Facilitating Innovation, Technology Transfer, and Collaborative Research and Development in the Upstream Oil and Gas Industry
Spudding Innovation

Increasing Reserves
Reducing Energy and Emissions Intensity
Achievements

Message from the Board of Directors

PTAC is the leading organization that facilitates the development and transfer of petroleum technology in Canada. We facilitated 18 Technology Information Sessions, five technical lunches, eight workshops, four forums and four conferences in 2003. We are frequently approached by members and industry to facilitate new initiatives and events.

In 2003, PTAC launched the Spudding Innovation project with funding provided by the Alberta Energy Research Institute (AERI), industry and Western Economic Diversification Canada (WD).

The AERI Spudding Innovation project was initiated in 2003 to identify ways and means of spurring investment in research and technology in order to extend the recoverability of oil and gas in the Western Canada Sedimentary Basin (WCSB). A discussion paper, a literature review, two industry workshops, a web survey and a series of selected interviews were earlier tasks completed for this project. The results were compiled into the Spudding Innovation – Accelerating Technology Deployment in Natural Gas and Conventional Oil report, available on the PTAC web site at www.ptac.org/techinnp.html.

The report states that all industry players – producers, service companies, research providers and provincial and federal governments – have roles to play to ultimately increase recoverable reserves. Spudding Innovation makes the following recommendations: develop a strategy with a compelling business case, create a technology roadmap, change the way industry does research and technology development by integrating and focusing research efforts and implementing a one-channel funding initiative to save time, focus resources and ensure accountability. Furthermore, the report recommends creating improved market incentives with earnable, awardable royalty credits and revamped income tax credits to encourage innovation.

PTAC also launched the Technology for Emission Reduction and Eco-efficiency (TEREE) project in 2003 to facilitate the increased adoption of sustainable, eco-efficient and economical greenhouse gas-reducing technologies in the hydrocarbon energy industry. To support this project, PTAC entered into a three-year contract with WD providing a maximum of $738,000 over three years. PTAC will provide technology transfer facilitation and access to relevant technical material.

PTAC facilitated the launch of 21 projects or new project phases valued at $9.2M during 2003, bringing the total number of projects launched since inception in 1996 to 178 with a value of $105.5M.

Another conference held in fall 2003 was the two-day Green Toolbox Conference in September, followed by the first two-day CO2 from Industrial Sources to Commercial Enhanced Oil Recovery (EOR) Forum and Workshop in October. A CO2 Task Force will result from the CO2 EOR event.

In conjunction with Natural Resources Canada (NRCan), PTAC continued to promote the Industrial Energy Audit Incentive for the upstream oil and gas industry in Western Canada.

In early November 2003, PTAC held the annual Wireless, Telecommunications and e-Business Conference. PTAC’s contact data base continued to grow to over 8,000 technical contacts from industry, government and academia. On behalf of the Board, we would like to express our appreciation to PTAC volunteers and staff for their outstanding contributions to our success.

Eric Lloyd
President of PTAC

Rich Kerr
Chairman of PTAC
PTAC facilitated the launch of 21 projects or new project phases valued at $8.2M during 2003.

Projects Launched

R&D Projects or New Project Phases Launched in 2003

- Improved Methods of Evaluating Revegetation for Determining Reclamation Success on Cultivated Land
- Testing Remediation Techniques for Salt-affected Sites
- Field Verification of Salinity Models Proposed for Developing Risk-based Salt Criteria in Soil
- Monitored Natural Attenuation for Upstream Oil and Gas Industry
- Foothills Model Forest Grizzly Bear Research Project
- Native Species for the Sandy Soils Disturbances of the Parkland Ecoregion
- Woodland Caribou Research in Alberta
- Pilot Project Designing a Web-enabled Searchable Database of Ecological Research

Heavy Oil
- Toe-to-heel Air Injection (THAI) Innovation
- Spudding Innovation

For further information, please refer to the 2003 newsletters or to the project index on PTAC's website at www.ptac.org/projects1.html.

Technical Areas

Technical Areas

PTAC’s technical committees help to identify opportunities for research and technology development; raise awareness of existing R&D; find solutions including soliciting proposals and launching new projects; and inform appropriate industry people of new R&D proposals.

PTAC requires participation from senior technical people to identify important issues that require technology transfer or R&D. To obtain more information, please contact PTAC.

PTAC now works in 21 technical areas and over 8,000 contacts in:

- Coalbed Methane / Unconventional Gas
- Drilling
- e-Business
- Emission Reduction / Eco-efficiency
- Energy Auditing
- Environment
- Fundamental Research
- Health and Safety
- Heavy Oil
- Inactive Well Management / Abandonment
- Innovation
- Instrumentation / Measurement
- Natural Gas Production, Processing and Transportation
- Oil Production and Transportation
- Oil Sands
- Pipelines
- R&D Funding
- Reservoir Recovery / Geoscience
- Security
- Telecommunications
- Well Completion, Stimulation and Workover

Board of Directors

Board of Directors

As of March 31, 2004

Rich Kerr, Chairman, PTAC
Chief Engineer, Nexen Inc.

Eric Lloyd, President, PTAC
Petroleum Technology Alliance Canada

Denis Gaudet, Director
Technology Transfer, PTAC
Petroleum Technology Alliance Canada

Ross Curtis
Assistant Deputy Minister,
Province of British Columbia

Claude Durucher
Business Manager,
Schlumberger of Canada

Eddy Hoess
Managing Director,
Alberta Energy Research Institute (AERI)

Pam Lulum
Manager, Exploration,
Operations and Services,
ConocoPhillips Canada

Brian Moreland
VP Engineering and Production,
Burlington Resources Canada

Phillip Murray
VP Energy,
Alberta Research Council (ARC)

Bruce Preachey
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New Paradigm Engineering Ltd.

Ken Puit
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K.W. Puit Consulting Inc.

Laurie Schramm
President and CEO,
Saskatchewan Research Council (SRC)

Glen Sheppard
Manager, Operations Services and Regulatory Affairs,
Husky Energy Inc.

Emma Shirley
Chief Operating Officer,
Alberta Energy and Utilities Board (EUB)

Mike Singleton
Director, Technology Planning and Integration,
Suncor Energy Inc.

De...
In 2004, PTAC will continue to work with industry and provincial and federal governments to implement the Spudding Innovation report recommendations. We will collaborate to build the business case and create technology roadmaps for both conventional oil and gas and unconventional gas to significantly increase the recoverable conventional oil and gas and unconventional gas reserves and production in Western Canada above that currently anticipated.

PTAC will work with the newly formed TEREE Steering Committee to identify TEREE priorities and launch resulting technology projects in year two of this project.

The Sixth Annual Unconventional Gas and Coalbed Methane Conference is slated for November 2004 in Calgary. This conference is hosted by CSUG and facilitated by PTAC to communicate and facilitate technology development with the goal of increased commercialization of unconventional gas technologies.

PTAC will continue to facilitate CAPP’s Environmental Research Advisory Council (ERAC) process in 2004, including the ERAC funding, as we have since 2000. We expect to host a number of information sessions, workshops and technical meetings in the Environment technical area. Three forums will cover air, soil, water and ecological issues.

PTAC will continue to receive financial support from NRCan for their Industrial Energy Audit Incentive program, with the focus shifting towards knowledge services and information sharing.

A Drilling Innovators Advisory Group formed late in 2003 will continue to provide direction to PTAC including the Minimizing Drilling Peaks and Valleys Technology Forum and Poster Session scheduled for late May.

PTAC will continue hosting Wireless, Telecommunication and e-Business events and working with the Producer Telecommunication Working Group.

A Shallow Gas Production Technology Forum is planned for May 2004, an Energy Conservation Case Studies Forum is scheduled for mid-2004, and a second Energy Technology Capital Forum is planned for late fall 2004.

PTAC has set a goal to facilitate the launch of 20 new projects with a value of $15 million, including joint projects with COURSE. In an ongoing effort to build our cash reserves to 50% of our annual operating budget, we are striving for a significant financial surplus. PTAC will continue to operate in an open and collaborative fashion to provide focus on issues which are relevant and of value to our members and the upstream petroleum industry.

PTAC Establishes TEREE Project to Facilitate Technology for Emission Reduction and Eco-efficiency

In 2003, PTAC proposed and received strong support to extend PTAC’s mandate to facilitate sustainable, eco-efficient and GHG-reducing technologies.

With funding from Western Economic Diversification Canada, industry, two provincial governments in addition to the Alberta Energy Research Institute, PTAC established the Technology for Emission Reduction and Eco-efficiency (TEREE) project. The steering committee representing producers, government agencies and non-government organizations (NGOs) was formed to prioritize, evaluate and launch projects and technologies fitting this new mandate.

This committee will oversee the three-year project to provide direction and facilitate the following objectives:

- recognition, understanding, identification and evaluation of existing eco-efficient technologies and key emission reduction solutions
- development of new technologies and best practice solutions that address identified gaps
- transfer into practice new and existing technologies and best practice based solutions
- verification of actual emission reductions achieved.

Under the guidance of the TEREE Steering Committee, and as funding permits, PTAC will facilitate the search for new or improved technologies and will foster their development.

PTAC will continue to facilitate demonstration projects, working groups, Requests for Technology (RFTs), technology or innovation case studies, workshops, forums, conferences, and Technology Information Sessions to deliver subsequent results to industry. To complement these efforts, PTAC’s Knowledge Centre is expanding to include resources and services focusing on eco-efficient and GHG-reducing technologies.

A background presentation for the TEREE project can be found at www.ptac.org/about/dl/mandate03.pdf.
## Auditor's Report

We have audited the statement of financial position of PTAC PETROLEUM TECHNOLOGY ALLIANCE CANADA as at DECEMBER 31, 2003 and the statements of operations, changes in net assets and cash flow 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 and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In common with many not-for-profit organizations, the Association 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 Association and we were not able to determine whether any adjustments might be necessary to revenue, excess of revenue over expenditures, assets and surplus.

In our opinion, except for the effects of adjustments, if any, which might have 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 PTAC PETROLEUM TECHNOLOGY ALLIANCE CANADA as at DECEMBER 31, 2003 and the results of its operations and the changes in its net assets and cash flow for the year then ended in accordance with Canadian generally accepted accounting principles.

[Signature]

### Membership by Category

<table>
<thead>
<tr>
<th>Category</th>
<th>2003</th>
<th>2002</th>
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</thead>
<tbody>
<tr>
<td>118 Service and Supply Companies</td>
<td>23</td>
<td>22</td>
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<tr>
<td>Producers</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Research Providers</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Learning Institutions</td>
<td>6</td>
<td>4</td>
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<tr>
<td>Government</td>
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### Summarized Financial Statements

#### As at December 31, 2003, with comparative figures for 2002.

#### Assets

<table>
<thead>
<tr>
<th>Description</th>
<th>2003</th>
<th>2002</th>
</tr>
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<tbody>
<tr>
<td>Cash</td>
<td>$30,922</td>
<td>$37,926</td>
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<tr>
<td>Marketable securities</td>
<td>245,764</td>
<td>283,037</td>
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<tr>
<td>Accounts receivable</td>
<td>305,001</td>
<td>154,789</td>
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<tr>
<td>Prepaid expenses</td>
<td>9,028</td>
<td>1,814</td>
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<tr>
<td>Due from CTTA Program</td>
<td></td>
<td>39,406</td>
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<tr>
<td></td>
<td>$361,118</td>
<td>$341,073</td>
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<tr>
<td>Capital assets</td>
<td>58,940</td>
<td>53,146</td>
</tr>
<tr>
<td></td>
<td>$649,655</td>
<td>$530,712</td>
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#### Liabilities and Surplus

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<tr>
<th>Description</th>
<th>2003</th>
<th>2002</th>
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<tbody>
<tr>
<td>Accounts payable, accrued liabilities</td>
<td>$215,747</td>
<td>$80,781</td>
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<tr>
<td>Deferred revenue</td>
<td>145,371</td>
<td>159,280</td>
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<tr>
<td>Funding advances</td>
<td></td>
<td>28,843</td>
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<tr>
<td>GST payable</td>
<td></td>
<td>6,683</td>
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<td>Due to CTTA Program</td>
<td></td>
<td>65,486</td>
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<tr>
<td></td>
<td>$1,748,415</td>
<td>$844,051</td>
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#### Net Assets

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<thead>
<tr>
<th>Description</th>
<th>2003</th>
<th>2002</th>
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</thead>
<tbody>
<tr>
<td>Invested in capital assets</td>
<td>$58,940</td>
<td>$53,146</td>
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<tr>
<td>Unrestricted</td>
<td>229,597</td>
<td>136,493</td>
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<tr>
<td></td>
<td>288,537</td>
<td>189,639</td>
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<tr>
<td></td>
<td>$649,655</td>
<td>$530,712</td>
</tr>
</tbody>
</table>

#### Summarized Statement of Revenue and Expenses

<table>
<thead>
<tr>
<th>Description</th>
<th>2003</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership</td>
<td>$342,977</td>
<td>$360,640</td>
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<tr>
<td>Events and Other</td>
<td>709,194</td>
<td>323,090</td>
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<tr>
<td>Natural Resources Canada (NRCan)</td>
<td>106,465</td>
<td>48,533</td>
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<tr>
<td>CAPP</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Other Contracts and Projects</td>
<td>531,884</td>
<td>44,000</td>
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<tr>
<td>Interest</td>
<td>7,895</td>
<td>3,572</td>
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<tr>
<td>In-kind revenue</td>
<td></td>
<td>14,261</td>
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<tr>
<td></td>
<td>$1,649,517</td>
<td>$757,232</td>
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#### Expenses

<table>
<thead>
<tr>
<th>Description</th>
<th>2003</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating</td>
<td>$98,898</td>
<td>86,819</td>
</tr>
<tr>
<td>Surplus beginning of year</td>
<td>189,639</td>
<td>102,820</td>
</tr>
<tr>
<td>Surplus, end of year</td>
<td>$288,537</td>
<td>$189,639</td>
</tr>
</tbody>
</table>

The complete audited financial statements of PTAC for the year ended December 31, 2003 are available from PTAC offices upon request.
PTAC offers a variety of services to its members and the upstream oil and gas industry. PTAC continues to seek feedback on the services provided to create value through innovation for members.

Surveys and Questionnaires
PTAC conducted a web survey and two questionnaires in 2003 to seek industry feedback on various topics. The Spudding Innovation web survey (view results at www.ptac.org/techinnp.html) was part of a multi-faceted effort to gather feedback on the state of upstream oil and gas R&D and innovation.

In October 2002, PTAC launched the delivery of Natural Resources Canada’s Industrial Energy Audit Incentive initiative in Western Canada. After promoting the incentive for 18 months, there was a need to determine how industry stakeholders perceived this initiative and how future efforts could be improved or redirected. A questionnaire was conducted in February 2004 to address issues relating to energy conservation in the Western Canadian oil and gas industry. The analysis of results from the questionnaire were released in April 2004 and are available at www.ptac.org/iei1.html.

A Drilling Questionnaire distributed by the Drilling Innovators Advisory Group (DIAG) in December 2003 queried producers to identify the top three drilling technology challenges. The questionnaire results will provide direction on potential new drilling technology projects and related initiatives and will develop content direction for a 2004 Minimizing Drilling Peaks and Valleys Technology Forum. Information on this event is available at www.ptac.org/techdrif.html.

PTAC’s Value to the Upstream Oil and Gas Industry

Forums, Workshops and Conferences
A total of over 1400 participants attended 16 forums, workshops and conferences hosted by PTAC in 2003. This includes the Fifth Annual Unconventional Gas and Coalbed Methane Conference hosted by the Canadian Society for Unconventional Gas and facilitated by PTAC.

PTAC forums focus on specific needs or technical areas. Information is shared on new technologies, case studies, and the objectives and results of current research. The following four forums were held in 2003: Soil and Groundwater; Air Issues; Ecological Issues; and Energy Technology Capital.

PTAC conducts workshops to provide opportunities for people to clearly define R&D issues, to identify potential solutions and to select the best approach to move forward. Potential suppliers of R&D have the opportunity to hear firsthand about such issues and to contribute their expertise and ideas for solutions. PTAC hosts the workshops and provides the necessary facilitation, administrative support and coordination to launch projects. When required, PTAC widely distributes Request for Proposals (RFPs) with Expressions of Interest for each priority issue from workshops. Once those who will consider supporting the R&D have been identified, proposals are then solicited from potential suppliers. PTAC brings together the interested organizations in a structured way that leads to new R&D, while protecting proprietary interests. In 2003, PTAC sponsored eight workshops: Privacy; Thermal Heavy Oil Energy Reduction; Thermal Heavy Oil Energy Efficiency; AERI Spudding Innovation I and II; Oil and Methane Gas Vents (Saskatchewan, Edmonton and Calgary) and Late Stage Gas Reservoir Technology.

Technology Information Sessions
PTAC facilitates Technology Information Sessions for members to: solicit interest, feedback, participation or potential funding for new R&D projects; find industry partners to complete proposed R&D or technology development (such as field test or pilot sites) or to report on field test or pilot results; provide information on technology-related services; and market new technology to the Canadian oil and gas industry. PTAC facilitated 18 Technology Information Sessions attended by over 1100 participants in 2003.

CSUG Secretariat
PTAC provides CSUG Canadian Society for Unconventional Gas with ongoing services as their secretariat. As part of this suite of services, PTAC coordinates regular CSUG board of directors and technical committee meetings, coordinates monthly technical lunches, various technical field trips and the annual Unconventional Gas Conference which attracted 460 participants in 2003. PTAC facilitated five technical lunches with almost 450 attendees in 2003. In addition, PTAC maintains and updates the CSUG web site, coordinates membership administration support, coordinates CSUG marketing and public relations activities and provides day-to-day financial support to the CSUG Treasurer.

Ongoing R&D Projects
R&D projects facilitated by PTAC are listed on PTAC’s web site at www.ptac.org/projects1.html. This list contains the project title, name of organization performing the project, contact information and a link to the member’s email and/or web site if available.

PTAC Knowledge Centre
The PTAC Knowledge Centre provides access to non-proprietary technical information on commercially available upstream oil and gas related technologies, provides searches on subject specific databases and contact information for subject experts. The Knowledge Centre is expanding to include materials to support the TERE project which facilitates eco-efficient and GHG-reducing technologies.

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