



## **Request for Proposals Conceptual Engineering Study of Technologies for Reducing Methane Venting in Cold Heavy Oil Production**

**Date:** June 11, 2014

### **Purpose**

On behalf of a group of petroleum producers, PTAC wishes to retain the services of an engineering firm with experience in the engineering of cold production heavy oil wells and well pads and in the control of emissions/odours from these sites (the “Consultant”) to provide the services described in this document. Interested parties are invited to submit proposals according to the specification provided herein.

### **Background**

Venting of methane to the atmosphere takes place in oil and gas operations, generally as fugitive emissions and in circumstances where conservation would be prohibitively expensive. As indicated in the ST60-B report from the Alberta Energy Regulator, approximately 80% of vented volumes in Alberta take place in the Bonneyville and Wainwright regions and are related to cold heavy oil production. In addition, tank odours are becoming an area of focus.

Cold heavy oil operators strive to conserve casing vent gas (methane) for use as fuel onsite or offsite. Investments in new technologies or approaches are possible to further minimize GHG emissions and odours from these operations by conserving more gas or by converting it to CO<sub>2</sub> which is an odourless gas with a significantly lower GHG impact than methane.

### **Project Objective**

The objective of this study is to understand the applicability, operability, cost and potential for technologies to reduce methane venting and tank odours at cold heavy oil wells and well pads.

While the focus is on cold heavy oil, it is acknowledged that the technologies could also be applicable in other segments of the petroleum industry.

### **Project Scope**

#### **Volumes**

The range of vent volumes to be considered is from trace levels to 900 m<sup>3</sup>/d.



### **Technologies to be evaluated**

The following approaches and technologies are currently practiced as needed or justified by economics to offset propane use and/or GHG emissions:

- Capture casing gas and use on pad as fuel gas for fuelling engines and tank fired heaters;
- Capture casing gas (or excess gas after on-pad fuel use); compress to “low” pressure, verify quality and transport by small diameter lines to central processing facilities or for use by other well pads;
- Relocate casing gas compressors between well pads to maximize casing gas capture;
- Control of tank temperatures to avoid overheating and excessive production tank emissions and odours.

In addition, the following new technologies could be under consideration for future implementation:

- SlipStream GTS which is an auxiliary burner to incinerate excess casing gas and tank emissions to CO<sub>2</sub> without flaring;
- Catalytic converters (e.g. building heaters) to convert excess casing gas to CO<sub>2</sub>;
- Top Tank, a technology that utilizes the heat generated by the wellhead engine and hydraulics to heat the fluid stored inside the tank;
- Hy-Bon vapor combustor unit;
- Hexacovers (or a similar product) to blanket production tanks to reduce odours;
- Solution gas compression;
- Flaring/incinerating vented gas;
- Other technologies suggested by the Consultant.

The emphasis of the project is on the new technologies under consideration. However, opportunities for increasing the deployment of technologies currently practiced, and/or those practiced in other industries, should also be considered.

### **Project Activities**

The 5 major project activities are:

1. Technology applicability: understanding the practical and economic application envelope for each technology for different types of well situations (e.g. single well, well pad, proximity to gas distribution, vent volumes, applicability to sour gas, etc.)
2. Operability: operations advantages and disadvantages of each technology under different operating and seasonal conditions.



3. Conceptual costs: capital costs (purchase, installation and commissioning), operating costs, for common well configurations and sizes, and in terms of venting avoidance cost efficiency.
4. GHG Emissions: understanding the potential of each technology for reducing GHG emissions. The validation of the potential to turn these GHG emission reductions into GHG Offset Credits under one or more of the Alberta Carbon Offset Protocols would be the subject of a possible future study for selected technologies and is excluded from this scope of work (examples: Solution Gas Conservation, Engine Fuel Management and Vent Gas Capture Projects, etc.)
5. Overall analysis and summary of key opportunities.

**Deliverables**

1. Description of the new technologies under consideration using vendor provided information;
2. Applicability and operability description of each new technology and of opportunities for increased deployment of existing practices;
3. Technology cost analysis;
4. Potential for GHG emissions reductions;
5. Summary matrix and evaluation of each new technology and increased deployment opportunity;
6. Final report;
7. Presentation of results to the committee of participating petroleum producers.

**Budget**

The applicant will indicate the cash budget and any other resources required to complete the project.

**Confidentiality**

The Consultant will be required to sign a confidentiality agreement related to the project. Publication of any project results will be at the discretion of the PTAC Steering Committee.

**RFP Schedule**

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|---------------|---|
| June 12, 2014 | RFP issued                                |
| July 18, 2014 | Deadline for receipt of proposals by PTAC |



August 22, 2014	Invitation to a short list of applicants to present and discuss their proposal with the Steering Committee in person or by teleconference
September 12, 2014	Selection of the best value proposal by the Steering Committee

### **Contents of Proposal**

A 5 to 10 page document addressing the following elements must be delivered electronically or by mail to PTAC by the deadline stated above:

- Scope of work
- Methodology
- Deliverables
- Schedule
- Personnel assigned to the project
- Qualifications
- Budget and costs, including information on breakdown by major scope element and allocation of personnel and applicable rates
- Milestone payment information

The page count does not include any attachment such as CVs, company description or literature references that the applicant may wish to include.

### **Contact Information**

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