower risk profile of fusion.[21] Due to the nature of the nuclear reactions involved, fusion does not have the same risk of core damage and the radioactive materials used have much shorter half-lives. As such, the NPS removes the Office for Nuclear Regulation from oversight of fusion reactors, thought they would remain involved the in the regulation of transporting radioactive waste. The burden of regulating emissions from fusion reactors will fall on the Environment Agency.

20 Publication of the draft National Policy Statement for Fusion Energy Generation EN-8 HCWS92, 8 June 2026

21 For example, Q11 and Q33

17. The Fusion Industry Taskforce had some concerns about regulator capability.

> FIT members raise the point that–at present–the Health and Safety Executive and Environment Agency may not have sufficient suitably qualified and experienced personnel to make judgments on all relevant fusion plant designs and their justification. Where needed, support from organisations with relevant expertise should be considered so that capability constraints do not cause severe delays in the approval of new plants, particularly at scale.[22]

18. Paul Methven was also clear that the regulation needed to avoid being the rate limiting step in the critical path of fusion development.[23]

> Future-proofing also requires clarity on long-term waste liabilities. EN-8 should make clear the applicable requirements and where responsibility rests (e.g. among developer, operator and government). This has a significant effect on investment cases and profitability across the project lifecycle and, consequently, on the ability to attract private investment into the UK market.[24]

19. We were concerned that the separation of fusion from fission might mean that many of the conventions that are settled for fission reactors could not be presumed to apply to fusion reactors. The Government already recognises the need for identifying a proportionate mechanism through which fusion operators can meet decommissioning costs. The Fusion Strategy commits DESNZ to identify that mechanism by autumn 2027.[25] What the NPS is silent on is insurance. A Lloyds syndicate indicated its concerns to us:

> Neither EN-1 nor draft EN-8 establishes substantive policy on third-party radiological liability, insurance or other financial protection. Section 156 of the Energy Act 2023 expressly excludes fusion energy facilities from the nuclear site licensing requirement in section 1 of the Nuclear Installations Act 1965. The established fission liability and insurance arrangements should therefore not be assumed to apply to fusion facilities.[26]

20. We raised these concerns during our oral evidence and received some information from both the industry and the Government that these issues would be addressed in the usual way of things. Paul Methven said that

22 Fusion Industry Taskforce (NPP0004)
23 Q28
24 Fusion Industry Taskforce (NPP0004)
25 DESNZ, A New Energy Revolution: The UK's Plan for Delivering Fusion Energy, March 2026, p50
26 Lloyd's Syndicate 1176 (NPP0005)

"there is work to do […] to look at what is an appropriate set of regimes to enable the development of a vibrant fusion market" and Tris Denton noted that " we have already seen bespoke fusion-focused insurance funds launched".[27] David Sandford, Director at DESNZ observed that "the insurance industry is just starting to engage with this, but I hope it is something that they come to realise has a significantly different risk profile from fission, and one that they can think about perhaps more consistently with other areas".[28]

21. The Fusion Industry Taskforce did raise its own concerns about liabilities, especially for waste disposal which are clear for fission reactors.

> Future-proofing also requires clarity on long-term waste liabilities. EN-8 should make clear the applicable requirements and where responsibility rests (e.g. among developer, operator and government). This has a significant effect on investment cases and profitability across the project lifecycle and, consequently, on the ability to attract private investment into the UK market.[29]

22. **CONCLUSION**

While we remain to be convinced about the contribution fusion energy will contribute to the country's energy security in the next decade, we recognise the interest of developers and the technological benefits that accrue from the fundamental research involved. We are concerned however that there remain potential unexpected issues that we expect the Government to investigate and build into future policy guidance. We are entirely unconvinced that simply removing the Office for Nuclear Regulation will reduce the bureaucracy of delivering nuclear power and that the relative inexperience of the Environment Agency may lead to the excessive caution that the Fingleton Review has found in the regulation of nuclear fission.

23. One final difference between fission and fusion that was raised with us by the Dalton Nuclear Institute was the lack of any consideration within the planning policy statement with regard to nuclear proliferation considerations. The use of fission for nuclear power across the world is accompanied by concerns whether the use of this technology contributes to potential nuclear weapon development and production. That evidence notes that there is no "mechanism for tracking how a facility's non-proliferation risk profile changes as fusion scales from today's small research devices

27 Q33
28 Q72
29 Fusion Industry Taskforce (NPP0004)

to commercial plants". They point out that "developers are unlikely to characterise these risks on their own initiative as doing so carries no commercial upside for the firm that does it".[30]

24. **RECOMMENDATION**
We recommend that the Government quickly addresses the issue of proliferation, producing guidance for developers who may be looking to begin construction in the next few years and that the first update of EN-8, in five years' time, have non-proliferation elements built into the planning policy guidance.

Public engagement

25. An important element of our previous consideration of energy national policy statements has been the focus on proper and early engagement with the public, the people that will suffer the disruption of facilities being built, the hazard of hosting facilities that may, at the very least, cause damage to the surrounding environment through either use of water or damaging emissions. Public opposition to a facility can delay its construction, increasing costs through both taking longer before the facility begins generating revenue to pay back the debt used to construct it and the higher rates of interest on that debt due to the uncertainty generated about whether it will eventually be built. We were clear in our report, *Gridlock or growth? Avoiding energy planning chaos*,[31] that there was a need for affected communities to be involved in decision making processes. In our report, *The new National Policy Statement for nuclear energy generation*,[32] we recommended that EN-7 and accompanying guidance should go further in setting expectations for how nuclear developers, in particular, can deliver lasting economic value to host communities and that the Government should also investigate more creative mechanisms to ensure economic value from nuclear developments is captured locally. Government responses acknowledged the importance of engagement and local benefits but made no significant changes to the policy statements to deliver this.[33]

30 Dalton Nuclear Institute (NPP0003)
31 Energy Security and Net Zero Committee, Second Report of Session 2024–26, Gridlock or growth? Avoiding energy planning chaos, HC 868
32 Energy Security and Net Zero Committee, Fourth Report of Session 2024–26, The new National Policy Statement for nuclear energy generation, HC 1212
33 Energy Security and Net Zero Committee, Third Special Report of Session 2024–26, The new National Policy Statement for nuclear energy generation: Government Response, HC 1508

26. Mothiur Rahman wrote to us that,

> whilst there are comments signifying an adaptive regulatory approach in draft NPS8 which we support, there are no specific commitments that could give confidence to the public stakeholder interest that an adaptive approach which secures their interests has been researched, committed to and will be adhered to.[34]

He continued by noting that communities had no option but to accept "present assessments of fusion's comparatively low risk" with nothing in the planning policy statement on how that might change should experience show those risks to be higher than anticipated.

27. In our oral evidence session Paul Methven indicated that the STEP programme was building its reactor in "a community used to big infrastructure" and that it had "really embraced" the development. He noted the importance of working with the East Midlands Combined Authority and the Greater Lincolnshire Combined Authority and that, while non-statutory, the STEP programme's first phase of consultation had shown "that people really welcome the opportunity to get engaged".

28. **RECOMMENDATION**
We would like to reiterate our call for the Government to develop substantive guidance on how benefits should be captured locally and that such plans should have weight in the consideration of Development Consent Orders.

29. **RECOMMENDATION**
We note the positive approach of the STEP Programme and recommend that the Government studies their approach, identifies best practice and makes this kind of engagement statutory. It is too important to leave it to developers to decide whether they can afford the time and money to conduct this kind of engagement.

34 Mothiur Rahman (Lecturer in Law at The University of Law); Lydia Madden (Masters student at The University of Law) (NPP0006)

Conclusions and recommendations

1. We recognise the value that the industry has placed on the Government producing this Planning Policy Statement but have concerns that this misses the point of these planning documents. The Minister was satisfied that this NPS will not lead to more special pleading for industry specific planning policy statements. We do not agree. (Conclusion, Paragraph 12)

2. We recommend that the Government ensures it has better mechanisms for providing individual industries with confidence in the planning system, possibly by better funding the planning system to ensure it has the capacity needed to address new first of a kind energy infrastructure. (Recommendation, Paragraph 13)

3. We also recommend that future technology specific planning guidance be in the form of non-statutory appendices to EN-1. (Recommendation, Paragraph 14)

4. While we remain to be convinced about the contribution fusion energy will contribute to the country's energy security in the next decade, we recognise the interest of developers and the technological benefits that accrue from the fundamental research involved. We are concerned however that there remain potential unexpected issues that we expect the Government to investigate and build into future policy guidance. We are entirely unconvinced that simply removing the Office for Nuclear Regulation will reduce the bureaucracy of delivering nuclear power and that the relative inexperience of the Environment Agency may lead to the excessive caution that the Fingleton Review has found in the regulation of nuclear fission. (Conclusion, Paragraph 22)

5. We recommend that the Government quickly addresses the issue of proliferation, producing guidance for developers who may be looking to begin construction in the next few years and that the first update of EN-8, in five years' time, have non-proliferation elements built into the planning policy guidance. (Recommendation, Paragraph 24)

6. We would like to reiterate our call for the Government to develop substantive guidance on how benefits should be captured locally and that such plans should have weight in the consideration of Development Consent Orders. (Recommendation, Paragraph 28)

7. We note the positive approach of the STEP Programme and recommend that the Government studies their approach, identifies best practice and makes this kind of engagement statutory. It is too important to leave it to developers to decide whether they can afford the time and money to conduct this kind of engagement. (Recommendation, Paragraph 29)

Formal minutes

Tuesday 27 October 2026

Members present

Bill Esterson (Chair)

Wera Hobhouse

Graeme Downie

Planning for fusion

Draft Report (*Planning for fusion*), proposed by the Chair, brought up and read.

Ordered, That the draft Report be read a second time, paragraph by paragraph. Paragraphs 1 to 29 read and agreed to.

Title agreed to.

Resolved, That the Report be the Fourth Report of the Committee to the House. Ordered, That the Chair make the Report to the House.

Ordered, That embargoed copies of the Report be made available, in accordance with the provisions of Standing Order 134.

Adjournment

Adjourned till Wednesday 28 October at 8.45am.

Witnesses

The following witnesses gave evidence. Transcripts can be viewed on the inquiry publications page of the Committee's website.

Wednesday 9 September 2026

Paul Methven, CEO, UK Fusion Energy Ltd, UKAEA Group; **Tris Denton**, UK Director, Fusion Industry Association; **Jo Nettleton**, Chief Regulator, Environment Agency Q1–52

Michael Shanks MP, Minister for Energy, Department for Energy Security and Net Zero; **David Sandford**, Deputy Director, Department for Energy Security and Net Zero Q53–96

Published written evidence

The following written evidence was received and can be viewed on the inquiry publications page of the Committee's website.

NPP numbers are generated by the evidence processing system and so may not be complete.

1	Dalton Nuclear Institute	NPP0003
2	Fusion Industry Taskforce	NPP0004
3	Hussain, Mr Ishtiaq	NPP0001
4	Lloyd's Syndicate 1176	NPP0005
5	Nettleton, Jo (Chief Regulator, Environment Agency)	NPP0007
6	Rahman, Mothiur (Lecturer in Law, The University of Law); and Lydia Madden (Masters student, The University of Law)	NPP0006

List of Reports from the Committee during the current Parliament

All publications from the Committee are available on the publications page of the Committee's website.

Session 2026–27

Number	Title	Reference
3rd	The cost of energy	HC 416
2nd	Zero sum game: How the UK can reframe the energy transition	HC 230
1st	Get connected: How community energy can turbocharge the transition	HC 229
1st Special	Get connected: How community energy can turbocharge the transition: Government Response	HC 583

Session 2024–26

Number	Title	Reference
6th	Workforce planning to deliver clean, secure energy	HC 393
5th	Tackling the energy cost crisis	HC 736
4th	The new National Policy Statement for nuclear energy generation	HC 1212
3rd	Pre-appointment hearing for the Chair of the Climate Change Committee	HC 1186
2nd	Gridlock or growth? Avoiding energy planning chaos	HC 868
1st	Retrofitting homes for net zero	HC 453
6th Special	Tackling the energy cost crisis: Ofgem Response	HC 1789
5th Special	Workforce planning to deliver clean, secure energy: Government Response	HC 1704

Number	Title	Reference
4th Special	Tackling the energy cost crisis: Government Response	HC 1624
3rd Special	The new National Policy Statement for nuclear energy generation: Government Response	HC 1508
2nd Special	Gridlock or Growth? Avoiding energy planning chaos: Government Response	HC 1507
1st Special	Retrofitting homes for net zero: Government Response	HC 1260