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Petroleum Technology Alliance Canada



Test Facilities Consortium



Consortium of Emission Test Facilities

The proposed Consortium will consist of:

- SRC Facilities (Centre for Development of Emission Reduction (CeDER))
- CMC Research Institutes, Inc. (“CMCRI”) Facilities
- CanmetENERGY Facilities
- InnoTech Alberta - Vegreville Facilities
- Western Canadian Oil and Gas Operators Facilities
- University of Calgary
- Colorado Facility (near Fort Collins)
- PTAC as the Consortium Administrator/Facilitator/Manager

Objectives

The Objectives of the Emission Test Facilities are to:

- Enhance business growth.
- Increase technology capacity to reduce methane emissions from oil and gas operations.
 - Existing technologies have collective capacity to reduce methane emissions by 30%.
 - Goal is to build capacity to reduce methane emissions by 45% by 2020 and 80% by 2030.
- Accelerate deployment of methane emissions reduction technologies.
- Help SMEs enhance business growth; create jobs.

Needs

In order to achieve methane reduction objectives, stakeholders require:

- Credible, low-cost platform for field-scale testing of methane emissions reduction with financial support from governments/producers.
- Focus on methane emission reductions for oil and gas sector, with consideration for testing technologies for emissions from livestock farming, landfills, waste, etc.
- Test and validate emissions technologies for low and high-volume sources including: Fugitive emissions, process venting, and large plants

Why a Consortium?

- Federal and Provincial Government require reduced methane emissions by 45% by 2025.
- Industry needs to know what effective and scalable new technologies can be used to reduce emissions.
- Immediate need to increase uptake of existing technologies to enable industry reduce its emissions by 45% by 2025.
- The collective capacity of the existing methane test facilities can allow cost effective field testing and validation of a significant number of methane emission reduction technologies



Why a Consortium? Cont'd...

- GHG technology providers need an accelerated route to validate and commercialize emissions reductions technologies
 - PTAC has an inventory of more than 50 technologies that need to be field tested and validated.
- SME methane emission reduction technology providers don't have funding to field test their technologies
- Need for systematic testing and validation of SMEs methane emission reduction technologies



Centre for Demonstration of Emission Reduction (CeDER)

- **Centre for Demonstration of Emission Reduction (CeDER).** SRC, in conjunction with PTAC and WD, launched the CeDER initiative in 2016. The mobile test facility is designed to accelerate industry adoption of practical and economic technologies.
- Currently, there are three CeDER trailers already in service or under construction. The first field trials with the CeDER mobile facility have already taken place. The trailers travel across the WCSB.





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CMC Research Institutes, Inc. (“CMCRI”)

- CMCRI’s Mobile Environmental Laboratory
- Newell County Field Research Station
- The Carbon Capture and Conversion Institute



CanmetENERGY Test Facilities

CanmetENERGY has a comprehensive set of pilot plants that can be used to demonstrate the viability of innovative technologies and as a tool to evaluate technologies developed by entrepreneurs or being considered by industry or governments. Their existing facilities are suitable to test methane emissions reduction technologies; however, their equipment can provide support.

InnoTech Alberta - Vegreville Research Centre

- Diversified range of scientific, engineering and technological research and testing capabilities, and facilities to support technology scale-up available through InnoTech's Vegreville Research Centre.
- Research facilities range from bench scale to pilots, demonstrations and near commercial scale.

Colorado State University Test Facilities

- METEC CSU (CANGET) is a project in collaboration with ARPA-E. The goal of the facility is to provide a location that models natural gas facilities, so that researchers can test low-cost methane sensing technologies and evaluate their performance.
- Discussions have not yet been undertaken with CSU, however PTAC is currently reaching out to its existing CSU partners to initiate a conversation regarding collaboration.

Western Canadian Producer Facilities

- Producers operating within Western Canada will dedicate existing equipment/facilities to help test potential methane emissions reduction technologies.
- This has recently been proposed to PTAC's Air Research Planning Committee operators, and discussions are progressing.

Consortium Scope

- The proposed consortium will screen candidate technologies for further testing and will also:
 - Conduct techno-economic assessments
 - Provide on-site arm's length validation using test facilities, thereby advancing viable, effective emissions reduction technologies towards commercialization for diverse applications.

Phase 1

Screening and assessment of GHG emissions reduction technologies

- Prequalification. This low-cost screening process of up to 50 innovative clean technologies will provide an initial evaluation of performance claims and technical viability of target technologies.
- Technologies entering the prequalification step will be selected from those identified by producers and Alberta Innovates.
- Prequalification provides an initial screen of technologies to support further investment in a more detailed techno-economic evaluation.

Techno-Economic Assessment

- The techno-economic assessment builds upon the initial pre-qualification screening evaluation, but also includes the development of a field trial design and budget.
- By pre-screening technologies, industry will only be presented with the most effective, scalable, and independently assessed technologies to measure and reduce emissions that are ready for field demonstration using test facilities.

Techno-Economic Assessment Cont'd...

- This also provides technology providers and investors with an accelerated route for performance validation, commercialization and growth.
- For those proceeding to Phase 2 (Field Trials), a field trial validation scope will be developed.

Phase 2

Field trials and technology validations

- Testing and independent third-party validation of up to 10 technologies identified in Phase 1 at industry partner sites.
- PTAC support to help with the deployment of technologies.
- Budget for conducting Phase 1 and 2 will be secured from Government/ Producers.

Governance Structure - Phase 1

- A steering committee consisting of Alberta Innovates, NRCan, and Producers and Operators of Test Facilities provide oversight for screening and assessment of technologies.
 - Alternative option is to appoint the MERN Steering Committee to provide oversight.
- PTAC will provide administrative support and serve as a neutral, non –voting member of the steering committee.

Governance Structure - Phase 2

- The same steering committee, excluding the operators of the test facilities, will provide the oversight for Phase 2.
- A Terms of Reference will be developed and provided for Governance Structure for Phase 1 and 2.



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Questions

