



UK Atomic
Energy
Authority

NIA Fusion Group

Sarah Palmer
24 May 2022



Fusion: The ultimate energy source



**Deliver sustainable
fusion energy and maximise our
scientific and economic impact.**

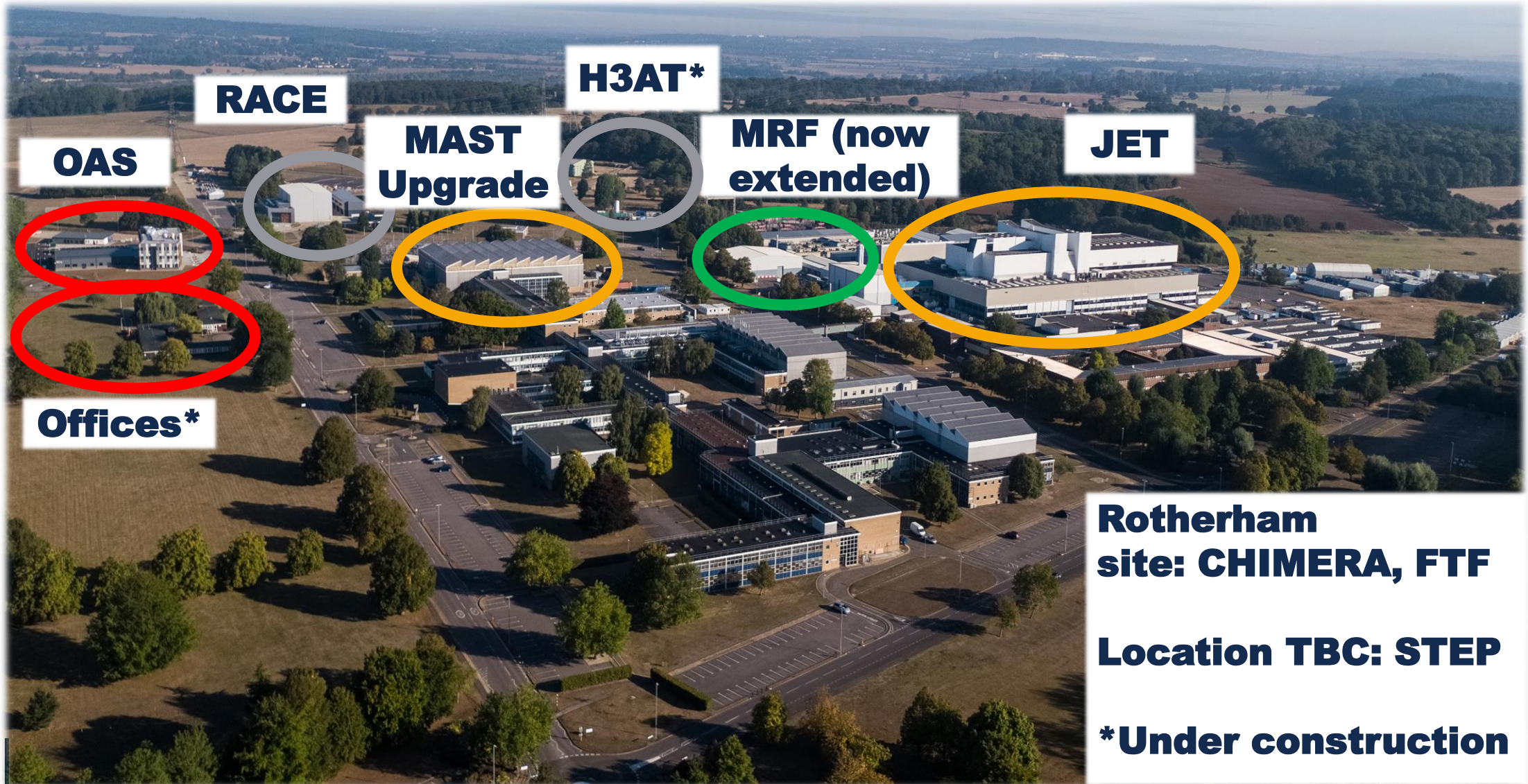


UKAEA's Mission Statement

The looming energy crisis emphasizes that we cannot rely on fossil fuels.

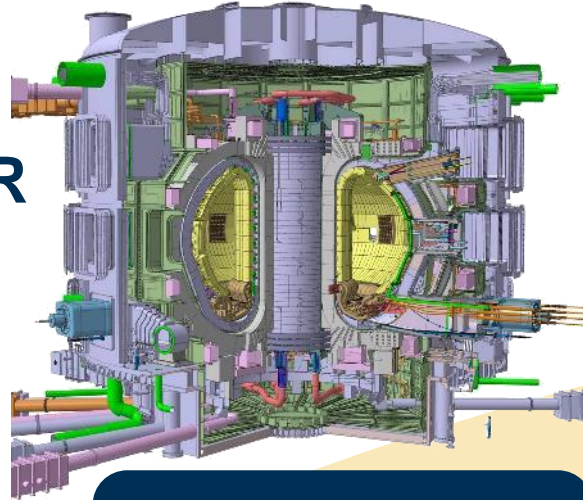


UKAEA is working across different areas to develop sustainable fusion.



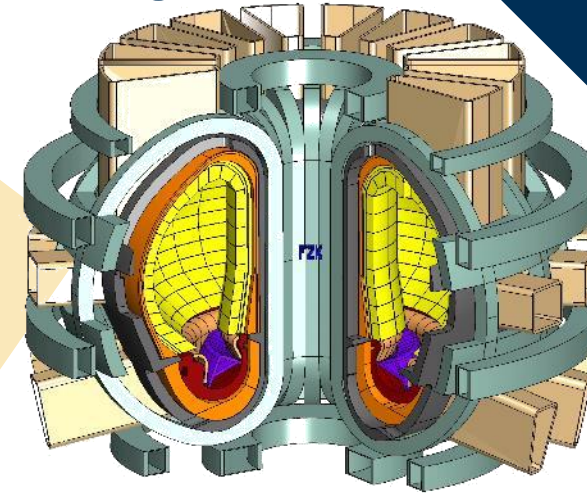
Goals on path to delivering fusion power

ITER

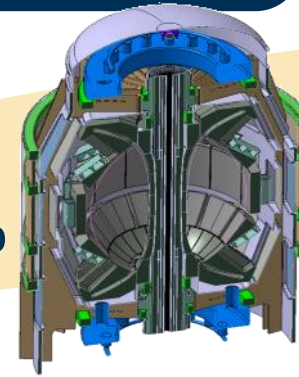


Drive economic growth
and high-tech jobs in the
UK in fusion and related
technologies

DEMO



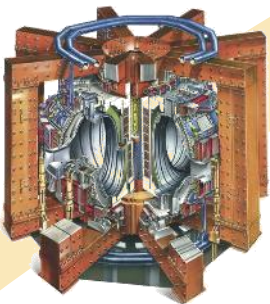
STEP



Be a world leader
in fusion research
and development

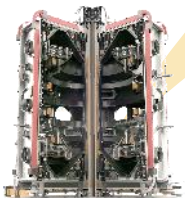
Enable the delivery
of sustainable fusion
power plants

JET



Create places that accelerate innovation and develop skilled people for
industry to thrive

MAST-U



OAS



RACE



MRF



H3AT



FTF



STEP **Spherical Tokamak for Energy Production**

Saranne Postans



Deliver a UK prototype fusion energy plant, targeting 2040, and a path to commercial viability of fusion.



STEP mission

Spherical Tokamak for Energy Production

- Predictable net electricity production
- Lower capital cost than other fusion power plant designs
- £220M investment for concept design by 2024



STEP high-level schedule

2021

2025

2030

2035

2040

Concept (till 3/24)

- ▶ Concept / Reference Plant Design
- ▶ Programme Development
- ▶ Site selection
- ▶ Transition to Target Operating Model

Detailed Design and Mobilisation

- ▶ Engineering Design
- ▶ Long lead procurement
- ▶ Early Manufacture
- ▶ Site development

Main Construction

- ▶ Full plant manufacture and assembly
- ▶ Full site development
- ▶ Equipment and system testing

Commissioning and Operations

- ▶ Non-active and active commissioning
- ▶ Prototype ops

The Future of Fusion



UKAEA at Culham, Oxfordshire

ITER at Cadarache, France

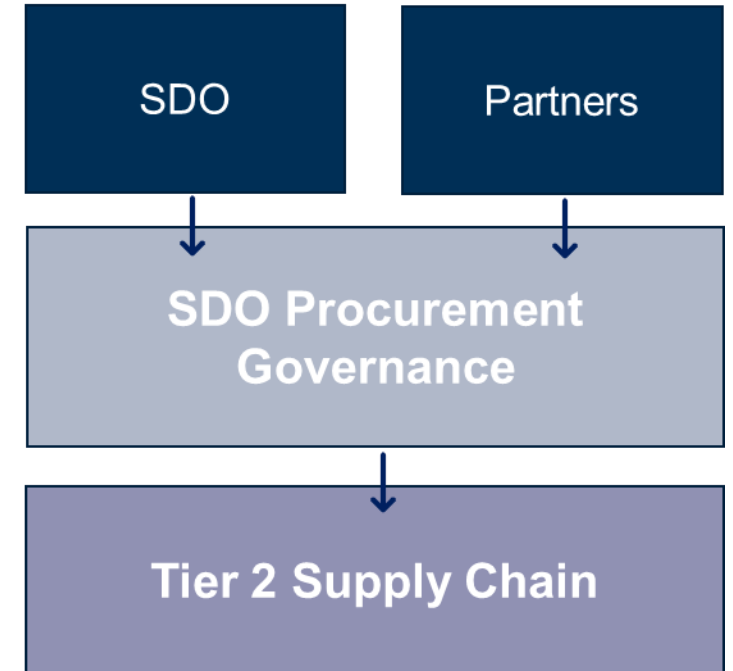
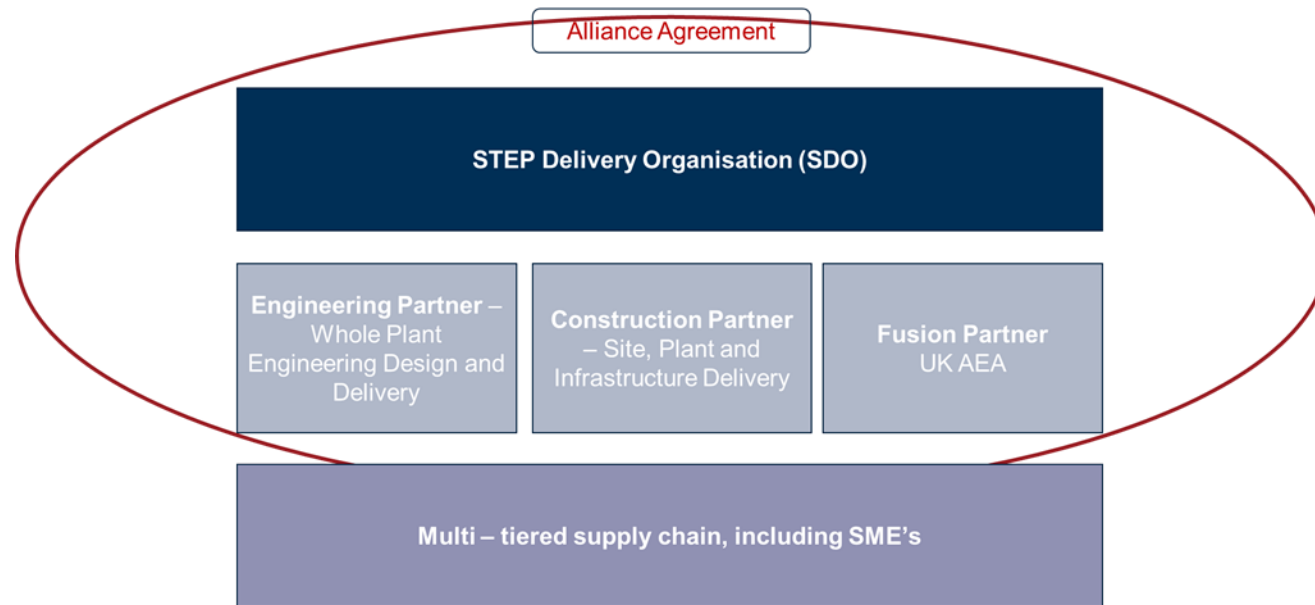


A future home for STEP

- Site selected – by end 2022
- Establish local presence
- Site development
- Consenting and permissioning
- Manufacturing and construction begins



Target Operating Model



Procurement Pipeline

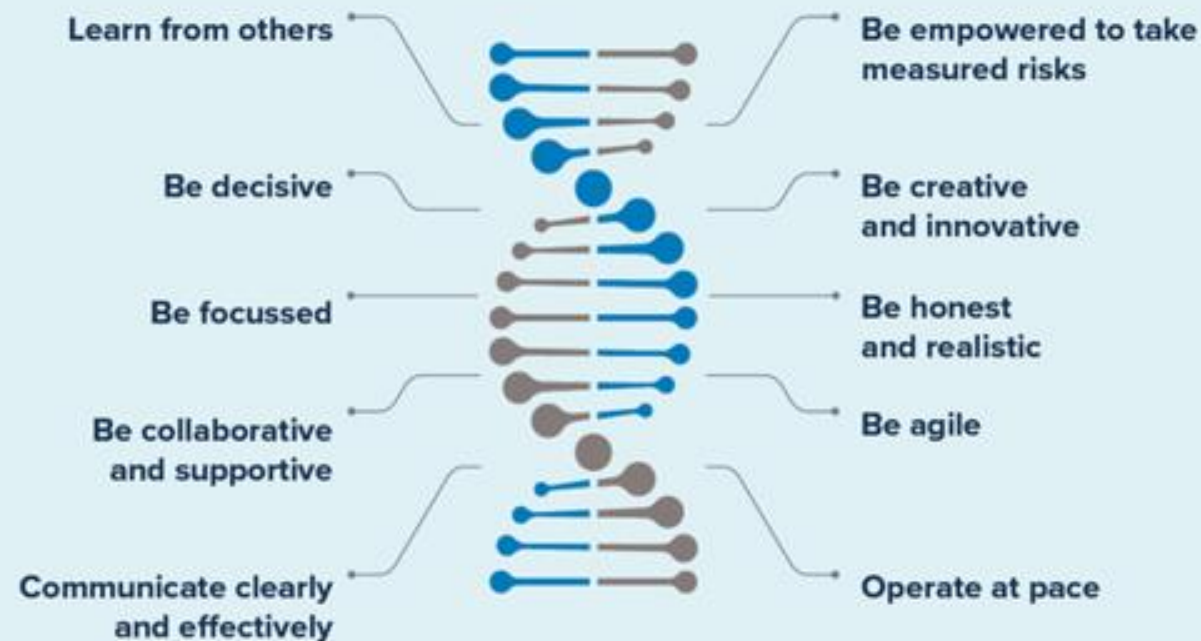
Title	Description	Contract Value	Contract Length
<p>STEP Engineering Partner - Whole Plant Engineering Design and Delivery</p>	<p>STEP Engineering Partner (EP)- Whole Plant Engineering Design and Delivery</p> <p>The current phase of the STEP programme (Tranche 1) concludes in April 2024 when, subject to approval, Tranche 2a will commence. This is the phase when STEP will develop from an embryonic programme with a concept design and a selected site, and contracted support; to a fully formed major programme bringing together and developing extensive industrial capabilities to deliver a full plant design, a viable supply chain and to seek the consents needed for construction.</p> <p>To enable delivery of Tranche 2a and beyond, UKAEA proposes to establish an appropriate programme leadership capability, potentially a new Special Purpose Vehicle (subject to approvals), which will establish an integrated delivery team with three strategic partners; an engineering partner (EP) (via this procurement), a construction partner (CP) (via a separate procurement) and a Fusion partner (FP) (already defined to be UKAEA). This team will work collaboratively, under joint incentivisation mechanisms to be developed. These partners will not only be core to delivery of the programme, but will secure market-leading experience and knowledge. Proprietary Value, including IP, is intended to be developed across all participating organisations.</p> <p>The EP will be a full member of the Integrated Delivery Team and, in collaboration with the wider team and the STEP leadership, will develop, design and deliver the STEP prototype plant (SPP). The EP will also manage the Engineering supply chain, taking direct responsibility for some sourcing decisions and working with the SSPV leadership on more significant procurements.</p> <p>The EP will work hand in hand with the other parts of the STEP delivery team to drive the integrated design of the STEP plant. This includes management of all engineering data, responsibility for the detailed design of SPP systems, equipment and components and contracting through the engineering supply chain. The EP will be responsible for manufacture and assembly of the plant components and will work with the Construction Partner to ensure the integrated design of key facilities to support overall operations of the SPP.</p>	<p>>£100m</p>	<p>c. 20 years</p>

Procurement Pipeline

Title	Description	Contract Value	Contract Length
STEP Construction Partner - Site, Plant and Infrastructure Delivery	<p>STEP Construction Partner (CP) - Site, Plant and Infrastructure Delivery</p> <p>The current phase of the STEP programme (Tranche 1) concludes in April 2024 when, subject to approval, Tranche 2a will commence. This is the phase when STEP will develop from an embryonic programme with a concept design and a selected site, and contracted support; to a fully formed major programme bringing together and developing extensive industrial capabilities to deliver a full plant design, a viable supply chain and to seek the consents needed for construction.</p> <p>To enable delivery of Tranche 2a and beyond, UKAEA proposes to establish an appropriate programme leadership capability, potentially a new Special Purpose Vehicle (subject to approvals), which will establish an integrated delivery team with three strategic partners; an engineering partner (EP) (via a separate procurement), a construction partner (CP) (via this procurement) and a Fusion partner (FP) (already defined to be UKAEA). This team will work collaboratively, under joint incentivisation mechanisms to be developed. These partners will not only be core to delivery of the programme, but will secure market-leading experience and knowledge. Proprietary Value, including IP, is intended to be developed across all participating organisations.</p> <p>The CP will be a full member of the Integrated Delivery Team and, in collaboration with the wider team and the STEP leadership, will manage and develop the STEP site, ensuring highest standards of safety.</p> <p>The CP will be responsible for effective asset management for all facilities across the site and management of the construction supply chain, taking direct responsibility for some sourcing decisions and working with the SPV leadership on more significant procurements. The CP will work with the EP and SDO Engineering Team to design and construct all buildings and facilities on the STEP site.</p>	>£100m	c. 20 years

STEP Programme Charter

It's in our DNA



INCLUSIVE

STEP OFFICIAL



TRANSPARENT



**KIND AND
COMPASSIONATE**



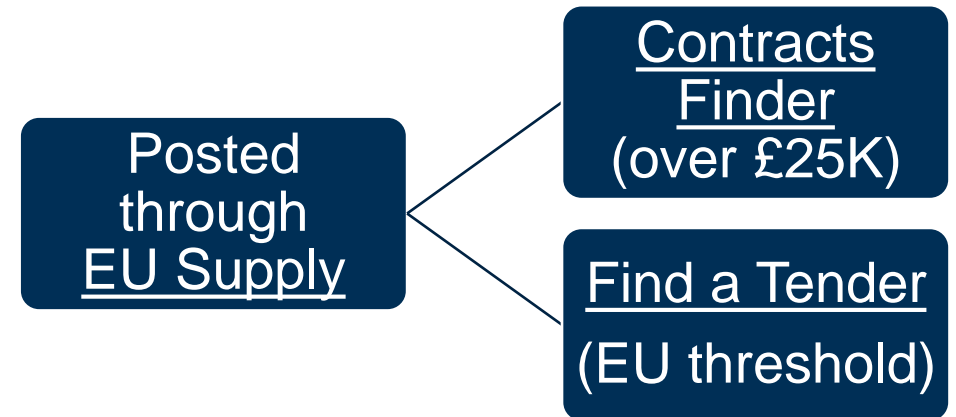
**AMBITIOUS, TENACIOUS
AND PIONEERING**



**AGILE AND
PRAGMATIC**

UKAEA opportunities

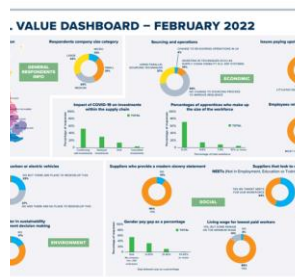
- Governed by public sector procurement policies
 - E.g., Public Contracts Relations (2015)
- **Key obligations:**
 - Be open and transparent
 - Encourage open competition
 - Provide a level playing field to ensure fair competition and equal treatment of all suppliers



Key supplier resources



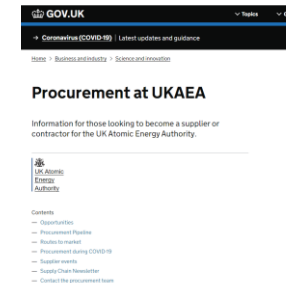
**SOCIAL VALUE
CHARTER**



**SOCIAL VALUE
DASHBOARD –
FEBRUARY 22**



**SUPPLY CHAIN
CHARTER**



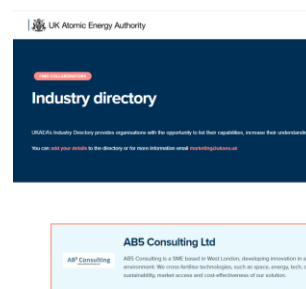
**PROCUREMENT
PAGE**



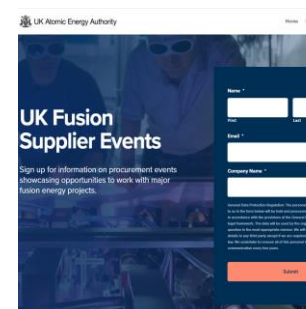
**SUPPLY CHAIN
NEWSLETTER**



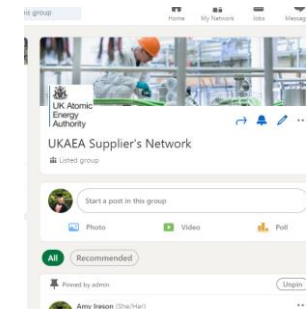
**PROCUREMENT
PIPELINE**



**INDUSTRY
DIRECTORY**



**SUPPLIER
MAILING LIST**



**LINKEDIN
SUPPLIER'S
GROUP**

How to find out more...

Useful links:

- [Gov.uk page](#)
- [Procurement page](#)
- [STEP page](#)
- [Social Value Dashboard](#)
- [Supply Chain Charter](#)
- [Procurement Pipeline](#)
- [Modern Slavery Statement](#)
- [Supply Chain Newsletter](#)
- [Supplier mailing list](#)



Thank you

Any questions?

If you'd like to find out more about fusion, UKAEA or STEP, please take a look at these resources:

<https://www.gov.uk/government/organisations/uk-atomic-energy-authority>

<https://ccfe.ukaea.uk/>

www.step.ukaea.uk

<https://www.youtube.com/channel/UCyb9vG8oLE4XvZZLYpcDcFw>

For the procurement pipeline, please visit:

<https://www.gov.uk/government/publications/ukaea-procurement-pipeline>