TENDER DOCUMENT

Reprocessing of 2D seismic data acquired in the Jan Mayen Ridge and the Møre Marginal High

(Ref. no 13/933)

Open tendering competition cf. the Public Procurement Act and the Regulations relating to public procurement part I and II

Submission deadline: 11.10.2013

12:00 noon local time (Norway)

NORWEGIAN PETROLEUM DIRECTORATE

1 Contents

2   General description

2.1   About the Norwegian Petroleum Directorate

The Norwegian Petroleum Directorate (NPD) is a governmental specialist directorate and administrative body established in 1972.

The paramount objective of NPD is to contribute to creating the greatest possible values for society from the oil and gas activities by means of prudent resource management based on safety, emergency preparedness and safeguarding of the external environment.

For more information about NPD, visit our website www.npd.no.

2.2   Scope of procurement

NPD hereby invites potential bidders to submit a tender for re-processing of 2D seismic data in from the Jan Mayen Ridge and the Møre Marginal High, as further described in Annex 1 incorporated in this document, cf. section 8.1.

NPD has assessed the estimated value of the procurement. Based on previous tenders and contracts, the procurement is expected to be less than NOK 1 000 000.

2.3   Public announcement

Tender competition is announced in the Mercell database and in the DOFFIN database.

3   Scope of work / Terms of reference

See section 8.1- Annex 1 Scope of work /terms of reference.

4   Competition rules

4.1   Procedure

Open tendering competition, cf. the Public Procurement Act of 16 July 1999 No. 69 as amended, see also the Regulations relating to public procurement, laid down by Royal Decree on 7 April 2006 No 402, part I and part II.

Only bidders that fulfil the qualification requirements will have their tenders evaluated. Bidders are not allowed to change the tender after the submission deadline.

This type of procedure does not allow for contract negotiations.

4.2   Reservations and non-conformity

If the supplier has reservations regarding parts of the tender documentation, required specifications, contract or other tender documents, it shall be clearly stated in the bid. Any reservations must be specified, including consequences for performance, prices or other conditions.

The same applies to non-conformity. Reservations and non-conformities shall be stated precisely and unambiguously. They shall be stated in the bid letter in such a manner that the contractor can evaluate them without it being necessary to contact the supplier, cf. Section 11-3 of the Regulations relating to public procurement. Substantial reservations, and reservations or non-conformities that can result in uncertainty regarding evaluation of the bid compared to other bids, will result in the bid being disallowed, cf. Section 11-11(1) of the Regulations relating to public procurement.

If the supplier's reference to standardized terms of delivery, or something similar, deviates from existing tender or contract provisions, it will be regarded as a reservation.

4.3 Abidance

The bidder must abide by his/her tender until 3 months after the submission deadline.

4.4 Communication during the tender process

All communication during the process shall be routed via the Mercell portal, www.mercell.no. This is to assure that all communication will be logged. When you are logged on to the competition, chose the flag marked "Communication", click on the symbol "New message". Enter the information to NPD and then click . NPD will then receive your message. If the question regards all bidders, the authority will answer the inquiry anonymously by giving the answer as additional information. Additional information is available under the flag "Enquiry", then the flag "Additional information". You will also receive an e-mail with a link to the additional information.

Requests received later than 5 working days prior to the deadline for the offer will not be answered.

5   Qualification requirements

5.1 General requirements

Requirement	Documents required
Circumstances regarding the bidder's tax remittances shall be in order (this only applies to Norwegian companies).	- Tax certificate - VAT certificate More information: http://www.skatteetaten.no/en/Bedrift-og-organisasjon/Merverdiavgift/Skatteattest/
The bidder shall have a HES-system in line with current regulations.	A HES self-declaration from the bidder (form is attached in annex 8.2)

5.2 Company registration

Requirement	Documents required
The bidder shall be registered in the "The Register of Business Enterprises" in Brønnøysund or registration in a trade register or the like as set out in the laws of the country of registration of the bidder.	Copy of company registration Certificate or similar.

6   Award criteria

Only tenders that is submitted by qualified bidders and that meet the requirements and specifications given in the tender document will be considered.

NPD will choose the most economically advantageous tender, based on the following criteria:

Criteria	Counts	Documents required
Price	25 %	A quotation of prices in accordance with section 8.1.7 "Costs"
Quality, including offered technology and competence	40 %	A brief description of your offered technology in accordance with section 8.1.3, "Processing Sequence"
The key personnel experience with processing of similar seismic data	35%	Manpower for this assignment (organisation plan) with names and CV's for the key personnel who shall carry out the services.

7   Submission and disposition of tender

7.1 Submission of tender

All tenders shall be submitted electronically via the Mercell portal, www.mercell.no by the tender deadline. Tenders delivered after the deadline will not be accepted. (The system does not permit tenders to be sent electronically via Mercell after the tender deadline.)

If you are not a Mercell customer, or you have questions regarding how the application functions, e.g how to submit a tender, please contact Mercell Support at tel +47 21 01 88 60, or by e-mail to support@mercell.com. It is recommended to submit the tender in adequate time before the deadline. A minimum of 1 hour before the deadline is suggested.

If NPD should provide additional information that results in you wanting to change your tender before the deadline, you can access your offer, open it, make the necessary changes and send it again right up to the deadline. The last submitted tender will be regarded as the final one.

The tender requires an electronic signature when it is submitted. When submitting the tender electronically, an electronic signature will be requested to confirm that you are the actual bidder who has submitted the tender. An electronic signature can be obtained at www.commfides.com, www.buypass.no or www.bankid.no.

We would like to remind you that it can take some days to acquire an electronic signature, and therefore recommend that this process be initiated as soon as possible.

7.2 Disposition of tender

The tender shall be enunciated in English and as in this disposition:

File name	Contents
Qualification requirements	**Documents are to be enclosed in the step Kvalifikasjonskrav/Qualification requirements when you submit the tender in Mercell.**
K01 – Tax certificate	Ref. section 5.1
K02 – VAT certificate	Ref. section 5.1
K03 - HES self-declaration	Ref. section 5.1
K04 – Certificate of registration	Ref. section 5.2
Documents required	**Documents are to be enclosed under the tab Dokumenter/Documents when you submit the tender in Mercell.**
DOK01 – Cover page	Signed by a responsible/liable representative for the bidder. Confirmation that NPD's contract terms are accepted. Reservations with reference to specific contract clauses must be quoted with alternative proposals, as this type of procedure does now allow negotiations. Name and contact information of the bidder.
DOK02 - Price	Ref. section 6
DOK03 – Description of technology	Ref. section 6
DOK04 – CV of key personnel	Ref. section 6

8 List of annexes

- Annex 1 – Scope of work/ Terms of reference (included in this document)
- Annex 2 – HES self-declaration form
- Annex 3 – Contract terms

8.1 Annex 1- Scope of work / terms of reference

8.1.1 Seismic Data Processing

The Contractor shall process 2D seismic data as described below in order of priority:

Area:	from the Jan Mayen Ridge and the Møre Marginal High
Survey:	will consist of three surveys (acquired 2011 and 2012) by PGS GeoStreamer technology
Water depth:	approx. 300 m – more than 2000 m, typically approx. 1000 m
Total data volume:	will range from 1500 – 3000 km. To be detailed
Processed record length:	~1000ms below sea floor (mute from first water bottom multiple)
Volume phase I:	approx. 200 km (three lines)
Volume phase II (optional):	remaining data – from 1300 – 2800 km

The aim with the processing is to get an optimal imaging/resolution temporal and spatial of the top ~1000ms below sea floor (mute from first water bottom multiple). The main objective is to increase the vertical and lateral resolution and hence make use of the full recorded bandwidth up to 250 Hz. All multiples can be removed by muting the data below 2xWBT.

The final product of the phase I shall be approved by NPD before the Contractor can start optional phase II, cf. also section 8.1.6. NPD will reserve the right to terminate the processing project before the optional phase, based on assessment of re-processed data quality from phase 1, see contract conditions clause 2.1 (Annex 2, which will be worked out by NPD and the Contractor before signing of the contract).

The following points need special attention:

- High vertical and lateral resolution (2ms sample rate)
- Imaging of shallow strata
- Detailed Velocity analyses

Also to be noticed is:

Multiple removal is irrelevant as the records will be muted from the first water bottom multiple.

8.1.2 Data Acquisition Parameters

Source details:

Source type:	Bolt 1900 LLXT air guns
Air pressure:	2000 psi
Volume:	4130 in3
Number of sources:	1
Number of sub-arrays:	3
Sub-array separation:	10 m
Source length:	14 m
Source depth	7 m
Shot interval:	25m

Streamer details:

Type of streamer:	PGS GeoStreamer
Number of streamers:	1
Streamer length:	8100m
Number of groups:	2 x 804
Group interval:	12.5 m
Group length:	12.5 m
Streamer depth:	25 m

System details:

Recording System:	gAS GeoStreamer
Amplitude resolution:	24 bit
Data Channels:	2 x 804
Record Length:	9216 ms
Deep water delay:	0 ms
Sample Rate:	2 ms
High Cut Filter, all:	214 Hz @ 341 dB/octave
Low Cut Filter, hydrophone:	3.04 Hz @ 7.5 dB/octave
Low Cut Filter, raw geosensor:	not applicable *
Low Cut Filter, matched geosensor:	3.04 Hz @ 7.5 dB/octave
Data format:	"P-up" SEG-Y
Media:	3592

8.1.3 Processing Sequence

Algorithms and parameters used at each step in the processing sequence must be agreed with NPD in writing prior to the production processing. Deviations from the basic sequence must also be in agreement with NPD.

The data to be processed are branched off from the standard processing after P-UP generation with a 2ms sample rate. Since only the shallow part of the section is of interest, larger offsets can be rejected.

The basic processing price shall be based on the following estimated processing sequence:

- Reformat from P-up SEG-Y to contractor's own data format. Static shift correction for source/receiver depth. Bad shot and channel edits. Gain recovery
- Spherical divergence correction
- Merging the seismic traces to the navigation
- Keep sample rate of 2 ms
- Noise attenuation. The data will be searched for spikes, spurious high amplitudes and swell noise (if required)
- Deterministic signature deconvolution (zero phasing) which shall be applied using an operator designed to transform the modeled far field source signature to its zero phase equivalents. This process shall also take care of source and receiver ghost as well as the air gun bubble pulse
- Removal of recorded aliased energy
- Source directivity correction
- First pass velocity analysis every 1km. All velocity picking should be performed in agreement/co-operation with NPD staff. The data shall be muted (& proper pre-conditioned) prior to all velocity analysis
- De-multiple. Multiples can be removed by simply muting the data below 2xWBT
- Q-compensation (phase only)
- Full 2D Kirchhoff Pre stack time migration (PSTM)
- Velocity optimization and NMO correction
- Mute
- Trim statics
- CDP Relevant post stack signal enhancement procedures
- Post-stack scaling
- SEG-Y output

Methods/procedures:

Methods / procedures applied to the data should be specified. Alternative optional processing sequence should be specified.

Depth conversation of the data should be evaluated. Please suggest technical solution with associated cost.

NPD see it as necessary that processing parameters shall be tested on all lines in phase I and confirmed on three lines in phase II before being applied in production. The test data should be available via FTP-server in SEG-Y format.

8.1.4 Other requirements

The contractor shall at no extra cost establish a secure online client monitoring and supervision site where test results, project status, meeting summaries and other required data will be available to NPD throughout the processing.

8.1.5 Products to be delivered after processing

Item	Format	Media
Final processing report	MS Word or PDF format	CD / DVD
Field data as received from client – "P-up"	SEG-Y	3592
Final stacking & migration velocities	EssoV2 & diskos98.1	CD / DVD
Post stack SEGY Final unscaled true amplitude (Full, Near, Mid & Far Offset or Angle Stack)	SEG-Y	Hard disk
Post stack SEGY Final scaled amplitude (Full, Near, Mid & Far Offset or Angle Stack)	SEG-Y	Hard disk

- All SEG-Y tapes shall have the navigation data included in the trace header
- Each tape shall be labeled with a detailed list of contents in agreement with NPD personnel

8.1.6 Timing

Data processing shall commence as soon as the field tapes are delivered to the chosen processing center.

Phase I should be finalized within end December 2013. Delivery of finalized product from the optional phase II should take place no later than mid February 2014.

8.1.7 Costs

Prices shall be quoted in NOK and shall comprise the specified basic processing sequence in accordance with Section 3, above. Test processing shall be included as part of the basic processing sequence.

Seismic data processing cost shall be stated as:

- Rate per kilometer based on the estimated processing sequence in Section 3.
- Rate per kilometer for optional extra processing

8.1.8 General

The project is fully subject to funding from the Norwegian Government. NPD therefore reserves the right to stop the bidding process or declare it null and void or reduce the volume of the program due to budgetary reasons or other unforeseen circumstances outside NPD s control.

8.2 Annex 2 – HES declaration form

Attached hereto.

8.3 Annex 3 - Standard contract conditions

Attached hereto.