



“Show Me the Money”

(The changing landscape of funding programs)

Innovative Solutions Section

Environment Canada

February 2007

Our Challenge

To ensure that Canadians and future generations have clean air, water, land and energy.

Our Mission is "...to protect Canadians' top priority - the environment - while building a competitive and sustainable economy,"

John Baird, Minister of The Environment

Source: <http://news.gc.ca/cfmx/view/en/index.jsp?articleid=268259&>

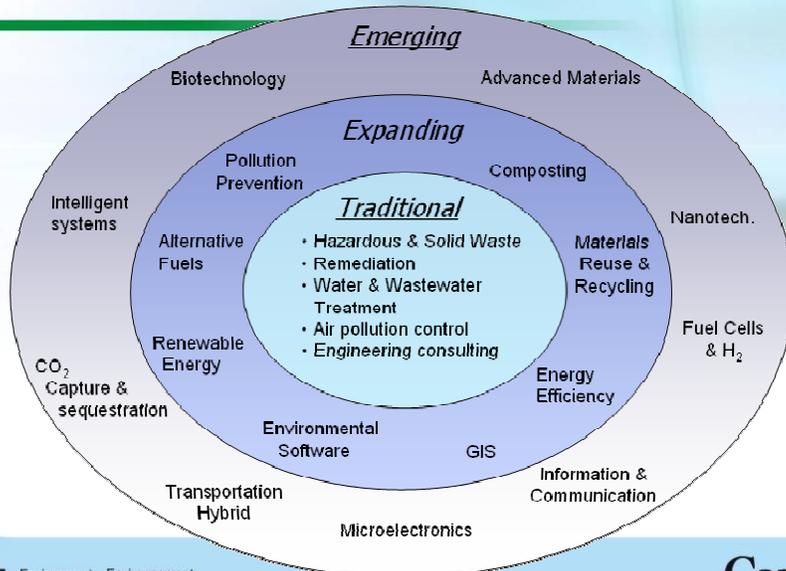
ISS Goal

Facilitate the research, development, demonstration and deployment of innovative technologies that address Canada's environmental priorities. To this, we develop and apply science and technology for environmental protection.

Heads Up!

The funding programs in this presentation reflect the current level of Federal investment in environmental technologies but new funding programs will be coming online based on recent Government announcements.

Evolving Environment Industry Universe



Key Funds

<u>(\$M)</u>	<u>Program</u>	<u>Duration</u>
100	Industrial Research Assistance Program (IRAP)	Continuous
550	Sustainable Development Technology Canada	2002-2010
550	Green Municipal Fund	Revolving
904	Natural Sciences & Eng. Research Council of Canada	Revolving
3650	Canada Foundation for Innovation	Continuous
1800/yr	Scientific Research & Experimental Development Program	2002-2017
N/A	Renewable Energy/Conservation Tax	Continuous
230	ecoENERGY Technology Initiative	2007-2011
1500	ecoENERGY Renewable Initiative	2007-2011
300	ecoENERGY Efficiency Initiative	2007-2011

Regional Funds

- Atlantic Innovation Fund
- Canada Economic Development
- Western Economic Diversification
- Federal Economic Initiative for Northern Ontario

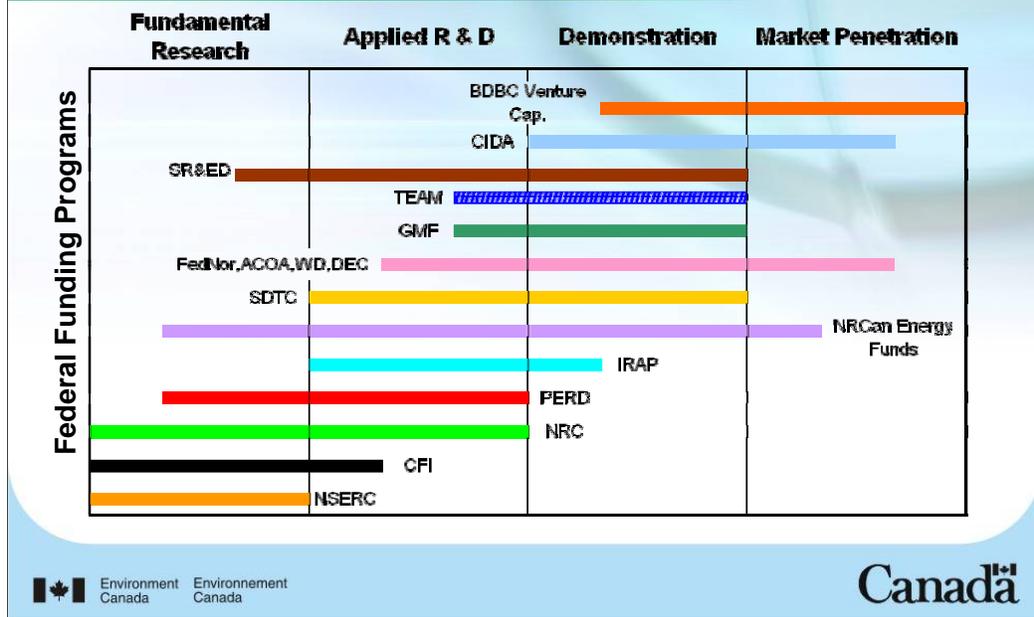
Energy-related Funding Programs

- Industry Energy R&D Program
- Emerging Technologies Program
- Renewable Energy Technologies Program

International (World Bank) Programs

- World Bank's Prototype Carbon Fund
- Community Development Carbon Fund

Funding Spectrum



This chart is intended to serve as a reference to position many of the funding and incentive programs along the funding spectrum, from pure R&D to commercial deployment.

Based on funding requirements, the type of project being proposed and the level of funding required, further research online is needed to gain a better understanding of the requirements of each funding programs and which program might be the most appropriate.

Emphasis is almost always placed on a solid proposal: The key to having a successful vs. an unsuccessful project is usually understanding the specific criteria for funding and the elements of the proposal that the project review committee will be looking for.

Recent Changes

The following Programs are no longer accepting applications:

- Technology Partnerships Canada (TPC)
 - No new projects will be contracted and program is being redefined
- Hydrogen Early Adopters Program (h2EA)
 - No longer accepting projects; current projects will not be affected
- TPC – IRAP
 - Not accepting new proposals
- Freight Sustainability Demonstration Program (FSDP) and Freight Incentives Program (FIP)
 - All Projects are being wrapped up by March 31st, 2007
- Technology Early Action Measures (TEAM)
 - All funding has been allocated, program under review
- Wind Power Production Incentive (WPPI)
 - Will be re-introduced as part of new ecoENERGY Renewable Power initiative
- Renewable Energy Deployment Initiative (REDI)
 - Current funding allocated, not accepting new proposals at this time.
 - Will be reintroduced as part of the ecoENERGY Renewable Heat initiative

REDI

Will be renewed as part of the ecoENERGY initiative as ecoENERGY for Renewable Heat

Will retain same physical location with most of the same staff

WPPI

- Legally ends Mar 31st 2007, but will be renewed April 1st as part of ecoENERGY Initiative as ecoEnergy for Renewable Power and additionally incorporate small hydro, biomass, geothermal, and solar voltaic
- Will retain same physical location with additional staff
- Will have \$1.5B over 14 years, first chunk (\$295M) over four years will begin April 21st
- Application process will be streamlined, removing letter of interest

Details will be available in April 2007

ecoENERGY Initiatives

- *Newly announced funding programs for 2007-2011*

Technology Initiative – \$230 million

Renewable Initiative – \$1.5 billion

Efficiency Initiative – \$300 million

- *Program details, including application information for ecoENERGY grants, will be available when the program starts in April 2007*



These ecoENERGY components are specifically designed to provide incentives for retrofitting existing houses, small-building and industry stock, to raise the bar for new construction, and to continue collaboration with industry on efficiency improvements. They reinforce extensive Energy Efficiency Act amendments already included in the Government's Clean Air Regulatory Agenda.

ecoENERGY will be **delivered as a single, integrated program**, covering the innovation spectrum from basic research to near-commercialization of technologies. ecoENERGY will concentrate on priority clean energy technologies and moving them to market.

Recent announcements about the ecoENERGY initiative:

<http://www.ecoenergy-ecoenergie.gc.ca/faq-eng.htm>

<http://www.ecoenergy-ecoenergie.gc.ca/nr-eng.htm>

<http://news.gc.ca/cfmx/view/en/index.jsp?articleid=269699&>

<http://news.gc.ca/cfmx/view/en/index.jsp?articleid=269189&>

Technology Initiative – \$230M

- Foster next generation clean technologies, from basic research to near-commercialization
- Will focus on high-value, high-impact projects, not a general funding program
- Priorities will include CO₂ sequestration, clean coal, clean oil sands production, nuclear and renewable energy
- Priorities will be further developed at Council of Energy Ministers meeting in March 2007

A \$230-million investment in the ecoENERGY Technology Initiative will accelerate the development and market readiness of clean energy technologies. It will foster the next generation of clean technologies to break through to emissions-free energy production and use. The ecoENERGY Technology Initiative is a focused, integrated approach built on key priorities that include CO₂ sequestration, clean coal, clean oil sands production and renewable energy.

- The ecoENERGY Technology Initiative will focus on high-value, high-impact projects. It will not be a general funding program.
- A significant aspect of the Initiative is an attempt to mobilise increased provincial/territorial and private sector funding for energy S&T projects through public-private partnering.
- Overall, provinces/territories and industry will be expected to contribute about **two-thirds of total individual project costs**.
- ecoENERGY funds allocated to the private sector, in the form of contributions, for demonstration projects are not intended to allow recipients to generate profit or to increase the value of the business. If it is determined that the recipient is profiting or increasing the value of the business, the contribution will be repayable.

Renewable Initiative – \$1.5B

ecoENERGY for Renewable Heat – \$36 million

- 25% incentive of purchase, installation, and some other costs of solar heating systems in industrial, commercial, and institutional sectors
- Will explore increasing the market for residential solar heating systems

ecoENERGY for Renewable Power – \$1.48 billion

- Incentive of 1¢ / kWh for up to 10 years for power produced by low-impact renewable energy sources to projects constructed over the next four years (including wind, small hydro, biomass, solar, geothermal, and tidal)

The investment of more than \$1.5 billion in the ecoENERGY Renewable Initiative will boost Canada's renewable energy supplies. Incentives and industry support will be provided for low-impact renewable electricity generation and heating technologies. The ecoENERGY Renewable Initiative is expected to add enough clean electricity to the grid to power one million homes, and to install solar heating in about 700 buildings and solar hot-water systems in several thousand homes. The investment of \$1.48 billion in ecoENERGY for Renewable Power aims to boost Canada's supply of renewable electricity by 4,000 megawatts. The former Wind Power Production Incentive (WPPI) will be incorporated into this initiative with many of the same criteria and conditions for application, but the program will be expanded to include additional renewable energy sources like biomass, solar, etc.

ecoENERGY for Renewable Heat will increase the use of clean renewable technologies through a mix of incentives and support for the development of industry capacity. An incentive will be offered to purchasers of solar heating systems in the industrial, commercial and institutional sectors. The incentive will be set at 25 percent of the purchase, installation and certain other costs of a qualifying system. Preliminary estimates suggest that, by 2011, the program will support the installation of solar space and water heating in about 700 buildings.

In addition, in partnership with energy utilities, energy service companies, community groups and other interested partners, projects will be undertaken to explore increasing the market for residential solar hot-water systems. This is expected to result in the installation of solar hot-water systems into several thousand homes across the country.

Efficiency Initiative – \$300M

- *Announced Jan 21, 2007 and will be divided into 3 parts:*

ecoENERGY Retrofit – \$220 million

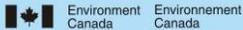
- To support homeowners and smaller businesses and organizations
- Will address similar components to the previous Energuide for houses
- Cost of audits no longer covered

ecoENERGY for Buildings and Houses – \$60 million

- To encourage construction and retrofit of more energy-efficient buildings and houses

ecoENERGY for Industry – \$20 million

- To accelerate energy-saving investments and the exchange of best practices information within Canada's industrial sector



Approximately \$300 million over the next four years will promote smarter energy use. The ecoENERGY Efficiency Initiative includes ecoENERGY Retrofit, providing financial support and information for energy retrofits in homes, as well as in small buildings and industries. ecoENERGY for Buildings and Houses will support the construction and retrofit of more energy-efficient buildings and houses through information sharing, standard setting and related initiatives and training. ecoENERGY for Industry will accelerate energy-saving investments and the exchange of best-practice information within Canada's industrial sector.

Under ecoENERGY Retrofit – Homes, the government expects to provide incentives to some 140 000 homeowners for home improvements that will reduce their energy use and costs as well as make their homes more comfortable. EcoENERGY Retrofit – Homes is expected to be launched in April, 2007. More details on this initiative will be released in the coming weeks. ecoENERGY Retrofit will be launched in the spring, but you can have a home energy audit done by a [qualified Energy Advisor](#) right away.

For Smaller Businesses and Organizations

Small and medium-sized organizations in the institutional, commercial and industrial sectors will be eligible for financial incentives to support energy-saving projects. Eligibility details will be developed after consultation with target groups and with potential partners such as provinces, territories and utilities.

Sustainable Development Technology Canada (SDTC)

- **Established in 2001 as a response to Kyoto**
 - Total of \$550M
 - \$350M + \$200M (Budget 2004)
 - \$220M Allocated as of Oct '06
- **Climate Change & Clean Air, Water & Soil Techs**
 - Development & demonstration
 - Emphasis on strong partnerships
- **Funding Specifics:**
 - **Non-repayable**
 - Partnership consortium required
 - No specific min/max amounts
 - Max 5 years of Funding per project
 - Follow-on report on success of funded project to be submitted 2 years after project completion

*11th Funding Round closing
March 14th, 2007*



Foundation established by an act of Parliament 2001 as a response to the requirements of the Kyoto protocol. SDTC started with an original endowment of \$100 million. \$250 million was added to that as part of Budget 2003, and another \$200 million was announced in Budget 2004, for a total available of \$550 million. It is an Arms length, not-for-profit, incorporated company.

Its aim is to invest in development and demonstration on Climate Change & Clean Air, Water & Soil Technologies across all industry sectors.

Some of the funding specifics:

- 33% of project costs (avg.), Up to 50% in extraordinary cases
- 25% minimum contribution by applicants (in cash or in kind)
- No specific min/max amounts (however assume a working range of \$500K to several million per project)
- Maximum of 5 years of Funding per project
- Funds to be committed by December 2010; disbursed by December 2012.

SDTC places a big emphasis on partnerships and encourages that partnerships are put in place and solidified before applying for funding. Partnerships can involve: private sector, academia, and research institutions, not-for-profit orgs., individuals, etc.

SDTC - Eligible Technologies

- **Hydrogen economy**
fuel cells, hydrogen infrastructures, transition fuels
- **Cleaner Fossil Fuels**
CO2 capture and sequestration, oil sands production
- **Air Quality improvement**
toxics recovery, particulate control, acid rain
- **Energy end-use technologies**
transportation, buildings, ground level ozone reduction
- **Renewable energy technologies**
biomass, solar, wind, wave, tidal
- **Budget 2004 expanded mandate included Clean Water & Soil**
 - Water quality and quantity improvement
 - Waste management
 - Soil quality improvement

The Application Process is a 2 Step Process, first a short Statements of Interest (SOI) is prepared, followed by a full Proposals by invitation of SDTC if they feel the project has merit.

During the approval process, there are 4 Decision Points for SDTC to approve/reject the proposal:

- SDTC review of SOIs
- Expert analysis of proposals
- Project committee technical assessment
- Board of Directors strategic review and approval

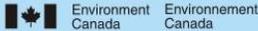
SDTC evaluates the project submissions by the following criteria:

- Technically sound
- Technical, financial and management capacity of proponent
- Significant broad benefits to Canada
- Timely diffusion and deployment

If the SOI is accepted by SDTC, assume approx. 10 weeks of time to be given to complete a full proposal, full application process can take 10 months from start to finish.

Industrial Research Assistance Program (IRAP)

- Established 1947 by NRC to stimulate wealth-creation through technology innovation
- Advice, networking and financial support to
 - ~ 12,000 SMEs/yr (~3000-4000 funded projects/yr)
- Cost-shared contributions
 - \$100M annual budget
 - **(Max \$350K non-repayable, \$1.5M repayable)**
- Delivered through national network of 270 Industrial Technology Advisors (ITAs)



IRAP is one of Canada's longest running R&D programs, established in 1947. IRAP has a broad base of ITA's who work in all regions across the country. The ITA's can also help access expertise in the business end of innovation, such as marketing, financing, and production through the Canadian Technology Network. Up to \$350,000 maximum contribution for non-repayable portion of projects. Up to \$1,500,000 maximum contribution for repayable portion of projects.

Cost-shared contributions possible for projects in:

- Up to \$350,000 maximum contribution for non-repayable portion
- Up to \$1,500,000 maximum contribution for repayable portion
- Pre-commercial activities like manufacturing engineering, pilot plant trials, 1/3 of eligible costs up to \$1M repayable

Examples of Funded Projects incl. major collab projects with Climate Change (TEAM) and NRCan:

- Fuel cell projects (Hydrogen Fuel Storage Systems by Dynetek Industries Ltd. – development of high pressure storage for natural gas and hydrogen. Dynetek is now pursuing another approach in which increased storage pressure allows more compressed hydrogen to be stored in the same space)
- Next generation heating and ventilation (Hydrogen Fuel Cells for Buildings by Hydrogenics Corporation is developing a prototype power generator known as the HyStat. This system is fueled by natural gas and uses proton exchange membrane (PEM) fuel cell technology to generate electricity)
- Biodiesel by the Biox Corporation (By producing biodiesel from vegetable oils, agricultural seed oils, recycled cooking oils, and animal fats, the company expects to cut its manufacturing expenses by half)
- Eco-efficiency pilot projects in collaboration with many stakeholders
- EnviroClub in collaboration with CED, EC, Enviro-access
- Sponsor networking meetings, workshops
- Design for environment: See <http://www.nrc.ca/dfc>
- Some other recent IRAP initiatives include Lean product design, Environmental preview assessment (with ETV Canada), Manure management (with EC, ETV Canada, AgCan)

Green Municipal Fund (GMF)

Federation of Canadian Municipalities

- \$550M permanent revolving Fund for green municipal infrastructure
- Targets municipal governments & partners to improve air, water & soil quality, climate, promote renewable resources, and remediate & redevelop Brownfields.

- Grants are available to applicants for feasibility studies, field tests and sustainable community plans for up to 50% of the Total Eligible Costs to a maximum of \$350,000 (Open)
- Loans, grants, or a combination of the two are available for capital projects. Funding is based on the potential environmental benefits of the project and the size of the RFP.

The Federation of Canadian municipalities was created in 1901 to be the national voice of municipal government. The Green Municipal Fund was established by the Federal government in 2000 and has **endowed the Federation of Canadian Municipalities with \$550 million to establish and manage the Green Municipal Fund (GMF). The 2005 federal budget added \$300 million to the existing \$250 million fund, of which \$150 million is earmarked for brownfield redevelopment.**

To date the GMF have provided funding to over 520 studies and projects while leveraging almost \$2 billion of **economic activity in communities across Canada.**

To be eligible, a project must demonstrate the potential to generate measurable environmental, economic, and social benefits. Specifically, applicants must be able to report the environmental benefits that will result from the project implementation.

Green Municipal Fund (GMF) Continued

Grants – feasibility studies, field tests and SCPs (*Open*)
Loans & Grants – capital projects (*RFP*)

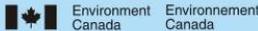
Sector	Subject	RFP Launch	Total Amount Available	Funding Decision
Waste	Diversion from landfill	Winter 2007	Loans: up to \$10 million Grants: up to \$2 million	September 2007
Transportation	Energy-efficient municipal vehicles and ridership improvement programs	Spring 2007	Loans: up to \$10 million Grants: up to \$2 million	December 2007
Energy	District Energy	Spring 2007	Loans: up to \$20 million Grants: up to \$3 million	December 2007
Water	To be determined	Summer 2007	Loans: up to \$10 million Grants: up to \$3 million	March 2008
Brownfields	Remediation and redevelopment	Summer 2007	Loans: up to \$20 million	March 2008

Project Categories: energy and energy services, water, solid waste management, sustainable transportation services and technologies, remediation and redevelopment of brownfields, sustainable community planning and development

Project Types: Geo-thermal, Wind Power, Solar Water Heating, WW treatment heat recovery, WW treatment constructed through wetlands, landfill gas utilization, etc.

Program of Energy Research and Development (PERD)

- Annual budget of ~ \$50.9M (EC budget 4.6M)
- Funding provided to federal labs, private sector, other funding agencies, universities, provinces & municipal governments
- Program Strengths:
 - collaborative approach to R&D that encourages partnerships
 - emphasizes peer-review & assessments
 - PERD MOU signed with 12 participating federal departments & agencies (e.g., CMHC)
- Operating for almost 30 years



The Program of Energy Research and Development (PERD) is a federal, interdepartmental program operated by Natural Resources Canada (NRCAN). PERD funds R&D designed to ensure a sustainable energy future for Canada in the best interests of both our economy and our environment. It directly supports energy R&D conducted in Canada by the federal and provincial governments, and is concerned with all aspects of energy supply and use. PERD provides funds directly to partner departments and agencies, which then team up with the following agents: federal laboratories; private sector (industry, research institutes, companies, consortia and alliances, individuals); associations; other funding agencies (NSERC, IRAP, TEAM); universities; Provincial. & Municipal governments; international organizations.

PERD forwards many policy agenda: Climate change; Clean Air; Clean water; Clean energy; Innovation; Sustainable energy production and development; Knowledge and innovation related to energy efficiency; Jobs and growth; Improved productivity and competitiveness. PERD funding for approved research and development projects is provided under an interdepartmental Memorandum of Understanding (MOU) signed between NRCAN and the 11 other participating federal departments & agencies. Approx. 60% of PERD resources fund activities conducted by industry, utilities, provincial research organizations and universities. Multi-year funding (up to 4 years) for programs at the objective level (POL).

POLs: PERD is made up of 28 Programs at the Objective Level (POLs). Each POL has a plan that describes how it will meet its research objectives. It also describes how POLs will be managed and evaluated. Each POL is assigned a leader who co-ordinates activities, while departmental project managers contribute in a technical or advisory capacity. Annually, each POL is required to submit a report summarizing its progress in achieving outputs and outcomes.

The Assistant Deputy Minister (ADM) Energy Sector has the ultimate responsibility for NRCAN's energy research and development investment, however the ADM solicits input and strategic direction from an interdepartmental senior-level management committee, known as the PERD Panel. Each department that receives PERD funding is represented on the Panel. This group meets at least once a year to discuss overall program progress and research opportunities as well as funding allocations. Some priority Energy R&D Areas include: Oil and Gas production; Cleaner Transportation; Energy-efficient Buildings & Communities; Energy-efficient Industry; and Electricity Infrastructure.

More information on the PERD can be found at: <http://www2.nrcan.gc.ca/es/oerd/>

Sample PERD Projects:

- Analysis and Air Quality Division – Identify sources of airborne carbonaceous particles by the identification of compounds unique to diesel engine emissions
- Soil and Groundwater Remediation – Analysis, mitigation and remediation of soil and groundwater as it pertains to the oil and gas sector.

Last Updated: February 23, 2006

NSERC

(Natural Science & Engineering Research Council of Canada)

- Invests in university and company R&D
 - Supports ~23,000 University Students & Postdoc Fellows
 - Encourages 1,300+ companies to participate and invest in University Research Projects
- Programs of interest include:
 - Industrial R&D Fellowships (IRDF) Program.
 - Industrial Postgraduate Scholarships (IPS) Program
 - Collaborative R&D (CRD) Grants
 - Industrial Research Chairs (IRC) Program
 - Idea to Innovation (I2I) Program

 Environment Canada Environnement Canada



Natural Science and Engineering Research Council of Canada invests in people, discovery and innovation to benefit Canadians.

Its goals are to:

- Stretch Research dollars;
- Link companies to skilled people;
- Provide access to specialized equipment;
- Deliver creative ideas and solutions; and
- Promote long-term partnerships.

Opportunities for Business Through NSERC: NSERC helps Canadian companies compete in today's economy by jointly funding collaborative R&D projects with scientists and engineers in universities across the country.

There are many programs offered by NSERC, visit their website for more info.

Programs offered by NSERC for industry:

- **Industrial Research Fellowships (IRF) Program:** Funds up to \$30K/yr for 2 years for recent Ph.D. graduates to perform R&D within companies to forward their R&D programs.
- **Industrial Postgraduate Scholarships (IPS) Program:** Funds \$15K/yr for 2 years for postgraduates to gain research experience in industry while undertaking advanced studies in Canada.
- **Undergraduate Student Research Awards (USRA) Program:** Funds \$4.5K for 4 month work term for undergraduate students to work on R&D with industry.
- **Collaborative Research and Development (CRD) Grants Program**
- **Industrial Research Chairs (IRC) Program**
- **Research Networks (RN) Program – not currently accepting / creating new networks**
- **Idea to Innovation (I2I) Program-** Now accepting phase 2 applications

Canada Foundation for Innovation (CFI)

- Funds research infrastructure at universities, colleges, research hospitals and non-profit research institutions
- Promotes collaboration with federal granting agencies, provincial & municipal governments, and the private & volunteer sectors
- Over 10 years, CFI has invested over \$3B in over 4,900 projects at over 120 universities, colleges, non-profit research institutes and research hospitals in over 60 municipalities across Canada
- Funding Programs:
 - Many different funding programs (*check website*)
 - **Innovation Fund**: funds up to 40% of infrastructure costs

The CFI invests in projects through the following funding programs:

The **Leading Edge Fund** and the **New Initiatives Fund** enable eligible institutions to strengthen their research infrastructure in priority areas—as identified in their strategic research plan. The funds promote multidisciplinary and inter-institutional approaches, and enable Canadian researchers to tackle groundbreaking projects. The Leading Edge Fund focuses on high achieving project that have previously received CFI funding and that require new infrastructure to maintain their leading position.

The **Leaders Opportunity Fund** provides infrastructure support to help attract and retain high calibre academic staff in areas that are essential to the institutions' strategic research objectives.

The **Infrastructure Operating Fund** contributes to the incremental operating and maintenance costs associated with the infrastructure projects funded by the CFI.

The **Research Hospital Fund** is designed to contribute to research hospital based projects that focus on innovative research and training. It supports large-scale infrastructure projects that take a multidisciplinary approach—involving biomedical, clinical, health services, and population health research.

The **International Joint Venture Project** is a competition for a single high profile internationally collaborative research project. The competition is jointly organised by the CFI, Genome Canada and the three federal granting agencies: CIHR, NSERC, SSHRC.

The **National Platforms Fund** aims to provide research infrastructure, resources, and services that meet the needs of many research areas, and that may require periodic reinvestments to stay competitive internationally because of the nature of the technologies. This Fund is first being used to build on and sustain internationally competitive high performance computing resources in Canada.

Energy Efficient Industry (NRCan)

Industry Energy R&D Program (IERD)

- **Supports innovative SME R&D:**
 - Development & use of energy-efficient processes, products, systems & equipment across all sectors
 - 35% of eligible project costs (Up to 50% in exceptional cases)
 - Conditionally repayable; Annually renewed

Emerging Technologies Program (ETP)

- **Identifies & Eliminates technical barriers to increasing energy efficiency of Canadian industries:**
 - All sectors eligible, including: Pulp & paper, iron & steel, cement, oil & gas, food & beverage sectors
 - Technical assessments, prototype development & field trials
 - Funding is shared with IERD, 2006-07 Total Budget of \$1.7M
 - Up to 50% of project costs; Repayable from revenue or cost savings



Preliminary Budget for this fiscal Year should be 2.7M (preliminary figure) according to Jacques Guérette (Feb 6th 07) for both programs, which are combined

The **Industry Energy Research and Development (IERD) program** supports the development and use of new energy-efficient processes, products, systems and equipment proposed by industry. Projects contribute to a cleaner environment and help Canadian companies increase their market competitiveness. Technologies can be applied to all Canadian industrial sectors, including the transportation and buildings sectors. IERD's clients range from innovative SMEs to Canadian divisions of multinationals. The program forges links between technology developers and end-users to encourage the widest possible application of technologies.

The following major criteria should be met by those who apply:

- availability of scientific and technical personnel; availability of suitable research facilities; adequate financial resources to carry out the project and exploit the results; a sound technical basis and a reasonable chance of success; a significant amount of development work; general applicability of the technology to one or more industrial sector; and a sufficient potential energy savings.

IERD's average repayable contribution is 35 percent of total project costs. Allowable costs include: direct labour; direct material; travel; consultation fees and other outside services; a reasonable proportion of overhead; and specialized equipment, prototypes, and pilot plants. IERD's funding assistance is **repayable**.

Emerging Technologies Program (ETP)

The **Emerging Technologies Program (ETP)** identifies technical barriers to increasing the energy efficiency of Canadian industries by providing up to fifty percent (50%) funding assistance. ETP's funding assistance, which covers technical assessments, prototype development and field trials, is **repayable** from revenue or cost savings resulting from the project.

ETP supports the development and implementation of technological solutions that contribute to a cleaner environment, improved energy efficiency and productivity, higher quality products, reduced waste, and a stronger market position for Canadian companies. In particular, the program focuses on energy-efficient technologies that offer the highest rate of return on R&D investment for Canada's industrial sector.

Scientific Research & Experimental Development (SR&ED) Program

- ~\$2.7B Annual Federal tax incentive program to encourage private sector investment in SR&ED
- Claimants can apply for tax credits for wages, materials, machinery, equipment, some overhead and SR&ED contracts
- Eligible areas: Experimental Development, Basic and Applied Research
- 35% for SMEs, 20% for larger companies



Two levels:

- 35% on the first \$2M in qualifying expenditures for SMEs with less than \$300K in income (for post 2003 taxation years)
 - refundable (i.e. Cash-back) for Canadian-controlled, private corporations that are SMEs
- 20% for publicly traded companies (The credit can only be deducted from taxes owing. However, this credit can be carried forward if the corporation does not owe taxes in the year in which the claim is made.)
 - Non-refundable

40% cash back on qualified capital expenditures. This only applies to the “refundable” category of companies.

- Small companies with no revenue may still be eligible (e.g., re research costs)
- Larger companies must have revenues

- In Canada, 7 of 10 provinces offer additional provincial R&D tax credits that piggy-back with the federal program:
 - The smaller % provinces allow a much wider range of expenditure than larger % provinces (i.e., the percentages are different, but so is what they are percentages of).
 - From 10% (e.g., ON) up to 40% (in QC)

The SR&ED Program offers the following services:

- Public Information and Industry Specific Seminars
- First Time Claimant Service
- PreClaim Project Review (PCPR) Service
- Account Executive (AE) Service

Renewable Energy / Conservation Tax Incentives

- **Accelerated Capital Cost Allowance (Class 43.1)**
 - Tax incentive for renewable energy and energy conservation equipment (<50% annual write off)
- **Canadian Renewable & Conservation Expenses (CRCE)**
 - Full deductibility for the non-capital costs associated with the start-up of renewable energy & energy conservation projects
- Types of projects: cogeneration, active solar systems, small scale hydroelectric, heat recovery, wind farms, photovoltaic, geothermal, energy from waste



There are 3 federal departments involved in the Renewable Energy / Conservation Tax Incentives, which are a provision of the Canadian Income Tax regulations:

- Finance Canada is responsible for the legislation and drafts the regulations;
- Canada Revenue Agency administers the provisions under the regulations; and
- Natural Resources Canada is the engineering authority.

Types of environmental projects that would be eligible for these programs: cogeneration, active solar systems, small scale hydroelectric, heat recovery, wind energy conversion (e.g., wind farms) , photovoltaic systems, geothermal electrical generation systems, specified waste fuelled heat production systems.

Under the Accelerated Capital Cost Allowance (Class 43.1), companies can write off the cost of eligible assets at a rate of 30% on a declining balance basis for equipment designed to produce energy more efficiently or from alternative or renewable sources.

Under the Canadian Renewable & Conservation Expenses (CRCE), expenses for the start-up of eligible renewable energy & energy conservation projects can be fully deducted (e.g., for feasibility studies, etc.).

CBRNE* Research & Technology Initiative (CRTI) (* Chemical, Biological, Radiological, Nuclear, Explosives)

- Launched in 2002, \$170M interdepartmental initiative
- Strengthen Canada's preparedness for, prevention of, and response to potential CBRN terrorist attacks
- Environmental Investment Areas:
 - *Immediate Reaction & Near-Term Consequence Management:*
 - Surveillance, early detection & analysis
 - Containment, countermeasures & decontamination
 - *Longer-term:*
 - Assessment, remediation & recovery (environmental, human, agro-systems)
 - Decontamination in urban settings

The CBRN (Chemical, Biological, Radiological and Nuclear) Research and Technology Initiative (CRTI) represents the federal science community's response to providing science solutions to issues of counter terrorism and national security (post 9/11).

The CRTI works to improve Canada's ability to respond to CBRN incidents. Priorities include strengthening coordination and collaboration of capacity, capabilities, and, research and technology plans and strategies in the following (Budget 2001) mandated areas:

- creation of clusters of federal labs as elements of a federal laboratory response network that will build S&T capacity in collaboration with industry, academia and first responder communities, to address the highest risk terrorist attack scenarios;
- creation of a fund to build capability in critical areas, particularly those identified in the scenarios that address biological and radiological attack;
- acceleration of technology into the hands of the first responders community and other operational authorities; and
- provision of funds to those areas where national S&T capacity is deficient owing to obsolete equipment, dated facilities and inadequate scientific teams.

Several Departments and Agencies partner in the CRTI, including (among others): Defence R&D Canada, Environment Canada, Health Canada, National Research Council, Natural Resources Canada, and, Agriculture and Agri-Foods Canada.

From 2002 to 2006, CRTI approved \$124.5 million in 79 projects and \$29 million in 88 technology acquisitions. On 7 December, CRTI made its 6th Call for Proposals, but **the closing date for submission of Project Synopsis was January 18, 2007**. There will be up to \$28 million available for new projects. CRTI is interested in receiving proposals across all the investment priorities, but is particularly interested in projects that focus on explosives and on the medical and casualty management activities related to CBRN hazards. Proposals are sought from industry, academia, non-governmental and government institutions for all investment priorities in the following project categories:

- Technology Acceleration: Projects that hasten the delivery of technologies already in commercial development to first-responders.
- Research and Technology Development: Projects that close the gap between the scientific research community and developers of technologies.
- Technology Demonstration: Projects that create opportunities and venues for demonstrating the impact and utility of emerging technologies to first-responders.

Business Development Bank of Canada (BDC)

BDC provides SMEs with flexible financing, affordable consulting services and venture capital. BDC supports the needs of entrepreneurs at every stage of growth.

- \$250M was allocated to BDC in Budget 2004 to support commercialization of environmental technologies
- \$100M for pre-seed & seed investment to nurture development of embryonic technologies, bringing them to next level of venture capital financing
- \$100M to support creation of specialized venture capital funds
- \$50M to invest directly in innovative start-up & early-stage companies to further support commercialization of enabling technologies

As of early 2006, \$103M directed to regular investment activity, i.e. early stage technology companies

BDC invested \$17M in 18 Seed Ventures to support commercialization of research in Canada

Selection Criteria

Company must have:

- A distinct, sustainable, and competitive advantage
- A technological platform
- A highly-skilled and committed management team with entrepreneurial flair
- A clearly-defined and realistic business plan
- A market opportunity to support fast and long-term growth
- Dominant leadership in the marketplace
- A readily-perceivable, constructive exit strategy
- A syndicate of venture capital investors

Federal Economic Development Initiative for Northern Ontario (FedNor)

- Mission: increasing overall competitive position of the North and to accelerate its movement to a knowledge-based economy
- Works with stakeholders & community partners * to improve access to capital, information & markets
- Innovation Fund supports R, D & D projects
 - *Eligible Recipients* :
 - Northern SMEs (*repayment required*)
 - Northern Municipalities & First Nations
 - Community Economic Development Corporations

Contributions up to 50% of eligible costs to maximum of \$500K

- Normally repayable contributions to non-profit organizations will be deemed non-repayable unless revenue generated

FedNor was launched in 1987 as an Agency of Industry Canada.

* Stakeholder & community partner sectors include: research, SMEs, business associations & professional groups, resource-based industry, and transportation.

FedNor's support of innovation-related activities includes working in partnership with Northern stakeholders to identify opportunities for linking traditional resource industries to more knowledge-based product & service development.

FedNor also supports "General Innovation Related Projects", as well as "Innovation Capacity Building" (capital & non-capital projects). More information, including eligibility, is available at www.fednor.ic.gc.ca

FedNor delivers three key initiatives:

1. The Northern Ontario Development Program (NODP) promotes economic growth throughout a large and diverse geographic area – stretching from Muskoka Lakes to James Bay, and from the Manitoba border to western Quebec. Program contributions are available to support projects in six areas: community economic development; innovation and technology; telecommunications infrastructure and applications; trade and tourism; human capital and business financing. The Innovation Fund is one of the sub-programs of NODP.
2. Community Futures (CF) Program - FedNor also administers a network of 61 Community Futures Development Corporations (CFDCs) -- 24 situated across Northern Ontario and 37 in rural Southern Ontario. All CFDCs are independent, community-based organizations that provide small business financing, business services and counselling, and strategic economic development planning for their local communities. The CF Program provides financial support for the operations of the CFDC and capitalizes the investment funds of CFDCs to assist local business to create or maintain jobs through repayable loans, loan guarantees or equity investments. CFDCs provide business information & referral, counselling & financing, via a local Investment Fund for start-up, expansion &/or stabilization of local business; High risk loans etc are available for the private sector at market rates (normally up to \$150K maximum).
3. The Eastern Ontario Development Program (EODP) to promote rural socio-economic development in Eastern Ontario, lead to a competitive and diversified regional economy, and contribute to the successful development of business and job opportunities and sustainable self-reliant communities. The 15 CFDCs located throughout rural Eastern Ontario were selected to deliver the EODP based on their extensive network of community partners, their proven track record in community economic development, and their established infrastructure.

Successful Proposals

- Are clearly written and focused
- Clearly follow Request for Application instructions
- Demonstrate understanding of priorities of funding agency
- Address a problem targeted by the funding agency and propose a realistic solution – How can you help them!
- Describe strengths of the applicant
- Describe a detailed methodology
- Clarify roles and responsibilities
- Describe anticipated outcomes
- Include budget and budget justification

Information in this slide was taken with permission from a presentation by Lynn Langille (Atlantic Health Promotion Research Centre)



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Some tips for success:

- Write with the reader in mind
- Avoid jargon and acronyms
- Give the proposal an accurate title
- Be consistent with the information and ideas in the proposal
- Tone of the proposal should reflect “modest self-confidence”
- Ask “outsiders” to critique the proposal
- The proposal should allow the reader to visualize the implementation of the project

Key Sections of a Research Proposal:

- Rationale
- Purpose & Objectives
- Research Design and Methods
- Sample and recruitment
- Data collection, analysis and interpretation
- Strengths of the applicant
- Partnerships
- Project Management
- Anticipated Outcomes
- Knowledge mobilization
- Evaluation
- Budget & budget justification
- Sustainability

Information in this slide was taken from the presentation “Effective Proposal Writing” by Lynn Langille (Atlantic Health Promotion Research Centre) on March 22/06 at the Halifax workshop.

Summary

- Billions available Now and over the next 5 years
- Emphasis on strong proposals & partnerships
- Available Programs:
 - Larger National Funding Programs**
 - SDTC, IRAP, PERD, GMF, NSERC, CFI, ACAA, ecoENERGY
 - Smaller National Funding Programs**
 - IERD, ETP
 - Regional Funding Programs**
 - FEDNOR, ACOA/AIF, CED/DEC, WD
 - Tax Incentive Programs**
 - SR&ED, ACCA & CRCE



There are billions of dollars available over the next 5 years, from environmental technology funding and incentive programs, to support for RD&D innovation activities in Canada. The preceding slides highlighted many of the key funds available for the environmental sector. With this very significant amount of funding available to Canadian industry, the challenge then becomes access. To accomplish this, the most important factors to consider are writing a strong and thorough proposal, and ensuring that the project partnerships are well established, before a proposal is submitted.

Contact Information

Canadian Environmental Technology Advancement Centres (CETACs)

West: <http://www.cetacwest.com/> Ontario: <http://www.oceta.on.ca/>
Quebec: <http://www.enviroaccess.ca/eng/>

Sustainable Development Technology Canada (SDTC)

230 Queen St, Ottawa ON K1P 5E4; (613) 234-6313; www.sdtc.ca; applications@sdtc.ca

Industrial Research Assistance Program (IRAP)

Bldg M55, Montreal Rd, Ottawa ON K1A 0R6; 1-877-994-4727; publicinquiries.irap@nrc.ca; www.nrc.ca/irap

Federation of Canadian Municipalities (FCM)

24, Clarence St, Ottawa, ON K1N 5P3; (613) 241-5221; application@fcm.ca; www.fcm.ca

Canada Foundation for Innovation (CFI)

230 Queen St, Suite 450, Ottawa ON K1P 5E4; (613) 947-6496; info@innovation.ca; www.innovation.ca

Natural Science and Engineering Council of Canada (NSERC)

350 Albert St; Ottawa ON K1A 1H5 (613) 995-5992; comm@nserc.ca; www.nserc.ca

Scientific Research and Experimental Development (SR&ED)

www.ccr-aadrc.gc.ca/sred

Advancing Agriculture and Agri-Food (ACAAF) Program

Agriculture and Agri-Food Canada c/o ACAA Program, Adaptation Division, Room 499, Sir John Carling Building, 930 Carling Avenue, Ottawa, Ontario, K1A 0C5, FAX: (613) 759-7490 Tel: (613) 759-7520, acaaf@agr.gc.ca; www.agr.gc.ca/acaaf/index_e.html

Contact Information

Environment Canada

–Funding Technologies for the Environment: <http://www.ec.gc.ca/fte>

Industry Canada

–Guide to Programs: <http://www.ic.gc.ca/cmb/welcomeic.nsf/icPages/Programs>

–Atlantic Canada Opportunities Agency: <http://www.acoa.ca/>

–Federal Economic Development Initiative for Northern Ontario: <http://www.fednor.ic.gc.ca>

–Canada Economic Development (for Quebec Regions): <http://www.dec.gc.ca>

–Western Economic Diversification Canada: <http://www.wd.gc.ca>

–Assistance for S&T Research: http://strategis.ic.gc.ca/epic/internet/inrti-rti.nsf/en/h_te02568e.html

–Guide to Government Services and Support for Small Business: http://strategis.ic.gc.ca/epic/site/direct.nsf/en/h_uw00000e.html

Natural Resources Canada

–Contact: Rudy Lubin, Technical Info Officer, NRCan, (613) 996-6220, rudy.lubin@nrcan.gc.ca

–Programs:

- Clean Energy <http://www.ecoenergy-ecoenergie.gc.ca/>
- Industry Energy R&D Program (IERD):
www.nrcan.gc.ca/es/etb/cetc/cetc01/htmldocs/funding_programs_ierd_e.html
- Emerging Technologies Program (ETP):
www.nrcan.gc.ca/es/etb/cetc/cetc01/htmldocs/funding_programs_etp_e.html

Thank You

For more information, please contact us!

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