



PETROLEUM TECHNOLOGY ALLIANCE

2024-25 Annual Report

FACILITATING COLLABORATIVE INNOVATION



# DISCLAIMER

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For nearly three decades, PTAC has helped drive operational performance, environmental management, and cost-effective innovation across Canada's oil and gas sector.

As a neutral, industry-led innovation hub, PTAC bridges the gap between real-world industry challenges and practical technology solutions, helping to reduce investment risks, facilitate access to funding, and support the transition of ideas into field-demonstrated solutions.

Here's how PTAC delivers real-world impact for its Members across Canada's energy innovation landscape—through our **Vision**, our **Mission**, and our **Values**:





What we aspire to become: To be the go-to innovation hub for Canada's oil and gas industry, facilitating and advancing value-added research, technology development, and deployment.

**How we deliver impact:** PTAC drives and fuels industry collaboration and innovation for a stronger, cleaner, and more competitive Canadian oil and gas future.



**Our core values guide our actions and decisions**, reflecting the principles that make PTAC a trusted partner in promoting industry engagement and driving technology development:

**Innovation in Action:** Improving efficiency, competitiveness, and safety, while advancing sustainability through groundbreaking technology.

**Competitive by Design:** Reducing costs, maximizing recovery, and driving global performance to ensure Canada's oil and gas sector remains globally competitive.

**Stronger Together:** Uniting industry, researchers, and innovators to tackle challenges head-on.

**Impact-Driven:** Managing and facilitating solutions that matter, focusing resources on game-changing innovations that deliver measurable results.

**Responsible Leadership:** Prioritizing an oil and gas sector that is economically strong, technologically advanced, and environmentally responsible – creating value for all stakeholders, including meeting the demands of diverse international markets.

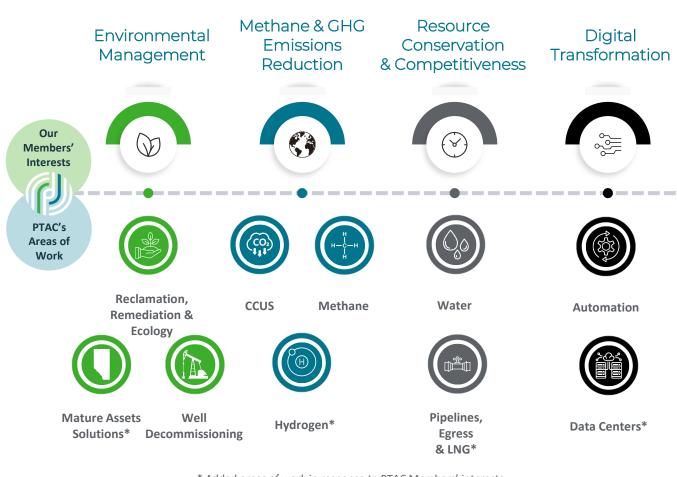
**Accelerating Change:** Driving the rapid adoption and deployment of cutting-edge technology to fuel industry-wide progress and position Canada as a global leader in the oil and gas sector.



**Since 1996**, PTAC has supported the oil and gas industry by driving practical innovation to reduce costs, improve recovery and reduce environmental impact.

**Today**, we're sharpening our focus on the competitiveness of our country's resources, supporting the advancement of technology leadership in decarbonization technologies, operational efficiency, safety, and cost savings – **delivering value where it matters most.** 

As the industry evolves, so will PTAC's priorities, aligned with emerging challenges and economic opportunities.



The 2024–25 fiscal year marked a defining chapter in PTAC's journey – a year characterized by transformation, meaningful progress, and sustained momentum across Canada's evolving energy landscape. As we reflect on the accomplishments, challenges, and insights of the past year, we also look to the future with confidence, steadfast in our commitment to cultivating a culture of collaboration among all stakeholders to shape a responsible, globally competitive, and resilient future for Canada's oil and gas sector.

# Accomplishments – Driving Innovation. Delivering Impact.

Starting off strong, PTAC's 27<sup>th</sup> Annual General Meeting & Awards Celebration united members to honour a year of progress and collaboration. The event marked the announcement of Lauren Savoie as PTAC's new President and CEO, signalling an exciting new chapter for PTAC, while Alberta Premier Danielle Smith's keynote underscored PTAC's vital role in convening stakeholders and supporting technology development, in alignment with industry priorities.

The collaborative efforts of PTAC and its members received further recognition on the provincial stage last year, as we were honoured to receive the **2024 Technology and Innovation Leadership Award from the Alberta Chamber of Resources**. This award honours those who have made significant contributions to responsible resource development through technology and innovation, and stands as a testament to PTAC's members, leadership and impact across the energy sector.

PTAC supported meaningful progress across Canada's energy innovation ecosystem throughout 2024-25 by facilitating the **development**, **validation**, **and adoption of emerging technologies**. Through collaborative field testing, expert engagement, and targeted funding strategies, PTAC assisted industry partners in their efforts to reduce emissions, lower costs, and achieve regulatory alignment.

Over the course of the last year, **PTAC facilitated 65 active projects**, as well as the advancement of technologies through **field trials**, **pilot programs**, **and commercial validation**. In addition, PTAC played a key role in supporting **32 Small and Medium-sized Enterprise (SME) led innovations** and transitioned **six scale-up projects from pilot phase to market readiness**.

PTAC also continued to enable industry-led research that supports environmental performance and smart regulatory development through the **Alberta Upstream Petroleum Research Fund (AUPRF).** 



# 2024-25 Message from the Board

In 2024-25, \$3.5M was leveraged through the voluntary AUPRF levy, resulting in the launch of over 20 new projects driving applied research across emissions, water, and liability reduction, through a transparent, peer-reviewed process.

Earlier this year, PTAC was proud to be named one of **Emissions Reduction Alberta's (ERA) newest Trusted Partners**. As an ERA Trusted Partner, PTAC is contributing to a unified and coordinated approach to emissions reduction and technology deployment. In the spirit of collaboration, PTAC engaged over 1,000 participants through its events this past year, including two **sold-out PTAC Methane Leadership Summits (PTAC-MLS)**. Attracting over 300 leaders annually, PTAC-MLS 2024 and 2025 provided a platform for sharing validated insights on methane technologies, policy developments, and implementation strategies.

Internationally, PTAC participated in CERAWeek, the Offshore Technology Conference (OTC), and COP29, showcasing groundbreaking Canadian innovations and engaging in dialogue on responsible energy development on a global scale.

Together, these achievements and milestones showcase PTAC's unique ability to encourage the transformation of collective action into meaningful impact.

The 2024–25 fiscal year clearly demonstrated our continued commitment to fostering industry collaboration while facilitating practical, innovative solutions that support a responsible, synergistic, and competitive future for **Canada's oil and gas sector**.

# **Shaping Tomorrow – Innovation in Action**

**Looking ahead, PTAC is entering an exciting new chapter.** With a refreshed mission, vision, and values, we're honing our focus on key industry drivers, including resource competitiveness, decarbonization, operational efficiency, safety, and cost-effectiveness, to ensure we deliver meaningful support to our sector.

In 2025-26, PTAC will be streamlining our key *focus areas* **to better align with the evolving needs of our members**, enabling us to deliver targeted support and enhance impact potential. By concentrating our focus areas on **Environmental Management**, **Methane & GHG Emissions Reduction**, **Resource Conservation**, and **Digital Transformation**, PTAC is strengthening its ability to empower our members with the expertise, collaborative networks, and technology solutions needed to thrive in an increasingly dynamic and competitive energy landscape.

The upcoming fiscal year also promises another exciting calendar of events, strengthening cross-sector collaboration and enabling innovative action.



# 2024-25 Message from the Board

Returning on March 4, 2026, the **Digital Innovation Forum will spotlight "Canadian Energy Powering Data Centers"**, uniting leaders from the energy, technology, and infrastructure sectors to explore Canada's role in the future of digital infrastructure. Also returning April 14 & 15, 2026, is **PTAC's flagship Methane Leadership Summit (PTAC-MLS 2026)**, Canada's premier methane emissions reduction event. Hosted once again at the iconic Fairmont Banff Springs, PTAC-MLS 2026 is anticipated to sell out early, continuing the strong momentum of previous years.

New for 2026, we will introduce the **PTAC Energy Table Speaker Series**, enhanced member networking socials, and more interactive opportunities to connect, learn, and collaborate across the innovation ecosystem.

Most notably, **2026 marks PTAC's 30th anniversary**, a major milestone in our journey as Canada's go-to innovation hub for the oil and gas sector. We'll be celebrating three decades of industry-driven research, technology development, and deployment in a big way.

**PTAC's growing membership** brings together individuals and organizations united by a commitment to collaborative innovation. If you haven't yet joined our extensive network, now is the time to get involved. Through PTAC Membership, you'll gain access to a powerful platform that sparks innovation, supports real-world impact, and helps advance Canada's energy sector. Connect with a member of the PTAC team today and be part of the action shaping the future of energy.

Overall, this past year marked a transformative phase for PTAC. With new leadership, a renewed strategic direction, and an unwavering commitment to collaborative action, we supported real-world innovation, enhanced international recognition, and bolstered Canada's position on the global energy stage. As we enter a bold new chapter, **PTAC remains dedicated to supporting a responsible, more competitive, and future-ready oil and gas sector for Canada.** 

With gratitude,



**Lauren Savoie** *President and CEO*PTAC



Cheryl Trudell
Chairperson and
Climate Manager
PTAC & Imperial Oil



PTAC's 2024–25 performance supported tangible outcomes for producers, innovators, and funders across Canada's oil and gas innovation ecosystem. From emissions reductions efforts to real-world deployments and funding leverage, our work delivers results that matter—PTAC supported meaningful progress where it matters most: in the field, on the balance sheet, and for the environment.

This year, PTAC enabled the advancement and adoption of critical technologies that help industry reduce costs, meet regulatory requirements, and improve environmental performance.

By coordinating field trials, convening expert networks, and unlocking funding for high-impact projects, we helped move solutions from pilot to market-readiness.

## PTAC's 2024-25 Year at a Glance:

# +65 Projects and Initiatives

launched, completed or active across PTAC's coordinated network.

### PTAC became ERA's newest **Trusted Partner**



#### 1,000+ Attendees

engaged across PTAC summits, forums, and TIS sessions convening power and influence in shaping the sector.



# **6+** Scale-Up Projects

advancing from pilot to market-readiness.

# **32** SME Innovations

supported by commercialization and scale-up efforts.

# **\$20+** million in cash and in-kind funding

including \$3.5 million leveraged through AUPRF.

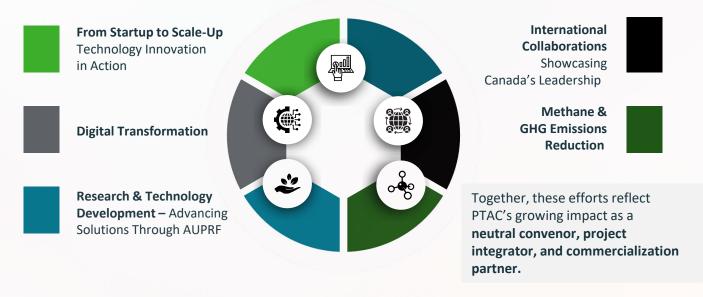
Together, these numbers reflect PTAC's unique ability to turn collaboration into action – contributing to producers' competitiveness while facilitating solutions that align with **Canada's low-carbon future.** 

As Canada's oil and gas sector works to reduce emissions while maintaining energy reliability and economic strength, **PTAC remains a trusted partner in facilitating practical, field-ready solutions.** 

By managing and fostering collaborations between producers and innovators, and guiding technologies from concept to commercialization, PTAC supports practical solutions that help industry meet evolving environmental regulations, enhance operational performance, reduce emissions, and increase production.

Our work spans the **full innovation cycle** – from research and testing to deployment – so producers can adopt proven technologies that deliver measurable results with minimal risk.

PTAC's projects spanned across five key areas in 2024–25, **shaped by our Members' priorities and rooted in a collaborative, full-cycle model,** from early-stage research to global deployment, transforming research into real-world impact:



We are supporting oil and gas companies and innovators in their efforts to reduce emissions and strengthen performance.

"PTAC has propelled SensorUp's growth. Their collaborative programs helped us forge key partnerships, accelerate commercialization, and showcase Canadian methane innovation worldwide. From roundtables to leadership summits, PTAC has been essential in scaling our impact and advancing real climate solutions."

- Dr. Steve Liang, Founder and CTO - SensorUp

**SENSORUP** 

PTAC works directly with industry to identify, test, and scale field-proven technologies that reduce emissions, cut compliance costs, and improve operational performance.

**From tank venting to engine slip and pneumatic devices**, PTAC facilitates collaborative field trials and commercialization pathways that help producers deploy the right technologies faster – reducing risk, accelerating regulatory readiness, and enabling carbon credit generation.

Our initiatives demonstrate PTAC's role as a trusted partner and catalyst – **bridging the gap between labscale innovation and field-scale adoption**.

# **Facilitating Emissions Reduction Solutions**

for Canada's Oil and Gas Sector

#### CanERIC 2.0 Network

Real-World Validation for Methane Technologies

Focused on tank emissions, casing gas, & pneumatics:

- 7 technologies demonstrated
- 53 units deployed
- 6 producers engaged
- Contributed to the ~52% reduction in CH<sub>4</sub> emissions reported by the Government of Alberta.

#### **CanERIC Project Spotlight**



Deployed by Ovintiv and Veren.

#### **TEREE Committee**

Technical Leadership for Emissions Innovation

Quarterly sessions with producers, regulators, and technology developers.

#### 2024-25 Topics:

Methane emissions detection, quantification and reduction, solution gas flaring, regulatory barriers.

#### Outcome:

Data-driven guidance for technology adoption and field deployment.

#### PTAC-TIS

**Technology Information Sessions** 

New Tools for Methane Management – Speakers:



**Airborne Hyperspectral Imaging** 

## **Qnergy**

Compressed Air Pneumatics Retrofit



**Methane Slip Mitigation** 

## Scale-Up & Commercialization: +6 Projects with PTAC

Serving as Field Trial Coordination | Commercialization Support | Funding & Reporting Stewardship |

Regulatory Engagement | Knowledge Mobilization



Canada's top methane-focused event since 2018 300+ oil and gas industry and innovation leaders gather annually for Cross-sector Dialogue → Real-world Solutions. Next Summit: April 14 & 15, 2026 | Fairmont Banff Springs





# **Facilitating Methane Reduction**

Through Real-World Validation

Building on the success of **CanERIC 1.0**, PTAC launched **CanERIC 2.0** in **2024–25** with support from **Alberta Innovates** and key industry partners.

**Canadian Emissions Reduction Innovation Consortium (CanERIC)** enables Small and Medium-sized Enterprises (SMEs) to field-test methane-reducing technologies while helping producers de-risk adoption through collaborative trials and shared learnings.

Over the past four years, **38 projects have been supported**, positioning CanERIC as a proven model for joint R&D. Large producers benefit from **cost-sharing and collective validation**, while smaller operators access **vetted**, **field-proven technologies**.

# **2024-25** Impact



**7** technologies demonstrated



**53** units deployed



**6** producers engaged



Projects focused on tank emissions, casing gas, and pneumatic systems

# **CanERIC** Project Spotlight



Through CanERIC 2.0, **Veren** and **Ovintiv** piloted Kathairos' zero-emission pneumatic system – replacing methane-venting devices with liquid nitrogen-based alternatives at four remote sites.

**The result**: avoidance of pneumatic methane emissions, with no need for power or electricity.

"Deploying Kathairos through CanERIC 2.0 in collaboration with PTAC was a win for Ovintiv. Swapping out methane-venting pneumatics for nitrogen-based systems at our remote sites helped us reduce emissions. It's a great example of how real-world pilots like this build confidence in practical, scalable solutions to continue reducing methane emissions."



- Mitch Dow, Senior Facilities Engineer - Ovintiv

This is just one example of how CanERIC 2.0 is accelerating high-impact innovation, building confidence through real-world performance data, and helping Canada's oil and gas sector address emissions reduction.



PTAC advances the deployment of emissions-reducing technologies by coordinating **collaborative field trials** and **independent evaluations** that connect innovators with real-world operational needs.

At the heart of this effort is the <u>TEREE Committee</u> – a PTAC member-exclusive, invitation-only forum that brings together **producers**, **regulators**, **researchers**, **and technology providers** to guide and shape emissions innovation.

Meeting quarterly, **TEREE** enables strategic dialogue, shares field insights, and identifies high-impact technologies for implementation. The TEREE Network Committee includes representation from Oil and Gas Producers, Government, Industry Associations, and Technology Providers.

In 2024–25, TEREE advanced critical discussions on

- Methane emissions detection, quantification and reduction,
- 2. Solution gas flaring, and
- 3. Regulatory barriers.

Delivering data-driven insights that de-risk technology adoption, support regulatory alignment, and ensure solutions are technically and economically viable for the oil and gas sector.



"Improving oil and gas emission and eco-efficiency outcomes has been the core of the TEREE focus for decades already. Improving these outcomes is often of benefit to industry as a whole and is less competitive in nature, which is why it makes sense to overcome barriers, tackle common challenges and be part of this TEREE Committee. With focus on making more informed decisions and accelerating deployment of technically and economically viable solutions, there are many way to accomplish such. Furthermore, it is really hard to over communicate and really easy to under communicate and TEREE helps bridge that gap. Continued engagement by participating in the TEREE Committee is time well spent, delivers value and helps this community stay connected. My thanks to PTAC for the opportunity to be Co-Chair and to TEREE Committee folks for their contributions and commitment to this focus. PTAC appreciates that each of us have finite available bandwidth and need to balance these efforts with many other priorities also needing attention."

- Brian Van Vliet, Manager, Environment Solutions – Spartan Controls



In Winter 2024, PTAC hosted a virtual Technology Information Session (PTAC–TIS), spotlighting novel methane reduction technologies that could be used in emissions management for the oil and gas industry.

**Participation in a quarterly PTAC–TIS is an exclusive benefit for PTAC Members**, offering the opportunity to join a panel discussion and share updates on their technology with the PTAC community.

The "Cutting-edge Emissions Management" session was led by:



**DOMINIC PITUCH**PRODUCT MANAGER



**EDAN PRABHU** CEO & Founder



JEAN-PHILIPPE GAGNON
FIELD APPLICATION ENGINEER



Introduced Compressed Air Pneumatics (CAP), a solution proposed to substantially reduce methane emissions from pneumatic devices.



Presented Phase 1 results of the Oxiperator, targeting methane slip from leanburn engines.



Demonstrated airborne infrared hyperspectral imaging for advanced methane detection.

The TIS reinforced PTAC's role in connecting industry with potential high-impact innovations that could support **emissions regulatory compliance.** 

Interested in sharing your expertise at a PTAC Technology Information Session? Inquire at <a href="mailto:info@ptac.org">info@ptac.org</a>.



#### Canada's Premier Methane Reduction Event

Since 2018, the **PTAC's Methane Leadership Summit (PTAC-MLS)** has become Canada's premier event for methane emissions reduction, drawing 300+ leaders annually from industry, government, and cleantech.

More than just a conference, **PTAC-MLS** is a launchpad for action – where policy meets practice, innovation meets industry, and ideas turn into real-world impact.

#### Why Attend:

- · Leading insights on methane tech, policy, and strategy
- Cross-sector collaboration driving real-world deployment
- High-level networking with decision-makers shaping Canada's emissions future

PTAC's 2024 and 2025 summits—including a 2025 sellout two weeks early—reflect the sector's growing momentum toward performance and innovation:



**350+ Delegates** from Across Canada, the USA and Globally



28+ Oil & Gas Producers Represented 20% of Attendees



**30+ Exhibitors** Including Tech Developers and Industry Associations



17 Panel Sessions With a Diverse and Knowledgeable Mix of Stakeholders



**7+ Hours of Impactful Networking** Opportunities Over 2 Powerful Days

# Save the Date: PTAC-MLS 2026 | April 14 & 15 | Banff, Alberta, Canada

Join hundreds of changemakers to shape the future of methane management in Canada and beyond. **Spots are limited and Sponsorship opportunities are now available!** 

If you're serious about innovation, emissions reduction, this is the summit you can't miss.









PTAC is playing a pivotal role in moving proven technologies beyond pilots and into commercial-scale deployment. Leveraging its collaborative model and deep industry ties, PTAC enables the scale-up of field-tested, emissions-reducing solutions, helping oil and gas producers to lower costs, reduce risk, and unlock compliance and carbon value.

This next phase of PTAC's innovation pipeline focuses on advancing TRL 6+ technologies, including methane slip mitigation, pneumatic electrification, steam + CO<sub>2</sub> co-injection, and Al-driven emissions monitoring, into operational use across oilfield sites.

By enabling commercialization, regulatory alignment, and industry uptake, PTAC works with industry to support solutions that deliver real, scalable impact in upstream operations.

Continue reading for an inside look at PTAC's four leading 2024–25 Technology Development Projects in the Methane & GHG Emissions Reduction.















# Oxiperator Scalable Methane Slip Mitigation for Lean-Burn Engines Scale-up

Launched with PTAC's Alberta Upstream Petroleum Research Fund (AUPRF) in 2023, the Oxiperator project received a major boost in 2025 with additional industry and government support. Led by Prabhu Energy Labs (PEL) and supported by PTAC and a cross-border group of industry and research partners, this initiative aims to advance a tailpipe technology that substantially reduces methane slip from lean-burn gas engines — without catalysts or engine modifications.

#### The Innovation

The Oxiperator is a high-temperature, porous heat exchanger. Laboratory tests indicate the Oxiperator may oxidize high percentage of methane, VOCs, and CO directly from engine exhaust, with results varying by application and conditions.

It operates using the heat of combustion—no noble metals, no external power, no NOx emissions. This bolt-on system retrofits easily onto existing engines, offering a low-cost, low-maintenance solution for methane reduction across Canada's upstream oil and gas sector.

#### 2024-25 Project Objectives

Advance the Oxiperator from **TRL 6 to 7** through lab and field validation on a full-size engine, while positioning the system for broader deployment across new and legacy engine fleets.

# **PTAC's Strategic Role**

#### PTAC provides:

- Project governance
- Funding via AUPRF
- · Regulatory engagement
- Stakeholder mobilization

By leveraging its **CanERIC network and deep methane mitigation expertise**, PTAC is helping drive the Oxiperator toward realworld impact and commercialization.

# **Long-Term Value**

- Offering a cost-effective alternative to catalytic converters or engine replacement
- Enabling carbon credit generation and regulatory compliance
- Catalyzing cleantech IP growth and advanced manufacturing opportunities
- Emissions reduction and field-ready innovation

#### **Project Snapshot**

- Lead: Prabhu Energy Labs
- Partners: PTAC, Colorado State University (CSU), Birchcliff Energy, Tourmaline, Kiwetinohk, NGIF
- Funders: NRCan, PTAC/AUPRF, NGIF, US DOE, California Energy Commission
- Timeline: Dec 2024 Dec 2026
- PTAC Role: Project stewardship, funding, engagement, and commercialization support

#### **Project Targets**

- Aim for 95–99% emissions reduction
- Scalable deployment potential across 11,000+ gas-fired engines in Canada
- Prototype validation at CSU and Alberta field sites
- Pathway to commercialization in both domestic and international markets

The Oxiperator represents a high-impact, retrofit-ready solution that aligns environmental outcomes with operational feasibility.



# Thermo-Acoustic Wellsite Electrification for Methane Abatement

Launched in 2024, this project aims to **deploy Etalim's 1GEN Thermo-Acoustic Converter (TAC)** system as a **remote power solution** to potentially reduce emissions from **gas wellsites**. This initiative is advancing the electrification of wellsite operations using field gas to displace methane-venting pneumatics and reduce emissions.

#### **Innovation & Impact**

Etalim's 1GEN system uses a patented Thermo-Acoustic Converter (TAC) engine that provides long-lasting, maintenance-free, and load-following power, converting heat from field gas into reliable electric power — without moving parts, oil, or regular maintenance.

By enabling wellsite electrification, the technology provides a lower-cost, low-emission alternative to methane-powered pneumatics and other venting systems.

#### **Project Snapshot**

- Technology: 1GEN TAC engine a patented, maintenance-free, load-following generator ideal for small to medium wellsites
- Project Lead: Etalim
- Supported by: PTAC
- Funders: CRIN, ERA, NGIF, Birchcliff Energy, Perpetual Energy, Petronas, Tourmaline, Spartan Controls

#### **Expected Outcomes**

- Build and deploy 1GEN units across diverse wellsite conditions
- Complete pilot site selection and initiate production
- Share anonymized data to inform best practices industry-wide



Natural Gas-Fired Thermoacoustic Converter (TAC) Engine

With the first production units nearing completion and pilot sites being finalized, this project is advancing on time and on budget.

It demonstrates a potentially scalable pathway to:

- Reduce methane emissions at remote oil and gas sites;
- Contribute to Canada's broader cleantech and sustainability efforts;
- Facilitate the responsible use of **natural gas** as an energy source.



# Co-Injection Technology to Advance Oil Recovery and GHG Reduction

PTAC, in partnership with **General Energy Recovery Inc (GERI)** and **CRIN**, is supporting a cutting-edge project that aligns enhanced oil recovery with GHG emissions reduction.

This 2024-25 project showcases how innovation at the intersection of energy efficiency and sustainability can **support production growth** while aiming to reduce environmental impacts.

#### The Technology

At the heart of the project is GERI's flexible and field-ready Direct Contact Steam Generation (DCSG) system – a portable, field-ready solution that co-injects steam and combustion exhaust gases ( $CO_2$  and  $N_2$ ) directly into heavy oil reservoirs. This integrated approach delivers heat and pressure for improved recovery, while permanently storing some of the injected  $CO_2$  underground.

By utilizing these gases underground instead of venting them to the atmosphere, the technology tackles two major challenges in oil recovery: supplying heat and maintaining reservoir pressure.

#### **Project Snapshot**

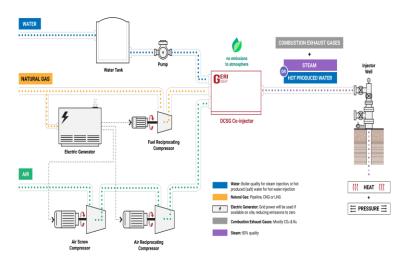
- Lead: GERI a Canadian leader in heavy oil recovery
- Partners: PTAC, CRIN
- Technology: Mobile, scalable DCSG units for cyclic or continuous use
- Focus: Increase recovery, reduce GHGs, and enable in-situ carbon storage
- Measurement: GHG monitoring and reporting aligned with Alberta standards

#### **Impact & Value**

This project offers a dual benefit:

- Enhanced oil production through optimized steam and gas injection
- Reducing emissions by utilizing and storing

Following four successful pilot projects, the fifth demonstration, in Northern Alberta, aims to validate performance in a new reservoir type with an even greater potential for CO<sub>2</sub> retention.



This collaboration aims to demonstrate approaches for combining oil recovery with emissions reduction, providing insights that support a cleaner, more efficient future for the oil and gas sector.

GERI's DCSG Co-Injector Process Flow



# Expanding AI-Powered Emissions Monitoring to Alberta's Agriculture Sector

PTAC, in partnership with VL Energy and 10 Hutterite colonies, is helping bring a first-of-its-kind, regulator-approved emissions monitoring system to Alberta's agricultural sector.

Backed by funding from **Emissions Reduction Alberta** (ERA), the project aims to deploy +20 Alpowered Predictive Emissions Monitoring System (PEMS) at Combined Heat and Power (CHP) facilities in food and meat processing operations between 2025–2027, leveraging the technology's success in the energy sector.

#### **Innovation & Impact**

This project scales Canada's only regulator-approved PEMS from oil and gas to agriculture. VL Energy's PEMS uses machine learning and real-time data to: Optimize combustion efficiency, improve uptime, enable emissions reporting aligned with Alberta's TIER compliance framework, and support carbon credit generation.

#### **Project Snapshot**

- Lead: VL Energy Ltd.
- Partners: PTAC, 10 Hutterite Colonies
- Funder: ERA
- Timeline: 2025–2027
- PTAC Role: Project stewardship, knowledge mobilization, and capacity-building

#### **Expected Outcomes**

- Increase in energy efficiency
- Potential creation of dozens of Alberta jobs
- Intended development of scalable commercialization model for agriculture and other sectors

Building on successful demonstrations with **Suncor** and the **University of Calgary**, Phase 2, launched in partnership with **VL Energy, the Government of Alberta, Emissions Reduction Alberta, and PTAC**, focuses on the installation and demonstration of VL Energy's Novel Predictive Emissions Monitoring System in the agriculture sector.

**PTAC's Strategic Role:** PTAC is managing multi-stakeholder collaboration, supporting regulatory engagement, and facilitating knowledge transfer. Its broad network and trusted project governance model help de-risk adoption, enabling faster uptake of clean technology in rural communities.

# **Long-Term Value**

This initiative aims to generate high-impact results with potential benefits across economic, environmental, and technological fronts.



- Aims to advance **digital decarbonization** in commercial agriculture.
- Seeks to improve resilience and productivity through real-time optimization.
- Supports the potential development of AI/ML skills in Alberta.
- Contributes to a framework for cross-sector clean tech adoption.

"With funding from the Government of Alberta and ERA, VL Energy, and PTAC are advancing the deployment of our Novel Predictive Emission Monitoring System in agriculture, enhancing large-scale facilities by improving energy efficiency, reducing costs, and unlocking opportunities for carbon revenue and ESG reporting. This will enable scaling to other verticals, creating new jobs, enhancing energy efficiency in Alberta, and ensuring the delivery of critical resources locally and globally."

Ling Bai, CEO and Founder – VL Energy

**Emerging technologies often fail due to a lack of industry alignment.** PTAC bridges that gap by helping innovators understand producer needs, test technologies in the field, and secure funding for deployment—supporting cleantech solutions from software platforms to hardware systems and moving innovations from vision to validation and scale-up.

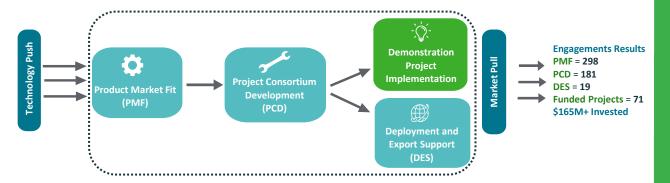
# **Enabling Market-Ready Solutions Through NRC-IRAP**

PTAC helps innovators bring new technologies to market by connecting technical ideas with commercial needs. Through partnerships like the **National Research Council's Industrial Research Assistance Program (NRC-IRAP)**, PTAC provides early-stage support to Small and Medium-sized Enterprises (SMEs), helping them identify market opportunities, secure funding, and prepare for deployment.

Nearly 300 product-market fit engagements through NRC-IRAP have been executed to date, resulting in the launch of **71 projects**, with **a total investment value of \$165 million**.

#### **Three Phased Assistance**

- 1. Product-Market Fit Engagement (PMF)
  - Equip SMEs with crucial insights into technology gaps, market needs and competitive landscape
- 2. Project Consortium Development (PCD)
  - Advise SME on developing a demonstration project and securing funding
- 3. Deployment and Export Support (DES)
  - Advise clients on deploying products and services in domestic and international markets, helping them unlock growth potential and connect with venture capital funding



In 2024–2025, PTAC supported leading innovation projects focused on emissions management, digital monitoring-reporting-and-verification (MRV), and global technology deployment, demonstrating our role in facilitating high-impact solutions through strategic collaboration.

PTAC empowers SMEs to innovate, commercialize, and compete globally.

#### From Vision to Validation:

# PTAC's Support in CarbonAi's Expansion

CarbonAi provides a digital monitoring-reporting-and-verification (MRV) platform that has verified and enabled the sale of carbon credits from 12,500+ methane sources.

With support from PTAC and NRC-IRAP, the company accelerated development, engaged key stakeholders, and expanded globally in 2024-25. Participation in PTAC initiatives have helped CarbonAi in its efforts to boost credibility, de-risk market entry and open new funding and export opportunities. In the last fiscal year, CarbonAi saw strong growth in both sales and team size, with continued momentum as global demand for MRV solutions rises.

"PTAC continues to support collaborative action within the Canadian energy landscape and CarbonAi is pleased to contribute to PTAC's export of knowledge and smart practices to the international energy community."

- Kelly Parker, Director, GHG Projects - CarbonAl



#### From Pilot to Demonstrated:

PTAC's Role in Supporting the Scaling of Qube's Continuous Monitoring Technology

Qube Technologies delivers real-time, solar-powered methane and air quality monitoring using IoT sensors. Real-time monitoring would allow operators to identify fugitive emissions earlier, enabling the operator to take earlier action to address the emission source. Field reports indicate Qube's technology has the potential to reduce monitoring costs significantly, with reported reductions of up to 80%, depending on site conditions. With over 6,000 sensors at 1,000+ sites, it became the first U.S. EPA-approved continuous monitoring tech in 2025.

Support from PTAC and NRC-IRAP has helped accelerate deployment, enhance international visibility, and support potential growth as Qube explores expansion into Europe, the Middle East, and additional sectors, such as renewable natural gas.

"PTAC's field demonstrations and showcase opportunities fostered Qube's continuous monitoring technology to scale globally and enter new markets."

- Alex MacGregor, CEO – Qube Technologies



# From Validation to International Adoption:

PTAC's Role in Kuva Systems' Methane Monitoring Success

Kuva Systems delivers an advanced camera-to-cloud solution for continuous methane and VOC monitoring, with high leak detection accuracy. Approved by the Alberta Energy Regulator, Kuva's technology is deployed at hundreds of sites across North America. With strategic support from PTAC and NRC-IRAP, the company has accelerated deployment, expanded global reach, and secured vital partnerships. In June 2025, Kuva was acquired by Sensirion Connected Solutions to scale its emissions monitoring platform internationally, with pilot projects now underway in Australia and South America.

"PTAC has played a valuable role in connecting Kuva with key stakeholders and platforms that helped us further market access and visibility for our advanced commercialized emissions monitoring technology".

- Monica Sippola, Director of Business Development - Kuva Systems



## **Supporting Global Deployment:**

PTAC's Role in Highwood's Compliance-Focused Growth

Highwood Emissions Management offers the first systematized measurement-informed inventory (MII) workflow for methane in oil and gas. Its Emissions Intelligence Platform (EIP), launched in January 2025, enables compliance by combining engineering data with real measurements. With support from PTAC and NRC-IRAP, Highwood enhanced market insights, supported deployment, and strengthened its international presence. Currently scaling into Europe, Asia, and Latin America, Highwood continues to provide operators with tools to help meet methane standards efficiently.

"At Highwood, we've built the tools operators need to produce defensible, measurement-informed methane inventories. PTAC's support accelerated our ability to validate the platform with real users, scale deployment, and position Canadian innovation at the forefront of global methane management."

- Jessica Shumlich, CEO - Highwood Emissions Management



As part of our ongoing commitment to supporting Small and Medium-sized Enterprises (SMEs) within the innovation ecosystem, PTAC hosts multiple Technology Information Sessions (TIS) for PTAC Members each year.

These sessions showcase cutting-edge technologies that drive market adoption and deliver practical, deployment-ready solutions to the industry. Participation in a quarterly PTAC-TIS is an exclusive benefit for PTAC Members, offering the opportunity to join a panel discussion and share updates on their technology with the PTAC community.

In May 2024, PTAC featured four standout SMEs in a focused TIS on Remote Task Management, Enhanced Oil Recovery, Emissions Monitoring, and Leak Detection for Operational Efficiency. The session was led by:

- CarbonAi Remote task management solutions to optimize field operations
- GERI Enhanced oil recovery through advanced CO<sub>2</sub> technologies
- **GHGSat** Satellite-based emissions monitoring at asset-level precision
- **Opgal** High-performance optical gas imaging for leak detection





**YOERI GEERITS HEAD OF GROWTH** 



**BRIAN KAY** CHIEF TECHNOLOGY OFFICER





**STANLEY OPARA SOLUTIONS ARCHITECT** 



RAM HASHMONAY

CHIEF INNOVATION SCIENTIST

By facilitating these strategic connections, PTAC works with SMEs to support the alignment of innovation with industry needs and the potential deployment of emissions-reducing solutions across Canada's energy sector.

Interested in sharing your expertise at a PTAC Technology Information Session? Inquire at info@ptac.org.



## Digital innovation is no longer optional—it's essential.

PTAC supports the advancement of digital solutions such as artificial intelligence (AI), real-time monitoring, and emissions intelligence technologies that can improve operational visibility, assist with compliance, and help reduce costs.

This section highlights PTAC's 2024–25 activities that supported and scaled digital initiatives, contributing to efforts aimed at enhancing operational efficiency and productivity while generating practical benefits for the oil and gas industry.













# 2024 PTAC Digital Innovation Forum

With a focus on collaborative innovation, **PTAC's 2024 Digital Innovation Forum**, held in Calgary on November 2024, brought the future of oil and gas in the digital world into sharp focus.

The event showcased advancements in **digitalization**, **safety**, **and sustainability**, uniting industry leaders, entrepreneurs, and researchers to explore how technologies are supporting efforts to enhance operational efficiency, reduce emissions, and improve environmental performance.

# Building on this energy and momentum, PTAC is excited to host the **2026 PTAC Digital Innovation Forum:**

Canadian Energy Powering Data Centers

Join PTAC next March 2026 as we explore how Canada's energy sector is supporting the future of digital infrastructure. This dynamic event will highlight the data center revolution, showcase Alberta's unique competitive edge, and examine the strategic advantages fueling industry growth.

Expect insights into real-world innovation, key regulatory updates, and much more, all aimed at accelerating cross-sector collaboration and delivering lasting impact.



In February 2025, PTAC hosted a virtual Technology Information Session (TIS) focused on leveraging data-driven insights to enhance environmental monitoring.

**PTAC Members gain exclusive access to quarterly TIS panels** – an opportunity to showcase technologies and connect directly with the PTAC community.

Industry experts from Analythium Solutions, EnviroApps, Kinitics Automation, and Process Ecology, presented innovations in emissions management, supply chain safety, actuator technology, and data automation.







**AMIT BHARGAVA**CO-FOUNDER & CEO



**DEAN PICK**PRESIDENT



KHALID LEMZOUJI SENIOR STATISTICAL AND DATA SCIENCE ADVISOR









The session showcased powerful, real-world solutions that have the potential to turn raw data into smart strategies, aimed at enhancing productivity, reducing costs, and sparking collaboration and knowledge-sharing across the oil and gas sector.

Interested in sharing your expertise at a PTAC Technology Information Session? Inquire at info@ptac.org.



# **Automated Wildfire Monitoring:**

## AI-Enabled Drone Surveillance Project

Facilitated by PTAC and led by AIRmarket, this project integrates AI-powered, long-range drones into Alberta's wildfire management strategy. The initiative involves conducting beyond visual line of sight (BVLOS) drone missions in wildfire zones, using real-time visual and infrared imaging to detect fire activity within seconds and provide timely, accurate information for emergency response.

The Automated Wildfire Monitoring project is intended to improve operational efficiency and reduce response costs across multiple sectors. By enhancing wildfire detection and management, it supports efforts to safeguard Alberta's critical industries, including forestry and energy, while also contributing to the resilience of municipalities and Indigenous communities frequently affected by wildfires.

Ultimately, this initiative has potential transferability from oil and gas to other industries, seeking to support a more sustainable and secure future for Alberta by protecting its diverse economy, strengthening community resilience, and contributing to the well-being of Canadians working directly and indirectly in the energy industry.



# **Emissions Intelligence Platform (EIP)**

SaaS Emissions Management Solution for the Oil and Gas Sector

Facilitated by PTAC's Digital Innovation team, Highwood Emissions' Emissions Intelligence Platform (EIP) is a Software-as-a-Service (SaaS) solution designed to help oil and gas companies manage, reconcile, and reduce emissions using frameworks like Veritas and OGMP 2.0. Building on their existing Reduction Pathways software, the EIP enables operators to generate measurement-informed inventories, prioritize repairs, and manage emissions compliance more effectively.

The project also aims to support economic growth and long-term sustainability by enabling job creation, workforce upskilling, and export opportunities. Adoption of the EIP is anticipated to contribute to improved operational efficiency and support efforts to reduce emissions within oil and gas and other carbon-intensive sectors. The platform is also intended to help build expertise in emissions intelligence across Alberta, in an effort to strengthen the province's position in emissions intelligence.

PTAC supported the development and launch of EIP through Alberta Innovates' Digital Innovation in Clean Energy Funding (DICE) funding program and continues to facilitate the platform's role in advancing digital innovation, regulatory readiness, and emissions transparency across Alberta's oil and gas sector.





# Research Advancing Solutions through AUPRF



Applied research is a central part of PTAC's innovation pipeline, especially through the Alberta Upstream Petroleum Research Fund (AUPRF).

AUPRF helps advance technology development and studies that address methane, water, and land challenges, with the aim of supporting improvements in environmental performance in Alberta's oil and gas sector.

Guided by the Canadian
Association of Petroleum
Producers (CAPP) and the
Explorers and Producers
Association of Canada (EPAC),
and supported by contributions
from over 300 producers, AUPRF
focuses on priority areas such as
GHG emissions, water
management, species at risk,
site remediation, and well
decommissioning.

The 2025 joint support letter, issued by the Alberta Energy Regulator (AER) and endorsed by CAPP, EPAC, Alberta Energy and Minerals, and Alberta Environment and Protected Areas, highlights the program's importance to industry stakeholders and encourages continued participation.

**AUPRF** delivers practical, cost-effective research solutions in key environmental areas:



Air: Focus on methane and GHG reductions



Water: Water management planning and transportation



Ecology: Protection of species at risk



Remediation & Reclamation: Salt and metal contamination, revegetation



Well Decommissioning: Vent flow and gas migration solutions

# **AUPRF Impact**



Managing 50–60 new and ongoing projects per year



**300+** producer contributors



4:1 funding leverage ratio

"We are justly proud of the history of achievement of the AUPRF program, and its sustaining collaboration between the industry, government, and regulators. We are also proud of the collegial spirit of our five technical committees and our oversight committee. These productive working relationships further the development of effective and reasonably priced solutions for the sector."

# - Scott Volk

Director of Emissions & Innovation, Tourmaline Oil Corp | AUPRF AOC Chair





# 2024-25 Project Spotlight:

## Alternate Cement - An International Collaboration

Building on previous years' work, in 2024 and early 2025, PTAC guided a consortium to explore innovative alternatives to cement for well decommissioning, funded by **AUPRF** and supported by **CRIN**, **NZTC**, **InnoTech Alberta**, **Frontier**, **and Canadian oil and gas operators**.

This initiative resulted in a **19:1 funding leverage ratio**, with over \$2.7 million contributed by participants. Six products underwent testing across **14** field trials, resulting in four promising technologies.

#### Phase 1 Insights:

- Well conditions greatly influence product performance.
- Operational challenges relate to placement timing.
- Better diagnostic tools and standardized perforation procedures are needed.
- Product uncertainties under different pressure conditions are acknowledged.



#### **Canadian Collaboration**

PTAC, CRIN, NZTC, Innotech Alberta, Frontier, and a consortium of Canadian Operators are testing alternate products in place of cement for well decommissioning and remediation Phase 1 Consortium – Completed in 2025





















Products Tested 14 Field Trials

Technologies
Deployed





# **Ecology and Environmental Data Management**

PTAC's AUPRF Program is enhancing WildTrax, an open-access environmental data platform developed by the Alberta Biodiversity Monitoring Institute (ABMI).

WildTrax centralizes data from autonomous recording units and remote cameras, supporting the enhancement of wildlife and ecosystem monitoring, including a near-term focus on the endangered pileated woodpecker to better understand the impacts of oil and gas development on the species.

Significant improvements in automated species recognition and data management were achieved in 2024-25, aiming to establish the platform as a key tool in biodiversity monitoring across Canada.

# **Water Management: Alberta Water Tool**

The Alberta Water Tool, developed by Foundry Spatial and supported by AUPRF, offers real-time insights into Alberta's water resources. This user-friendly platform helps oil and gas producers, regulators, and communities assess water availability based on natural supply, demand, and environmental needs.

In 2024, updates aligned the tool with the Government of Alberta's Surface Water Allocation Directive, enhancing accuracy and regulatory relevance.

## **Reclamation & Remediation Initiatives**

AUPRF's Remediation and Reclamation Research Committee has advanced reclamation efforts in Alberta through two key projects supporting the 2025 Peatland Pilot Project. These include: Certification of Mineral Soil Pads to develop a decision framework and Site End Land Use Recommendation Calculator supports science-based decisions for reclaiming oil and gas sites on peatlands.

Additionally, AUPRF is preparing fact-based evidence to support variance justifications for managing weeds and problematic species on wellsites and related facilities, supported by Alberta Environment and Protected Areas. This project aims to assist operators and improve regulatory compliance.

Through these efforts, AUPRF continues to support the advancement of innovation and contribute to the refinement of environmental practices in Alberta's oil and gas sector.

**PTAC Members gain exclusive access to quarterly TIS panels** – an opportunity to showcase technologies and connect directly with the PTAC community.

On October 2024, PTAC hosted a virtual Technology Information Session (TIS) focused on innovative soil remediation techniques. In this panel discussion, led by PTAC Members, attendees heard from four industry leaders: Angela Vande of Vande Consulting on **hydrocarbon and salt treatment**, Dean MacKenzie of Vertex Resource Group on **soil-based reclamation solutions**, Kevin Kemball and Michael Chae of NAIT on **strategic environmental partnerships**, and Ravil Ibatullin of URSA Cleantech on **microbial technologies to mitigate methane emissions**.

This redesigned format encouraged dynamic dialogue among participants, featuring multiple presentations and a concluding Q&A session, making it a valuable opportunity for all attendees to engage with and learn about the latest advancements in environmental remediation.



ANGELA VANDE
Technical Services &
Environmental Strategies





**KEVIN KEMBALL**Business

Development Lead





**DEAN MACKENZIE**Vice President,
Environment





RAVIL IBATULLIN
Chief Technological Officer



Interested in sharing your expertise at a PTAC Technology Information Session? Inquire at <a href="mailto:info@ptac.org">info@ptac.org</a>.



Alberta and Canada are making waves in the global energy landscape, and PTAC is there to support this impact. As we work towards supporting the expansion of our innovation ecosystem, our mission is directly focused on positioning Canadian cleantech companies at the forefront of global energy innovations and responsible practices.

# **Expanding Market Exposure for PTAC Members**



#### **COP29**

PTAC demonstrated leadership by hosting panels focused on carbon neutrality, methane reduction technologies, and digital innovations in emissions management.

Our presence underscored climate achievements in **British Columbia, Alberta and Saskatchewan**, and showcased solutions emerging from our cleantech and energy sectors, reinforcing Canada's role as a global partner in clean energy advancement.

# Offshore Technology Conference (OTC)

In May 2024, PTAC partnered with the Canadian Consulate and Alberta Trade Office to elevate Canadian cleantech on a global stage.

By facilitating matchmaking and networking with the Canada-Texas Chamber of Commerce, PTAC helped Canadian SMEs and PTAC members gain invaluable international exposure, expanding their market reach within the energy sector.

#### CERAWeek 2025

PTAC made a strong impression in Houston, engaging with industry leaders and collaborating with members and partners. PTAC facilitated the Canada Methane Centre of Excellence **Roundtable** and showcased innovative technologies from PTAC members in methane measurement and mitigation. PTAC joined a Coffee Hour cosponsored with CRIN and Pathways Alliance, which connected us with influential international stakeholders. reinforcing our commitment to cleantech collaboration between Canada, the U.S, and other jurisdictions across the world.



PTAC is dedicated to advancing global partnerships and highlighting Canadian cleantech.

Canadian innovators are developing technologies intended to reduce methane emissions, capture and store carbon, and manage non-operational oil and gas wells.

To support this, PTAC created the **Canadian Capabilities in Clean Technologies** guides, which highlight areas where Canadian organizations are contributing to methane and emissions reduction, as well as other areas of focus.

These efforts have resulted in PTAC's comprehensive guides and company directories, developed in partnership with the **Canadian Trade Commissioner Service**, which are intended to showcase Canada's capabilities in these important areas.

The guides concentrate on:



Methane Emissions Reduction



<u>Carbon</u> <u>Capture and</u> <u>Storage (CCS)</u>



Environmental Management and Protection



End of Well Producing Life



Offshore Technologies



Government of Canada

Trade Commissioner Service Gouvernement du Canada

Service des délégués commerciaux



**PTAC** is a mission-driven, non-profit organization that plays an important role in Canada's energy innovation ecosystem. Our primary function is to facilitate collaborative research and technology development and commercialization that enhances the environmental and economic performance of the oil and gas sector.

#### What's Next?

# PTAC's Role in Canada's Oil & Gas and Energy Future

PTAC shares industry's vision of Canada becoming an energy superpower that harnesses both conventional and clean energy resources. PTAC is committed to support industry's aspirations for significant emissions reductions expanded market access, and upstream production growth.

Meeting Canada's need to remain economically and environmentally competitive while diversifying markets beyond the United States remains a critical opportunity for producers, meaning PTAC will have a role to play in derisking and scaling innovative technologies that enable production growth.

PTAC supports Canada's oil and gas sector in operating responsibly, balancing economic objectives with environmental management and community collaboration. Through its ongoing efforts, PTAC will continue to provide support to ensure that Canada remains a global leader in energy innovation.

# **PTAC's Strategic Focus Areas**

# A Response to Our Members' Interests



PTAC will continue to play a pivotal role in the energy sector by facilitating the development and deployment of solutions that support both emissions reduction and responsible industry growth. Collaboratively, PTAC fosters innovation by bridging the gap between new practical insights and commercial implementation by our members.

# **Stronger Together:** The PTAC Community

**PTAC's strength lies in its people.** Its members, partners, and champions across the Oil & Gas sector and the innovation ecosystem. The leaders and organizations whose vision, expertise, and commitment drive collaborative success. From our AGM and award winners to our growing membership base, we showcase the network behind PTAC's results—and invite others to join the momentum.

PTAC's growing membership base brings together over 200 organizations from across Canada's energy innovation ecosystem, including Oil & Gas producers, government policy-makers, regulators, small and medium enterprises, innovators, and academic institutions, all united by a shared commitment to collaborative innovation and technological advancement.

# Member Benefits

PTAC members gain access to a robust platform that accelerates innovation, drives impact, and supports industry transformation. Core benefits include:

- Join a Collaborative Network → Connect with 200+ PTAC members, including oil & gas producers, service and supply companies, regulators, innovators, academics, and government partners all committed to collaborative innovation.
- Shape the Future Through Collective Action → Vote on impactful project submissions that define PTAC's innovation agenda and advance industry-wide goals.
- Champion Industry Impact → Participate in or chair committees that guide research priorities, and shape project direction.
- Stay Informed and Connected → Access interactive opportunities to network and stay ahead of emerging technologies, regulatory shifts, and operational practices through access to field trials, technical investigations, and consortia-led initiatives.

- Reduce Costs, Maximize Impact → Share
  the financial burden of R&D with partners
  and funders, making innovation more
  affordable and scalable.
- Mitigate Risk with Confidence → De-risk your innovation investments by sharing technical and financial risks with trusted collaborators.
- Tap Into Collaborative R&D Expertise
   → Access a deep bench of talent from research institutions, industry experts, and innovation leaders.



Leverage diverse strengths and resources of the PTAC Network to fast-track the development, testing, and adoption of technology solutions.



# 2024-25 PTAC Members & Ecosystem Partners

#### Associations













innovate BC

#### Government











### Learning Institutions



















#### **Producers**



















### Research Providers



















PTAC Members Are Crucial to Shaping Canada's Energy Sector.

Join the PTAC Community.





# 2024-25 PTAC Members & Ecosystem Partners

### Small and Medium-sized Enterprises (SMEs) and Service & Supply Companies





















































































































HydrocarbonX Inc.









"We're proud of our continued membership with PTAC, a valued collaboration that enables GHGSat to share methane insights with oil and gas operators in Canada, supporting energy security goals and increased profitability — all while driving impact: methane detection and reduction on a global scale." - **GHGSat Team** 



# 2024-25 PTAC Members & Ecosystem Partners

### Small and Medium-sized Enterprises (SMEs) and Service & Supply Companies



























































































































Transportation - Midstream





"PTAC has been a strong advocate of **Kathairos** and has played an important role in increasing the company's visibility to accelerate technology adoption."- **Jacqueline Peterson PhD, Chief External Affairs Strategist** 

# Alberta Chamber of Resources 2024 Technology and Innovation Leadership Award

PTAC was proud to be recognized by the Alberta Chamber of Resources as the recipient of the 2024 Technology and Innovation Leadership Award. This award honours individuals, organizations, and projects that have made significant contributions to responsible resource development through technology and innovation. We are deeply grateful to the Alberta Chamber of Resources and its Nominating Committee for acknowledging our collective efforts in advancing technology innovation and environmental management.

A heartfelt thank you goes to our dedicated team and valued members, whose support continues to drive PTAC's success!













# 2024 PTAC Leadership Awards

**PTAC's 2024 Annual General Meeting and Leadership Awards Celebration**, held on September 25, provided a meaningful opportunity to recognize and honour exceptional members who have made significant contributions to PTAC and its committees.

The following individuals were celebrated for their outstanding leadership and unwavering commitment to collaborative innovation in Canada's energy sector:

























#### 2024 Award recipients:

Organization Leadership Award: Emissions Reduction Alberta; Lifetime Achievement Award: Joy Romero - Canadian Natural Resources Ltd; President's Award: Matt Bryan - SLB Canada Ltd; Chairperson's Award: Bill Whitelaw, geoLOGIC systems; Outstanding Service Award: Andrew Noseworthy - Independent; Air Quality R&D Leadership Award: Frank Zahner, Accurata Inc.; Air Quality R&D Leadership Award: Milos Krnjaja, Alberta Energy Regulator; Ecological Leadership Award: Erin Bayne, University of Alberta; Remediation and Reclamation Research Leadership Award: Shawn Glessing, Cenovus Energy Inc.; Water Innovation Leadership Award: Ben Kerr, Foundry Spatial Ltd.; Eco-Efficiency Leadership Award: Carolyn Pfau, Alberta Energy Regulator; Well Closure Leadership Award: Scott Mundle, University of Windsor; Commercializing of SME Technology Award: Tamer Al-Ramahi, National Research Council; CanERIC Leadership Award: Claude Ghazar, Alberta Innovates.



## Management Discussion and Analysis For Fiscal Year 2025 Petroleum Technology Alliance Canada (PTAC)

#### **Purpose of Business**

PTAC Petroleum Technology Alliance Canada ("PTAC" or the "Organization") was incorporated in Alberta on October 7, 1996, as a Company limited by Guarantee pursuant to the Companies Act of Alberta. The Organization was formed to facilitate innovation, technology transfer and collaborative research, development, demonstration and deployment of technologies for the responsible development of Western Canada's upstream hydrocarbon energy industry.

PTAC is a not-for-profit organization and, accordingly, under Section 149(1) of the Income Tax Act of Canada, and in management's opinion, is exempt from the payment of income taxes.

#### **Core Business**

PTAC is a mission-driven, non-profit organization that plays an important role in Canada's energy innovation ecosystem. Its primary function is to facilitate collaborative research and technology development and commercialization that enhances the environmental and economic performance of the oil and gas sector.

#### MANAGEMENT'S DISCUSSION AND ANALYSIS

This Management's Discussion and Analysis ("MD&A") of the financial position and results of operations of PTAC is for the year ended March 31, 2025. For a full understanding of the financial position and results of operations of the Company, the MD&A should be read in conjunction with the financial statements and Annual Reports. These documents are provided and reviewed by the Board of Directors and the Executive Committee.

PTAC's management is responsible for the integrity of the information contained in this report and for the consistency between the MD&A and financial statements. In the preparation of the financial statements, estimates are necessary to determine future values for certain assets and liabilities. Management believes these estimates have been based on careful judgments and have been properly presented. The financial statements have been prepared using policies and procedures established by management and fairly reflect PTAC's financial position and results of operations.

PTAC's unique value proposition lies in its ability to:

- Act as a neutral convener: Bringing together producers, service companies, technology developers, regulators, and researchers.
- Accelerate innovation: Supporting pilot projects, field trials, and knowledge dissemination, as well



as leveraging industry investments by upwards of 5 times.

• Support policy and regulatory alignment: Informing evidence-based policy and helping industry meet evolving requirements.

In FY2025, PTAC's portfolio included projects in:

- Methane detection and reduction
- Digital transformation of field operations
- Alternative cement and low-carbon well barrier materials
- Remote sensing and environmental monitoring

These initiatives directly support the industry's long-term competitiveness via cost savings, resource conservation and environmental management goals.

#### **Corporate Governance**

PTAC's governance framework ensures strategic clarity, operational accountability, and stakeholder trust.

#### **Board of Directors**

Composed of senior executives and thought leaders from oil and gas, clean tech, regulatory and public policy, the Board provides diverse perspectives and ensures alignment with industry innovation priorities.

#### **Function of the Board**

- Strategic planning and oversight
- Financial stewardship
- Leadership development and succession

#### **Committees**

- Finance and Audit Committee: Oversees financial reporting and internal controls.
- Executive Committee: Ensures board effectiveness and diversity and oversees routine matters of PTAC.

This structure enables PTAC to remain agile, transparent, and mission-aligned.

#### Capacity to Deliver

A combination of strong financial resources, operational maturity, and strategic partnerships underpinned PTAC's capacity to deliver on its mission in FY2025. The organization's overall revenue was

\$20.8 million. The organization's ability to secure multi-year funding agreements with both government and industry partners further reinforced its financial resilience and planning capacity.

Operationally, PTAC demonstrated its ability to manage complex, multi-stakeholder projects across a range of technical domains, including methane emissions reduction, digital innovation, and clean resource development. The organization enhanced its internal systems by investing in project management tools, CRM platforms, and digital infrastructure to improve efficiency, transparency, and stakeholder engagement.

PTAC also expanded its technical and administrative teams to support the increasing scale and complexity of its operations. Through regular engagement with members, hosting of technical forums, and collaboration with industry and regulatory institutions, PTAC strengthened its role as a trusted facilitator of innovation. These capabilities collectively position PTAC to continue delivering high-impact outcomes in a rapidly evolving energy landscape.

Finally, PTAC is delivering these results while incurring one of the lowest overhead cost rates of similar organizations. Project management fees can vary between 8% and 15% depending on the circumstances, and PTAC is always searching for ways to lower these costs.

#### **Financial Highlights**

In Fiscal Year 2025, PTAC achieved a cash revenue of \$5.1 million, reflecting a notable increase from the previous fiscal year. This growth underscores the organization's strengthened financial position and its expanding role in Canada's energy innovation ecosystem. The total revenue for FY2025 reached \$20.8 million, up from FY2024, and included \$14.8 million in in-kind contributions and \$0.9 million from memberships, events, and interest income. Additionally, PTAC maintained \$6 million in GIC investments, ensuring liquidity and a stable source of interest income. The increase in cash revenue not only reflects successful stakeholder engagement and funding strategies but also enhances PTAC's capacity to invest in long-term, high-impact initiatives aligned with its mission. Net revenues in 2025 were a negative \$0.6 million, mainly due to one-time expenses.

#### **In-kind Revenue and Expenses**

For PTAC, tracking in-kind revenues offers a strategic advantage in demonstrating the full value of its collaborative innovation model. PTAC relies heavily on partnerships with industry, technology developers and government to advance clean technology and operational efficiency in the oil and gas sector. In-kind contributions—such as third-party financial support, donated equipment, volunteer technical expertise, or access to proprietary data—represent significant non-cash investments that fuel PTAC's research and pilot projects. By systematically tracking these contributions, PTAC can more accurately reflect the total resources mobilized for each initiative, enhancing transparency and reinforcing its role as a catalyst for industry-driven innovation.



# Management Discussion and Analysis For Fiscal Year 2025

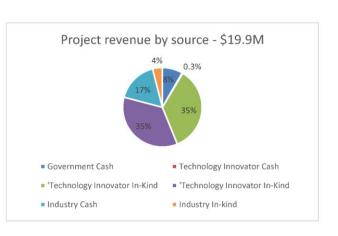
Additionally, documenting in-kind revenues strengthens PTAC's ability to attract funding and build trust with stakeholders. Funders and partners are increasingly interested in leveraging their investments, and in-kind tracking provides concrete evidence of cost-sharing and broad sector engagement. This data not only supports grant applications and annual reporting but also helps PTAC evaluate project efficiency and identify high-impact collaborations. Ultimately, it enables PTAC to tell a more compelling story about its value proposition—one that goes beyond financial metrics to highlight the collective commitment of Canada's oil and gas sector to sustainable development and technological advancement.

Although in-kind gifts constitute a significant source of support for many nonprofits, recording and reporting them correctly can present some unique challenges. PTAC's accounting policy outlines the recognition criteria for in-kind contributions and gross vs. net revenue recognition.

Out of the overall project revenue generated, the in-kind revenue amounted to \$14.8 million (74% of project revenue). This can be further broken down into the following:

- 1. Technology Innovator Government In-Kind (35%) Revenue received from the government that is allocated to the technology company
- 2. Technology Innovator Technology In-Kind (35%) Revenue that generally involves services for the product provider, such as material, software and equipment.
- 3. Industry In-Kind (4%) Revenue that generally involves services such as material, software and equipment.

PTAC generates a significant portion of its revenue from in-kind projects, and hence, it is essential to have it split out and shown differently from the cash revenue. Additional steps are being taken to track the in-kind revenue and expenses in this document rather than including the amount on the financial statements. Although the in-kind revenue and expenses net off against each other, it is crucial to document this as an off-statement number that is used to represent the impact of the organization on funders and to determine the company's performance from all revenues, including in-kind.





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### Independent Auditor's Report

To the Directors of Petroleum Technology Alliance Canada

#### Opinion

We have audited the financial statements of Petroleum Technology Alliance Canada (the "Organization"), which comprise the statement of financial position as at March 31, 2025, and the statements of operations, changes in net assets and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Organization as at March 31, 2025, and its results of operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

#### **Basis for Opinion**

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Organization in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

# Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Organization's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Organization or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Organization's financial reporting process.

#### **Emphasis of Matter**

We draw attention to Note 12, which describes that certain comparative information for the year ended March 31, 2024 was restated. Our opinion is not modified with respect to this matter.



#### Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due
  to fraud or error, design and perform audit procedures responsive to those risks, and obtain
  audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of
  not detecting a material misstatement resulting from fraud is higher than for one resulting from
  error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the
  override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Organization's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Organization's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Organization to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

BDO Canada LLP

Chartered Professional Accountants

Calgary, Alberta September 25, 2025



# Statement of Financial Position

#### **PTAC Petroleum Technology Alliance Canada**

**Statement of Financial Position** 

As at March 31

		2025		202
ASSETS				
Current				
Cash and cash equivalents (note 3)	\$	3,042,448	\$	4,107,27
Restricted cash and cash equivalents (note 4)		7,658,985		7,672,026
Goods and services tax receivable		10,704		30,850
Accounts receivable and accrued receivables		567,438		909,160
Prepaid expenses		130,774		95,390
		11,410,349		12,814,703
Equipment and intangibles (note 5)		3,201		2,439
	\$	11,413,550	\$	12,817,142
LIABILITIES				
Current				
Accounts payable and accrued liabilities	\$	1,544,336	\$	2,666,569
Deferred event revenue		276,490		250,438
Deferred membership revenue		47,644 1,868,470		13,129 2,930,136
Deferred contributions (note 6)	4,491,979		4,247,401	
	·	6,360,449		7,177,537
NET ASSETS		0,000,110		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Invested in equipment and intangibles		3,201		2,439
Internally restricted (note 11)		3,049,900		3,637,166
Reserve (note 11)		2,000,000		2,000,000
	-	5,053,101		5,639,605
	\$	11,413,550	\$	12,817,142

Commitments (note 7)

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#### PTAC Petroleum Technology Alliance Canada

**Statement of Operations** 

For the year ended March 31

	2025	2024 (Restated - Note 12)
Revenue		
Project and service revenue (note 13)	\$ 5,151,393	\$ 6,276,773
Membership revenue	378,978	359,383
Event revenue (note 13)	347,666	423,943
Interest income	129,069	127,754
Miscellaneous income	 2,298	17,847
	 6,009,404	7,205,700
Expenses		
Direct project and service costs	4,194,535	4,765,325
Salaries and benefits	1,681,530	1,398,589
Direct event costs	226,727	171,478
Bad debt	85,945	9,805
Consulting and professional fees	76,602	108,229
Rent	74,800	81,033
Donations	54,100	-
Marketing	53,310	51,817
Office and equipment leases	35,958	11,621
Insurance	33,662	26,434
Computer and website	29,282	35,674
Bank charges and credit card discounts	19,888	16,849
Training	18,071	8,363
Volunteer recognition	9,627	13,595
Amortization	 1,871	708
	 6,595,908	6,699,520
(Deficiency) excess of revenue over expenses	\$ (586,504)	\$ 506,180



On behalf of the entire PTAC team, we extend our sincere gratitude to every stakeholder in our collaborative innovation community – your leadership and commitment are the driving force pushing the boundaries of progress in our industry.

Your engagement with PTAC directly supports our shared mission to fuel industry collaboration and innovation for a stronger, cleaner, and more competitive Canadian energy future.

Thanks to your ongoing efforts, we can continue to facilitate real-world solutions that help improve operational efficiency, reduce emissions, and accelerate the adoption of field-ready technologies. Your commitment to innovation, collaboration, and environmental leadership is what makes PTAC a dynamic and impactful organization.

We look forward to continuing to foster a strong, collaborative culture of innovation that leads to meaningful change for years to come!

# THANK YOU!

# **CONTACT US**

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PTAC Strategy Session – March 2025



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