PTAC

Alberta Upstream Petroleum Research Fund

PTAC

Near-Term Technologies for Methane Emissions Reduction from Compressor Package Sources

REQUEST FOR PROPOSAL

PETROLEUM TECHNOLOGY ALLIANCE CANADA (PTAC)

ON BEHALF OF THE ALBERTA UPSTREAM PETROLEUM RESEARCH FUND (AUPRF)

www.ptac.org
Suite 1550,
520 Fifth Avenue SW
Calgary, AB. T2P 3R7

Issue Date:	October 1, 2025
Proposal Due Date:	November 3, 2025, at 5 pm MT
Evaluation Period:	November 4–28, 2025
Expected Award Notification:	November 29, 2025
Project Start Date:	December 14, 2025

SCOPE OF WORK

Project Title

Identification and Demonstration of Near-Term Technologies for Methane Emissions Reduction from Compressor Package Sources in Alberta's Upstream Oil and Gas Sector

Background and Rationale

Methane emissions from compressor packages are a contributor to greenhouse gas emissions in Alberta's upstream oil and gas sector. Reducing these emissions is important for environmental performance, regulatory compliance, and industry reputation. Technologies at Technology Readiness Level (TRL) 7-8 are now available for field adoption but require demonstration and validation under real-world conditions. This project aims to accelerate the deployment of effective solutions by supporting comprehensive demonstration planning and field validation.

Methane emissions from compressor packages and stationary engines originate from several key sources. Combustion slip occurs when unburned methane passes through the engine during normal operation. Crankcase ventilation can release methane-laden gases from the engine's internal components. Fugitive emissions often arise from seals and gaskets that may degrade or fail over time, while venting during maintenance or startup/shutdown procedures can also release significant amounts of methane. Compressor seal leaks, as well as leaks from valves and fittings, are common points of emission. Additional sources include pneumatic devices (if present), instrument and utility gas use, and various ancillary equipment associated with the operation of these systems. Each of these sources contributes to the overall methane footprint of stationary engines and compressor packages.

Additional context for the proposal includes:

- Focus on evidence-based research supporting industry policy improvements.
- Focus on retrofits for existing engines
- Ensure major emissions sources are included
- Ensure well-defined scopes of work and timely delivery
- Demonstrate value for money and improved environmental/economic performance.
- Support rapid adoption—prioritize technologies at TRLs 7-8.

Phase 1: Knowledge Synthesis & Demonstration Plan Development

Objectives

- Develop a comprehensive, site-specific demonstration plan for innovative methane reduction technologies (TRL 7-8).
- Evaluate and select promising technologies, prioritizing those suitable for accelerated field adoption (TRL 7-8).
- Develop integration strategies for retrofit solutions compatible with existing compressor packages.
- Design measurement and verification protocols aligned with regulatory standards.
- Analyze anticipated costs, methane reduction efficiency, and ancillary environmental benefits.

Scope of Work

- Literature and technology review (AUPRF and external sources).
- Annotated inventory of candidate technologies and solutions.
- Comparative analysis of technology effectiveness, cost, scalability, and environmental impact.
- Site selection criteria and identification of representative demonstration sites.
- Identification and summary of key accepted industry measurement and verification protocols.
- **OUT OF SCOPE:** Assessment of new engine or compressor models introduced in 2024 or later.

Deliverables

- Detailed demonstration plan.
- Technology selection rationale.
- Site selection criteria.
- Field testing plan using accepted industry protocols where applicable

Phase 2: Demonstration, Evaluation & Knowledge Transfer

Objectives

- Execute the demonstration plan developed in Phase 1.
- Validate the performance and cost-effectiveness of selected technologies under real-world conditions.

- Quantitatively assess methane reduction efficiency, operational reliability, and integration feasibility.
- Conduct full lifecycle cost analysis and evaluate environmental impacts based on field data.
- Document technical results, best practices, and provide recommendations for industry adoption and future research.

Scope of Work

- Design and implement pilot/demonstration projects for selected solutions.
- Install, commission, and operate selected technologies at chosen sites.
- Collect and manage field data, ensuring data quality.
- Develop case studies and best practice guidance.
- **OUT OF SCOPE:** Assessment of new engine or compressor models introduced in 2024 or later.

Deliverables

- Field demonstration results.
- Final economic and environmental assessment.
- Technical documentation.
- Best practices and recommendations.

Success Criteria

- Demonstrated reduction in methane emissions at compressor package sites.
- Adoption of prioritized technologies and practices by industry practitioners.
- Improved cost efficiency and environmental performance in compressor operations.
- Positive feedback from stakeholders and regulatory bodies.
- Compatibility assessment with relevant environmental regulations.
- Quantified outcomes such as % reduction in methane emissions, % cost savings, and % improvement in regulatory compliance.

Additional Technical Background

Methane Emissions Sources and Mechanisms

- Compressor packages can emit methane through multiple pathways, including seal leaks, venting, fugitive emissions from valves and fittings, and incomplete combustion (slip). Emissions vary by compressor type (reciprocating, centrifugal), age, maintenance practices, and operational conditions.

Technology Overview

- Retrofit solutions: Improved seals, low-bleed or zero-bleed pneumatic devices, advanced monitoring and control systems.
- Replacement technologies: Electrification, dry seals, and integrated emissions capture systems.

Integration and Operational Challenges

- Compatibility with legacy compressor packages and site infrastructure.
- Minimizing operational disruptions during installation and commissioning.
- Ensuring reliability and maintainability in remote or harsh environments.

Environmental and Economic Considerations

- Lifecycle cost analysis: Capital, installation, operation, and maintenance costs versus methane reduction benefits.
- Ancillary benefits: Reduced VOCs, improved safety, and regulatory compliance.

Regulatory and Industry Context

- Alignment with Alberta and federal methane reduction targets and regulations.
  Opportunities for industry-wide adoption and standardization of best practices.
  Importance of robust measurement, verification, and reporting protocols.

Risk Management and Performance Benchmarking

- Identification and mitigation of risks associated with technology deployment.
- Establishment of performance benchmarks for emissions reduction, reliability, and cost-effectiveness.

Proposal Requirements

Company Information

- Legal name and address
- Contact information
- Overview of company history and services

Technical Proposal

- Understanding of the project
- Proposed methodology and approach

- Project plan and timeline
- Team composition and bios

Financial Proposal

- Detailed cost breakdown
- Payment schedule
- Any optional or value-added services

References

- At least three references from similar projects

Evaluation Criteria

Proposals will be evaluated based on the following criteria:

Criteria	Weight
Technical Approach	30%
Relevant Experience	25%
Cost	20%
Team Qualifications	15%
References and Past Success	10%

Evaluation Process:

- Proposals will be screened for completeness and compliance. Shortlisted vendors may be invited for interviews or presentations. Final selection will be based on total score and fit with project needs.

Submission Instructions

- Submit proposals electronically to: info@ptac.org
- Subject line: “Proposal Title and Vendor's Name”
- Format: PDF

Terms and Conditions

- Proposals must be submitted by the deadline specified.
- Late submissions will not be considered.
- Proposals must be submitted via email as outlined above.
- Proposals must remain valid for 90 days from the submission deadline.
- PTAC reserves the right to reject any or all proposals for any reason and is not obligated to award a contract based on this RFP.

- All information provided in the RFP is confidential and must not be disclosed to third parties.
- Vendors will be required to sign a confidentiality agreement.
- All costs associated with the preparation and submission of the proposal are the responsibility of the vendor.
- All submitted proposals become the property of PTAC and will not be returned.
- PTAC reserves the right to award the contract in whole or in part.
- The lowest-priced proposal may not necessarily be selected.
- Proposals will be evaluated based on predefined criteria.
- The evaluation process may include interviews or presentations.
- PTAC may amend or cancel the RFP at any time.
- Any changes will be communicated to all prospective vendors.
- Vendors must disclose any actual or potential conflicts of interest.
- Failure to disclose may result in disqualification.
- The laws of the Province of Alberta, Canada, will govern the RFP and any resulting contract.
- Vendors must disclose any intention to subcontract parts of the work.
- PTAC reserves the right to approve or reject subcontractors.
- Any intellectual property developed during the project may be owned by AUPRF funders, or those funders will have free access to use the IP for their own operations without additional compensation to the vendor.
- Vendors are required to maintain a minimum of $5,000,000.00 in commercial liability insurance and $2,000,000.00 in professional liability insurance.
- Proof of insurance must be submitted with the proposal and will be required before contract execution.

Contact Information

- For questions or clarifications, contact:
- Email: info@ptac.org