MISSION

To facilitate innovation, collaborative research and technology development, demonstration and deployment for a responsible Canadian hydrocarbon energy industry.

VISION

To help Canada become a global hydrocarbon energy technology leader through innovation, collaborative research and technology development, demonstration and deployment for a responsible Canadian hydrocarbon energy industry.

Message from the Board of Directors

While depressed oil and gas prices are proving to be a hallmark of the current economy, pressure to manage environmental impacts and reduce greenhouse gas (GHG) emissions continues unabated amidst the challenge to reduce overall recovery costs and improve the efficiency of operations. This dramatic economic and political contrast has industry stakeholders throughout the world wrestling with the same question: How can we continue sustainable and profitable hydrocarbon resource development in this depressed economic environment?

The economic downturn, changes in consumer behaviour, the implementation of measures to increase fuel efficiency, and the adoption of alternative energy sources have already resulted in reduced global market demand for oil and continued significant downward pressure on oil prices. At the same time, the environmental policy of the new administration in the US will likely put significant pressure on industry to reduce GHG emissions in particular and the environmental footprint in general.

Surveying this shifting global landscape, it is imperative that we ask two fundamental questions:

1) How can we develop and produce our conventional and unconventional hydrocarbon resources in a sustainable and profitable manner?
2) How can we convert our resources to production in time and in an efficient and orderly manner to meet the future global demand?

Globally, it is estimated that the world has over 11 trillion barrels (bbls) of light/heavy oil and bitumen resources in total reserves. One trillion bbls have been consumed already, and 1.5 trillion bbls are recoverable with existing technology, leaving approximately 9 trillion bbls of resources untapped. However, technology development offers the opportunity to increase the reserves accessible from these 9 trillion bbls of trapped oil, and to reduce the costs of producing existing reserves. The need to develop new technologies to convert these vast resources into production and reduce the cost of recovery is becoming increasingly evident. If we can develop new technologies and increase the recovery of Canada’s bitumen resource to 30%, which is equal to the current rate of recovery from light oil resources, Canada’s oil reserves could exceed the current reserves of the entire Middle East. In addition, tremendous unconventional gas resources remain untapped. Canada alone has 1500 trillion cubic feet (tcf) of tight gas, 500 tcf of shale gas, 500 tcf of coal bed methane and a massive 28000 tcf of gas hydrates resources. To put this in perspective, Canada’s unconventional gas resources are more than four times the global gas reserves that are currently recoverable with existing technology.

We have enough known conventional, unconventional, and undiscovered resources to meet the foreseeable demand for oil and natural gas. However, converting most of these unconventional resources into economic reserves will not be without challenges, particularly in this difficult time when costs are high, oil price is low, and the expectation to manage the environmental footprint is real.
As new discoveries become smaller in size, and our conventional reserves are depleted, we are going to be forced to reach beyond the low-hanging fruit.

Exploitation of our unconventional resources now demands the development of sophisticated technology that significantly impacts capital and operating costs. Given requirements for new infrastructure, more energy input, and increased water usage to extract unconventional resources, environmental impact is also a significant consideration. Our challenge is to find suitable technologies to produce commercially from these resources while minimizing the environmental footprint.

The ups and downs of the commodity market have taught us a valuable lesson. We cannot rely on high prices in order to achieve profitable sustainable development of our conventional or unconventional resources. Commodity prices are not within our control, and we can only manage what we can control.

Our Canadian experience proves that innovation and the application of technology are the key to profitable and sustainable development of both our conventional and unconventional hydrocarbon resources, and oil sands resources in particular. From the late 1960s to the late 1990s, and then into the early 2000s, innovation and the application of existing and emerging technologies led to a substantial reduction in the cost of oil sands development. Today more than ever, we need government and industry support for ongoing and future technology development. Strong leadership and commitment by both government and industry have been and will continue to be instrumental in developing these technologies. For example, the government of Alberta invested over 80 million dollars and worked closely with industry in the development of SAGD technology, which led to the conversion of significant in-situ oil sands resources into reserves. Such collaboration between government and industry is integral to the successful development of technology. Likewise, industry leadership is also crucial. For example, Encana Corporation has shown great leadership in the development of PTAC-facilitated eco-efficiency projects to reduce GHG emissions and costs. These projects will benefit the entire industry.

The current economy is challenging, but to ensure the future of our industry we need to commit both intellectual expertise and financial resources to develop technologies that enable sustainable, profitable sustainable development of our conventional or unconventional resources. Commodity prices are not within our control, and we can only manage what we can control.

No matter the economy, the fact remains that we have tremendous petroleum resources remaining to be recovered, and there is absolutely no limit to our potential for innovation and creativity. To harness the potential of these resources, we need to invest in research and development to find effective solutions, and there are significant benefits to pursuing these in a collaborative manner. Working together, we can increase our production and reserves in a sustainable manner that is sensitive to the need for both cost reduction and reduced environmental impact, while respecting proprietary ownership of technologies.

From the very beginning, PTAC volunteers have formed the cornerstone of this organization, dedicating their time, energy, and talent to pursue this collaborative approach. Many expert volunteers have dedicated their valuable time to PTAC’s Board of Directors, Board Committees, and technical steering committees and subcommittees. We would like to take this opportunity to thank the two hundred and eighty volunteers who have carried on that legacy of service in 2008 by dedicating this Annual Report to them; after all this is what PTAC is all about.

Sohed Asgarpour, Ph.D., P.Eng
President
Fred Hutchings
Chairperson
In 2008, PTAC completed the reorganization and streamlining of the historical ‘Technical Areas of Interest’ into three main PTAC Technology Areas and a small number of complementary ‘Technical Areas’. As a result, PTAC was able to focus more intensely on project management in the technology areas of Enhanced Environmental Management, Technology Transfer, and Innovative Usage of Refining, Petrochemical Technologies, and Transportation. PTAC accomplished many diverse goals in each of these areas, from the coordination of successful events such as the Global Petroleum Conference, to the launch of multi-million dollar research projects under TEREE (Technology for Emission Reduction & Eco-Efficiency), AUPFR (Alberta Upstream Petroleum Research Fund), and ADDOE (Alberta Department of Energy), taking new steps with industry partners in collaborative research under the CO2s and Alternative Energy Committees, and helping Small and Medium Enterprises (SMEs) make new inroads in bringing their technologies to industry.

Building upon the new structure unveiled in 2007, PTAC continued to tailor their 2008 events calendar to ensure clear alignment with stakeholder demand. The resulting events were very well attended, and offered participants timely and relevant learning opportunities to bring valuable information back to their organizations. In May, PTAC once again held the annual Spring Water Forum, a very successful event, with eleven presenters discussing existing and emerging technologies to reduce water consumption. Then in June, the world took notice as PTAC hosted the Global Petroleum Conference, which included 104 technical and business presentations by nationally and internationally respected experts. The conference focused on reducing overall costs and minimizing the environmental footprint using innovative technology solutions. Over the course of three days the speakers brought the latest successful projects to the ever-attentive audience, and also provided a forum for the exchange of ideas and information sessions in 2008.

In addition, in 2008 PTAC was awarded a $1.5 M grant from the Alberta Department of Energy. This grant will assist in achieving the Department’s mission to optimize sustained contributions of Alberta’s energy and mineral resources. The research project will focus on the development of industry-identified technologies with a clear path to commercialization.

PTAC is focused on the development of industry-identified technologies with a clear path to commercialization. The objective of the research plan is to promote the application of existing and emerging technologies and the development and adoption of new technologies to minimize the environmental footprint, maximize hydrocarbon recovery, and reduce capital and operating costs for the sustainable exploration, exploitation and development of hydrocarbon resources. The research grant provided by Alberta Energy will provide the foundation and structure to promote additional industry support and focus for projects leveraging funding from industry and other organizations.

The Alberta Saline Aquifer Project (ASAP) and the Alternative Energy Solutions for Oil Sands Project (AESOS) exemplify the major steps PTAC has taken with industry partners in 2008. ASAP, led by Enbridge and operating under the PTAC CO2 EHR Committee, will identify and prioritize three or more suitable deep saline aquifer locations for a pilot program to demonstrate the feasibility of CO2 sequestration. PTAC has assisted with the preparation of a funding development plan, funding applications, information dissemination and administrative services to launch this project. ASAP involves industry participants, government agencies, academic organizations and consultants working in the PTAC collaborative model to design and demonstrate safe and reliable long term sequestration utilizing 1,000 to 3,000 tonnes of CO2 per day. In addition, this project will clarify and establish a template for pore volume ownership and monitoring requirements of injecting CO2 into a saline aquifer. A successful demonstration will enable saline aquifer sequestration to play a pivotal role in reducing CO2 emissions in Alberta.

At the same time, PTAC’s Alternative Energy Committee launched the second phase of the AESOS Project. In 2007, PTAC initiated a phased study to evaluate the potential for using nuclear technology to produce CHP (combined heat and power) and hydrogen. The first phase focused on evaluating nuclear technologies to determine their fit with typical requirements for both thermal in-situ and mining projects with an upgrade. In addition to current commercial technologies, Phase 1 also included an assessment of next-generation nuclear technologies, that is, those that are near commercialization but not yet in commercial use. In second quarter 2008 PTAC launched Phase II of this study focusing on the application of High Temperature Gas Reactors. PTAC, with the support of the National Research Council of Canada – Industrial Research Assistance Program (NRC-IRAP), concentrated on providing increased support to SMEs in transforming ideas, technologies and “know-how” into a product or service to benefit the industry. Continuing the program launched in 2007, PTAC staff and contracted subject experts provided support to SMEs to help them make significant advances in moving their technology forward in a value-added manner and adapting their technologies to better meet specific industry needs. PTAC offered assistance by supporting innovation, technology transfer, and project implementation and execution. PTAC developed and launched SME-specific website pages to help SMEs better understand how to efficiently get their new products developed, demonstrated and supported through effective technology demonstrations. Over 50 SMEs presented their research and technologies at PTAC conferences, forums and information sessions in 2008. At this critical time for the oil and gas industry, this initiative has helped bring SMEs, organizations and stakeholders together to share how they can overcome challenges and achieve results within the hydrocarbon energy industry. PTAC will help SMEs develop the right technologies and encourage innovation through knowledge sharing, networking with industry and other stakeholders and partnership creation.

**ACHIEVEMENTS 2008**

**Key Accomplishments**

**Success We Can Build On**

In 2008, PTAC excelled at project facilitation with the launch of several new research projects in the area of Enhanced Environmental Management. The Alberta Upstream Petroleum Research Fund (AUPFR), formerly known as Environmental Research Advisory Council (ERAC), provides funding for peer-reviewed environmental research studies. Consultants, and university and government scientists conduct these independent research studies, ensuring thorough and objective identification of necessary improvements and practical, cost-effective solutions. Public and private companies then apply these recommendations in the field to improve their environmental performance. In 2008, PTAC facilitated 17 projects receiving a combined total of $1.4 million in AUPFR funding. Industry funding leveraged government, institutional, and stakeholder support at a significant rate, resulting in projects valued at over $3.1 million. At the same time, PTAC expanded their facilitation of the AUPFR by adding a canola research program to the existing program. AUPFR program funding was increased by approximately 50% over the 2007 program, demonstrating a renewed industry commitment to improving environmental performance. Additional research in Enhanced Environmental Management was conducted under the TEREE banner, as three exciting projects aimed at reducing greenhouse gas emissions and increasing eco-efficiency were launched or completed in 2008.

In addition, in 2008 PTAC provided technical support to industry partners, government agencies, academic organizations and consultants working in the PTAC collaborative model to design and demonstrate safe and reliable long term sequestration utilizing 1,000 to 3,000 tonnes of CO2 per day. In addition, this project will clarify and establish a template for pore volume ownership and monitoring requirements of injecting CO2 into a saline aquifer. A successful demonstration will enable saline aquifer sequestration to play a pivotal role in reducing CO2 emissions in Alberta.
Outlook for 2009

Maintaining a Firm Foundation in Uncertain Times

Over the past thirteen years PTAC has established a solid reputation as an organization that PTAC members and the Canadian hydrocarbon energy industry can rely on. Through sound decision-making and prudent financial stewardship, PTAC has ensured a firm foundation upon which to build research and technology development, demonstration, and deployment both now and into the future. Essential to this stability are the more than two hundred PTAC volunteers who form the bedrock of the organization, dedicating their time, energy, and talent to PTAC’s Board of Directors, Board Committees, and technical steering committees and subcommittees. Despite the uncertainty of the current economy, PTAC has put in place strategies to maintain their firm foundation through 2009 and into the future.

Most importantly, PTAC will continue to develop their membership and recognize the contributions of their volunteers. In 2009, PTAC established a new tradition of volunteer recognition, presenting awards to individuals who made an indelible impact on the organization and the industry. At the Annual General Meeting in April, PTAC held a formal awards ceremony to acknowledge and thank volunteers who had gone above and beyond in their leadership and contributions to PTAC Technical Steering Committees. In June, a luncheon presentation was held in conjunction with the Global Petroleum Conference to honour individuals in the special categories of Lifetime Achievement, Distinguished Service, and Volunteer of the Year.

In 2009, PTAC will continue this tradition celebrating the achievements of their many volunteers, further strengthening the foundations of the organization.

PTAC is hosting the 2009 Petroleum Conference in conjunction with GO EXPO, a conference featuring three streams focusing respectively on Oil Sands, Operations, and Increased Recovery. The conference will aim to feature 60 speakers over the course of three days to bring the latest updates on conventional and unconventional resources. The conference will focus on reducing overall costs and minimizing the environmental footprint using innovative technology solutions. Once again, a panel discussion during the Plenary Session will bring together international dignitaries from around the world to discuss the challenges faced by industry in these difficult economic times.

Peter Mansbridge, internationally acclaimed news anchor for the Canadian Broadcasting Corporation, will moderate an annual Spring Water Forum, the two-day Towards Clean Energy Conference in the Fall, and a series of environmental portfolio events focused on sharing the results of AUPRF research to be held throughout the year.

Enhanced Environmental Management will continue to be a major area of concern for project development in 2009 under the auspices of TEREEX, AUPRF, and the PTAC Co2 EHR Committee. PTAC is expecting to facilitate 25 projects receiving over $7.3M in AUPRF funding for research in the areas of air, soil, ecological, water and caribou issues. Meanwhile, a significant acceleration in TEREEX projects is expected in 2009 with twelve planned projects currently valued at over five million dollars. An exciting Joint Industry Project is also about to get underway in 2009. This demonstration, to be led by Husky Energy Inc. and facilitated by PTAC, will capture and purify CO2 from the Husky Upgrader in Saskatchewan, and inject it into a Lloydminster-area reservoir for enhanced recovery. This project will mark the first time a combination of hydrocarbon base and CO2 is used for increasing recovery from the heavy oil reservoirs.

CO2 EHR Committee is returning with a mandate to enhance understanding of capture, purification, compression, transportation and injection technologies. In addition, PTAC’s Alternate Energy Committee and Co2 EHR Committee are evaluating and reviewing the option of launching the next phases of the AESOS and ASAP projects respectively.

In addition, a significant portion of 2009 research projects will focus on Increased Recovery PTAC expects to allocate approximately $700K of the Alberta Energy Research Grant to technology development, demonstration and deployment projects, or new project phases during the course of 2008.

ENVIRONMENTAL
- UV Application for Selective Destruction of Emissions Constants in the Oil and Gas Industry
- Continued Development of Numerical Simulation of a Sour Gas Flow
- Development of Novel Method to Detect and Locate Fluegas Emissions
- PTAC Air Research Planning Project
- Weathering PFC-52 and the Eco-Contact Pathway - Phase 1: Quantifying the Effects of Weathering
- Development of Realized Environmental Assessment and Remediation Guidelines for Sulfur Release to Muskeg and Other Wetland Settings
- Validation of Subsurface Hydrocarbon Criteria for Stratified Remediation and Advanced Remediation in Alberta
- Application of Different Measures of Bioremediability to Support the Derivation of Risk-Based Priorities for Bioremediation
- Application of Remediation Technologies to Bioremediation of Petroleum-Contaminated Sites
- Refining the Analytical Protocols for Methanol, Ammonia and Glycol
- Uranium Impacts in Soil in a Produced Water Contaminant
- Ecological Strategies for Reversing and Rejuvenating Sensitve Landscapes: Oilfields, Sulite Areas, Foreset and Foothills Regions
- Fugitive Gravity Base Research Results into Today’s Land Management and Planning in Northwestern Alberta: Continue AIPD and Model Development for Northern Alberta and Complete Interim Health Results for Great Bear Populations in Alberta
- Evaluating the Ecological Risk of Energy Sector Development on Boreal Oil Palns in Western Alberta
- Development of Ecological/Eco-System Based Criteria to Assess the Impact and Recovery of Shorelines
- Removing the Wetland Footprint
- Under joined scrutiny and field validation of caribou and other prey in central Alberta
- Wetlands management in relation to natural and industrial landscape features on caribou range in on east slopes of Rocky Mountains, BC

TEREE
- REMake Stripmine Flat Validation - Phase 2
- Fine-Tapetetion Fatem Design Guide
- Hydrogen Fuel Injection Unit (HFI) and Fuel Efficiency Data Collection and Measurement

Projects and Committees

Innovative R&D Technology Development

Projects for New Project Phases Launched in 2008

PTAC facilitated 25 research and development projects, or new project phases during the course of 2008.

INNOVATION
- NRC-IRAP SME Phase 2
- Devon Technology Strategic Plan

ALTERNATIVE ENERGY
- Renewable Energy Solutions Phase 2

HEAVY OIL
- Fuels Steam Simulation

CO2 ENHANCED HYDROCARBON RECOVERY
- PTAC Carbon Capture and Storage (CCS) Study - Phase 1

Technical Steering Committees

In 2008, PTAC facilitated eleven Technical Steering Committees, and two subcommittees.

ENHANCED ENVIRONMENTAL MANAGEMENT
- Technology for Emission Reduction and ECO-Efficiency (TEREE) Steering Committee
- Air Research Planning Committee
- Soil and Groundwater Research Committee
- Safety Working Group
- Soil and Groundwater Research Committee
- Ecological Research Planning Committee
- Water Innovation Planning Committee
- Alternative Energy Solutions Committee

IMPROVED OIL AND GAS RECOVERY
- CO2 Enhanced Hydrocarbon Recovery Steering Committee
- Improved Recovery Steering Committee
- Unconventional Gas Technology Steering Committee
- Viscous Oil Recovery Steering Committee

UPGRADING, REFINING, PETROCHEMICAL TECHNOLOGIES, AND TRANSPORTATION
- Upgrading, Refining, Petrochemicals, and Hydrogen Committee
PTAC offers a variety of services to its members, and provides opportunities to benefit the Canadian hydrocarbon energy industry.

For more information on the many benefits of PTAC membership please visit our website at www.ptac.org.

PROJECTS
PTAC facilitated 25 research and development projects or new project phases valued at $4.9M during the course of 2008. PTAC provides industry with a neutral forum to work in collaboration, leveraging collective experience and expertise to identify opportunities, challenges, and potential solutions that require research or technology development. These discussions can lead to joint-industry projects where PTAC, as a neutral facilitator, assists with soliciting proposals and launching projects through a fair and balanced process. PTAC also identifies existing research and development to raise industry awareness and minimize duplication.

THEMATIC INFORMATION SESSIONS
In 2008, PTAC facilitated ten Technology Information Sessions (TIS) attended by over five hundred participants. As a service to members, PTAC facilitates TISs for interested companies providing benefits to both the presenting company and all those in attendance. The company presenting is provided a forum to solicit interest, feedback, participation or potential funding for new research and development projects; find industry partners to complete proposed research or technology development such as field tests or pilot sites; report on field test or pilot results; provide information on technology-related services; and market new technology to the Canadian oil and gas industry. Those in attendance have the opportunity to share ideas, opinions, and learning on a specific technical subject. In addition, over five hundred participants took part in the 2008 Global Petroleum Conference.

PTAC forums focus on broader needs or technical areas. These events are comprised of presentations detailing new technologies, case studies, and the objectives and results of current research, as well as providing opportunities for questions and answers. The goal of PTAC forums is to bring together the most up to date information from across the industry into an enriching learning experience.

PTAC workshops provide opportunities for participants to work collaboratively in focused groups to clearly define research and development issues, identify potential solutions, and select the best approach to move forward. Industry members are provided an opportunity to share their needs, and R&D providers are given an opportunity to hear about issues firsthand. Solutions are formed by leveraging the collective expertise and ideas of all participants, while protecting proprietary interests. PTAC hosts the workshops and is pleased to provide the necessary facilitation, administrative support, and coordination to launch projects once identified.

FORUMS AND WORKSHOPS
Putting into practice its new targeted approach to events, PTAC hosted four forums and four workshops in 2008, attracting over five hundred and fifty participants. These targeted events provide industry members with an opportunity to gather with others to share ideas, opinions, and learning on a specific technical subject. In addition, over five hundred participants took part in the 2008 Global Petroleum Conference.

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KNOWLEDGE CENTRE
The PTAC Knowledge Centre provides public access to non-proprietary technical information on commercially available oil- and gas-related technologies pertinent to the hydrocarbon energy industry. The collection, which is updated on an ongoing basis, focuses on including sustainable, eco-efficient, energy-efficient, and GHG-reducing technologies.

The Knowledge Centre offers access to core energy and premier technical databases. The Knowledge Centre Manager provides services to SMEs, technical steering committees, project performers, researchers, and others to help identify technologies and research needs, avoid duplicate research, and monitor industry trends.

Knowledge Centre Services for PTAC members include literature searches, search alerts, contact information for subject experts in industry, government, and academia. PTAC members are invited to provide non-proprietary technical information on their technologies to PTAC for display in the Knowledge Centre. Relevant materials are accepted on an ongoing basis.

TECHNICAL STEERING COMMITTEES
PTAC Technical Steering Committees consist of PTAC members representing various industry sectors, governments, and non-governmental associations. These technical steering committees help to identify opportunities for collaborative research and technology development, raise awareness of existing research and technology through planning events, find solutions to challenges through the process of soliciting proposals and launching new projects, and promote involvement by informing appropriate colleagues of Technical Steering Committee activities.

MEMBER COMMUNICATIONS
PTAC is committed to ensuring effective communication with members. The PTAC website provides members with access to the most up-to-date information on PTAC projects, events, and activities as well as an extensive archive. Our bi-weekly newsletter, e-talk, delivers all the latest information on upcoming events and opportunities directly to members and interested stakeholders through e-mail.

...facilitating

...networking

...engaging

...informing
Volunteers - Our Core Strength and Foundation

BOARD OF DIRECTORS

[as at December 31, 2008]

Fred Hutchings, Chair, PSAC
Vice President and General Manager
Allan & Smith Collieries Ltd.

Schel Abergruen, President, PSAC
Petroleum Technology Alliance Canada

Mike W. Halvorson
Assistant Deputy Minister, Energy Future and Strategic Relations Division, Alberta Department of Energy

Cal Falkenhain
President and CEO, Canadian HSE Inc.

Michael Gatera
Chief Executive Officer, Unconventional Gas Resources Canada

Gordon Goodman
Director, Technology & Strategy in the Corporate Relations Division, EnCana Corporation

Mark Johnstone
Executive Director, Alberta Research Council

Ian J. Potter
Principal, Millennium EMS Solutions Ltd.

Chuck J. Samuel
Vice President Energy, Alberta Research Council

Alcan Thompson
Project Development Manager, Asset Management

Ian Potter, President, Todd Resources

ENHANCED ENVIRONMENTAL MANAGEMENT

Technology for Enhanced Recovery and Eco-Efficiency (TREME) Steering Committee

- Pierre-Yves Cote, Saskatchewan Industry and Resources
- Norma Chen, Huo Energy Inc.
- Philip J. Gates, Talisman Energy Inc.
- Alex Dobson, CECRA West
- Joe Dussault, EnCana Corporation
- Geoff Finlay, Devon Canada Corporation
- Lorenzo Hernandez, Huo Energy Inc.
- Roy Kramer, Shell Canada Ltd.
- Abraham Kordic, Alberta Environment
- Jerry J. Keller, Alberta Environment
- Mike Knopp, BP Canada Energy Company
- Howard Loetzer, Saskatchewan Industry and Resources
- Angela Mangatal, Natural Resources Canada (NRCan)

Jenny McIntosh, Pembina Institute for Appropriate Development

- Richard Nelson, AER Alberta Energy Research Institute

- Gerald Palacios, Petro-Canada Resources
- Bruce Perach, New Paradigm Engineering Ltd.
- Chris Penny, Industry Canada
- Ron Quick, Sustainable Ventures Inc.
- Brian Ross, Nexen Inc.
- Jerry Shaw, Devon Canada Corporation

- Alex Staruk, EnCana Corporation

- Tim Chadbourne, Northern Environmental
- Bob Corbet, Access Labs
- Susan Halla, Energy Resources Conservation Board
- Michael Harmon, U.S. Bureau of Mines
- Phil Heaton, Minnesota Aquatad
- Greg Hube, Equilibrium Environncent Inc.
- Tony Kratky, Equilibrium Environmental
- Darlene Lintott, Bodycote Norwest
- Pat Ryan, Depurate Association
- Lindsay D. Sobert, Imperial Oil Ltd.

Barrie Working Group

- Steve Kollman, Huo Energy Inc. (Industry Chair)
- Gordon Dimonette, Alberta Environment
- Tim Chadbourne, Northern Environmental
- Bob Corbet, Access Labs
- Susan Halla, Energy Resources Conservation Board
- Michael Harmon, U.S. Bureau of Mines
- Phil Heaton, Minnesota Aquatad
- Greg Hube, Equilibrium Environmental Inc.
- Tony Kratky, Equilibrium Environmental
- Darlene Lintott, Bodycote Norwest
- Pat Ryan, Depurate Association
- Lindsay D. Sobert, Imperial Oil Ltd.

Ecological Research Planning Committee

- Ani Guevara, Devon Canada Corporation (Industry Co-Chair)
- Scott Johnson, Huo Energy Inc. (Industry Co-Chair)
- Tony Kafkule, Talisman Energy Inc.
- Jennifer Hendriks, Huo Energy Inc.
- Adam Judd, Nexen Inc.
- Sandra Markin, ConocoPhillips Canada
- Terry Osko, ALPAC
- Gary Sargent, CAPP

Water Innovation Planning Committee

- Tom Pat, Huo Energy Inc. (Industry Chair)
- Brenda A. Austin, Energy Resources Conservation Board
- Cane C. Dolson, Imperial Oil Ltd.
- Max Archibald, EnCana Corporation
- Chris Gledel, Alberta WaterSMART and PSAC
- Thomas G. Harding, University of Calgary
- Scott Millar, ConocoPhillips Canada
- Rebecca Jacklet, EnCana Corporation
- Bob Hatak, Nexen Inc.
- Jack MacDonald
- Nova Scotia Petroleum Directorate
- Keith Murch, VTEMA Water
- Richard Nelson, AER Alberta Energy Research Institute
- Jennifer Salter, Huo Energy Inc.
- Greg Sydor, Alberta Research Council
- Kelly Wynot, Huo Energy Inc.
- Prasad Vakidpadi, Alberta Environment
- Monica E. Varga, National Research Council of Canada
- Keith Watson, Sustainable Development Technology Canada

Alternative Energy Solutions Committee

- Peter Waddell, Imperial Oil Ltd.
- Brenda Austin, Energy Resources Conservation Board
- John Earle, Research Onterprises Inc.
- Fred Sprott, Sprott Inc.
- Hal Fenn, Ministry of Energy, Mines, and Petroleum Resources, Province of British Columbia
- Richard Gaters, Unconventional Gas Resources Canada
- Tom Harding, University of Calgary
- Chris Selby, ConocoPhillips Canada Ltd.
- Ian Little, AER Alberta Energy Research Institute
- Howard Loetzer, Saskatchewan Energy and Resources
- Frank McIsaac, Huo Energy Inc.
- Jerry Shaw, Devon Canada Corporation
- Gary Smyth, Taqa North
- Doug Sorenson, Saskatchewan Research Council
- Roger Soucy, PSAC Petroleum Technology Alliance Canada
- Howard Swartz, University of Waterloo
- Ian Potter, President, Todd Resources

CO2 Enhanced Hydrocarbon Recovery Steering Committee

- Grant Ayres, Imperial Oil Limited
- Stefan Baehr, Energy Resources Conservation Board
- Mark Bonne, Suncor Energy Inc.
- Doug Bonne, ARC Resources Ltd.
- Matthew Bower, EPCOR
- Eric Deliberato, BIP Technologies Canada Inc.
- Kelly Edwards, Imperial Oil Limited
- Chisun Fad, Alberta Environment
- Dave Foster, Fina Gas Industries
- Scott Gray, finishing Canada Inc.
- Blaine Macdonald, Alberta Research Council
- Steve Hogan, Petro-Canada Resources
- Rusi Holkar, Canadian Carbon Fibers Ltd.
- Jim Kenny, Individual PIAC member
- Jay Kowalski, Air Liquide
- John Lawrence, EnCana Corporation
- Frank Lu, Huo Energy Inc.
- Sandra Lonacker, Alberta Department of Energy
- Richard Ludwig, EnCana Pipeline Inc.
- Jim Maguire, Empirical Resources Fund
- Anna Madhawa, Alberta Department of Energy
- Ben Makaroff, Nexen Inc.
- Jim Matlach, Press Canada Inc.
- Gabe Nomb, Transtar Canada Pipeline Ltd.
- Dave Peel, Devon Canada Corporation
- Su RB, ALT Alberta Energy Research Institute
- Don Spencer, Devon Canada Corporation.
- Charles Souto, EnCana Pipeline Inc.
- Brian Watt, Huo Energy Inc.
- Malcolm Wilson, University of Regina
- Mark Yakym, Transtar Canada Pipeline Ltd.

Increased Recovery Steering Committee

- Richard Baker, Epic Consulting Services Ltd.
- Ken Brown, Alberta Research Council/AER Alberta Energy Research Institute
- Graham Campbell, Natural Resources Canada Ltd.
- Al Smandych, Energy Resources Conservation Board
- Tom Pye, Husky Energy Inc. (Industry Chair)

The Alternative Energy Solutions Committee. However, to preserve confidentiality, the individual members of this committee are not listed.

IMPROVED OIL AND GAS RECOVERY

Upgrading, Refining, Petrochemical Technologies and Transportation

Unconventional Gas Technology Roadmap Committee

- Robert Agarika, University of Calgary
- Ken Brown, Alberta Research Council/AER Alberta Energy Research Institute
- Mike Duxmore, CSUG Canadian Society for Unconventional Gas
- Sandra Loake, Alberta Department of Energy
- Filipa Fon, Ministry of Energy, Mines, and Petroleum Resources, Province of British Columbia
- Michael Gaters, Unconventional Gas Resources Canada
- Allen Kiki, Apache Canada Inc.
- Derek Kruse, Shell Ventures
- Kirk Osko, National Resources Canada (NRCan)
- Duncan Shaner, Shell Canada Limited

Viscous Oil Recovery Steering Committee

- Wayne Adelcol, Penguine Management Limited
- Ted cyc, Alberta Department of Energy
- Maurice Dussault, University of Waterloo
- Marc Gadot, Portfolio Associates
- Tim Harricko, Devon Canada Corporation
- Ted Hendick, University of Alberta
- Cal Hill, Energy Resources Conservation Board
- Ian Little, AER Alberta Energy Research Institute
- Howard Loetzer, Saskatchewan Energy and Resources
- Ron Semeida, Alberta Research Council
- Jerry Sicily, Huo Energy Inc.
- Doug Sorenson, Saskatchewan Research Council

Upgrading, Refining, Petrochemical Technologies and Transportation

- Rob Bellarive, Shell Canada Limited
- Paul Craig, Nexus Chemicals – Retired
- Hal Huguenard, Air Products Canada Ltd.
- Josephine Hill, University of Alberta
- Eddy Isaac, AER Alberta Energy Research Institute
- Pat Janssen, Nexen Inc.
- Tom Kennedy, Canadian Hydrocarbon Association
- Shurin Liu, AER Alberta Energy Research Institute
- Wayne Paton, SSEO – University of Calgary
- Ian Potter, Alberta Research Council
- Todd Puglisi, University of Saskatchewan
- Ron Quick, Sustainable Ventures Inc.
Auditor’s Report

To the Members of PTAC
Petroleum Technology Alliance Canada,

We have audited the statement of financial position of PTAC Petroleum Technology Alliance Canada as at December 31, 2008 and the statements of operations and changes in net assets, and cash flows for the year then ended. These financial statements are the responsibility of the organization’s management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts recorded in the records of the organization and performing procedures designed to test the mathematical integrity of the financial statements. An audit also includes evaluating the overall financial statement presentation.

In common with many not-for-profit organizations, the organization derives revenue from events and other sources, the completeness of which is not susceptible to satisfactory audit verification. Accordingly, our verification of these revenues was limited to the amounts recorded in the records of the organization and we were not able to determine whether any adjustments might have been determined to be necessary had we been able to satisfy ourselves concerning the completeness of the revenue referred to in the preceding paragraph, these financial statements present fairly, in all material respects, the financial position of the organization as at December 31, 2008 and the results of its operations and its cash flow for the year then ended in accordance with Canadian generally accepted accounting principles.

Calgary, Alberta, Canada Certified General Accountants
February 15, 2009

PTAC PETROLEUM TECHNOLOGY ALLIANCE CANADA STATEMENT OF FINANCIAL POSITION
As at December 31, 2008

<table>
<thead>
<tr>
<th>ASSETS</th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$47,453</td>
<td>$4,952</td>
</tr>
<tr>
<td>Marketable Securities</td>
<td>$2,817,635</td>
<td>$707,260</td>
</tr>
<tr>
<td>Accounts Receivable</td>
<td>$794,030</td>
<td>$896,968</td>
</tr>
<tr>
<td>Prepaid Expenses</td>
<td>$63,194</td>
<td>$74,830</td>
</tr>
<tr>
<td>Inventory</td>
<td></td>
<td>$6,324</td>
</tr>
<tr>
<td>Property And Equipment</td>
<td>$3,744,312</td>
<td>$1,690,334</td>
</tr>
<tr>
<td>Property And Equipment - Restricted</td>
<td>$68,827</td>
<td>$74,341</td>
</tr>
<tr>
<td><strong>Total Assets</strong></td>
<td><strong>$3,793,139</strong></td>
<td><strong>$1,764,625</strong></td>
</tr>
</tbody>
</table>

| LIABILITIES |       |      |
| Current |       |      |
| Accounts Payable and Accrued Liabilities | $523,830 | $615,092 |
| Deferred Revenue | $2,142,410 | $434,938 |
| **Total Liabilities** | **$2,666,250** | **$1,050,030** |

| NET ASSETS |       |      |
| Invested in Property and Equipment | $68,827 | $74,341 |
| Unrestricted | $1,038,082 | $640,304 |
| **Total Net Assets** | **$1,106,909** | **$714,645** |
| **Total Assets** | **$3,793,139** | **$1,764,625** |

PTAC PETROLEUM TECHNOLOGY ALLIANCE CANADA STATEMENT OF OPERATIONS
For the Year Ended December 31, 2008

<table>
<thead>
<tr>
<th>REVENUE</th>
<th>2008</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project and Service Revenue</td>
<td>$1,324,234</td>
<td>$1,680,498</td>
</tr>
<tr>
<td>Membership and Revenues</td>
<td>$613,226</td>
<td>$638,506</td>
</tr>
<tr>
<td>Event Revenues</td>
<td>$410,414</td>
<td>$300,699</td>
</tr>
<tr>
<td>Canadian Association of Petroleum Producers (CAP)</td>
<td>$150,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>Interest Income</td>
<td>$60,570</td>
<td>$20,986</td>
</tr>
<tr>
<td><strong>Total Revenues</strong></td>
<td><strong>$2,508,044</strong></td>
<td><strong>$2,882,099</strong></td>
</tr>
</tbody>
</table>

| EXPENSES |       |      |
| Salaries and Benefits | $1,013,877 | $1,128,563 |
| Direct Project and Service Costs | $679,023 | $692,309 |
| Rent | $219,603 | $206,113 |
| Direct Event Costs | $99,325 | $155,143 |
| Marketing | $27,798 | $34,549 |
| Office and Equipment lease | $26,088 | $25,240 |
| Printing and Publications | $155,026 | $155,026 |
| Amortization | $31,422 | $22,224 |
| Professional Fees and Bookkeeping Services | $16,911 | $26,253 |
| Computer and Web Site | $9,540 | $9,952 |
| Insurance | $4,520 | $4,730 |
| Bank Charges | $5,261 | $5,261 |
| Training | $7,495 | $17,000 |
| Bad Debts | $10,177 | $10,177 |
| **Total Expenses** | **$2,166,280** | **$2,619,542** |

| Excess Revenue Over Expenses | $341,764 | $262,557 |

Measurement and Accountability

Membership Revenue by Category

- **Producers** | $292,066 |
- **Service & Supply Companies** | $165,539 |
- **Individuals** | $1,686 |
- **Government** | $3,805 |
- **Transporters** | $41,077 |
- **Learning Institutions** | $23,560 |
- **Research Providers** | $19,097 |
- **Venture Capital** | $11,456 |
- **Midstream Processors** | $4,840 |

PTAC’s 2008 membership was comprised of 197 active members, grossing $613,226 revenue at year-end 2008. PTAC provides a variety of services and benefits to its members including collaborative research and technology development project facilitation services, event coordination, event registration discounts, access to the knowledge centre, opportunities to serve on technical steering committees, and a complimentary bi-weekly newsletter.

Since inception in 1996, PTAC has facilitated the launch of 257 projects or new project phases valued at $137.6 M. Of those, PTAC facilitated 25 new projects or project phases valued at $4.9 M in 2008.