



**Encana Corporation
Expression of Interest (EOI)**

SUBSEA FLOW LINES AND UMBILICALS FLUSHING & CLEANING

BIDS Category: 0820, 1930, 4510, 4515, 4520, 4530, 9005, 9045, 9442, 9710, 9833

Reference: EOI DC07

Issue Date: March 06, 2018

Closing Date: March 20, 2018

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 kilometres offshore Nova Scotia. Natural gas from Deep Panuke 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.

It is important to note that Encana has not set a date for the cessation of production operations or for the formal commencement of suspension and decommissioning activities.

Respondents are advised that the Work carried out on Deep Panuke shall comply fully with all regulatory requirements. Respondents shall also be required to comply with the Canada Nova Scotia Offshore Petroleum Resources Accord Implementation Acts 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

Encana is seeking qualified companies interested in providing Flushing and Cleaning Services of the subsea flowlines and umbilicals located between the PFC and the five (5) Deep Panuke subsea wells. It is anticipated that the flushing and cleaning equipment required for the Work will be set up on and operated from the Production Field Centre (PFC). The contents of each flowline and umbilical shall be displaced (along with the flowline flush fluids) into each associated subsea well.

The subsea flowlines to be flushed and cleaned are further detailed as follows:

- Four (4) production flowlines - 7.5" internal diameter, lengths ranging between 0.8km – 6.1 km. Products to be removed from the production flowlines include sour gas, condensate, well formation debris, methanol and scale inhibitor.
- One (1) injection flowline – 3" internal diameter, length approx. 1.8km. Products to be removed from the injection flowline include acid gas, condensate and methanol.

The umbilical hoses to be flushed are further detailed as follows:

- Ten (10) thermoplastic hoses – 19mm internal diameter, lengths ranging between 0.8km – 6.3 km. Product to be displaced from the thermoplastic hoses consists of methanol.
- Three (3) thermoplastic hoses – 12.7mm internal diameter, lengths of between 1.8 km – 6.3 km. Product to be displaced from the thermoplastic hoses consists of scale inhibitor.

It is anticipated that a multi-stage cleaning program will be required to remove sour gas, condensate, well formation debris, methanol and scale inhibitor. The flowline cleaning program is likely to include the pumping of acid, surfactant, degreaser, dispersant, gel, corrosion inhibitor and oxygen scavenger. However, it is expected that the flushing and cleaning contractor shall provide technical expertise to support the development and optimization of the cleaning program by advising on the type of chemicals and concentration to be used.

The Work will include the provision of the following;

- Sea water pumping equipment (certified as suitable for offshore use), including but not limited to pump(s), fluid heater(s), storage tank(s), hoses, flow meter(s), strainers, piping, flanges, fittings and other ancillary items, for use in conjunction with the following:
 - o Flowline flushing and cleaning equipment: having a capacity of delivering ~1500 liters / minute at ~30,000 kPa discharge pressure. It is expected that a total of ~3000m³ of sea water / chemical mixture will be required to complete the flowline cleaning operation.



- Umbilical flushing equipment: having a capacity of delivering ~35 liters / minute at ~30,000 kPa discharge pressure. It is expected that a total of ~10m³ of sea water will be required to complete the umbilical flushing operation.
- Chemical storage, blending and injection equipment (certified as suitable for offshore use) for flowline flushing and cleaning.
- Equipment operators, onsite supervision, project management and technical support required to manage and execute the flowline and umbilical flushing and cleaning operations.
- Consumables including cleaning chemicals as required by the specified flowline flushing and cleaning program. All chemicals shall be approved for offshore use in Nova Scotia and confirmed as compatible with the Deep Panuke well fluids, sea water and produced water.
- Procedures, risk assessment and other documentation required to support the flowline and umbilical flushing and cleaning operation.

Respondents are also invited to review SBM Nova Scotia Contractors Inc.'s separate EOI SBM-DCM-SVCS - 001 PFC DECOMMISSIONING SERVICES which is published at <https://www.encana.com/communities/canada/atlantic/business-opportunities/interest.html>; <http://www.bids.ca>, and at <http://www.maritimesenergy.com> as SBM and Encana are keenly interested in investigating potential synergies that may be achieved through related efforts which may run contiguously or contemporaneously.

Schedule for the Work:

No date for cessation of production of the Deep Panuke field has been identified.

Encana is issuing this Expression of Interest to identify the availability of suitable equipment and services to conduct the work in the offshore Nova Scotia location.

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

- A: A summary detailing Respondent's previous recent and relevant experience in carrying out scopes similar the Work. Respondent to provide a detailed summary of such scopes.
- B: A description of Respondent's resources (nominated personnel, equipment and consumables) available for the Work.
- C: A summary of its nominated personnel's recent and relevant experience in carrying out scopes similar to the Work.
- D: A duly completed Pre-Qualification Questionnaire.

GENERAL REQUIREMENTS

EOI respondents are required to have an implemented Quality Management System that complies with the requirement of the ISO-9000 series of Standards and Safety Management System(s). Respondents are also notified that the Work carried out on the Deep Panuke Project shall comply fully with all regulatory requirements.

Respondents must submit a brief Company profile, contact details, key personnel for land and offshore support and a summary of related experience including local Nova Scotia capabilities.

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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.

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 BIDS Nova Scotia.

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.

Expressions of Interest must be received on or before **Tuesday, March 20, 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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