



Encana Corporation Expression of Interest (EOI)

Supply of Bleed-Off Package & Landing String Equipment & Services

BIDS Category: 0283, 0921, 0948

Reference: EOI DC18

Issue Date: July 3, 2018

Closing Date: July 17, 2018

NOTICE TO INTERESTED PARTIES: Encana wishes to advise that EOI DC18 hereby partially replaces Encana's EOI DC02 (previously issued by Encana on September 13, 2017 which closed on September 27, 2017) which has now been cancelled by Encana. Companies who have provided a formal submission in response to EOI DC02 are requested to contact the Encana representative specified in this EOI by email for further instructions regarding submission requirements for the work covered by EOI DC18. Encana also wishes to advise that it intends to issue separate EOIs to capture the work that was included in EOI DC02 but which has not been included in EOI DC18.

GENERAL

Encana Corporation (Encana) is the owner and operator of the Deep Panuke natural gas project in Nova Scotia's offshore. The project includes facilities required to produce natural gas from the Deep Panuke field, located approximately 175 kilometers offshore Nova Scotia. Natural gas from the Deep Panuke Development is processed offshore and transported, via subsea pipeline, to Goldboro, Nova Scotia for further transport to market via the Maritimes & Northeast Pipeline.

The Development includes the following major infrastructure (the "facilities"):

- Production Field Centre (PFC);
- Five (5) - subsea wells, trees, and protection structures;
- Infield flowlines and umbilicals;
- Gas export pipeline and onshore metering facility;

The Deep Panuke reservoir fluids contain H₂S and CO₂ which are removed from the fluid stream during processing on the PFC and disposed of into a dedicated subsea acid gas injection well. The sales ready product is exported from the PFC via an export pipeline.

Encana's strategy towards the decommissioning of the Deep Panuke facilities will include cost efficient solutions that minimize risk to personnel, provide the least impact on the environment, and utilize proven technology. It is currently Encana's plan that the suspension and decommissioning of the Deep Panuke Development will generally be completed as follows:

- Suspension of Production Operations;
- Decommissioning of the subsea and onshore facilities and PFC removal; and
- Well Abandonment and Final Field Survey.

Respondents are advised that the Work carried out on Deep Panuke shall comply fully with Canada-Nova Scotia Offshore Petroleum Board Regulations and all regulatory requirements. Respondents shall also be required to comply with the Canada Nova Scotia Offshore Petroleum Resources Accord Implementation Act including but not limited to the Benefits requirements as set out in Section 45.

Encana is committed to providing opportunities for Nova Scotian and Canadian companies through employment, procurement and contracting on an internationally competitive basis, with full and fair opportunity for Nova Scotians and Canadians where competitive on a best value basis, and first consideration to Nova Scotians. Pre-qualified companies will be required to complete a Canada-Nova



Scotia Benefits Questionnaire and demonstrate their commitment to and compliance with Encana's requirements regarding Canada-Nova Scotia Benefits, during the tender process.

Encana is a leading North American energy producer that is focused on growing its strong portfolio of diverse resource plays producing natural gas, oil and natural gas liquids. By partnering with employees, community organizations and other businesses, Encana contributes to the strength and sustainability of the communities where it operates. Encana common shares trade on the Toronto and New York stock exchanges under the symbol ECA. Further information on Encana Corporation is available on the company's website, www.encana.com. Further information on Deep Panuke is available at www.encana.com/deeppanuke

SCOPE OF WORK

The Work includes the abandonment of four (4) subsea sour gas production wells and one (1) subsea acid gas injection (AGI) well, across five (5) subsea well locations. The Respondent will be qualified and capable of fully designing, planning/executing and evaluating the Bleed-Off and Completion Landing String aspects of the wellbore abandonment. The Work will be conducted from a Harsh Environment Jack-Up, Mobile Offshore Drilling Unit (MODU) capable of working year-round in 45 meters of water at the Deep Panuke field location offshore Nova Scotia, Canada. The wellbores will be accessed with a high-pressure riser system attached to the horizontal subsea trees and tied back to a conventional surface BOP stack on the MODU.

Encana is seeking qualified companies interested in providing the following services:

- 1) Bleed-Off Package Equipment & Services; and
- 2) Completion Landing String Equipment & Services.

Bleed-Off Package:

The Bleed-Off Package will be used for well abandonment operations. Live well intervention is planned to isolate each of the 5 wells from the production/injection intervals by setting a mechanical plug(s) in the completion tubing below the production packer. Once the wellbore has been isolated from the hydrocarbon source, the tubing and landing string volume will be filled with kill weight brine displacing the hydrocarbon gas from the wellbore to the surface bleed-off package.

The bleed-off package, once installed on the rig, will remain on the rig until the abandonment of all 5 wells has been completed. The operating crew for the bleed-off package will be required for a minimum of 7 days on each well.

The successful bidder will be expected to perform process engineering design to ensure the surface bleed-off piping and equipment has been adequately sized to suit the Work. The surface equipment will include all equipment from the coflex hose up to and including the burner booms for flaring wellbore gas. It is expected to be a scaled down version of a conventional well test package. The equipment upstream of the choke manifold should be designed to suit the maximum expected surface test pressure of 25 MPa. The surface equipment must also include the safety systems for ESD (Emergency Shut-Down) normally associated with Well Testing.

The successful Bidder will be expected to participate and assist with the preparation of an in-house Hazard & Operability (HAZOP) study of the bleed-off system as well as a Risk Assessment. Final design configuration of the surface equipment will be based on the outcome of the HAZOP and Risk Assessment. Once the design configuration has been finalized, an equipment mock-up will be conducted onshore, prior to mobilization to the MODU. The purpose of the onshore mock-up is to successfully complete function & pressure testing of all equipment, including the ESD system, and to verify all components as "Fit-for-Purpose".



Completion Landing String:

Live well intervention is required on each of the Deep Panuke wells to aid in isolating the wells from the hydrocarbon source as a first step in the Plug and Abandonment (P&A) process. A Completion Landing String is required to interface with the GE-Vetco supplied subsea tree intervention tools and provide a conduit to surface with full pressure integrity. The Completion Landing String will be run inside a 19" ID HP Riser with an 18-3/4" BOP stack on surface and should consist of the following major components:

- Surface Flow Tree (SFT);
- Shear Sub;
- Ported Slick Joint (ported for control lines to span BOP pipe rams);
- Subsea Lubricator Valve (SSLV);
- Junk Catcher;
- Landing String Tubing & Crossovers; and
- Control System.

The internal diameter of all components must be sufficient to be able to pull the tubing hanger plugs, with a maximum OD of 7.333" (186.26mm), to surface. The rated working pressure of all components must be equal to or greater than 25 MPa and must have premium threaded connections. The Landing String will be used to pull the existing completion and therefore all components must have a minimum tensile strength of 450 kips (200 kdaN).

Bidder's control system must be capable of operating the SSLV, SFT as well as the GE-Vetco supplied subsea tree intervention tools. It is expected that the SFT will be tied into the Surface Bleed-Off Package ESD system to shut-in the production wing valve automatically as a minimum. A Systems Integration Test (SIT) with the GE-Vetco supplied subsea tree intervention tools and Completion Landing String will be conducted at the Bidder's facility and witnessed by an Encana representative. The SIT will also include function and pressure testing the SFT & SSLV.

SCHEDULE FOR THE WORK

Encana is issuing this Expression of Interest to identify the availability of suitable companies, equipment and services to conduct the Work in the offshore Nova Scotia location commencing sometime between Q3 2019 to Q2 2020. The window for carrying out the Work is dependent on the availability of the MODU. Any decisions on specific timing for the Work will be made at a later date.

The pre-planning and engineering effort is expected to take up to ten (10) months prior to commencement of field operations. The total time required for the plugging and abandonment operations of all five (5) wells is expected to be approximately 120 days.

Encana will require the Bleed-Off Package & Completion Landing String to be on location in Halifax, Nova Scotia at least one (1) month prior to the start-up of rig operations. Once the equipment is in the field, periodic NDT may be required if the need arises. However, a visual inspection of the equipment will be conducted at the end of operations for each well.

The operations on the MODU are expected to start any time after July 1, 2019 (exact time to be determined). As the availability of the MODU becomes better defined, Encana will communicate any changes to the scheduled start time on a monthly and/or bi-weekly basis.

Responses to this Expression of Interest must contain the following information:

A: Confirmation of Respondent's previous North Atlantic harsh weather experience including references to previous (and relevant) projects similar to the Work. Information provided by Respondent should include but not be limited to the following:

- Project management, and engineering experience;
- Integrated wellbore project execution experience; and



- Available proven technologies and emerging technology potential.
- B: Confirmation of Respondent's equipment and personnel availability (identifying the time frame for which the equipment would be available for the Work), current location and present contract status of proposed equipment. Respondent should include the proposed structure of the services package to successfully accomplish the Work indicating all subcontracts and any preferred vendors.
- C: Details regarding the make-up of Respondent's early planning team complete with a detailed description of the core competencies of Respondent's nominated personnel. This should include details regarding Respondent's plan to integrate into Encana's Project team in Halifax, Nova Scotia.
- D: A duly completed Pre-Qualification Questionnaire.

GENERAL REQUIREMENTS

EOI respondents are required to have an implemented EH&S Management System and a registered Quality Management System (complete with a current certificate issued by a recognized third party that certifies that the Quality Management System meets the requirements of the ISO 9001 or equivalent). Respondents are also notified that the Work carried out on Deep Panuke shall comply fully with Canada-Nova Scotia Offshore Petroleum Board Regulations and all regulatory requirements.

Respondents are requested to provide a brief Company profile, contact details, managers and key personnel and a summary of related (and relevant) experience on past projects which are similar in scope including details of Respondent's Nova Scotia and Canadian capabilities.

Interested firms are requested to demonstrate their capabilities and experience via a formal response to this EOI and the **Prequalification Questionnaire**, which can be obtained from the email address provided below.

Encana will select qualified bidders using the respondents to this EOI as a guide. Any eventual list of Bidders will be posted on the Encana website and other industry websites such as the Maritimes Energy Association bulletin.

Encana is under no obligation to proceed with a Request for Proposal as a result of this Expressions of Interest. Only those respondents deemed acceptable by Encana will be invited to participate in the event Proposals are solicited. Encana also reserves the right to award more than a single contract resulting from a Request for Proposal.

Expressions of Interest must be received on or before **July 17, 2018, 2:00 PM Atlantic time.**

All inquiries and Expression of Interest must be clearly marked with the EOI reference number and should be directed to:

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