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Award

Particle accelerator system for the production of standard neutron fields to replace existing Van de Graff accelerator

National Physical Laboratory

F15: Voluntary ex ante transparency notice

Notice identifier: 2023/S 000-005794

Procurement identifier (OCID): ocds-h6vhtk-03acb3

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Section I: Contracting authority/entity

I.1) Name and addresses

National Physical Laboratory

Hampton Road

Teddington

TW11 0LW

Email

nina.heath@npl.co.uk

Country

United Kingdom

Region code

UK - United Kingdom

Internet address(es)

Main address

www.npl.co.uk

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Other activity

Research

Section II: Object

II.1) Scope of the procurement

II.1.1) Title

Particle accelerator system for the production of standard neutron fields to replace existing Van de Graff accelerator

II.1.2) Main CPV code

- 38000000 - Laboratory, optical and precision equipments (excl. glasses)

II.1.3) Type of contract

Supplies

II.1.4) Short description

A particle accelerator capable of accelerating protons and deuterons to any energy between 200 keV and 4 MeV. The system will produce a DC ion beam with a maximum beam current of at least 300 μ A. The system will include ion source(s), accelerator, beamlines, switching magnet, ion optics/monitoring and control systems. The system will interface with building

utilities and safety systems. The accelerator will be used primarily for producing neutron standards, but also opens up options for charged particle irradiations for materials analysis and nuclear physics experiments.

II.1.6) Information about lots

This contract is divided into lots: No

II.1.7) Total value of the procurement (excluding VAT)

Value excluding VAT: £4,000,000

II.2) Description

II.2.3) Place of performance

NUTS codes

- UK - United Kingdom

Main site or place of performance

NPL Management Ltd

Hampton Road

Teddington

TW11 0LW

II.2.4) Description of the procurement

The accelerator system will be capable of delivering accelerated ion beams to neutron producing targets (targets not included in procurement). The system will include:

- 2 multicusp ions sources to produce protons, deuterons and helium ions
- Pulser/buncher system to produce pulses approximately 2 ns wide at frequencies up to 4 MHz
- 2 MV Tandetron accelerator to accelerate protons and deuterons from 200 keV to 4 MeV and helium ions up to 8 MeV

- Switching/analysing magnet
- 2 beamlines (approx. 14 m and 7 m long) with associated ion optics (electrostatic quadrupoles) and monitoring (faraday cups and profile monitors)
- Computer control system and software

The ion sources, pulser/buncher, accelerator and switching/analysing magnet will fit in the existing accelerator room (approx. 11 x 8.5 m) and the beamlines will extend into the neighbouring experimental area. The procurement will include transportation, on-site acceptance testing, training of personnel and equipment warranty.

II.2.5) Award criteria

Cost criterion - Name: Technical / Weighting: 80

Cost criterion - Name: Commercial / Weighting: 20

II.2.11) Information about options

Options: No

II.2.13) Information about European Union Funds

The procurement is related to a project and/or programme financed by European Union funds: No

Section IV. Procedure

IV.1) Description

IV.1.1) Type of procedure

Award of a contract without prior publication of a call for competition in the cases listed below

- The procurement falls outside the scope of application of the regulations

Explanation:

The technological solution required by this project is an electrostatic accelerator and there is only 1 company globally that produce electrostatic accelerators with the required specifications, High Voltage Engineering (HVE).

The unique features of the HVE solution are as follows:

- The high voltage generation equipment is based on a Cockcroft-Walton generator and has no moving parts. This results in a highly stable terminal voltage and low electronic noise and voltage ripple. This results in a better beam energy resolution when compared to other similar accelerators. It also simplifies the machine operation, increases the machine reliability, dramatically reducing maintenance burden.
- The accelerator is able to produce higher beam currents than similar machines. Higher beam current means the production of higher neutron fluences which are required for planned research and new measurement services.
- The manufacturer is based in Europe and regulatory alignment to the UK is beneficial. Additional benefits, such as a proximity and similar time zone make the project and ongoing logistics easier (i.e. factory visits, future maintenance).

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

The procurement is covered by the Government Procurement Agreement: Yes

Section V. Award of contract/concession

A contract/lot is awarded: Yes

V.2) Award of contract/concession

V.2.1) Date of conclusion of the contract

28 February 2023

V.2.2) Information about tenders

The contract has been awarded to a group of economic operators: No

V.2.3) Name and address of the contractor/concessionaire

High Voltage Engineering Europa B.V.

Postbus 99

AMERSFOORT

3800AB

Country

Netherlands

NUTS code

- NL - Netherlands

The contractor/concessionaire is an SME

Yes

V.2.4) Information on value of contract/lot/concession (excluding VAT)

Total value of the contract/lot/concession: £4,000,000

V.2.5) Information about subcontracting

The contract/lot/concession is likely to be subcontracted

Section VI. Complementary information

VI.4) Procedures for review

VI.4.1) Review body

NPL Management Ltd

Hampton Road

Teddington

TW11 0LW

Country

United Kingdom

VI.4.2) Body responsible for mediation procedures

NPL Management Ltd

Hampton Road

Teddington

TW11 0LW

Country

United Kingdom