Tender

TENDER FOR THE BULK SUPPLY OF LIQUID CARBON DIOXIDE - UNIVERSITY OF BIRMINGHAM

UNIVERSITY OF BIRMINGHAM

F02: Contract notice
Notice identifier: 2021/S 000-012567
Procurement identifier (OCID): ocds-h6vhtk-02b889
Published 4 June 2021, 1:34pm

Section I: Contracting authority

I.1) Name and addresses

UNIVERSITY OF BIRMINGHAM

Chancellors Court,Edgbaston

BIRMINGHAM

B152TT

Contact

Thomas Hasson

Email

t.r.hasson@bham.ac.uk

Country

United Kingdom

NUTS code

UKG - West Midlands (England)

Internet address(es)

Main address

https://www.birmingham.ac.uk/index.aspx

I.3) Communication

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

www.in-tendhost.com/universityofbirmingham

Additional information can be obtained from the above-mentioned address

Tenders or requests to participate must be submitted electronically via

www.in-tendhost.com/universityofbirmingham

I.4) Type of the contracting authority

Body governed by public law

I.5) Main activity

Education

Section II: Object

II.1) Scope of the procurement

II.1.1) Title

TENDER FOR THE BULK SUPPLY OF LIQUID CARBON DIOXIDE - UNIVERSITY OF BIRMINGHAM

Reference number

FRAM514/21

II.1.2) Main CPV code

- 24100000 - Gases

II.1.3) Type of contract

Supplies

II.1.4) Short description

The University has a requirement for basic food grade carbon dioxide (CO2) for a five year period to support the Birmingham Institute of Forest Research (BIFoR). This project is high profile and far reaching, exploring the long term effects of elevated CO2 on forests. Based in the Staffordshire area, this project is led by the University of Birmingham and is one of only two such projects (other is in Australia) currently running in the World, exploring the real long term impact of CO2 on forest ecology and health.

The experiment consists of six arrays of towers within a woodland, each 30 m across, which extend from the ground to the top of the trees. CO2 will be released within three of these rings, while the other three will act as control plots and receive ambient air only.

CO2 is stored in 3 x 40,000kg (40 tonnes) capacity Storage Vessels under pressure as a liquid. The liquid CO2 is converted to a gas using ambient heat vaporisers and transported in pipes through the woodland to the experimental arrays. Here, it is diluted with normal air until the level reaches ~550 parts per million (ppm) before being released into the research woodland arrays. Sensors within the array are used by a computer to automatically adjust the amount and direction of released CO2 according to the speed and direction of the wind. The findings will be published as part of the argument on the long-term impacts of CO2. The facility has been in full operation since April 2016 and has been using CO2 product to deliver the experimental conditions since April 2017 to date. The University of Birmingham own and operate all the storage and delivery infrastructure related to bulk liquid CO2.

To operate the project effectively and to ensure a high level of robustness in the findings of the research a minimum quantity of 4,000 tonnes per annum (a possible maximum use of 7,250 per year) from April 2022. Thus, a total projected requirement would range from 20,000 tonnes to 36,250 tonnes from April 2022 to April 2027. Variations in volume will be determined by a variety of local environmental conditions, namely, number of daylight hours, wind speeds and ambient temperature. The average consumption of liquid CO2 has been 4,391 ± 1,866 tons per year but there are considerable month to month variations. Historically, the highest demand is in April (~900 tons) and demand drops each subsequent month until October (~600 tons) when supply to the arrays is in early November.

The delivery requirement would be most likely to be two deliveries per day from a known/reported point source. The source must also be of fossil fuel origin e.g. ammonia production. Deliveries of product will be required during the growing period lasting approximately from late-March to early-November.

II.1.5) Estimated total value

Value excluding VAT: £1

II.1.6) Information about lots

This contract is divided into lots: No

II.2) Description

II.2.3) Place of performance

NUTS codes

- UKG - West Midlands (England)

II.2.4) Description of the procurement

The University has a requirement for basic food grade CO2 for a five year period to support the Birmingham Institute of Forest Research (BIFoR). This project is high profile and far reaching, exploring the long term effects of CO2 on forests. This project is based in the Staffordshire area and is led by the University of Birmingham. It is one of only two such projects currently running in the World, exploring the real long term impact of CO2 on forest ecology and health.

This high-profile research project has been commissioned by the University to develop a real understanding of the long-term impact of CO2 on mature forest; the findings will also be published as part of the argument on the long-term impacts of CO2.

To operate the project effectively and to ensure a high level of robustness in the findings of the research a minimum quantity of 4,000 tonnes per annum (a possible maximum use of 7,250 per year) from April 2017. Thus, a total projected requirement would range from 20,000 tonnes to 36,250 tonnes from April 2022 to April 2027. Variations in volume will be determined by a variety of local environmental conditions, namely, number of daylight hours, wind speeds and ambient temperature. The average consumption of liquid CO2 has been 4,391 ± 1,866 tons per year but there is considerable month to month variations, but historically, the highest demand is in April (~900 tons) and demand drops each subsequent month until October (~600 tons).

The delivery requirement would be most likely to be two deliveries per day. Deliveries will be required during the growing period lasting approximately from March to mid-November.

The experimental system became operational in spring 2016 and is designed to run for more than a decade until November 2026.

BIFoR Free-Air Carbon Dioxide Enrichment (FACE) CO2 storage and distribution delivery arrangements are detailed as follows;

a) CO2 will be delivered to site by tanker and transferred to insulated storage vessels. The storage vessels will be equipped with refrigeration and heating units to maintain a pressure of 1725kPa to ensure the CO2 is in the liquid phase irrespective of demand.

b) To ensure continuity of supply during the operation season the storage vessels will have a capacity of approximately 140 tons based on a weekly use of 190 tons through the growing season (nominally April - October inclusive).

c) Storage vessels will be maintained at 100+ tons at all times during the operating season. Storage levels below 100 tons should be considered the call off point for resupply.

d) It is important that a supplier will be able to guarantee supply security of the CO2 throughout the operation period from a majority single point source.

e) The need to secure supply from a single CO2 source (i.e. from fertiliser production or cement or brewing but not a mix of all three). This is important because the isotopic signature of the CO2 varies with the source it comes from. Please report the carbon-13 isotope ratio in your supply and provide details of how and when that isotopic signature might vary (e.g., as a result of change of natural gas feedstock).

II.2.5) Award criteria

Quality criterion - Name: Compliance to the Specifications / Weighting: 25

Quality criterion - Name: After Sales and Technical back up / Weighting: 10

Quality criterion - Name: Delivery and Training / Weighting: 10

Quality criterion - Name: Sustainability and Environmental / Weighting: 5

Quality criterion - Name: Standard Supplier Questionnaire (SQ) Part 1 and Part 2 / Weighting: 10

Price - Weighting: 40

II.2.6) Estimated value

Value excluding VAT: £1

II.2.7) Duration of the contract, framework agreement or dynamic purchasing system

Duration in months

60

This contract is subject to renewal

No

II.2.10) Information about variants

Variants will be accepted: No

II.2.11) Information about options

Options: No

II.2.14) Additional information

Contract Value has been published at the FTS minimum £1 to encourage competition. 3 scenarios have been included with the Tender Documents Pricing Schedule.

Section IV. Procedure

IV.1) Description

IV.1.1) Type of procedure

Open procedure

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

The procurement is covered by the Government Procurement Agreement: Yes

IV.2) Administrative information

IV.2.2) Time limit for receipt of tenders or requests to participate

Date

5 July 2021

Local time

11:00am

IV.2.4) Languages in which tenders or requests to participate may be submitted

English

IV.2.7) Conditions for opening of tenders

Date

5 July 2021

Local time

12:00pm

Section VI. Complementary information

VI.1) Information about recurrence

This is a recurrent procurement: No

VI.4) Procedures for review

VI.4.1) Review body

The University of Birmingham

Edgebaston

Birmingham

B15 2TT

Country

United Kingdom