PTAC PETROLEUM TECHNOLOGY ALLIANCE CANADA

SLIPSTREAM™ TECHNOLOGY INDUSTRY IMPACT ASSESSMENT - Proposal

Energy Management Workshop

January 17, 2007

SLIPSTREAM™ TECHNOLOGY Overview

- REM Technology has developed a system that uses their REMVue™ engine management system as a platform to allow the introduction of several supplementary fuel sources
- It qualifies and quantifies each supplementary fuel supply and produces an appropriate blend with the primary fuel gas to the engine

SLIPSTREAM™ TECHNOLOGY Overview

- The engine management system can adapt to varying fuel quality, the supplementary fuel can be sourced from several streams of fugitive emissions, waste gasses or gas from other internal processes
- The outcome will be to reduce primary fuel gas usage, reduce the overall emissions from a site and perhaps provide incremental production

SLIPSTREAM™ TECHNOLOGY Overview

- **The project will be to assess the industry impact of the Slipstream technology**
- **Project Performers:**
  - **Accurata**
  - **Clearstone Engineering**
- **To identify the various sources of supplementary gas streams available in the upstream oil and gas sector**
  - **Seal vents**
  - **Tank vapours**
  - **Pneumatic controllers**
  - **Vent and flare systems**
  - **Dehy still column off gas (possibly)**
  - **Gas plant recycle gas and other internal sources**

SLIPSTREAM™ TECHNOLOGY Overview

- The sources will need to be qualified with respect to plants that have engines to use the fuel
- The consumption of the supplementary streams in the combustion process for the engine will need to be assessed
- Changes in the emissions will need to be identified when using the new technology
- Benefits attributed to the use of the technology will be assessed

SLIPSTREAM™ TECHNOLOGY Overview

- **The Benefits for Slipstream:**
  - **Reduced emissions of combustion products**
  - **Reduced emissions of vented raw natural gas**
  - **Reduced emissions of flaring (although it will be burned in the engine)**
  - **Reduced consumption of primary fuel gas**
  - **Increased facility capacity where internal sources can be used for fuel (recycle gas)**
  - **Incremental production where primary fuel gas is processed at the facility**
  - **Incremental natural gas reserves available for production (otherwise used for fuel)**
  - **sources will need to be qualified with respect to plants that have engines to use the fuel**

SLIPSTREAM™ TECHNOLOGY Overview

- **The Deliverables for Slipstream: include the following analysis.**
  - **Identify industry sources**
  - **Qualify sources for practical use in Slipstream**
  - **Quantify volume used for supplementary fuel**
  - **Quantify changes in volume and constitution of site emissions**
  - **Quantify cost of installation**
  - **Quantify benefits to producer**
  - **Quantify benefits to industry**

Potential Funders, Performers & Process

- **Interested potential funders and potential suppliers to complete and submit an Expression of Interest Form (EOI)**
- **Funding commitments are expected to be finalised by March, 2007 with direction provided by a project committee (PC) comprised of project funders and TEREE representatives.**
- **PTAC is seeking completed expression of interest forms and financial commitments by February 28, 2007 in order to launch this project.**

Potential Funders, Performers & Process

- **The final completion date of Phase 1 is anticipated to be July 15, 2007.**
- **At the discretion of the project funders, project results may be kept confidential for a period of up to one year, but will otherwise be widely publicized to industry, government and academia with facilitation provided by PTAC.**
- **It is hoped this project will lead to increased commercialization of energy efficiency and air emission reduction technology in the oil and gas industry.**
- **In addition, it is hoped that new technology will be developed and commercialized to address gaps identified by the project.**

Next Steps and Questions

- **Review Proposal and Submit Expression of interest form by February 28, 2007 :**
  - **http://www.ptac.org/eet/eetr.html**

- **Questions, please contact:**
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