

STROUD DISTRICT COUNCIL
COUNCIL

AGENDA
ITEM NO

18 MARCH 2021

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Report Title	PROPOSED PROTOTYPE FUSION POWER PLANT AND ASSOCIATED INNOVATION AND BUSINESS OPPORTUNITIES AT BERKELEY AND OLDBURY
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' (Spherical Tokamak for Energy Production) programme.
Decision(s)	Full Council RESOLVES to Endorse the submission by the Western Gateway (and partners) of a bid nomination to the UK Atomic Energy Agency (UKAEA) for the former nuclear energy production and new build sites at Berkeley and Oldbury, to host a prototype fusion power plant and associated innovation centre and business park.
Consultation and Feedback	<p>Members have been briefed about fusion technology and the opportunity at Berkeley and Oldbury. An initial all member briefing by Nuclear SW was held on 15 December 2020 and a follow up briefing is scheduled to take place on 16 March 2021. Following the briefing in December 2020, the Alliance Leadership agreed to explore the opportunity further.</p> <p>Gloucestershire County Council and South Gloucestershire Council have also held discussions with relevant members and officers, who were also fully supportive of exploring the opportunity at the Berkeley and Oldbury sites further with partners.</p> <p>A STEP Project Steering Group has been established with representatives of all three local authorities and key stakeholder partners, including: Nuclear SW, Business West, University of Bristol (South West Nuclear Hub), Horizon Nuclear Power; South Gloucestershire & Stroud College Group; the Nuclear Decommissioning Authority, Magnox and the Western Gateway. This group is leading on development of the nomination form and managing the submission process.</p>

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Options	There are essentially two options for Full Council to consider: A. <u>Not to endorse</u> the submission of a nomination bid to the UKAEA. This would weaken the submission and could negatively impact future investment within the locality and wider region. B. <u>To endorse</u> the submission of a nomination bid to the UKAEA. This would strengthen the submission and has the potential to bring significant benefits to the local area and wider region in terms of business and supply chain opportunities, education, training and skills as well as working towards the objective of securing more sustainable, safe and clean energy.			
Background Papers	<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) 			
Appendices	None			
Implications (further details at the end of the report)	Financial	Legal	Equality	Environmental
	Yes	No	Yes	Yes

1. BACKGROUND

- 1.1 The UK Atomic Energy Authority (UKAEA) has issued a ‘call’ to identify a site to host a world first prototype fusion energy reactor – known as the Spherical Tokamak for Energy Production (STEP) project.
- 1.2 Government has backed this announcement with an initial £220M STEP Programme, with potential for several billion pounds 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.
- 1.3 The background papers to this report explain that fusion plants have no carbon emissions, have an abundant fuel supply, are highly energy efficient and 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.
- 1.4 The site nomination process for the Fusion Technical Centre (STEP) began in autumn 2020, with the 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 is a nationwide process and there are a number of bids expected from different regions across the Country. Ultimately only one bid will be successful and, as explained further in the next section, the Berkeley and Oldbury nomination is viewed as one of the top candidates nationally.

- 1.5 The UKAEA site selection process will conclude in 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. Various assessment stages will be carried out prior to a final report stage, where up to three remaining candidate sites will be able to submit a greater level of detail to support their initial submissions.
- 1.6 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 final decision for the site of the Fusion Technical Centre will rest with the Secretary of State for BEIS.

2. THE BERKELEY AND OLDBURY BID NOMINATION

- 2.1 Gloucestershire County Council, Stroud District Council and South Gloucestershire Council were contacted by Nuclear South West (NSW) in autumn 2020, to raise 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. NSW is a south-west based cluster of public and private sector bodies, involved or engaged in nuclear activity and supply-chains. It is an influential and respected body with Central Government and has been an integral part of the growth of the nuclear sector. Members may be aware that the South West – and particularly Berkeley and Oldbury - led the world in the development of nuclear power. The region hosts a unique combination of specialist knowledge in high temperature reactor operation (Barnwood) and advanced engineering in nuclear and aerospace - both vital for fusion technology.
- 2.2 Following discussions between NSW, the three local authorities above, SGS College Group, landowners and other partners, it was agreed to explore the opportunity further and develop a joint nomination bid. To take this forward a Steering Group has been established to prepare and submit the site nomination by 31 March 2021. This Steering Group comprises the three local authorities, Nuclear South West, Business West, University of Bristol (South West Nuclear Hub), Local Enterprise Partnerships, West of England Combined Authority, Magnox and the Western Gateway as well as the landowners – Horizon Nuclear Power, South Gloucestershire & Stroud College Group and the Nuclear Decommissioning Authority.
- 2.3 Delivery of a fusion power plant would be the first of its kind in the world and – because of the scale of the investment and potential wider opportunities - the bidding process to host the plant and associated science and technical centre is expected to be highly competitive. It is also worth noting that the Secretary of State's decision for the preferred site will be made at a time when the Government is looking to rebalance the national economy by considering investment away from the south of the country. However, post pandemic, the need for economic reset will be felt across many regions, including the South West.
- 2.4 The joint Berkeley/Oldbury submission is considered to be a strong contender, with a number of advantages. Both sites are licenced nuclear sites adjacent to a plentiful

supply of sea water, with good access to existing specialist supply chains. Early discussion with the Site Stakeholder Groups for the existing Magnox stations at Berkeley and Oldbury have been very supportive. In addition, the wider area has a strong complementary 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 and is in close proximity to some of the leading research institutions, such as Bristol University, University of the West of England, National College for Nuclear and the West Midlands' industrial skill base. The proposed sites are also well connected to the current UKAEA fusion research centre at Culham (near Oxford).

- 2.5 There is a requirement for a lead entity to submit the bid nomination. Partners on the Project Steering Group agree that the most appropriate lead entity for the submission would be Western Gateway. Similar in purpose to the 'Northern Powerhouse' or 'Midlands Engine', Western Gateway is a rapidly emerging public and private sector partnership which has secure funding and formal recognition from Central Government. It is Chaired by Katherine Bennett CBE as an independent business chair. It covers eight cities (Swansea across to Wiltshire), 3 Local Enterprise Partnerships plus the Cardiff Capital Region and 11 Universities. The Chair and Secretariat have regular engagement with officers and ministers in relevant Government departments.
- 2.6 Members are advised that work on the bid nomination will continue right up to the deadline of 31 March 2021. Based on an assessment of the site search criteria – including a 'showstopper' requirement for the fusion reactor site to have 100ha available land – current thinking within the Steering Group is that the bid should name Oldbury as the focus for the siting of the STEP fusion reactor itself, with Berkeley hosting the Technical Centre, expanded skills offer and an ecology of related innovation businesses. UKAEA advice is that the innovation and business uses would be likely to come forward in the next 5-10 years and in advance of the fusion plant itself. It should be emphasised that this is the current thinking, and this may change either in the lead up to bid submission or at a later point, should the bid proceed beyond the initial stages.
- 2.7 There is a need to include a strong socio-economic and regional 'levelling-up' case in the bid nomination. Developing fusion related infrastructure and technology creates potential opportunities 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.
- 2.8 Local indicators of deprivation show that the Berkeley area ranks poorly in a number of areas, including housing quality, qualifications and associated opportunities for young people, income, educational attainment and skills, employment, barriers to housing, living environment and income deprivation amongst older people.
- 2.9 The project has the potential to complement regeneration initiatives in the immediate area. These include the further development of the Gloucestershire Science and Technology Park at Berkeley (with its emphasis on renewable energy and nuclear engineering). The Canal & River Trust, who own Sharpness Docks, have established a long term vision for an expanded commercial dock operation with a potential railhead, and a tourism-led mixed use development focus, taking advantage of the marina, canal, heritage, natural environment and undeveloped land. Also, the Council is currently sponsoring a bid to Government to reopen the Sharpness branch line for passenger services to provide a twice hourly service to Cam and Dursley (Bristol – Birmingham mainline) and Gloucester.

2.10 There is strong alignment between the Berkeley and Oldbury bid nomination and a number of key local and County wide policies and plans. For example, the current (2015) and emerging draft Local Plans for the District include policies relating to strategic growth and development locations, the former Berkeley Power Station and renewable or low carbon energy development. The draft Gloucestershire Local Industrial Strategy (2019) (GFirst Local Enterprise Partnership) includes commitments to put clean growth at the heart of new developments, to reduce carbon emissions to net zero by 2050 (with aspirations to go further and faster) and to deliver a vibrant business and education offer at Berkeley Science and Technology Park, as a hub for future low carbon technology innovators. Other significant policies and plans include the Gloucestershire Sustainable Energy Strategy (2019) and climate change commitments at both county and district levels.

3. IMPLICATIONS

3.1 Financial Implications

There are no financial implications for Stroud District Council at this stage. Should the bid pass the initial selection process, there may be a need to commission specialist support to respond to additional information requests and the Council has reserves which could be used to fund this. If the bid reaches the final report stage, the UK Atomic Energy Authority has stated that it will make a level of resource available to support this.

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3.2 Legal Implications

There are no legal implications arising from the recommendations in this report and any implications resulting from a successful bid would be considered at that time.

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3.3 Equality Implications

3.3.1 An Equality Impact assessment has been carried out in relation to the potential endorsement by this Council of a bid nomination by Western Gateway. At this stage, it is assessed that no particular groups will be affected differently in either a negative or positive way from a decision to endorse a bid. The potential socio-economic benefits are outlined in the body of the report.

3.4 Environmental Implications

3.4.1 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 make a major contribution to objectives of sustainability and safe, clean energy.

3.4.2 If the 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 could significantly support both national and local climate change commitments towards carbon neutrality.