

sustainable  
energy solutions

clean air • clean water • a secure future for our children

# Oil sands fever



Chris Evans, The Pembina Institute

**As documented in our oil sands fever project, the Alberta government projects a five-fold increase in production from the oil sands by 2020 to 5 million barrels per day. This could mean a five fold increase in forests cleared for minesites, wellpads, pipelines and roads, a tripling of greenhouse gas emissions, massive increases in water use, and the loss of sensitive wildlife species such as woodland caribou.**

In October 1982, Canada's largest industrial accident — the Lodgepole sour gas blowout near Drayton Valley, Alberta — inspired a small group of local residents to press for stronger safety standards in the oil and gas industry. This group went on to found The Pembina Institute in 1985.

Today, The Pembina Institute is a national not-for-profit organization working to shift our society away from a dependency on conventional fossil fuels to a more sustainable energy future that uses the vast energy potential of the sun, wind, earth and water.

We envision a world in which our immediate and future

needs are met in a manner that protects the earth's living systems; ensures clean air, land and water; prevents dangerous climate change, and provides for a safe and just global community.

Our role within this vision is to advance sustainable energy solutions through innovative research, education, consulting and advocacy.

Our multidisciplinary team of staff and volunteers work collaboratively with youth, communities, corporations and government to find practical solutions to environmental challenges related to the way we produce and consume energy.

# Creating sustainable energy solutions

## Some highlights of progress from 2005

Photo: Cheryl Lepatski, The Pembina Institute



### Education

#### Engaging Youth and Public in Creating Change

Greenlearning.ca launched new online learning units, including *Sustainable Futures for a Small Planet*, and over 300 students and teachers developed school action plans on climate change.

**More information on pages 6 and 7.**

Photo: Tim Weis, The Pembina Institute



### Sustainable Communities

#### Supporting Community Development in Canada and Internationally

Twenty-five First Nations communities in western Canada are considering options for renewable energy projects and investments in local energy efficiency. **More information on pages 8 and 9.**



### Corporate Consulting Services

#### Sustainable Energy Solutions for Leaders

An assessment tool using 40 indicators of environmental performance provided companies with a means to gauge their progress on the Corporate Environmental Responsibility (CER) journey, and evaluations of stakeholder engagement processes helped to strengthen relationships and build business value.

**More information on pages 10 and 11.**



### Energy Watch

#### Minimizing the Impacts of Conventional Energy

Over 40,000 copies of *Oil Sands Fever: The Environmental Implications of Canada's Oil Sands Rush* were downloaded in the five weeks following its release, helping to balance public awareness of the economic and environmental perspectives on the issue. **More information on pages 12 and 13.**

Photo: Chris Stevens



### Green Policy Solutions

Pembina experts are frequently called upon to comment to media on fiscal reform, climate change policy, urban planning and other environmental policy issues. **More information on pages 14 and 15.**

# Celebrating 20 years of environmental leadership

**Margaret Wheatley, author of *Management and the New Science*,** draws insight from natural systems to inform her theories on leadership and organizational change. She identifies resilient and adaptive systems as being highly conducive to evoking creative thinking and building relationships that result in positive change. The Pembina Institute is certainly a strong example of Wheatley's words in action. I believe our organization will continue to move forward on addressing energy and environmental issues and effect positive change in our world.

In 2005 Pembina celebrated 20 years of environmental leadership—a period distinguished by the organiza-

tion's resilient and adaptive approach to the challenges shaped by the ever-changing world. I am inspired by the dedication and passion with which Pembina's staff lead and collaborate on innovative programs, develop effective strategies and encourage responsible behaviours that are a part of achieving a sustainable energy system.

Pembina's board has also responded to changes within the organization and broader environment. Building on the original intent of providing "sober second thought" to the direction and suggestion of staff, today's national board continues to attract and retain volunteer directors who are strong supporters of Pembina's mission, and who contribute their knowledge,



Photo: David Dodge, The Pembina Institute

**Grace Gruber is the president of The Pembina Institute Board of Directors and trustee for Parkland School Division.**

skills and consideration to ensure the organization continues to move forward on meeting its objectives.



Photo: David Dodge, The Pembina Institute

**Dr. Marlo Reynolds is the Executive Director of The Pembina Institute.**

**2005—a remarkable year** as the world alerted to the signs that global dependence on oil is not sustainable and our energy system must change course. This heightened state of awareness was communicated through \$70 US barrels of oil, high prices at the pump, increased home heating costs, and reports of adverse climate-related impacts in Canada's Arctic and beyond that raised global understanding of

## Signs of a crossroads

the urgent need to prevent calamitous levels of climate change.

**But will this heightened awareness translate into taking action toward a more sustainable energy future?**

It appears a crossroads is rapidly approaching. One path draws us into a retrenchment of the conventional mindset requiring us to find new supplies of fossil fuels at all costs and burn these non-renewable resources in a carbon-intensive manner. The other path leads us towards a highly efficient energy system, powered by a quilt of renewable sources and low-emission fossil fuels. Pembina is working to map out and follow this second path.

In 2006 Pembina's activities will be guided by our three-year strategic

objectives, which help us to remain responsive to the changing and challenging environment in which we work. Canadians can expect Pembina to provide practical ideas for solving energy and environmental challenges that require action at the local, national or global level. It will be the responsibility of all of us to ensure these solutions are implemented and acted upon.

As an organization committed to open and transparent communication, we look forward to hearing from you and receiving your support.

Sincerely,





Photo: David Dodge, The Pembina Institute

Staff gather to plan for meeting Pembina's long term outcomes and objectives.

## Our efforts are specifically aimed at achieving four long-term outcomes:

- A continual shift in the Canadian corporate sector towards sustainable energy production and consumption.
- Implementation by Canadian federal and provincial/territorial governments of policies and programs that result in sustainable energy production and consumption.
- Empowerment of today's youth with the skills, knowledge and attitudes to accelerate the shift towards sustainable energy production and consumption.
- An increased shift by Canadian communities and developing countries towards sustainable energy production and consumption.

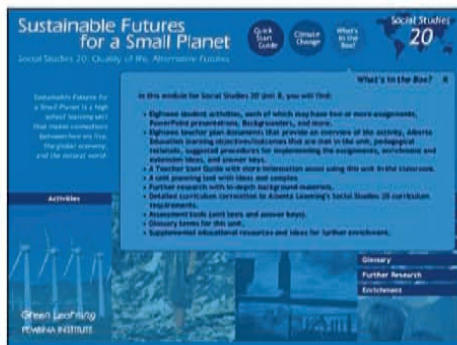
## To achieve these long-term outcomes, we seek to:

- Minimize negative environmental and human-health impacts from conventional energy.
- Maximize energy conservation and efficiency.
- Maximize low-impact renewable energy.
- Minimize greenhouse gas emissions.



# Engaging youth and the public in creating change

**Our innovative public outreach and education programs are taking the principles of sustainability to tens of thousands of students, teachers, and citizens.**



Sustainable Futures for a Small Planet involves Grade 11 students in identifying and solving global issues.

## Greenlearning.ca

Greenlearning.ca is an innovative e-education program that puts provincial curriculum requirements first.

**Greenlearning.ca Alberta Fully Launched!** Pembina's launch of *Sustainable Futures for a Small Planet*, an Alberta Social 20 learning unit, completed the initial offering of Greenlearning.ca resources designed to help Alberta's teachers meet curriculum requirements and students enrich their learning experience. Since its release in fall 2004, the number of teachers registered to Greenlearning.ca has more than doubled and average monthly visitors to the website increased by 92%.

**Lights Off Challenge.** In 2005 students in Alberta showed how putting Greenlearning.ca into practice makes sense. Forest Lawn School received wind-powered PC certificates for some of their school's computers by participating in the Greenlearning.ca Lights Off Challenge. All they had to do was turn off their classroom lights when they were not being used and count their savings!

## Greenlearning.ca Expands to Ontario and British Columbia.

Greenlearning.ca's unique approach to environmental learning attracted the attention and the backing of agencies, organizations, companies and government. Four of Greenlearning.ca Alberta's founding sponsors and five regional sponsors from Ontario and British Columbia committed to seeing Greenlearning.ca become a national educational resource. The development phase of curriculum specific versions of Greenlearning.ca for Ontario and British Columbia are slated to begin in early 2006.



Greenlearning.ca's Lights Off program is a strategic conservation action plan with measurable results for schools.



In a Grade 7 student workshop on renewable energy, students build a small-scale working wind turbine.

Photo: Cheryl Lepatski

**I liked the unit—thought it was really good. I wish I had such a site for other science and social units as well.**

*Mark Nider, High school teacher, M. E. LaZerte High School, Edmonton*

## Re-Energy.ca

**“Teach, build, learn” Becomes a Schoolyard Slogan.** People visiting Re-energy.ca, Pembina’s renewable energy and sustainable transportation education website, downloaded over 70,000 model plans each month—a 75% increase over 2004. Re-energy.ca is part of the Green Street program reaching 100 Canadian teachers and over 3,000 students in the 2005/06 school year.

**Re-energizing Learning in the Classroom and Beyond.** In 2005 the Ottawa Carleton District School Board teamed with The Pembina Institute to develop a Grade 7 unit plan on renewable energy for Ontario teachers. Additional lesson plans for other Ontario grade levels were also developed based on a review of the Ontario curriculum. Re-Energy is a popular resource for non-formal educators and leaders with groups such as Scouts, Big Brothers and Big Sisters, and many others. Starting in 2006 we will tailor our renewable energy education materials specifically for youth organizations.

## Youth and Teacher Workshops

**Hands-on Workshops Help Teachers Teach and Students Learn.** Pembina’s practical hands-on teacher and student workshops cover a wide range of topics including climate change, renewable energy, measuring ecological footprints and energy conservation. In 2005 Pembina conducted 12 hands-on workshops reaching 200 teachers and youth leaders, and 100 youth participants. Our Education team also participated in 10 teacher conferences and other special events, offering outreach on Pembina’s learning and teaching materials to over 20,000 teachers.

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**I will be making the wind generator with my hands-on science class starting next week.**

*Re-energy.ca workshop participant*

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## Youth Leadership Programs

### Roots-to-fruit Program Gives Youth the Tools to Fight Climate Change.

Over 300 students and their teachers developed school action plans as a result of The Pembina Institute’s partnership with Learning for a Sustainable Future at the Calgary Youth Forum. Pembina also provided leadership and resource support to 125 youth organizers and leaders at the Youth Climate Change Conference in Victoria, B.C. Energized by their improved understanding of climate change, students and teachers were empowered to take action.

**Youth Leadership Program—Designed by Youth for Youth.** What makes an effective youth leadership program on sustainability? In partnership with an M.A. student in the Environmental Education and Communication program at Royal Roads University, The Pembina Institute is designing a leadership program that enables youth to pursue socially equitable and ecologically sustainable actions in their own lives and communities.



**Teachers learn current information and methods for helping students learn.**

**It was well thought out, likely made by actual teachers. Online activities really engaged the students, many of whom said that they never knew that ‘learning science could be so fun’.**

*Sean Sommerfeld, Grade 6/7 teacher,  
Athabasca Delta Community School, Fort Chipewyan*

# Supporting community development in Canada and internationally

**We support ongoing community development efforts in Canada and around the world through the introduction of sustainable community policies and practices, focusing on the impact of energy on communities.**



Photo: Abliestock.com

Pembina's recommendations led the Ontario government to rewrite its land use planning laws in order to reduce automobile-dependent urban sprawl. Benefits include cuts in climate changing tailpipe emissions and more farmland for local agriculture.

## Smart Planning

**Better Land Use Planning Laws in Ontario.** Pembina reviewed the City of Ottawa, York Region, and Waterloo Region's progress in implementing smart growth planning policies such as promoting transportation alternatives and reducing greenfield development. In *Local Implementation of Smart Growth Policies in Ontario: Three Case Studies* we highlighted the continuing gaps between the municipalities' formal policies and the actual planning and infrastructure investment decisions being made by municipal councils. The findings of the case studies contributed to our annual review of Ontario's progress in addressing smart growth and urban sustainability issues. Pembina's recommendations in *Building Sustainable Urban Communities in Ontario: A Provincial Progress Report*

led the provincial government to rewrite its land use planning laws in order to reduce automobile-dependent urban sprawl.

## Sustainability Planning for Cities.

In 2005 the City of Dawson Creek sought Pembina's assistance in improving the energy efficiency of its municipal operations as part of its efforts to identify, understand, and address energy issues throughout the community. Pembina provided a series of recommendations that met with strong support from the City's council and staff. The city has since implemented many of these recommendations including installing a solar hot water system in City Hall and developing green vehicle and building policies. The City of Dawson Creek received an honourable mention in the B.C. Community Energy Association's 2005 Annual Energy Aware Awards for its ongoing



Photo: Tim Weib, The Pembina Institute

Pembina's energy baseline studies have helped First Nations communities assess and implement renewable energy options such as a solar air heating system built by Beaver Lake Cree Nation.

efforts in energy planning and implementation. The City is striving to become “the alternative energy capital of B.C.” In 2006 our team will work with communities on Integrated Community Sustainability Planning (ICSP), helping to build healthy, resilient communities.

## Renewable Solutions

**Renewable Energy for First Nations Communities.** We worked with 25 First Nations communities in Western Canada in 2005 that were looking for ways to reduce their costs and emissions, and to increase local control and sustainability of their energy sources. Pembina’s energy baseline studies helped communities consider options for large-scale renewable energy projects ranging from biodiesel production to large-scale wind farms, as well as

investments in local energy efficiency. Others have invested in community-scale renewable energy projects, such as Beaver Lake Cree Nation who built a solar air heating system in their new recreation complex.

**Sharing Technical Know-how.** In 2005 Pembina developed and delivered a wind energy technical course for First Nations in Saskatchewan, and is carrying out local resource monitoring in Kyuquot, B.C. Pembina is also advocating for programs that would assist First Nations in developing renewable energy resources on their land. Pembina assisted the Hupacasath First Nation with part of their run-of-river hydro project in 2003. In 2005 the Vancouver Island community successfully commissioned a 3MW run-of-river hydro project, and plans to install an additional 3MW turbine in 2006.

**Financing Solutions for International Projects through the CDM.** In 2005 Pembina expanded its successful Clean Development Mechanism (CDM) Small Projects Facility (SPF) program to Nigeria, building on experience gained in Kenya (2004) and India (2002). At the 2005 UN Climate Change Conference, Pembina led a workshop at which representatives from Nigeria and Kenya presented their CDM experience on how to strengthen the developmental benefits of the CDM. Pembina also contributed to CDM Portfolio Assessments for Jamaica, El Salvador, Nicaragua and Cuba by providing detailed assessments of the potential of the CDM projects included in the countries’ portfolios.



Pembina expanded its successful Small Projects Facility (SPF) program to Nigeria in 2005. The SPF program helped project developers assess financing opportunities through the CDM for local renewable energy projects.

Tim Weis, one of Pembina’s community project analysts, assesses wind potential near Kyuquot, B.C.

Photo: Kevin Head, Kyuquot Band Manager

# Sustainable energy solutions for leaders

**The corporate sector has the resources, talent and responsibility that favourably position it to implement practical solutions for sustainability. By advising on management practices and strategies for sustainability, our team helps business leaders realize financially, environmentally and socially sound solutions to complex challenges.**



Photo: Ablestock.com

In 2005 Pembina's corporate advisory team provided leading-edge advice to select companies on ways to incorporate sustainability into decision making, improve stakeholder engagement practices, manage greenhouse gas technology implementation, and define and assess corporate environmental responsibility.

## The Triple Bottom Line

In 2005 we assisted companies including Petro-Canada, ConocoPhillips and Suncor in applying the principles of Life-Cycle Value Assessment (LCVA), a business-focused methodology for embedding triple-bottom-line thinking into existing decision making and project design processes. Our team completed 18 LCVAs and trained over 100 people in how to use the LCVA tool independently. We also assisted companies in improving their projects by facilitating 'out of the box' design-for-sustainability sessions.

**Measuring Social Benefits.** Pembina's LCVA approach helped Suncor assess the social premium of building a permanent 'village' for its oil sands operations compared to expanding an existing temporary camp. By quantifying the benefits, which include lower turnover rates, increased employee safety and reduced maintenance requirements, Suncor was able to evaluate more effectively all the social and financial costs of the decision.



## Reducing the Environmental Impacts of Steam Assisted Gravity Drainage.

ConocoPhillips worked with Pembina to apply different levels of LCVA to many decisions affecting its Steam Assisted Gravity Drainage (SAGD) project in the oil sands. The LCVA enabled ConocoPhillips to reduce the project's air emissions, as well as its water and land impact.

## Building Capacity in the Supply Chain.

Our team trained over a dozen Suncor suppliers in LCVA to help them better evaluate the social, environmental and broader economic impact of their decisions, thereby allowing them to better meet the growing sustainability expectations of Suncor and other customers.

## Stakeholder Engagement

**Measuring Effectiveness in Stakeholder Engagement.** Our corporate advisory team worked with BC Hydro to develop quantifiable and qualifiable indicators for measuring the quality of its stakeholder relations.

**“The LCVA process was a value-added step that allowed us to see the potential financial, environmental, and safety implications of several project delivery options. . . . It also helped establish a mindset that enabled folks to see the big picture. It should be a standard practice.”**

*Senior Manager, multi-national energy company*

BC Hydro is now able to evaluate its stakeholder engagement processes with the aim of strengthening its relationships and thereby building business value.

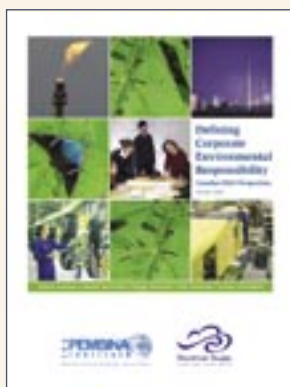
**Advising on Stakeholder Engagement Approaches.** In 2005 Pembina consulted with selected community members on behalf of the Cement Association of Canada in order to advise the association on how to better engage community members affected by the cement industry.



Photo: Ablestock.com

## Corporate Sustainability

**Defining Corporate Environmental Responsibility.** In 2005 Pembina and Pollution Probe brought together the viewpoints of more than 50 Canadian environmental non-governmental organizations in a ground-breaking, topical report: *Defining Corporate Environmental Responsibility: Canadian ENGO Perspectives*. By defining a vision for corporate environmental responsibility (CER), articulating recommendations for advancing CER in Canada, and creating an assessment tool using 40 indicators of environmental performance, the report provides companies with clear insight into



the expectations of Canadian ENGO stakeholders and helps them to gauge their progress on the CER journey.

**A Multi-stakeholder Evaluation of Sustainability Reporting.** Pembina facilitated a multi-stakeholder review of Nexen’s sustainability report, featuring a peer group of community, employee, academic and environ-

mental representatives. Feedback on the report’s content has allowed Nexen to strengthen the final product, improve its reporting processes, and identify specific issues on which to advance its CER progress.

## Alternative Energy Solutions

**Reducing the Impacts of Cement Production.** The Cement Association of Canada engaged Pembina to identify, evaluate, prioritize and recommend alternative energy sources to reduce the impacts of cement operations in western Canada. Our LCVA-based assessment provided the association’s members with valuable information on the environmental, social and financial implications of the various options.

**Identifying Biofuel Opportunities.** Our corporate advisory team identified and characterized biofuel feedstock and technology options for both biodiesel and ethanol, providing major Canadian energy producers with relevant information for evaluating potential business opportunities in the growing biofuels market.

**“LCVA helps users make informed decisions on impact, risk and liability management for the environmental, social and economic aspects of their business.”**

*Tim Crowe, Manager, Peace River Development, Sustainable Development and Regulatory Affairs, Shell Canada*

# Minimizing the impacts of conventional energy

We encourage energy developers to use the best environmental practices possible and collaborate with policy makers to improve environmental regulations and standards. We help those affected by energy developments to advocate for responsible development by offering relevant information resources.

## Oil Sands

**Spotlight on Alberta's Oil Sands.** With over 40,000 downloads in the five weeks following its release, Pembina's *Oil Sands Fever: The Environmental Implications of Canada's Oil Sands Rush* attracted a positive response from members of the public, media, government and industry. *Oil Sands Fever* and its supporting multimedia website, [www.oilsandswatch.org](http://www.oilsandswatch.org), have contributed to Pembina's reputation for providing a credible, informed perspective on the environmental impacts of oil sands development.



to exploit Alberta's oil sands and the urgent need to reduce emissions.

### Sharing the News on Oil Sands.

Unprecedented media coverage of Pembina's perspective on the oil sands issue from Canadian and inter-

national media outlets, including *Fortune* magazine, *The New York Times*, *The Boston Globe*, BBC Radio and France2 Television, has helped Pembina balance public awareness of environmental and economic perspectives on the oil sands issue.

## Industry Practices

**Carbon Capture and Storage No Silver Bullet.** Pembina provided Canadian decision makers with an assessment of the available policy and technology tools for mitigating GHG emissions in *Carbon Capture and Storage: A Canadian Primer*. We advised that, if carbon capture and storage is included in the portfolio of tools

### Addressing the Oil Sands

**Contradiction.** During the 2005 UN Climate Change Conference, Pembina released *The Climate Implications of Canada's Oil Sands*. The report provides the most comprehensive projections of oil sands' greenhouse gas (GHG) emissions to 2020 publicly available in Canada. It highlights the contradiction between the rush

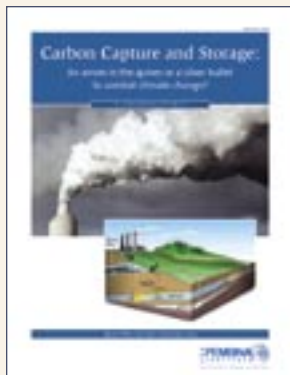
As Melody Lepine, Director of Industrial Relations for the Mikisew Cree can attest to, intense oil sands development affects not only the land, air and water, but also people locally and globally. Oil sands operations are projected to be the single largest source of GHG emissions in Canada.



Photo: David Dodge, The Pembina Institute

**“I have gained what I had hoped for, which was a good understanding of the gas industry and a clear picture of its impacts in Alberta.”**

2005 Northern workshop participant



to be used in achieving deep reductions in GHG emissions, certain conditions and a strong regulatory framework

to minimize the risk to people and the environment are required.

## Citizen's Rights

### Northerners' Peak into the Future.

Pembina's 2005 *Peak into the Future: Potential Landscape Impacts of Gas Development in Northern Canada* provides realistic scenarios of the extent and pace of development that could occur if known and potential gas reserves in three fields within northern Canada are developed, and offers recommendations for reducing potential environmental impact. In 2006, Pembina will encourage the federal and territorial governments to produce long-term energy strategies

that address the potential cumulative impact of oil and gas development, and increasingly utilize renewable and alternative energy sources in meeting energy needs.

### “Sold out” Workshops Give Northerners Tools for Engagement.

Pembina hosted several “Northern Oil and Gas and the Environment” workshops in Alberta and northern communities in 2005. These included sessions for remote communities in the Inuvialuit region and youth-oriented workshops for the Arctic Indigenous Youth Alliance and the “Our Land, Our Future” forum in Yellowknife. Since 2002, our workshops have provided over 450 northern participants with useful information about the environmental and cumulative effects associated with oil and gas development through participatory activities and discussions with land owners, First Nations, oil and gas industry, environmental organizations and government.

### Helping landowners deal with local energy developments.

In 2005 Pembina provided landowners

dealing with major sour gas developments in the community of Drayton Valley with direct technical expertise and capacity assistance to help them more effectively intervene in the development application process. Pembina also spoke at eight public meetings in communities across Alberta on the potential impacts of oil and gas development on land and water. Pembina plans to continue providing landowners and other local stakeholders with accurate information on potential oil and gas developments and their impacts, and supporting their efforts to proactively address energy issues.

Pembina made presentations to government and industry to increase awareness of landowner concerns regarding coalbed methane and oil and gas development. We worked to improve recommendations for coalbed methane regulation by participating in the Alberta government's Multistakeholder Advisory Committee on Coalbed Methane and critiquing the Alberta Energy and Utilities Board draft proposals for shallow fracturing operations.



Photo: Hal Retzer, The Pembina Institute

**Peak into the Future was submitted to the Joint Review Panel for the Mackenzie Gas Project, and 1,500 copies of the Peak brochure were distributed to the public.**

**Pembina's workshops have provided northerners with useful information about the environmental impacts of oil and gas development in their regions.**





# Changing the way governments approach environmental challenges

**Pembina advances creative and effective policy solutions to transition towards sustainable energy and the protection of environmental and human health.**



Photo: Ablestock.com

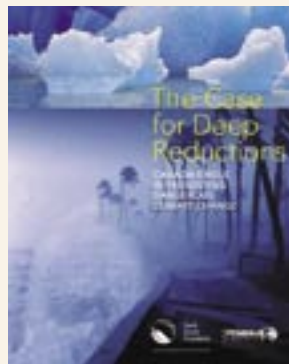
**Pembina recommended concrete steps to help the federal government achieve significant GHG reductions and demonstrate leadership on the path to Kyoto compliance.**

## Canada's Climate Change Commitment

### Committing to Deep Reductions.

In partnership with the David Suzuki Foundation, The Pembina Institute released *The Case for Deep Reductions* prior to the 2005 UN Climate Change Conference. The report calls attention to Canada's role in achieving the deep, long-term cuts in greenhouse gas (GHG) emissions required to prevent the most dangerous impacts of climate change. By providing the scientific case outlining why Canada must reduce GHGs to 80% below 1990 levels by 2050, as well as strong evidence of the technological and economic feasibility of these cuts, *Deep Reductions* establishes a basis for discussions on Canada's path beyond 2012—the end of the first Kyoto Protocol commitment period.

**Targets and Action for Large Industry.** Concerned that the federal government would fall short of delivering the emission reductions required to meet Canada's legally binding Kyoto target, Pembina recommended



concrete steps to achieve significant GHG reductions and demonstrate leadership on the path to Kyoto compliance. Working with other leading ENGOs, Pembina successfully pressed the federal government

to agree to regulate GHG emissions from large industrial emitters (LFE). Recognizing that Canadian industries will be operating in an increasingly carbon-conscious environment, Pembina assessed the long-term business implications of regulated GHG limits in *Future Financial Liability for Greenhouse Gas Emissions from New Large Industrial Facilities in Canada*.

## Sustainable Energy

### A Canadian Renewable Energy Strategy.

In 2005 Pembina joined other Canadian NGOs in launching a multi-stakeholder process for advancing national and provincial sustainable energy strategies. This resulted in the formation of the Canadian Renewable Energy Alliance (CanREA), which aims to reduce

**Oil sands development threatens the boreal forest and the valuable ecosystem goods and services it provides.**



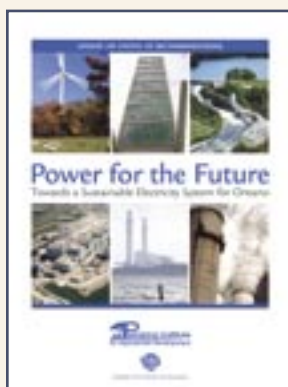
Photo: Ablestock.com

energy demand through energy conservation and energy efficiency, and to promote low-impact renewable energy to meet energy needs. Pembina helped CanREA prepare a framework document on a national renewable energy strategy, build a website to promote renewable energy and efficiency, and solidify provincial strategies in Eastern Canada, Ontario, and B.C.

#### **Sustainable Electricity in Ontario.**

In 2005, *Towards a Sustainable Electricity System for Ontario? A Provincial Progress Report* assessed the Ontario government's progress and found that its efforts have been primarily focused on conventional supply options, particularly nuclear rather than meeting the province's electricity needs by implementing

energy efficiency, conservation and renewable energy options that could allow Ontario to save \$14 billion.



**Moving Towards Efficiency in B.C.** In 2005 Pembina helped B.C.'s Ministry of Energy and Mines understand the economic and environmental implications of proposed energy efficiency targets for new and existing buildings. Our analysis demonstrated that realizing the targets would result in significant economic benefits to home- and business-owners, and result in major reductions in GHG emissions from business-as-usual practices. The government has since adopted the targets, and must now focus on meeting its goal of improving B.C.'s energy efficiency.

### **Green Economics**

**Quantifying Public Expenditure on Large Industry.** Federal tax concessions and other subsidies to the oil and gas industry came under public scrutiny after a Pembina report—*Government Spending on Canada's Oil and Gas Industry*—revealed federal subsidies increased more than 33% between 1996 and 2002. Pembina's findings prompted Sierra Legal Defence Fund to file a petition with the Auditor General of Canada demanding an investigation into federal subsidies to the oil and gas

industry, and Canadians to speak out against irresponsible subsidies.

**Examining the Value of the Boreal Forest.** Working with the Canadian Boreal Initiative, Pembina examined the value of the ecosystem goods and services provided by Canada's boreal region in *Counting Canada's Natural Capital*. We found this value is far greater than the market values derived from forestry, oil and gas extraction, mining and hydro-electric generation combined. Oil sands development is the greatest threat to the boreal region.

### **Genuine Progress Indicator**

#### **Measuring Society's Well-being.**

Pembina updated the 51 indicators that make up Alberta's Genuine Progress Indicator (GPI)—the province's first total well-being accounting system—for the province's centennial anniversary. The GPI uses social, economic and environmental indicators and a full cost-benefit accounting framework to measure genuine progress. Both *The Calgary Herald* and QR77 Radio in Alberta ran an eight-part series on the GPI covering such issues as crime and resource depletion.



**Pembina updated the 51 indicators that make up Alberta's Genuine Progress Indicator (GPI) for the province's centennial anniversary. Both *The Calgary Herald* and QR77 Radio in Alberta ran an eight-part series on the GPI.**

Photo: Chris Stevens

# Thank you for supporting our work

The engagement and support of the following organizations and individuals has contributed to the realization of a more sustainable energy future.

## Funders, Partners and Clients

The Pembina Institute works with a host of organizations and corporations as partners and on a fee-for-service basis.

AACIP Events Committee  
Actua  
Alberta Ecotrust Foundation  
Alberta Energy  
Alberta Environment  
Alberta Lottery Fund  
Alberta Research Council Inc.  
Alberta Rural Utilities and Safety Association  
Alcan Inc.  
BC Hydro  
BC Ministry of Energy and Mines  
BIOCAP Canada Foundation  
Bissett Resource Consultants Ltd.  
Blood Tribe Economic Development  
Brazeau County  
Burlington Resources  
Canadian Arctic Resources Committee Inc.  
Canadian Boreal Initiative  
Canadian Council for Human Resources in the Environment Industry  
Canadian Energy Research Institute  
Canadian Environmental Law Association  
Canadian Environmental Network  
Canadian International Development Agency  
Canadian Natural Resources Limited  
Canadian Parks and Wilderness Society - NWT  
Canadian Parks and Wilderness Society - Yukon  
Canadian Prairie & Northern Section of the Air & Waste Management Association  
Canadian Science Writers' Association  
Canadian Standards Association  
Carleton University  
Cement Association of Canada  
Centre For Indigenous Environmental Resources Inc.  
Centre Helios  
City of Dawson Creek  
City of Yellowknife  
Clean Air Strategic Alliance  
Climate Action Network Canada  
Climate Change TEAM Canada  
Committee of 10,000  
Conference Board of Canada  
ConocoPhillips  
County of Ponoka  
County of Red Deer  
Cree Nation of Nemaska  
Cumulative Environmental Management Association  
David Suzuki Foundation  
Deer Creek Energy Ltd.  
Department of Foreign Affairs & International Trade  
Devon Canada Corporation  
Douglas First Nation  
Driftpile First Nation  
DuPont  
Ecology North  
Enbridge Pipelines Inc.  
EnCana Corporation  
Engineers Without Borders Canada  
Environment Canada  
Environmental Careers Organization of Canada  
EPCOR  
Equus Consulting Group  
ESSA Technologies Ltd.  
Federation of Ontario Naturalists  
First Nations (Alta) Technical Services Advisory Group  
GreenhouseGasMeasurement.com  
Health Canada  
Husky Oil Operations Limited  
Indian and Northern Affairs Canada  
Industry Canada  
Infinity Geothermal  
INFONEX Inc.  
Inside Education  
Inspired Value Inc.

Interuniversity Reference Centre for the Life Cycle Assessment

Inuvialuit Regional Corporation  
Ka:yu:k't'h'/Che:k'tles7et'h' First Nations  
Komex International Ltd.  
Manitoba Hydro  
Manitoba Sustainable Energy Association  
Manitoba Teachers Society  
Max Bell Foundation  
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The following organizations and individuals have supported The Pembina Institute through one of our fund development programs.

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---

**We invite you to celebrate more than 20 years of success in making progress towards this vision as you scroll through some highlights.**



**Best Practices for Clean Air (1998)**

Pembina won the Emerald Award in 1998 for its work with CASA in negotiating a gas-flaring reduction agreement. The agreement translates into significant improvements to local air quality.

**Alberta's First Genuine Progress Indicator (2000)**

Pembina developed Alberta's first total well-being accounting system in 2000. The 51 indicators that make up the Genuine Progress Indicator are updated in 2005, on the occasion of Alberta's centennial anniversary.



# Thank you for supporting our work

## Our Supporters *continued*

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 Elizabeth Oliver Malone  
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 Mark McIntyre  
 Marlo Reynolds



Photo: David Dodge, The Pembina Institute

## Ramping up Renewables (2000)

Pembina helps form the CARE coalition in 2000. It successfully lobbied for the Wind Power Production Incentive (WPPI), which boosts wind power generation in Canada.



Photo: Solar Electric Light Fund

## Sustainable Energy for Communities Globally (2002)

Our Clean Development Mechanism Small Projects Facility, a training program, was launched in India in 2002. It is now used in Kenya and Nigeria to expand access to sustainable energy in rural communities.

**Our Supporters** *continued*

Martha Leung  
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\*Donors who received an income tax receipt from the GAIA Foundation are listed in the GAIA Foundation Annual Report.

**Thanks also to our volunteers and staff who donate countless hours of their time.**



Photo: Tim Weiss, The Pembina Institute

**Sustainable Energy for Communities in Canada (2003)**

In 2003 Pembina developed an energy plan with the Hupacasath First Nation as part of a very successful run-of-river hydro project. Pembina now works on energy planning issues with more than 50 First Nations and municipalities across Canada.

**Employees Combat Climate Change (2003)**

Pembina's One Less Tonne employee engagement tool was launched in 2003. By the end of 2005 nearly 1,700 corporate employees had committed to reducing their personal annual greenhouse gas emissions by one tonne or more.



Photo: The Pembina Institute



## Canadians are Helping Create a More Sustainable Energy Future

### In 2005 we asked Canadians to support us in

- addressing the rush to develop Alberta's oil sands;
- improving the sustainability of Ontario's electricity supply;
- helping Canadians reduce their environmental footprint; and
- finding solutions to other energy and environmental issues in Canada.

The response was a clear demonstration of how important securing a sustainable energy future is to Canadians. In 2005 over 300 first-time supporters joined our donor program. Among those, almost 90 individual donors participated in our *Energy Watchers* monthly giving program—helping us to plan ahead with their generosity each month.

### Special Donor Recognition

Thank you to *Tracy and Maria Reynolds* for your kindness, your dedication to the environment and for your trust in The Pembina Institute's work. Your personal contribution of \$20,000 was directed toward our Youth Leadership project within our Education program area.

### Wind Power by Pembina



*Wind Power by Pembina* provides individuals, organizations and businesses the opportunity to directly support wind power production—a source of zero-emission electricity. Our program helps to educate people about climate change, air quality and other environmental issues while enabling them to directly support renewable energy solutions.

A portion of the gross revenues generated through *Wind Power by Pembina* is used to support our program activities.

In 2005, Pembina worked with Vision Quest Windelectric, TransAlta's Wind Business, to deliver 13,876 megawatt-hours of Green Leaf, EcoLogo-certified wind energy to the grid on behalf of *Wind Power by Pembina* supporters. We partnered with Environment Canada to power over 8,000 computers with Wind Power at the 2005 UN Climate Change Conference.

### 20,000 Computers Powered by Wind

Help us reach our campaign goal. Contact our *Wind Power by Pembina* Program Coordinator at (403) 269-3344 ext.117 or visit [www.ilovewindpower.com](http://www.ilovewindpower.com)

## Pembina's Annual Earth Celebration Gala

Our 2005 Earth Celebration Gala raised over \$44,000 (net) as a result of the generous support of our event sponsors and participants. Revenue generated by the gala is used to support Pembina's education, advocacy and research programs, as well as to develop partnerships with other like-minded ENGOS.

Presenting Sponsor



Classic Gala Sponsors



SUNCOR ENERGY FOUNDATION

Gala Sponsors



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Media Sponsor



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The 2005 Gala was powered by the wind thanks to the sponsorship of **Vision Quest Windelectric Inc., TransAlta's Wind Business.**



# Major gifts

## Sustainable Energy—Solutions for Life

*A Program in Support of Pembina*

Join Us  
as a  
Major Gift  
Supporter

### Pembina's "Solutions for Life" Goal (2006–2008): \$650,000

We are proud of Pembina's success in our first 20 years of environmental leadership. Yet significant challenges remain in addressing the environmental impacts of today's energy developments and achieving a sustainable energy future.

#### Join us to reach these goals:

- Develop a National Sustainable Energy Strategy  
**Target: \$100,000**
- Limit Environmental Impacts of Oil and Gas for Northern and Western Canada  
**Target: \$250,000**
- Realize a Sustainable Energy Future for Alberta  
**Target: \$100,000**
- Bring Sustainable Energy Solutions to Canadian Communities  
**Target: \$100,000**
- Help Youth Take Action for the Environment  
**Target: \$100,000**

#### To find out more about this program contact one of the following:

Nancy Hammer, CFRE, Director of Development  
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Rob Macintosh, Board of Directors  
rob@dejanira.ab.ca

David Armour, Board of Directors  
david@leadingchange.org

Calgary Office (403) 269-3344

# The team behind the work

## Board of Directors

### Experience and diverse perspectives characterize The Pembina Institute's Board of Directors

The primary role of The Pembina Institute's Board of Directors is to provide governance, support and operational strategic direction for the organization. Our board meets regularly throughout the year and comprises experienced and insightful professionals who bring to the table diverse perspectives on environmental priorities, business administration and societal responsibility. [Learn more about our board.](#)

Visit: [www.pembina.org/staff.asp](http://www.pembina.org/staff.asp)

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Professor of Strategic Management, University of Calgary

## Staff

### Passionate and innovative staff are The Pembina Institute's greatest asset.

More than 40 people work for the Institute in Calgary, Edmonton, Drayton Valley, Vancouver, Toronto and Ottawa-Gatineau. Our highly diverse and qualified team of scientists, researchers, engineers, lobbyists, policy analysts, teachers, accountants, business administrators, writers, editors, communications strategists and fundraising experts have earned us a reputation for finding sound and practical solutions to some of the most pressing and complex environmental concerns of our time.



Photo: David Dodge, The Pembina Institute

### Includes staff active in 2005 and as of July 2006

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Community Project Analyst, BSc

# Our philosophy

## Sustainability begins at home

### The Pembina Institute incorporates the principles of sustainability in our own policies and practices through

**Collaboration** We encourage collaboration across program areas and among staff, as well as through partnerships with other stakeholders.

**Participatory decision making** We practice this by applying a consensual decision-making model and encouraging all staff to participate in major organizational decisions.

**Equal opportunity** We are an equal opportunity employer, encouraging applicants from all ethnicities, gender orientations and spiritual beliefs to join our team.

**Diversity** We invite input from a range of external perspectives and by proposing sustainability solutions that respond to diverse interests.

**Work/life balance** We regularly discuss personal sustainability and support each other through tough times. We also provide a high level of flexibility for staff in where they choose to work, the hours they keep and when they take leave.

**Transparency** Our decision-making practices are transparent, enabling staff and partners to understand how and why decisions are made.

**Balanced budgeting** We embrace balanced budgeting as a principle of sustainability by not taking on significant financial debt or risk. Our operational facilities are modest, allowing us to concentrate our resources on program activities.

**Zero-footprint** Pembina strives to achieve the zero-footprint principle by teleconferencing, purchasing green power, and promoting car-pooling and alternative transportation.

**Long-term thinking** Among other activities, Pembina uses scenario-planning exercises to conceive the future and plan our activities for maximum effectiveness.

**Laughter** We promote a positive attitude by regularly socializing, sharing humour and enjoying the outdoors together.



Marlo Reynolds shares ideas with Hon. Peter Milliken at a BIOCAP Canada reception.



Pembina collaborates with other environmental groups to decide on a media strategy.



Pembina staff have fun with a communications exercise.

Photos, left to right: Government Photo, The Pembina Institute; David Dodge; The Pembina Institute

# Solutions for a sustainable world

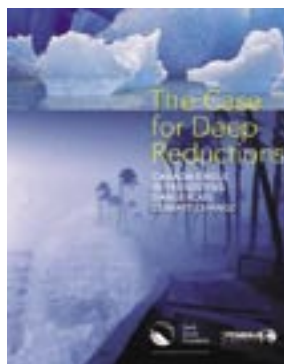
Our publications examine environmental problems, stimulate new thinking on sustainability and provide solutions to complex environmental challenges. Here are examples of some of our key works published in 2005. Browse our complete archive at [www.pembina.org/publications](http://www.pembina.org/publications).



**Oilsands Fever: The Environmental Implications of Canada's Oil Sands Rush**  
*Dan Woynillowicz, Chris Severson-Baker, Marlo Reynolds*  
 Nov 2005, 86 pgs.

This online “best seller” is a comprehensive overview of the impacts of oil sands development on the environment. It also explores the contradiction between the development of

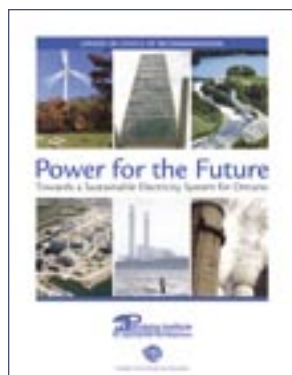
the oil sands and the urgent need to reduce greenhouse gas emissions. More than 40,000 copies of the book were downloaded in the first five weeks after its publication and it enjoyed extensive media coverage in Canada and the U.S.



**The Case for Deep Reductions: Canada's Role in Preventing Dangerous Climate Change**  
*Matthew Bramley*  
 Nov 2005, 55 pgs.

What role should Canada play in the global effort to prevent the dangerous impacts of climate change? Is there a safe upper limit to greenhouse gases in the atmosphere? This solutions-

based report concludes that Canada must strive for an 80% cut in emissions by 2050 and that achieving this is feasible. This report will be the centrepiece for discussions with federal government representatives in 2006.



**Towards a Sustainable Electricity System for Ontario? A Provincial Progress Report**  
*Mark Winfield*  
 Nov 2005, 20 pgs.

Despite the Ontario government's talk about the need to create an energy conservation culture, our review shows the focus is on finding new supplies of energy, such as nuclear. More than

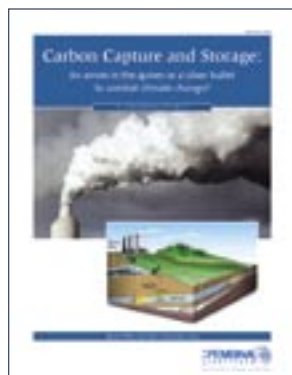
4,000 copies of this report were downloaded in the first month.



**Government Spending on Canada's Oil and Gas Industry: Undermining Canada's Kyoto Commitment**  
*Amy Taylor, Matthew Bramley, Mark Winfield*  
 Jan 2005, 60 pgs.

More and more tax dollars are going towards Canada's oil and gas industry. This increase is at odds with the need to reduce Canada's greenhouse gas emis-

sions. This report contains recommendations for reforming this public expenditure. More than 13,000 copies of the report have been downloaded, and wide media coverage has helped re-ignite the political debate about subsidies to the oil and gas industry.



**Carbon Capture and Storage: A Canadian Primer**  
*Mary Griffiths, Paul Cobb, Tom Marr-Laing*  
 Nov 2005, 77 pgs.

Is carbon capture and geological storage the silver bullet to combat climate change? This report concludes that there is no single technological fix to address climate change; rather, a portfolio of policy and technology

tools is needed. This report received significant media coverage and helped inform Canadian decision makers about the relevance of carbon capture and storage in the fight against climate change.



**Local Implementation of Smart Growth Policies in Ontario: Three Case Studies**  
*Carol Brunt, Mark Winfield*  
 July 2005, 52 pgs.

This report followed-up the publication of *Building Sustainable Urban Communities in Ontario: A Provincial Progress Report*. Both reports show that, while there have been improvements in urban planning policies in Ontario, more needs to be

done to limit automobile-dependent urban sprawl.

Pembina's top-rated websites inform, inspire and engage to help create a more sustainable world ...

## E-newsletters and websites

Pembina's e-publishing continues to grow and attract new and larger audiences thanks to innovative content and good design. Electronic promotion strategies such as website optimization, reciprocal links campaigns, and promotion of website content using our electronic newsletters ensure people read and use Pembina materials.



### Oilsandswatch.org

This media-rich website features a 20-minute video, slide show and stunning images of oil sands operations as well as Pembina's "best seller," *Oil Sands Fever*. All resources can be downloaded from the website free-of-charge.

Within one month of its launch nearly 8,000 resources per month were being downloaded from the site.



### Re-energy.ca

Re-energy.ca features do-it-yourself plans to construct working renewable energy models including a solar car, solar oven, wind turbine, small-scale hydro generator and biogas generator. More than 1.3 million construction

and lesson plans have been downloaded from the site since its launch in November 2001.



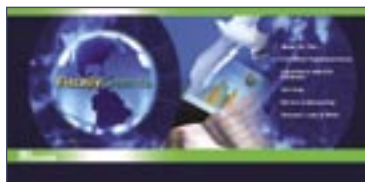
### Greenlearning.ca

Greenlearning.ca is one of the first environmental education programs to feature entire units of study in science and social studies. Teachers, students, community organizations and citizens can explore energy efficiency and climate change in pedagogically sound learning units.

The number of teachers using Greenlearning.ca resources has more than doubled in the past year.

### LCVA.ca

The LCVA Clearinghouse is a subscription-based website used as a reference library and analytical tool to aid corporations in the completion of life-cycle value assessments.



### Fiscallygreen.ca

Fiscallygreen.ca is a one-stop resource for information on fiscal policies for environmental objectives in Canada and

around the world. In 2005 the site was expanded to showcase the 51 updated indicators that make up Alberta's "Genuine Progress Indicator" (GPI), the province's first total well-being accounting system. Since the addition of the GPI section, visitors to this website have more than doubled.



### OneLessTonne.ca and Unetonneenmoins.ca

The One Less Tonne tool has been used successfully to engage employees in climate change action. More than 1,700 corporate employees have participated in

the program, committing to reduce greenhouse gas emissions by more than 6,500 tonnes.



## Pembina.org, Pembina eNews and E-Outreach

**Pembina.org**, our main website, houses an archive of media releases, publications and information about our many programs. A host of updates and improvements were made in 2005, and more than 300,000 publications were downloaded from the site.

More than 11,000 subscribers receive timely, informative and free electronic newsletters. Pembina's newsletters provide readers with the latest on new books and reports, expert opinions on hot topics like oil sands development, climate change and electricity supply and demand. Almost 1,500 new readers joined our subscriber list in 2005.

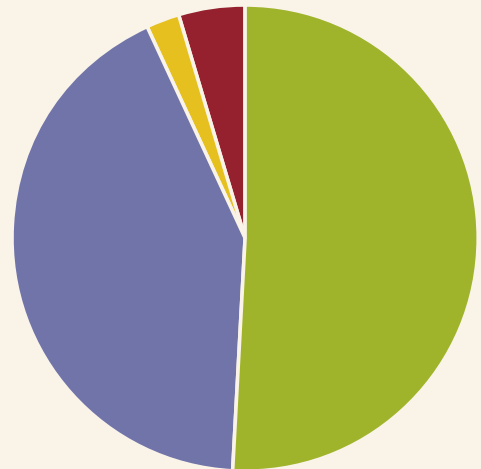
Subscribe to get your next issue at [www.pembina.org](http://www.pembina.org). (You can choose from among 3 newsletters.)

# Financial data

## Revenue 2005 (as per audited books)

The Pembina Institute advocates for change through fee-for-service contracts, foundation and government grants, and support from organizations and individuals.

<b>Fee for Service</b>	1,754,944.00	50.82%
<small>Revenues received for completing research and advisory services for NGOs, government, First Nation communities, and corporate clients.</small>		
<b>Grants</b>	1,457,672.00	42.21%
<small>Revenues received from granting agencies to complete specific projects. Pembina currently does not receive core funding from any granting agency.</small>		
<b>Donations and Fundraising</b>	80,109.00	2.32%
<small>Non-receipted gifts to support The Pembina Institute.</small>		
<b>Sales, Interest and Other</b>	160,506.00	4.65%
<small>Revenues from the sales of publications and Wind Power Certificates and interest from investments.</small>		
<b>Total Revenue</b>	<b>3,453,231.00</b>	<b>100%</b>



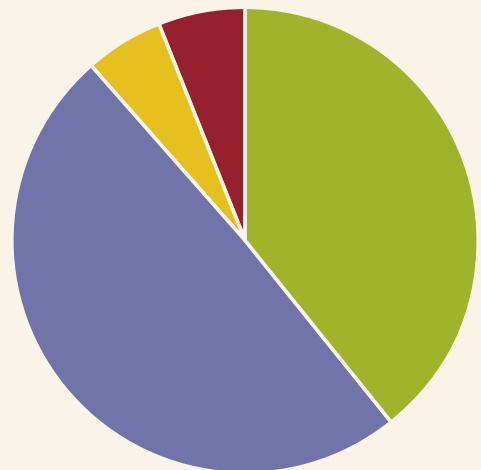
Fee for Service	50.82%
Grants	42.21%
Donations and Fundraising	2.32%
Sales, Interest and Other	4.65%

Revenue received by the GAIA Foundation is not reflected under Donations and Fundraising. Please refer to the Gaia Foundation Annual Report.

## Expenses 2005 (as per audited books)

Project labour includes the expertise, skills and research required to develop, implement, communicate and evaluate the projects that help us all move towards a more sustainable energy future.

<b>Project Expenses</b>	1,327,322.00	39.22%
<small>Hard costs including contractor services, travel, project materials and communications incurred to deliver our project work.</small>		
<b>Labour</b>	1,668,445.00	49.29%
<small>Represents wages, wage costs and staff benefits for 40 FTE staff to design, develop, deliver and manage our projects.</small>		
<b>Fundraising</b>	184,679.00	5.46%
<small>Hard costs for raising funds.</small>		
<b>Infrastructure</b>	204,222.00	6.03%
<small>Overhead costs including offices, telecommunications, staff development, accounting and equipment incurred in the day-to-day operations of the organization.</small>		
<b>Total Expenditures</b>	<b>3,384,668.00</b>	<b>100%</b>
<b>Total Revenue</b>	<b>3,453,231.00</b>	
<b>Net Revenue</b>	<b>68,563.00</b>	



Project Expenses	39.22%
Labour	49.29%
Fundraising	5.46%
Infrastructure	6.03%

Net revenue is held for future programming of The Pembina Institute.

Expenses related to Fundraising reflect all expenses associated with raising revenue through direct mail, special events, websites and unsolicited gifts for both The Pembina Institute and the GAIA Foundation.

**Statement of Operations**  
The Pembina Institute year ending December 31, 2005

	2005	2004
<b>Revenue</b>		
Consulting fees	\$1,476,924	\$1,225,829
Program cost recovery –		
GAIA agency agreement	712,179	561,389
Grants	745,493	365,500
Reimbursed expenses	212,340	149,013
Publications and sales	147,320	133,621
Donations and fundraising	80,109	58,710
Speaking and board honoraria	65,680	53,786
Rental	6,853	–
Interest	6,333	1,563
	<b>3,453,231</b>	<b>2,549,411</b>

**Expenses**

Wages and wage costs	1,668,445	1,333,769
Contractor services	706,481	433,301
Staff travel	283,585	163,410
Project materials and supplies	277,512	81,332
Advertising and promotion	107,322	54,680
Office rent	69,522	55,149
Amortization	50,312	79,158
Postage and courier	42,439	41,596
Office	37,456	23,932
Telephone and utilities	34,969	38,046
Insurance	25,976	22,094
Equipment rental	15,111	14,935
Professional fees	11,739	10,444
Website hosting and development	11,572	9,795
Property repairs	6,417	6,366
Computer support	5,994	12,121
Staff development	5,984	8,155
Property taxes	4,742	3,592
Library purchases and subscriptions	4,618	5,845
Equipment repairs	4,331	1,365
Bank charges	4,315	2,484
Bad debts	4,314	–
Interest on long term debt	1,512	1,995
	<b>3,384,668</b>	<b>2,403,564</b>

**Excess of Revenue Over Expenses**      **\$68,563**      **\$145,847**

**Statement of Financial Position**  
The Pembina Institute year ending December 31, 2005

	2005	2004
<b>Assets</b>		
<b>Current Assets</b>		
Cash	344,509	91,106
Accounts receivable	681,892	501,866
Due from related party	229,284	172,827
Prepaid expenses	29,154	13,633
Inventory	5,248	44,810
	<b>1,290,087</b>	<b>824,242</b>
Property, Plant and Equipment	192,193	216,291
	<b>\$1,482,280</b>	<b>\$1,040,533</b>

**Liabilities and Net Assets**

**Current Liabilities**

Accounts payable	296,525	131,791
Deferred revenue	322,691	98,989
Mortgage payable within one year	15,795	15,283
	<b>635,011</b>	<b>246,063</b>
Mortgage payable after one year	11,103	26,867
	<b>646,114</b>	<b>272,930</b>

**Net Assets**

Investment in property, plant and equipment	165,295	174,141
Reserve fund	75,000	–
Unrestricted	595,871	593,462
	<b>836,166</b>	<b>767,603</b>
	<b>\$1,482,280</b>	<b>\$1,040,533</b>



Photo: David Dodge, The Pembina Institute



This report was published on Forest Stewardship Council (FSC)-certified paper. The FSC promotes environmentally appropriate, socially beneficial and economically viable management of the world's forests.

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