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Tender

Demonstration of simulation capability on UKAEA's Industry Simulation Software for Fusion case studies

UK Atomic Energy Authority

UK4: Tender notice - Procurement Act 2023 - [view information about notice types](#)

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Procurement identifier (OCID): ocds-h6vhtk-051791

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Scope

Reference

T/GW055/25

Description

Industry provides simulation software and methods covering a wide range of capability, deployed across all engineering sectors, much of which will be invaluable for use in the design and operation of fusion reactors in a Fusion energy industry. However, the extent to which existing capability is sufficient to facilitate design and realisation of commercial fusion powerplants is not clearly defined. Industry Simulation Software for Fusion is a multi-year rolling project aiming to define Fusion relevant analysis and simulation case studies and use them as a formal basis to engage industry for evaluation of their simulation software capability and identify development needs. The case studies to be submitted will span the full range of domains relevant to realisation of fusion as an energy source, with a mixture of single and multi-domain scenarios and involving use of a variety of methods and techniques. A total of four case study areas are covered in this procurement exercise.

Total value (estimated)

- £420,000 excluding VAT
- £504,000 including VAT

Above the relevant threshold

Contract dates (estimated)

- 7 July 2025 to 28 February 2026
- 7 months, 25 days

Main procurement category

Services

Not the same for all lots

CPV classifications and contract locations are shown in Lot sections, because they are not the same for all lots.

Lot LOT-0001. Lot 1 - A neutronics-thermal-structural analysis

Description

Case Study - A neutronics-thermal-structural analysis for fusion software.

Lot value (estimated)

- £105,000 excluding VAT
- £126,000 including VAT

CPV classifications

- 72212100 - Industry specific software development services

Contract locations

- UKJ14 - Oxfordshire

Same for all lots

Contract dates are shown in the Scope section, because they are the same for all lots.

Lot LOT-0002. Lot 2 - Structural response of thin structures to induced electromagnetic loads

Description

Case Study - for a structural response of thin structures to induced electromagnetic loads

Lot value (estimated)

- £105,000 excluding VAT

- £126,000 including VAT

CPV classifications

- 72212422 - Software development services suites

Contract locations

- UKJ - South East (England)

Same for all lots

Contract dates are shown in the Scope section, because they are the same for all lots.

Lot LOT-0003. Lot 3 - Reliability analysis of monoblock failure

Description

Case Study - Reliability analysis of monoblock failure

Lot value (estimated)

- £105,000 excluding VAT
- £126,000 including VAT

CPV classifications

- 72212517 - IT software development services

Contract locations

- UK - United Kingdom

Same for all lots

Contract dates are shown in the Scope section, because they are the same for all lots.

Lot LOT-0004. Lot 4 - Liquid metal magnetohydrodynamics in non-uniform magnetic fields and subject to external heating

Description

Case Study -for a liquid metal magnetohydrodynamics in non-uniform magnetic fields and subject to external heating.

Lot value (estimated)

- £105,000 excluding VAT
- £126,000 including VAT

CPV classifications

- 72212983 - Development software development services

Contract locations

- UKJ1 - Berkshire, Buckinghamshire and Oxfordshire

Same for all lots

Contract dates are shown in the Scope section, because they are the same for all lots.

Participation

Legal and financial capacity conditions of participation

Lot LOT-0001. Lot 1 - A neutronics-thermal-structural analysis

Refer to ITT documents on EU Supply for further information. Registration required.

Lot LOT-0002. Lot 2 - Structural response of thin structures to induced electromagnetic loads

Lot LOT-0003. Lot 3 - Reliability analysis of monoblock failure

Lot LOT-0004. Lot 4 - Liquid metal magnetohydrodynamics in non-uniform magnetic fields and subject to external heating

Please refer to ITT documents on EU Supply Portal for further information. Registration required.

Technical ability conditions of participation

Lot LOT-0001. Lot 1 - A neutronics-thermal-structural analysis

Refer to ITT documents on EU Supply for further information. Registration required.

Lot LOT-0002. Lot 2 - Structural response of thin structures to induced electromagnetic loads

Lot LOT-0003. Lot 3 - Reliability analysis of monoblock failure

Lot LOT-0004. Lot 4 - Liquid metal magnetohydrodynamics in non-uniform magnetic fields and subject to external heating

Please refer to ITT documents on EU Supply Portal for further information. Registration

required.

Particular suitability

Lot LOT-0001. Lot 1 - A neutronics-thermal-structural analysis

Lot LOT-0002. Lot 2 - Structural response of thin structures to induced electromagnetic loads

Lot LOT-0003. Lot 3 - Reliability analysis of monoblock failure

Lot LOT-0004. Lot 4 - Liquid metal magnetohydrodynamics in non-uniform magnetic fields and subject to external heating

- Small and medium-sized enterprises (SME)
- Voluntary, community and social enterprises (VCSE)

Submission

Enquiry deadline

18 June 2025, 12:00am

Tender submission deadline

18 June 2025, 12:00pm

Submission address and any special instructions

https://uk.eu-supply.com/app/rfq/rwlenrance_s.asp?PID=94072&B=

Tenders may be submitted electronically

Yes

Languages that may be used for submission

English

Award decision date (estimated)

1 July 2025

Award criteria**Lot LOT-0001. Lot 1 - A neutronics-thermal-structural analysis**

Name	Description	Type	Order of importance
Quality technical	Pass/fails Software is pre existing, applicable to the case study and can have new/enhanced capability in future. Extension is demonstrably applicable to the case study and extension to capability is available to UKAEA. Or extension not required.	Quality	1

Name	Description	Type	Order of importance
Assessed	Simulate thermal Response Simulate structural response One-directional workflow with third party neutronics Co-simulation with third party neutronics Third party solver via Python API Co-simulation accelerators and extrapolators Model probalistic neutronics Model deterministic neutronics Social Value	Quality	2

Lot LOT-0002. Lot 2 - Structural response of thin structures to induced electromagnetic loads

Name	Description	Type	Order of importance
Quality technical	Pass fails. Software is pre existing, applicable to the case study and can have new/enhanced capability in future. Extension is demonstrably applicable to the case study and extension to capability is available to UKAEA. Or extension not required.	Quality	1

Name	Description	Type	Order of importance
Assessed	Simulate induced currents Simulate magnetic field from bulk current Simulate magnetic field from volumetric current density field Compute Lorentz forces Map volumetric loads Import volumetric current density Simulate structural response using shell elements Social Value	Quality	2

Lot LOT-0003. Lot 3 - Reliability analysis of monoblock failure

Name	Description	Type	Order of importance
Technical quality	Software is pre existing, applicable to the case study and can have new/enhanced capability in future. Pass/fail Extension is demonstrably applicable to the case study and extension to capability is available to UKAEA. Or extension not required. Pass/Fail	Quality	1

Name	Description	Type	Order of importance
Assessed	Simulate induced currents Simulate magnetic field from bulk current Simulate magnetic field from volumetric current density field Compute Lorentz forces Map volumetric loads Import volumetric current density Simulate structural response using shell elements Social Value	Quality	2

Lot LOT-0004. Lot 4 - Liquid metal magnetohydrodynamics in non-uniform magnetic fields and subject to external heating

Name	Description	Type	Order of importance
Technical quality	Software is pre existing, applicable to the case study and can have new/enhanced capability in future. Extension is demonstrably applicable to the case study and extension to capability is available to UKAEA. Or extension not required.	Quality	1
Assessed	3D Problems Liquid metal MHD with inductionless approximation Modelling effects of currents and heat transfer Modelling MHD in non-uniform magnetic fields Capture mixed/free convection in MHD Modelling turbulent flow Social Value	Quality	2

Other information

Payment terms

In arrears on completion and submission of work.

Description of risks to contract performance

This is a time limited exercise with all submissions required by 30 January 2026. No on-going contract will be in place with no fixed costs or service provision beyond the case study returns required.

Applicable trade agreements

- Government Procurement Agreement (GPA)

Conflicts assessment prepared/revised

Yes

Procedure

Procedure type

Open procedure

Contracting authority

UK Atomic Energy Authority

- Public Procurement Organisation Number: PLJV-1169-JTDD

Culham Science Centre

Oxfordshire

OX14 3DB

United Kingdom

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

Region: UKJ14 - Oxfordshire

Organisation type: Public authority - central government