Evaluation of NOx Emissions Abatement Options from Business Management Practices and Evaluation of NOx Emissions Abatement Using Catalyst Technology Solutions

Purpose

PTAC is seeking a proposal or proposals to:

1. Provide best practices for managing NOx engine emissions, including business processes as well as understanding different technologies and their benefits and trade offs. The focus is on NOx abatement with consideration of other emissions reductions (CH4, CO2, CO and possibly VOCs)
2. Evaluation of catalyst technologies on a number of engines. The project reviews and analyses seasonal and operational factors to bring forth

recommendations and best practices for the Canadian UOG engine operator.

Background

The Multi-Sector Air Pollutants Regulations was registered by Environment and Climate Change Canada (ECCC) in June 2016 with the objective to achieve consistent Canada-wide performance standards for certain industrial facilities and equipment. The lower NOx emission intensity limit has been applied as early as 2021 for impacted “pre-existing” reciprocating engines. Industry is also challenged to reduce other emissions, particularly greenhouse gases.

An industry led technical working group comprised of producer and government representatives are interested in assessing proposals for effective business practices to reduce NOx engine emissions and also, in parallel, achieve a better understanding of the best practices and performance criteria of NOx catalysts in an Alberta setting. While the expectation is that these focus areas are viewed separately, they can be combined by proponents in their submissions.

Project Scopes

The project is focused on two areas.

1. Best Management Practice – Engine Emissions Management

To use field trial information to develop an understanding of best practices for the control of NOx engine emissions. Particular attention must be made to the optimization of reduction across several other emissions categories including CO2, methane, CO, and possibly VOCs. This optimization should be considered within the context of least cost and also largest emissions reductions overall. Least cost analysis must consider the impact of carbon credits. Ideally this project should be completed within 12 months.

Focus areas could include:

- Identify specific ideas that would aid the sector in meeting regulatory requirements in the most effective way possible
- Development of “best practice documents” for reciprocating engines within the UOG sector, including the following content:
    - The impact of engines vintages on business process solutions
    - NOx abatement technology options for rich-burn reciprocating engines
    - Lean-burn reciprocating engine technology and NOx emission performance
    - Installation, operation, maintenance practices for abatement technology on reciprocating engines
    - The use of sensors and monitoring equipment
    - Best practices for NOx emission testing

- Best practices for CH4 emissions testing
- Cost-effective regulatory compliance strategies
- Cost-effective emission reporting strategies
- Fuel efficiency impacts
- Table showing options for emission reduction technology benefits and trade offs

Technology assessments should contain a comprehensive list of available technologies. The selection process should assess at a minimum the following considerations:

- Applications – AFR controller only, catalyst element only, or a combination system by vendor.
- Emissions/Operability/Maintenance benefits and trade offs
- Cost – procurement costs, installation, replacement and maintenance considerations.
- Support – local or international distribution centers; procurement directly from manufacturer or through local distributor; qualified technical and maintenance support locations.
- Maintenance requirements – element cleaning and rotational requirements.
- Maintaining engine tuning and emissions with year-round compliance

2. Catalyst Study

To trial NOx abatement technologies including non-selective catalytic reduction elements and various air-fuel-ratio controllers for effective emissions abatement and must include assessment for rich-burn and lean-burn engines. Proponents should address the areas of installation, operations, fuel efficiency, and maintenance in the review of the catalyst options. Again, the reduction assessment must consider how other emissions such as CO2, methane and VOCs are affected.

The project should ideally be a minimum of 24 months of operation in order to:

- capture seasonal performance;
- assess performance following recommended maintenance cycles;
- understanding technology lifecycles;
- develop best practices roadmap for technology applications.

Proposal(s) Outline

The requested proposal or proposals should contain a very short description of the PTAC project and scope of work, CV or statement of qualifications and short excerpts of reports written by the applicant. The proposal document, which should be no more than 5 pages in length, addressing the following elements and must be delivered electronically to PTAC by the deadline stated below:

- Scope of work
- Methodology
- Deliverables
- Budget and execution schedules
- Personnel assigned to the project
- Qualifications (including those related to catalyst analysis knowledge and experience)
- Disclosure of co-funding agreements or partnerships
- Requested payment schedule, if any.

It is anticipated that there will be ongoing communication with PTAC and the technical steering committee throughout the project. The proposal should include components for each stage with milestones, the project schedule, proposed costs and relevant expertise of the applicant's proposed team.

Submit your proposal online at https://auprf.ptac.org/2022-step-2-detailed-application/

RFP Schedule

October 27, 2021 RFP issued

November 23, 2021 Deadline for submission to PTAC

December 7, 2021 Proposal(s) selected

Selection Process

PTAC has formed a Committee for this project composed of industry stakeholders with relevant expertise.

All submitted proposals will be provided to the Committee for review. The Committee will determine if proposals meet the requirements herein and provide an overall ranking based on Contractor qualifications and on proposal quality.

Once a selection of the best proposal according to the Committee has been made, all submission contacts will be notified by email of the outcome of their individual proposal. The project final report will be shared on the PTAC website upon completion of the project.

Conditions of this Request and Process

1. Failure to Enter into Agreement

If a selected proponent fails to execute the Agreement or satisfy any pre-conditions of award within fifteen (15) days of notice of selection, PTAC may, without incurring any liability, proceed with the selection of another proponent and pursue all other remedies available to the organization.

2. RFP Incorporated into Proposal

All of the provisions of this RFP are deemed to be accepted by each proponent and incorporated into each proponent’s proposal. A proponent who submits conditions, options, variations or contingent

statements inconsistent with the terms set out in this RFP either as part of its proposal or after receiving notice of selection, may be disqualified. If a proponent is not disqualified despite such changes or qualifications, the provisions of this RFP will prevail over any such changes or qualifications in the proposal.

3. Proponents to Follow Instructions

Proponents should structure their proposals in accordance with the instructions in this RFP. Where information is requested in this RFP, any response made in a proposal should reference the applicable section of this RFP. Failure to follow these instructions may result in the proposal being disqualified.

4. Past Performance In the evaluation process

PTAC and the committee may consider the proponent’s past performance or conduct on previous contracts with the organization or other institutions.

5. Proponents to Bear Their Own Costs

The proponent will bear all costs associated with or incurred in the preparation and presentation of its proposal, including, if applicable, costs incurred for interviews or demonstrations.

6. No Guarantee of Volume of Work or Exclusivity of Contract

Unless otherwise expressly stated in the RFP, PTAC makes no guarantee of the value or volume of work to be assigned to the successful proponent. The Agreement may not be an exclusive contract for the provision of the described Deliverables. PTAC may contract with others for goods and services the same as or similar to the Deliverables or may obtain such goods and services by other means.

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