



Proposed nomination for open call for a community to host a world first fusion power plant and associated opportunities

Cabinet Date	24 March 2021
Cabinet Members	Cllr Patrick Molyneux, Cabinet Member for Economy, Education and Skills & Cllr Nigel Moor, Cabinet Member for Environment and Planning
Key Decision	Yes
Purpose of Report	To seek endorsement of a bid nominating the former nuclear energy production and new build sites at Berkeley and Oldbury to host a world first fusion power plant and associated innovation centre and business park as part of the UK Atomic Energy Authority's STEP programme.
Recommendations	That Cabinet endorses the submission by the Western Gateway (and Partners) of a bid nomination to the UK Atomic Energy Agency for the former nuclear energy production and new build sites at Berkeley and Oldbury to host a world first fusion power plant and associated innovation centre and business park as part of the STEP programme.
Reasons for recommendations	STEP is an exciting ambitious 21-year programme to deliver a net energy prototype fusion power plant by 2040 plus an associated innovation centre and ecology of supporting and related businesses. Integral to the UK Atomic Energy Authority's STEP project (including the prototype fusion power plant) is the potential to bring transformational benefits to the local and wider area in terms of business, supply chain and high quality job opportunities, education, training and skills as well as working towards a sustainable future and the objective of limitless safe, clean, low carbon energy.

Resource Implications	<p>In support of the nomination process and ongoing support through the selection process a budget of up to £60,000 was approved by Council on 17th February 2021. Any expenditure in 2020/21 will be funded from existing budgets.</p> <p>The funding will be used to procure necessary consultancy support required in relation to the production of regional socio economic data and analysis to help develop a compelling case for the joint submission.</p> <p>Subject to the joint submission passing the Stage 1 selection process, additional consultancy support will be required during 2021/22 to provide expertise and intelligence as the site nomination process progresses in response to additional information requests.</p> <p>Should the bid reach the final report stage, the UK Atomic Energy Authority will make a level of resource available for production of the Final Report stage.</p>
Background Documents	<ul style="list-style-type: none"> • UKAEA STEP Programme https://step.ukaea.uk/ • Community invitation to nominate STEP STEP Siting (ukaea.uk) • Fusion Technology - Fusion energy Culham Centre for Fusion Energy (ukaea.uk) • Gloucestershire's Climate Change Strategy
Statutory Authority	<p>The general power of competence set out in 1(1) of the Localism Act 2011.</p>
Divisional Councillor(s)	<p>Multiple Council Divisions could be impacted should the site be selected to host the fusion power plant and associated innovation centre and business park as part of the UK Atomic Energy Authority's STEP programme.</p>
Officer	<p>Name: Colin Chick – Executive Director of Economy, Environment & Infrastructure Tel. no: 01452 328470 Email: Colin.chick@gloucestershire.gov.uk</p>
Timeline	<p>31st March 2021 – Nomination process closes</p> <p>The UK Atomic Energy Authority has established a scoring process to add structure and clarity to the assessment. It enables assessors to differentiate between candidate sites and helps those nominating to understand where the site is assessed to have strengths and weaknesses.</p> <ul style="list-style-type: none"> • Showstopper assessment – This is a binary score of pass or fail. Failure to pass ALL elements will prevent a candidate site progressing to later stages of assessment. Candidates not making the required threshold will be discontinued from the process. • Desktop commercial assessment - Candidate scores will be noted, and assessment will proceed to the next phase with no site discounted – unless a 'discretionary showstopper' arises, in which case candidates will be discontinued from the process. • Full desktop assessment - All criteria will be considered. At the conclusion of this stage, candidates will be shortlisted, with lowest

scoring nominees discontinued from the process.

- **Site assessment** - At the conclusion of this stage, if more than three candidate sites remain, those with the lowest score will be discontinued from the process.
- **Final report stage** - This stage will include the submission of a final report by each of the remaining three candidate sites, with a level of resource provided by UK Atomic Energy Authority. These reports will enable candidates to submit greater levels of detail, building on their initial submissions. UK Atomic Energy Authority will undertake a final review of these reports before making their recommendation.

The UK Atomic Energy Authority's recommendation to the Secretary of State will be made by the end of 2022.

The decision for the STEP site will be made by the Secretary of State for Business, Energy and Industrial Strategy.

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Background

1. The UK Atomic Energy Authority (UKAEA) has put out a call to identify a site to host a world first prototype fusion energy reactor; Spherical Tokamak for Energy Production project (STEP).
2. Government has backed up this announcement with an initial £220M STEP Programme, with potential for several £bns of capital injection and a lasting legacy of employment. STEP is an ambitious 21 year programme to deliver a net energy prototype fusion power plant by 2040 with the aim to enable the delivery of a UK-led global fleet of fusion plants in the second half of this century. Fusion plants have no carbon emissions, have an abundant fuel supply, are highly energy efficient, have a manageable legacy. UKAEA advice in terms of safety, is that when the plant is switched off the reaction ceases, so continued chain reactions do not occur and only small amounts of relatively short-lived fuel are used.
3. The site nomination process for the Fusion Technical Centre (STEP) began in autumn 2020, with the site nomination process closing on the 31st March 2021. The UKAEA announced that it wanted to work in partnership with interested local authorities and communities, to enable the development of a world first fusion power plant. This exciting project has the potential to bring transformational benefits to the sub region in terms of business, education, training and skills opportunities.
4. The UKAEA site selection process will conclude late 2022 with the UKAEA providing a recommendation to the Secretary of State for Business, Energy and Industrial Strategy (BEIS). UKAEA has established a scoring process to add structure and clarity to the assessment. This enables assessors to differentiate between candidate sites and helps those nominating to understand where the site is assessed to have strengths and weaknesses.
5. The assessment will be both objective and subjective, so while the scoring process will inform the package of recommendations to the Secretary of State, subjective judgement on that scoring process will also feature in the making of recommendations. The UKAEA will make the recommendations believed to be best aligned to the interests of the STEP programme at that time. The decision for the site of the Fusion Technical Centre will be with the Secretary of State for BEIS.
6. Gloucestershire County Council, Stroud District Council and South Gloucestershire Council were contacted by Nuclear South West (NSW), with regard to exploring the potential for making a bid into the STEP programme by siting the Fusion Technical Centre at the former nuclear power station sites at Oldbury and Berkeley. Following discussions with NSW and with Stroud District and South Gloucestershire Councils, SGS College Group, landowners and other partners it was agreed to put forward a joint nomination bid.

7. Delivery of a fusion power plant would be the first of its kind in the world and represents an exciting opportunity for the county. Clearly, with so many associated and legacy benefits linked to the site and across the wider region, the bidding process will be highly competitive.
8. The joint Berkeley/Oldbury submission is considered a strong contender with a number of advantages namely: the sites are licenced nuclear sites that sit next to a plentiful supply of sea water, with good access to existing nuclear specialist supply chains. Early discussions with the Site Stakeholder Groups for the existing Magnox stations were very supportive.
9. In addition, the wider area has a wide complimentary skills base and a supply chain including aerospace, robotics and new nuclear. This region still has the legacy knowledge, expertise and skills from the previous power plants. It is in close proximity of some of the leading research institutions, such as Bristol University, UWE, National College for Nuclear and proximity to the West Midlands' industrial skill base. The proposed site is also well connected to the current UKAEA fusion research centre at Culham (near Oxford).
10. There is also a compelling socio-economic and 'levelling-up' case to be made in this submission and hence the proposed adoption of the Western Gateway as lead entity. Developing this infrastructure and technology creates a distinct offer for the South Wales steel industry, for lithium extraction in Cornwall and for developing skills, technology and supply chain opportunities spanning the South-West, Western Gateway and Midlands Engine geographies.
11. The Working Group has been established with multiple partners across the South West, but notably Gloucestershire County Council, South Gloucestershire Council and Stroud District Council. The Councils are working with the Western Gateway, landowners, including Horizon Nuclear Power, Nuclear Decommissioning Agency (NDA), Magnox and South Gloucestershire and Stroud College (SGS) to investigate the potential for the joint nomination at the Oldbury (Horizon) site and the Berkeley (NDA/SGS) site.

Options

12. There are two options for Cabinet to consider:
 - A. Not to endorse the submission of a nomination bid for the former nuclear energy production sites at Berkeley and Oldbury to host a Fusion Technical Centre as part of the STEP programme. This would weaken the submission and could negatively impact future investment within the sub region.
 - B. To endorse the submission of a nomination bid to the UKAEA for the former nuclear energy production site at Berkeley and the new build site at Oldbury to host a world first fusion power plant and associated innovation centre and business park. This would enable a robust case to be made to the UKAEA. Being the host of the STEP programme has the potential to bring transformational benefits to the wider region in terms of business and supply

chain opportunities, education, training and skills as well as working towards the objective of sustainability and limitless safe, clean energy.

Risks

13. This is an initial site nomination process, if the bid successfully passes the initial Showstopper stage, then further in depth due diligence will be carried out by UKAEA as the site selection process progresses. This will be undertaken in conjunction with the local authorities, key partners and landowners. Any risks will be identified and assessed at the relevant stage of the process.

Financial implications

14. In support of the nomination process and ongoing support through the selection process a budget of up to £60,000 was approved by Council on 17th February 2021. Any expenditure in 2020/21 will be funded from existing budgets.
15. The funding will be used to procure necessary consultancy support required in relation to the production of regional socio economic data and analysis to help develop a compelling case for the joint submission.
16. Subject to the joint submission passing the Stage 1 selection process, additional consultancy support will be required during 2021/22 to provide expertise and intelligence as the site nomination process progresses in response to additional information requests.
17. Should the bid reach the final report stage, the UK Atomic Energy Authority will make a level of resource available for production of the Final Report stage.

Climate change implications

18. STEP is an ambitious 21-year programme to deliver a net energy prototype fusion power plant by 2040. The objective of STEP is to demonstrate the potential for fusion power to provide limitless safe, clean, low carbon energy.
19. If the prototype plant is successful in demonstrating its commercial viability, it could provide the prototype for energy production in the UK for the second half of the 21st Century. This would significantly support both national and local climate change commitments for becoming a carbon neutral county by 2050.

Equality implications

20. An Equalities Impact Assessment (EIA) has been completed.
21. Cabinet Members should read and consider the EIA in order to satisfy themselves as decision makers that due regard has been given.

Data Protection Impact Assessment (DPIA) implications

22. None

Social value implications

23. At this early stage the social value implications of the bid have not been fully quantified. Should the nomination bid be successful and progress to the 'Final Report' stage this will allow for a robust assessment to be undertaken as more detailed information on the proposed site are understood.

Consultation feedback

24. Stroud District Council and South Gloucestershire Council have held discussions with relevant members and officers, who were fully supportive of a joint approach.

25. A STEP Project Steering Group has been established with representatives of all three local authorities and key stakeholder partners such as: NSW; Business West; University of Bristol (South West Nuclear Hub); as well as the landowners – Horizon Nuclear Power; South Gloucestershire & Stroud College Group; the Nuclear Decommissioning Authority, Magnox and the Western Gateway. This group is leading on preparing the nomination form and managing the submission process.

Officer recommendations

26. That Cabinet endorses the submission by the Western Gateway (and Partners) of a bid nomination to the UK Atomic Energy Agency for the former nuclear energy production and new build sites at Berkeley and Oldbury to host a world first fusion power plant and associated innovation centre and business park as part of the STEP programme.

Performance Management/Follow-up

27. Officers from Gloucestershire County Council sit on the STEP Project Steering Group who will continue to meet on a regular basis to oversee and manage this project as it progresses through the assessment process. This group will manage any related performance issues in relation to additional information requests made by the UKAEA during the process to ensure the joint Berkeley and Oldbury bid is considered a robust proposition for siting the Fusion Technical Centre as part of the STEP programme.