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Planning

Water-Cooled Lithium Lead (WCLL) Loop: Design and Manufacture

United Kingdom Atomic Energy Authority

F01: Prior information notice
Prior information only
Notice identifier: 2021/S 000-028274
Procurement identifier (OCID): ocds-h6vhtk-02f5df
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Section I: Contracting authority

I.1) Name and addresses

United Kingdom Atomic Energy Authority

Culham Science Centre

Abingdon

OX14 3DB

Contact

Abigail Woods

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Country

United Kingdom

NUTS code

UKJ14 - Oxfordshire

National registration number

N/A

Internet address(es)

Main address

http://www.gov.uk/government/organisations/uk-atomic-energy-authority

Buyer's address

https://uk.eu-supply.com/ctm/Company/CompanyInformation/Index/72814

I.3) Communication

The procurement documents are available for unrestricted and full direct access, free of charge, at

https://uk.eu-supply.com/app/rfq/rwlentrance_s.asp?PID=40617&B=UK

Additional information can be obtained from the above-mentioned address

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Other activity

Fusion Research

Section II: Object

II.1) Scope of the procurement

II.1.1) Title

Water-Cooled Lithium Lead (WCLL) Loop: Design and Manufacture

Reference number

T/PJP253/21

II.1.2) Main CPV code

- 09300000 - Electricity, heating, solar and nuclear energy

II.1.3) Type of contract

Supplies

II.1.4) Short description

The UK Government has given UKAEA the goal to maintain the UK's position as a world leader in fusion research and development. As part of this the UKAEA Fusion Technology Facilities (FTF) is establishing a new facility at the Advanced Manufacturing Park (AMP) in Rotherham, Yorkshire. This facility considers the full development cycle from materials technology, to advanced manufacturing and joining, to component testing and will be the home to the Combined Heating and Magnetic Research Apparatus (CHIMERA) test facility.

A future upgrade proposed for CHIMERA is the addition of a liquid lithium-lead (LiPb) circulation loop located within the existing high-field magnetic field (Figure 1). This upgrade would enable the capability for Water-Cooled LiPb (WCLL) Breeder Zone (BZ) testing under high magnetic field and flux after 2024 to enable heat transfer experiments at component scale but also aid fusion system design.

II.1.6) Information about lots

This contract is divided into lots: No

II.2) Description

II.2.2) Additional CPV code(s)

- 14712000 - Lead

- 14784000 - Lithium
- 42120000 - Pumps and compressors
- 42122000 - Pumps
- 42122100 - Pumps for liquids
- 42150000 - Nuclear reactors and parts
- 51000000 - Installation services (except software)
- 51100000 - Installation services of electrical and mechanical equipment
- 51110000 - Installation services of electrical equipment
- 51120000 - Installation services of mechanical equipment
- 51210000 - Installation services of measuring equipment
- 51230000 - Installation services of testing equipment
- 51500000 - Installation services of machinery and equipment
- 51611100 - Hardware installation services
- 71241000 - Feasibility study, advisory service, analysis
- 71242000 - Project and design preparation, estimation of costs
- 71300000 - Engineering services
- 71310000 - Consultative engineering and construction services
- 71314100 - Electrical services
- 71318000 - Advisory and consultative engineering services
- 71323100 - Electrical power systems design services
- 71330000 - Miscellaneous engineering services
- 71333000 - Mechanical engineering services
- 71334000 - Mechanical and electrical engineering services
- 71335000 - Engineering studies
- 71336000 - Engineering support services
- 71340000 - Integrated engineering services

- 71350000 - Engineering-related scientific and technical services
- 71356000 - Technical services
- 71600000 - Technical testing, analysis and consultancy services
- 71620000 - Analysis services
- 71621000 - Technical analysis or consultancy services
- 73000000 - Research and development services and related consultancy services
- 73100000 - Research and experimental development services
- 73120000 - Experimental development services
- 73200000 - Research and development consultancy services
- 73210000 - Research consultancy services
- 73220000 - Development consultancy services
- 73300000 - Design and execution of research and development
- 73430000 - Test and evaluation

II.2.3) Place of performance

NUTS codes

- UKJ14 - Oxfordshire

II.2.4) Description of the procurement

The UK Government has given UKAEA the goal to maintain the UK’s position as a world leader in fusion research and development. As part of this the UKAEA Fusion Technology Facilities (FTF) is establishing a new facility at the Advanced Manufacturing Park (AMP) in Rotherham, Yorkshire. This facility considers the full development cycle from materials technology, to advanced manufacturing and joining, to component testing and will be the home to the Combined Heating and Magnetic Research Apparatus (CHIMERA) test facility.

The design and construction of CHIMERA is currently underway after the award of a major contracts agreed for both construction and supply of superconducting magnet components and overall facility construction and commissioning.

Once constructed the initial test conditions offered in CHIMERA will be:

• Test module heating: 0.5 MW/m2 over the module surface and 100 kW available for internal heating.

• Magnets: up to 4 T horizontal field with high spatial gradients, combined with rapidly pulsed vertical 0.5 T field to simulate a plasma disruption.

• Test module water cooling: up to “PWR” conditions, 155 bar and 330 °C.

• Testing under vacuum to 10-5 mbar.

• Test module approximate max volume (in pulse magnet mode): 0.5 m x 1.7 m x 0.7 m.

A future upgrade proposed for CHIMERA is the addition of a liquid lithium-lead (LiPb) circulation loop located within the existing high-field magnetic field (Figure 1). This upgrade would enable the capability for Water-Cooled LiPb (WCLL) Breeder Zone (BZ) testing under high magnetic field and flux after 2024 to enable heat transfer experiments at component scale but also aid fusion system design.

II.3) Estimated date of publication of contract notice

1 March 2022

Section IV. Procedure

IV.1) Description

IV.1.8) Information about the Government Procurement Agreement (GPA)

The procurement is covered by the Government Procurement Agreement: No