Natural Resources Canada

2005-06 Estimates

A Report on Plans and Priorities

R. John Efford
Minister of Natural Resources

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Minister's Message

R. John Efford
Minister of Natural Resources Canada

I am pleased to present the 2005-06 Report on Plans and Priorities for Natural Resources Canada (NRCan).

This report marks the first time that NRCan has used its new Program Activity Architecture (PAA), approved by the Treasury Board Secretariat, to improve transparency and accountability in the operations of the Government of Canada.

In recent months, NRCan has put significant effort into producing a PAA that truly reflects the way this department functions, making it easier to link resources to results, and facilitating the horizontal tracking of government-wide initiatives. I am very proud of the work my department has done in helping Parliamentarians and Canadians better understand NRCan's contribution to the Government's priorities.

Natural resources are a cornerstone of Canada's economy, our society and our place in the world. For generations, Canadians have used their ingenuity to develop and use these natural resources, building in the northern part of our continent one of the most successful countries on the planet.

Today, natural resources industries support more than 650 communities across the country, and account for some 13 percent of our gross domestic product. Whether we are talking about minerals and metals, forests or energy, natural resources advance our capabilities and support Canada's international role as a positive force for environmental, social and economic change.

The development of 21st century technologies is taking place in all natural resource industries, and NRCan is pursuing opportunities to build these technologies in every field. Our approach to climate change is an excellent example. Climate change is one of the most serious environmental and economic challenges facing Canada and the world. Our efforts in developing a wide range of new technologies – such as for hydrogen and fuel cells, and the production and use of biomass and other renewable energy sources – will lead to new business opportunities, economic growth, and a cleaner, healthier environment for the future.

Knowledge of the Earth is also fundamental to creating opportunity and managing our resources effectively. In the field of geomatics, for example, NRCan is working with partners to put geospatial data into the hands of Canadians to help support decisions about land-based and offshore resources. Many applications for these data exist, including the monitoring of icebergs off the coast of Newfoundland and Labrador.

Canada is also a global leader in forest science and sustainable forest management. The department's research in and monitoring of forest fires helps develop systems for predicting wildland fire activity and enhancing fire management.

Mining is another industry in which NRCan makes an important contribution to the quality of life of Canadians. Mining companies are among the largest private sector employers in northern and Aboriginal communities, as well as significant contributors to employment in many rural communities across Canada. Canadian mining companies operate globally and therefore provide opportunities to foster sustainable development in emerging and developing countries, generate exports for Canada and create jobs for Canadians. By supporting technology development, investment, and corporate social responsibility, NRCan ensures that mining will continue to play a vital role in Canada's future.

NRCan's main responsibility is ensuring the sustainable development of our energy, minerals and metals, and forests. We provide the tools and knowledge to efficiently manage our natural resources so that Canadians can benefit from our results in the years ahead.

In 2005-06, our goal is to ensure that the natural resource sectors make fewer demands on the environment, create competitive opportunities at home and abroad, and provide greater sustainability for our communities. Above all, we will respond to the changing needs of Canadians, helping build the Canada we want for ourselves and for future generations.

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R. John Efford

Summary Information

NRCan is an economic, science-based department with a mandate to promote the sustainable development and responsible use of Canada's mineral, energy, and forestry resources; to develop an understanding of Canada's landmass; and to collect and disseminate knowledge on sustainable resource development and use. The department conducts research and technical surveys to assess Canada's resources, including the geological structure and legal boundaries. NRCan is also authorized to provide the national framework of reference for spatial positioning; prepare and publish maps; conduct scientific and economic research related to the energy, forestry, mining, and metallurgical industries; and to establish and operate scientific laboratories for these purposes.

Mission Statement – NRCan provides the knowledge and expertise for the sustainable development and use of Canada's natural resources and the global competitiveness of the resource and related sectors for the well-being of present and future generations.

NRCan also develops the new knowledge and technologies that are required to address the challenges of sustainable development in the energy, mining and forestry sectors. This includes the research, development and demonstration of technologies to reduce the environmental footprint of energy production, conversion and use.

Natural resources are a cornerstone of the Canadian economy, generating thirteen per cent of Canada's GDP, leading in innovation and productivity, and employing a million Canadians across the country, especially in rural, remote, and northern communities. NRCan plays a critical role in enabling sustainable development across Canada and promoting it around the world. The Department supports a culture of innovation – applying cutting-edge technologies to add value to natural resources, investing in research and development (R&D), and promoting Canadian technologies and expertise abroad to build a 21st century economy.

In advancing sustainable development, NRCan is also a steward of the environment, a leader on addressing climate change, a responsible agent for northern development, and a catalyst for value-added research. Canada's natural resource sectors require a coordinated national approach sensitive to regional interests that serves a broader public good and provides opportunities for current and future generations.

NRCan's Financial and Human Resources

2005-06	2006-07	2007-08
$1,085.6 M / 4,618 FTEs	$1,003.7 M / 4,377 FTEs	$1,103.7 M / 4,359 FTEs

Departmental Priorities

Priorities	Government Priority	Type	Planned Spending		
			2005-06	2006-07	2007-08
Knowledge, Innovation and Productivity	√	ongoing	85.9	86.4	85.5
Trade and Investment	√	ongoing	32.7	26.5	15.3
Energy and the Environment	√	ongoing	450.5	243.9	196.3
Northern and Aboriginal Communities	√	ongoing	39.3	38.5	38.8
Public Safety and Security	√	ongoing	22.4	22.4	22.6

Departmental Plans and Priorities

Since the concept of sustainable development was first articulated in the late 1980s, the natural resource sectors have experienced a remarkable transformation. Sustainable development is no longer an academic idea. It has gone from being words on paper to being a driver for technological change, a cornerstone for community planning, and a fundamental determinant of business success.

The resources produced by the natural resource industries are at the very core of our materials economy — metals, plastics, paper, wood, as well as the fuels that light our buildings, power our factories and move people and products. Natural resources are also the base of our material prosperity. However, extracting and using natural resources pose risks to the environment, and we risk depleting these resources. For many Canadian natural resource industries, sustainable development supports their social license to operate. The department is well-positioned to promote sustainable development across Canada and around the world.

At the same time, there are challenges facing the energy and resource sectors. A priority among horizontal issues is modernizing Canada's regulatory regime. A clear message is coming from industry that overlapping and disjointed regulatory requirements are a burden and reduce investment. This cross-cutting issue is the epitome of sustainable development. Building on the success of the Atlantic Energy Roundtable and the release of the External Advisory Committee report on smart regulation, NRCan will work with its partners on a new regulatory approach for the 21st century that better protects the environment and enables innovative and competitive energy, forestry and mining industries.

Other horizontal issues are gaining currency, especially those related to international trade and investment: Canadian resource companies are expanding their overseas operations, and foreign direct investment in Canada is rising. NRCan can increasingly play a role in driving transformations that help the sectors respond to these changes, and in ensuring that horizontal files are addressed from a coordinated energy and resources perspective. Climate change

mitigation and adaptation, sustainable forestry and mining, conflict diamonds, softwood lumber, and trade and investment access and development are just some of the key international issues where NRCan can champion the sectors.

The information below explains and provides detailed information on each priority identified in the summary table, and explains how these contribute towards achieving the department's strategic outcome. Section II of this report provides planning information on how the department intends to achieve its departmental priorities. The information is presented based on the department's four program activities as identified in NRCan's Program Activity Architecture (PAA): Earth Sciences, Energy, Forest, Minerals and Metals. Moreover, each Program Activity identifies the PAA's sub-sub activities that directly support the delivery of these departmental priorities.

Knowledge, Innovation and Productivity targets the long-term competitiveness of the resource sectors in Canada. NRCan will work with its partners in each of the energy, forestry, minerals and metals, and earth sciences sectors to develop visions for innovation and appropriate science and technology (S&T) strategies to realize these visions. Such work has already been launched in the forestry sector through federal-provincial-industry cooperation on the Canada Forestry Innovation Council. The department's objective is to extend this concept to promote governance mechanisms that ensure the responsiveness of government science programs to identified needs.

Trade and Investment focusses on the long-term economic health of the resource sectors in Canada. Much of this depends on framework policies – taxation, competition, financial markets – and royalties. As the resource sectors continue to restructure on a global basis, Canada will want to ensure it is a competitive location for attracting global investment and talent and for hosting global resource companies' operations and headquarters. Our competition policies, championing Canadian investment abroad, and our financial markets will be important in this area.

We will move forward with international strategies for each of the resource sectors. The strategies will address market access and investment issues, trade and investment missions, and consistency in regulatory regimes. Canada has much to offer the world, and our "brand name" must be synonymous with innovation and quality.

Energy and the Environment are important areas of activity for NRCan. In particular, climate change poses a major, long-term challenge to global sustainability. In Canada, over 85 percent of our greenhouse gas (GHG) emissions are due to energy production or use, and we have one of the most energy-intensive economies in the world given our cold climate, long distances between population centres and energy-intensive industries.

The Kyoto agreement is key to drawing global attention to the need to start reducing emissions now. Federally, NRCan plays an important role in the development and delivery of policy and

programs to encourage emissions reductions using existing, reliable technology in the areas of energy efficiency, alternative energy, and carbon sequestration.

In a longer term perspective, further emissions reductions will need to be achieved globally in order to minimize the risks of climate change. International investments in S&T will be required to develop new technology that will allow significant emissions reductions while sustaining economic growth. Given our vast reserves of fossil fuels, a key objective for Canada is the development of technology for cleaner fossil fuels production, conversion and combustion. Other federal priorities include advanced end-use efficiency, decentralized energy, renewable energy and the hydrogen economy.

International negotiations on the post 2012 climate regime are scheduled to start in 2005. This provides an opportunity for Canada to influence the development of an international regime that would serve Canadian interests. Such a regime could combine shorter-term action against climate change with efforts to develop longer-term energy technology solutions. It will be important to engage all major GHG-emitting countries in a future regime, from both the industrialised and emerging economies.

In addition to mitigation strategies aimed at slowing climate change, policies and programs to support adaptation efforts are essential to address unavoidable climate change impacts. Such impacts and risks include: melting permafrost, sea ice and glaciers; prairie drought; rising sea levels and lower lake levels; forest fires and pests; and threats to national infrastructure, community water supplies and human health. NRCan will continue to advance our knowledge of the magnitude, rate and regional distribution of climate change and its impacts on Canada, while strengthening our capacity to estimate and adapt to the risks of climate change. Adaptation will involve planning, decisions and actions to manage risks so that Canadians are better positioned to take advantage of opportunities presented by climate change and to reduce any negative impacts.

NRCan also supports a number of other activities to promote sustainable development and environmental stewardship, including: the assessment and management of ecosystem and human health risks posed by metals in the environment; the conduct of research to enable best groundwater management practices; the impacts of forestry practices on biodiversity; and the implementation of low-level radioactive waste management strategies that meet health, safety, and environmental criteria. In addition, the department provides expertise that contributes to efficient and effective federal environmental legislation and regulations affecting energy, minerals and metals, and forests. These activities will contribute to our overall objective of minimizing the environmental “footprint” of resource extraction and use.

The resource sectors are major employers across the country but especially in **Northern and Aboriginal Communities** where they provide crucial social and economic opportunities for Canadians. NRCan will contribute to government initiatives that promote development opportunities in these communities through our work in support of the Canada Aboriginal Peoples Roundtable and the Northern Strategy. The department will continue working to increase benefits from the resource-based economy, and will work with partners to facilitate increased

Aboriginal employment with new petroleum and mining activities, especially in the North and the northern parts of the western provinces. NRCan will also improve the business and investment climate by seeking legal and administrative certainty over lands and resources, and increase capacity for sustainable development with a focus on resource management and land use planning.

Public Safety and Security issues cut horizontally throughout NRCan, with all sectors making noteworthy contributions from an all hazards approach. Ongoing S&T activities address a broad range of natural hazards, including impacts of forest fires, earthquakes, tsunamis, subsidence, flooding, geomagnetic storms, volcanic eruptions, and invasive insect species. These programs are supported by related science activities including emergency mapping and airborne radiation monitoring. In the post 9/11 security environment, significant departmental investment in terrorism-related activities has included various aspects of critical infrastructure protection, and explosives research and regulation. As a leader in the federal S&T community, NRCan demonstrates strong policy engagement with other stakeholders in such horizontal initiatives as the Public Security Technical Program and the Chemical Biological Radiological Nuclear Research and Technology Initiative.

Section II – Analysis of Program Activities by Strategic Outcome

Strategic Outcome – ***Canadians derive sustainable social and economic benefits from the assessment, development and use of energy, forest and mineral resources, and have the knowledge to mitigate environmental impacts and respond effectively to natural and man-made hazards.***

NRCan's strategic outcome is supported by the Earth Sciences, Energy, Forest, and Minerals and Metals program activities. Even though the emphasis is now on providing planning information by program activities, the department believed it was important to begin this section by providing information on NRCan's performance measurement framework (PMF) at the strategic outcome level. Although the work will be addressed, in part, through NRCan's Program Activity Architecture, the department recognizes the need to strengthen its overarching PMF at the strategic outcome level and is committed to deliver on this task over the year 2005-06. This work will be compatible with commitments from NRCan's Sustainable Development Strategy.

Objectives	Sample Core Corporate Measures*
Knowledge that supports decision making	• User satisfaction with relevance and quality of information.
Greater economic and investment opportunities	• Economic contribution of natural resources to GDP. • Employment levels and productivity in resource and resource-related industries. • Increased investment in natural resource sectors and allied industries.
Greater international cooperation and access to international markets	• Value and percent of exports of resource-based products. • Maintained or increased market access for Canadian natural resource sectors.
Greater capacity building for Aboriginal, rural and northern communities	• Number of shared projects and funds leveraged with rural, Aboriginal and northern communities. • Employment level of Aboriginal peoples and northern residents in natural resource sectors. • Increased skills and employment opportunities.
Enhanced resource and environmental stewardship practices	• GHGs and pollutants emissions. • Levels of resource recovery and recycling. • Trends in energy efficiency. • Trends in the production and use of renewable energy.
Effective responses to natural and man-made hazards	• Impact of NRCan's S&T on the identification, mitigation and response to natural hazards.
Management	• User satisfaction with accessibility and usefulness of services and information

* Measures that can aggregate compatible information across program activities and/or measures which contribute to the strategic outcome.

Analysis by Program Activity

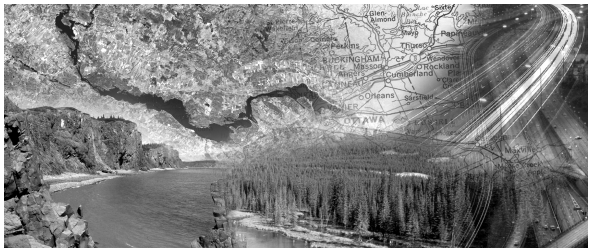
The information below is presented by program activity and by key programs/services that directly support the departmental priorities identified in Section I. More detailed information about the department's programs and services can be found at http://www.nrcan.gc.ca.

Program Activity #1: Earth Sciences (includes the Earth Sciences - Geomatics Canada Revolving Fund)

Earth Sciences	Planned Spending ($M)		
	2005-06	2006-07	2007-08
Key Programs/Services Related to Achieving Departmental Priorities			
• Knowledge, Innovation and Productivity	10.5	15.5	17.2
• Energy and the Environment	24.1	17.2	13.5
• Northern and Aboriginal Communities	24.8	24.1	24.4
• Public Safety and Security	12.2	12.2	12.4
Sub-Total Key Programs/Services	71.6	69.0	67.5
Sub-Total Other Programs/Services	132.3	127.7	123.6
Total	**203.9**	**196.7**	**191.1**
FTEs	1,647	1,651	1,641

The **Earth Sciences** program activity is an essential component of the S&T Canadians need to make informed economic, social and environmental decisions. Geomatics Canada, Canada's national mapping agency, provides geographic information of Canada's landmass and offshore including topographic maps and aeronautical charts, legal surveys of Canada Lands, geodesy for accurate positioning, and the archiving and application of earth observation data. The Geological Survey of Canada, Canada's national geoscience agency, works with the provinces and territories to provide the geological information that ensures a competitive investment climate for mineral and petroleum exploration, elucidates groundwater resources, maps the geology of the seafloor, helps reduce the risk posed by natural hazards such as earthquakes, magnetic storms, landslides, and naturally-occurring toxic substances. Earth Sciences also manages horizontal programs in Climate Change Impacts and Adaptation, and GeoConnections, delivers Canada's commitment to monitoring nuclear explosions under the Comprehensive Test Ban Treaty, responds to nuclear emergencies, and provides logistics support to Arctic science through the Polar Continental Shelf Project.

Expected Results at Program Activity Level	**Performance Indicators**
Canadians derive sustained economic and social benefits through the application of Earth science S&T to achieve specific federal government public policy objectives and the NRCan mandate.	Land and resource management and social policy decisions are acknowledged as being informed by Earth science data, information and knowledge.



The Earth Sciences program activity contributes to the **Knowledge, Innovation and Productivity** priority through, for example, its work on gas hydrates, and by providing geoscience for oceans management. Its ground-breaking S&T provides the geoscience products and engineering activities that will help to transform gas hydrates into a well-characterized, successfully prospected, commercially viable and environmentally friendly natural gas supply. Canada has large gas hydrate deposits, mainly in the High Arctic and in offshore areas. They are an unconventional hydrocarbon resource that might substantially enhance Canada's long-term domestic energy supply and become one of Canada's next major fuel sources.

The March 2004 Federal Budget identified a total of $70 million over 10 years for seabed mapping of the outer margins of Canada's Arctic and Atlantic continental shelves that is required to support Canada's claim to be submitted under the United Nations Convention on the Law of the Sea (UNCLOS). This seabed mapping activity also contributes to the departmental priority of Knowledge, Innovation and Productivity as the knowledge gained will ensure greater certainty of Canadian sovereignty over the Arctic and Atlantic continental shelves, and any mineral and hydrocarbon resources in those areas, beyond the customary 200 nautical mile exclusive economic zone.

With respect to the **Energy and the Environment** priority, the Earth Sciences program works to help Canadians understand the expected effects of climate change, through the Climate Change Impacts and Adaptation Program. The Reducing Canada's Vulnerability to Climate Change Program has been developed to reduce the vulnerability of Canadians, their infrastructure and communities to climate change by improving the scientific understanding of past, present, and future climate variability and change on Canada's landmass (including coastal areas), associated costs and implications for adaptation options, and ensuring that this information is used to better prepare Canadians for the future.

In addressing environmental concerns, the Earth Sciences program activity conducts research on the quantity and quality of groundwater resources for the more than 10 million Canadians who rely on it for human, agricultural and/or industrial use. Water-management agencies and well owners need accurate hydrogeological information, maps, publications and models to help in their decision-making. The program also investigates how metals enter into the environment through geochemical processes (resulting from both natural and man-made activities), thus helping governments make better-informed decisions about prevention and risk assessment. In addition, the program provides resource assessments when new land-use designations are being considered. This helps to ensure that all federal government agencies consider the economic and strategic significance of non-renewable mineral and energy resources in their decision-making. The program's geoscience expertise is also an integral component of the federal environmental assessment review of development projects.

Through its Aboriginal Property Rights Infrastructure Program, the Earth Sciences program activity continues to deal with legal obligations and **Northern and Aboriginal Communities** under the *Canada Lands Survey Act* and the implementation legislation of First Nations final agreements. Under its Northern Resources Development Program, the Program contributes to the Northern and Aboriginals Communities departmental priority by ensuring that the federal government has the capacity to respond to a Mackenzie Gas Project application and increasing oil and gas exploration in order to ensure that the North is positioned to contribute to the North American natural gas supply. This will require scientific research, mainly in relation to the pipeline project, but also for future exploration and development, in areas dealing with the effects of telluric currents on pipeline corrosion, assessment of seismic hazards, permafrost, surficial mapping, terrain stability, and topographic data. The Northern Resource Development Program also aims to promote the discovery and development of energy and mineral resources that will make an essential contribution to the economic development of the North.

With respect to **Public Safety and Security**, NRCan is required – under the *Emergencies Act*, the *Emergencies Preparedness Act* and related policies – to provide scientific and technical information relating to five natural hazards: earthquakes, landslides, magnetic storms, volcanoes and tsunamis. NRCan is also required to provide mapping information and expertise to provincial and other federal departments in the event of an emergency. Under the *Comprehensive Test Ban Treaty Implementation Act* and related policies, NRCan is responsible for the Canadian seismic, hydro-acoustic and infrasound components of the International Monitoring System for nuclear explosion detection. NRCan is also a key player in the Federal Nuclear Emergency Response Plan and, in particular, is expected to provide equipment and expertise to detect contamination in the event of a nuclear accident or terrorist activity. All of these responsibilities are delivered through the Natural Hazards and Emergency Response Program.

Earth Sciences – Key Programs/Services

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Departmental Priority – Knowledge, Innovation and Productivity : 2005-06 $10.5M; 2006-07 $15.5M; 2007-08 $17.2M	
Gas hydrates - fuel of the future - 2005-06 $2.5M; 2006-07 $2.5M; 2007-08 $2.6M This sub-sub-activity contributes to the development of gas hydrates as an unconventional energy source, in order to ensure a secure energy supply. It identifies the scientific and technological knowledge required for the sustainable development of this resource for areas in Canada that host large gas hydrates deposits, mainly in the high Arctic and in offshore areas, at water depths commonly greater than 600 metres on the Pacific and Atlantic margins, but at shallower depths in the Arctic seas. Two strategies are being followed: one will focus on leveraged industrial collaboration and the maintenance of a globally acknowledged and highly motivated scientific team, and the other on the development of a gas hydrates policy roadmap, in collaboration with other sectors in NRCan and industry.	

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
• Gas hydrates are recognized as a potentially significant energy source.	• Public acknowledgment of the potential of gas hydrates as a significant energy source by senior government and industry officials.
• Canadian industry engaged in assessment of potential of gas hydrates as a resource.	• Investment by Canadian industry in gas hydrate projects.
Geoscience for oceans management - 2005-06 $7.6M; 2006-07 $7.7M; 2007-08 $7.8M This sub-sub-activity contributes to the geoscience knowledge that is required to inform decision-making in Canada's offshore lands, so that land use, including offshore structures, and resource development decisions balance social, economic, and environmental considerations. Underpinning this program is a systematic approach to seafloor mapping to deliver geoscience knowledge for integrated ocean management. The legislative and strategic framework for this program is found in the *Canada Oceans Act* and Canada's Oceans Strategy.	
• Conflicts over seafloor use are resolved, and the environmental impacts of offshore structures are minimized through use of NRCan geoscience knowledge.	• Other government departments and non-governmental organizations acknowledge that their environmental planning and seafloor conflict resolution is informed by NRCan products.
• Canada's Oceans Strategy successfully delivered on a foundation of integrated seafloor mapping.	• Organizations committed to delivering the Oceans Strategy acknowledge seafloor mapping as key for their success.
• Petroleum, fisheries and communications sectors recognize seafloor mapping is cost effective.	• Petroleum, fisheries and communications sectors working in the Canadian offshore employ seafloor mapping methods.
Delineating Canada's continental shelf according to the United Nations Convention on Law of the Sea (UNCLOS) - 2005-06 $0.4M; 2006-07 $5.3M; 2007-08 $6.8M Canada ratified UNCLOS in November 2003, and now has ten years to submit evidence for a claim to territory on the continental shelf outside the existing 200 nautical mile Exclusive Economic Zone (EEZ). The purpose of this program is to undertake surveying and mapping in support of the development of Canada's submission for a juridical continental shelf under the UNCLOS. Funding of $69 million was announced in the 2004 federal budget for seabed mapping to establish the outer limits of Canada's Arctic and Atlantic continental shelves. This investment will enable Canada to submit a claim under UNCLOS, thereby achieving greater certainty with regards to its sovereignty over the Arctic and Atlantic continental shelves, and any mineral and hydrocarbon resources in those areas, beyond the customary 200 nm EEZ.	

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
• Canada establishes internationally recognized outer offshore boundary in the Arctic and Atlantic Oceans and Canadian authority established over maximum region allow by the UNCLOS for future development of natural resources.	• Canada's claim of offshore boundaries is accepted by the United Nations Commission on the Limits of the Continental Shelf (CLCS) leading to international recognition of Canada's outer boundary.
Departmental Priority – Energy and the Environment : 2005-06 $24.1M; 2006-07 $17.2M; 2007-08 $13.5M	
Groundwater – 2005-06 $4.4M; 2006-07 $4.3M; 2007-08 $4.4M This sub-sub-activity was designed to help ensure clean and sustainable groundwater resources for all Canadians and to fill regional knowledge gaps of those resources. The intent is to provide governments with an inventory of groundwater resources and regional aquifer dynamics including recharge/discharge, sustainable yield and vulnerability to enable best groundwater management practices.	
• National data base of aquifers and groundwater characteristics. • 20 percent of key regional aquifers mapped by 2006.	• Completion and accessibility of national database. • Key aquifers mapped.
Reducing Canada's vulnerability to climate change - 2005-06 $6.3M; 2006-07 $6.3M; 2007-08 $6.4M The goal of the Earth Sciences climate change sub-sub-activity is to reduce the vulnerability of Canadians, their communities, and the country's infrastructure to climate change. This goal will be achieved through conducting and publicizing research aimed at an improved understanding of the sensitivity of Canada's landmass and coastal areas, and through the incorporation of new knowledge in planning and resource management.	
• Earth Sciences data, knowledge and synthesis products used for climate change impact, adaptation and mitigation planning and international negotiations by Canadian government agencies.	• Stakeholders and stakeholder governments acknowledge the use and value of Earth Sciences data, knowledge and synthesis products in climate change planning and negotiations.
Metals in the environment – 2005-06 $2.2M; 2006-07 $2.2M; 2007-08 $2.2M This sub-sub-activity supports the assessment and management of ecosystem and human health risks posed by metals in the environment. It does so by informing regulations and risk management decisions with an improved understanding of the presence of metals in the environment, the source apportionment (human vs. natural), the processes controlling the concentration levels, their availability to enter the food chain, and historical accumulation trends.	
• Studies on sources, transport and bio-availability of metals in the environment. • Protocols and databases on the background concentrations of metals in the environment provided to Environment Canada and Health Canada.	• Publication after undergoing expert review and, subsequently, citations of work. • Satisfaction of other departments with advice, reports and data provided.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Legislated environmental and resource assessments (LERA) – 2005-06 $0.5M; 2006-07 $0.5M; 2007-08 $0.5M At the request of federal government agencies responsible for specialized land-use designations, (e.g. Parks Canada, Fisheries & Oceans) and consistent with federal legislation and policy, the LERA program provides resource assessments so that the mineral and energy resource potential is duly considered when establishing protected areas. These assessments apply to lands under federal jurisdiction and under consideration as National Parks, Marine Protected Areas or other special designations that restrict mineral or energy development, including those in the Territories and Canada Lands offshore. In response to federal government agencies' requests and as required by the *Canadian Environmental Assessment Act* (CEAA), this sub-sub-activity also provides expert geoscience reviews of projects undergoing environmental assessment ensuring the identification, consideration and minimizing of adverse environmental impacts.	
• Published mineral and energy resource assessments of areas proposed for special land-use designation. • Formal geoscience contribution in all phases of the federal environmental assessment and review process.	• Published resource assessments and input to environmental assessments. • Satisfaction of lead department with advice provided.
Climate change impacts and adaptation -2005-06 $10.7M: 2006-07 $3.9M; 2007-08 $0.0M – This sub-sub-activity includes the Climate Change Impacts and Adaptation Program which aims to improve knowledge of Canada's vulnerability to climate change, to better assess the risks and benefits posed by a changing climate, and to build the foundation upon which appropriate decisions on adaptation can be made. The program supports research to fill critical gaps that limit knowledge of vulnerability; to undertake and support assessment of impacts and adaptation; to enhance collaboration between stakeholders and researchers; and to facilitate policy development. The knowledge generated in the program will feed into policy via the participation of decision-makers in the program elements, and through reports.	
• Broad awareness and understanding of the impacts of climate change on Canada connected to coordinated, collaborative research efforts to develop adaptation strategies with stakeholders. • Increased capacity to undertake research related to impacts and adaptation.	• Adaptation plans are developed and acknowledged as important and effective. • New researchers and areas of expertise in research network and program proposals.
Departmental Priority – Northern and Aboriginals Communities : 2005-06 $24.8M; 2006-07 $24.1M; 2007-08 $24.4M	
Aboriginal Property Rights Infrastructure - 2005-06 $9.9M; 2006-07 $9.1M; 2007-08 $9.0M Building the capacity of Aboriginal people for economic and social development requires effective and culturally-aligned land administration systems that support a robust, reliable and flexible property rights infrastructure. This sub-activity is structured around support for the Comprehensive Land Claims in the North and British Columbia and support for key Aboriginal governance programs, including those flowing from the *First Nations Land Management Act*, treaty land entitlement programs, Indian and Northern Affairs Canada's Lands and Trusts Services program, Cadastral Operations on Aboriginal Lands (South) and Capacity Building-Cadastral Reform.	

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
• Increased effectiveness and self-sufficiency of Aboriginal land and resource management.	• First Nations have delegated 53/60 authority or *First Nations Lands Management Act* governance. • First Nations/Aboriginal communities have land and resource management self-sufficiency.
• Economic development in Canada through settlement of land claims.	• Land claims completed – comprehensive, specific, treaty land entitlement. • New reserves/Aboriginal communities created.
Northern resources development - 2005-06 $14.9M; 2006-07 $15.0M; 2007-08 $15.4M Future economic sustainability and quality of life for northern Canadians depends on the responsible development of mineral and energy resources. This sub-sub-activity develops and delivers an improved, expanded geoscience knowledge base to stimulate new private sector investment in mineral and energy exploration and development to create new opportunities for northerners. It also supports northern capacity building, in terms of increased understanding of geoscience for decision-making and increased employment opportunities provided by exploration companies. This sub-sub-activity includes the Targeted Geoscience Initiative (TGI) that provides integrated geoscience knowledge pertaining to areas of high energy and mineral potential, with the intent of stimulating private sector resource exploration.	
• The amount and effectiveness of exploration and development for mineral and energy resources in northern Canada is increased as a result of an enhanced geoscience knowledge base.	• Exploration expenditures relative to 2002 levels and the number of discoveries attributable to enhanced geoscience knowledge.
Departmental Priority – Public Safety and Security : 2005-06 $12.2M; 2006-07 $12.2M; 2007-08 $12.4M	
Natural hazards and emergency response - 2005-06 $12.2M; 2006-07 $12.2M; 2007-08 $12.4M This sub-sub-activity assists in the mitigation of natural hazards and is intended to reduce the loss of life and economic costs of natural disasters in Canada. The program works with national and international partners and clients to produce a modern robust analysis of earthquake shaking risk suitable for developing a modern building code; effective forecasts of magnetic storms and mitigation strategies against damage to electrical grids, satellite communication and pipelines; and natural hazards inventories and assessments used to build effective response scenarios and disaster mitigation for populated centres at risk. The sub-sub-activity is enhanced through the provision of comprehensive digital and custom maps for emergencies, integrated hazard and infrastructure information and the capacity to measure radiation contamination from accidental dispersal or terrorist acts.	
• Reduced risk from earthquakes, tsunamis, landslides, magnetic storms and volcanic eruptions through hazard assessments and ongoing monitoring.	• Assessments validated and published regularly. • Monitoring and warning systems operate continuously.
• Improved emergency response to all hazardous situations enabled by NRCan maps, data and advice.	• Emergency response agencies satisfied with products and advice provided by NRCan during real and simulated emergencies.
• Reduced risk from human threats to safety and security.	• International Atomic Energy Agency is satisfied that the Canadian contribution to the international monitoring system meets Comprehensive Test Ban Treaty obligations. • Lead agencies for Federal Nuclear Response Plan satisfied with services provided by NRCan in response to real and simulated radiation incidents.

Earth Sciences – Other Programs and Services

Other Programs and Services ($M)	Planned Spending 2005-06	Planned Spending 2006-07	Planned Spending 2007-08
Consolidating Canada's geoscience knowledge	12.0	12.0	12.3
Sustainable development through knowledge integration	6.0	5.9	5.9
Geomatics for sustainable development of natural resources	12.5	12.3	12.3
Geomatics for connecting Canadians	5.8	5.7	5.7
Canada Lands Surveys System	6.4	6.3	6.3
Canadian Geodetic Service	6.0	5.9	5.9
Earth Observation Data Services	4.8	4.7	4.7
Aeronautical charting	0.0	0.0	0.0
Canada/U.S. international boundary maintenance and 1925 Treaty implementation	3.2	3.2	3.2
Geomatics for northern development	9.7	9.6	9.6
Canada-Nunavut Geoscience Office	0.7	0.7	0.7
Northern energy development	5.1	3.8	0.0
GeoConnections	0.0	0.0	0.0
Polar Continental Shelf Project	6.5	6.5	6.5
Earth Sciences - Geomatics Canada Revolving Fund	(2.4)	(2.4)	(2.4)
Program management and support	24.1	24.1	24.1
Sub-total	**100.4**	**98.3**	**94.8**
Corporate management	31.9	29.4	28.8
Total	**132.3**	**127.7**	**123.6**

Program Activity #2: Energy

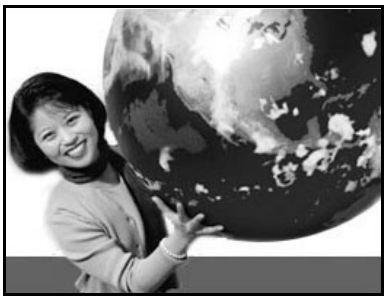
Energy	Planned Spending ($M)		
	2005-06	2006-07	2007-08
Key Programs/Services Related to Achieving Departmental Priorities			
• Knowledge, Innovation and Productivity	55.7	55.0	52.4
• Energy and the Environment	387.0	196.1	152.2
• Public Safety and Security	0.4	0.4	0.4
Sub-Total Key Programs/Services	443.1	251.5	205.0
Sub-Total Other Programs/Services	218.6	355.4	519.7
Total	**661.7**	**606.9**	**724.7**
FTEs	1,373	1,137	1,129

The **Energy** program activity fosters the sustainable development and responsible use of Canada's energy resources to meet the present and future needs of Canadians. It focuses on S&T, policies, programs, knowledge and international activities in the areas of energy efficiency (residential, commercial, industrial, transportation), renewable energy, electricity, nuclear energy, alternative transportation fuels, and the production of conventional and unconventional fossil fuels to further sustainable development. Through its work, the program activity helps address the climate change challenge; promotes better environmental and consumer choices; works with key industry sectors to establish reduction targets for greenhouse gas emissions; facilitates North American and international trade in energy; contributes to technical innovation, job creation and economic growth; facilitates environmental protection and increased public safety and security; and helps to ensure competitively priced, reliable and secure energy supplies for Canadians.

Expected Results at Program Activity Level	Performance Indicators
• Economic development – conditions created in Canada's energy sector to help produce a competitive and innovative national economy.	• Broad economic indicators and the combined impact of energy policy, programs and S&T for the energy sector, such as energy production, energy efficiency and exports.
• Environmental stewardship – conditions created to help reduce the environmental impact of energy production, transportation and use.	• Broad environmental indicators and the combined impact of energy policy, programs and S&T for the energy sector, such as emissions reductions achieved through improved energy efficiency, improved production processes, and increased use of renewable and alternative energy.
• Social sustainability - security – conditions created to help ensure safe, reliable, affordable energy for Canadians.	• Broad sustainability indicators and the combined impact of energy policy, programs and S&T for the energy sector.

The Energy program activity contributes to NRCan's **Knowledge, Innovation and Productivity** priority through its work on energy S&T, electricity and petroleum resources. Energy S&T is undertaken to develop and deliver knowledge and innovative technology-based solutions for the sustainable production and use of Canada's energy supply. Knowledge, Innovation and Productivity is an overarching theme for energy S&T, but it is important to note that the S&T serves other priorities, particularly climate change and other environmental issues, as noted below. It is also important to note that a particular piece of knowledge or a specific innovative technology development generally applies to more than one priority or other areas of interest. Two basic types of S&T activities are undertaken: R&D which advances scientific knowledge; and late-stage development and demonstration which aims at achieving technological advancement to create new materials, devices, products, or processes, or improve existing ones.

With regards to electricity and petroleum resources, updated and clarified legislation will secure existing energy resources and advance the commissioning of new sources, while strategic policy developments and programs will enhance innovation in energy supply including renewable energy and nuclear energy. In partnership with provincial governments, NRCan and the National Energy Board (NEB) have begun the process of applying the principles of goal-oriented performance-based regulation to the regulations governing offshore oil and gas activities. This initiative is aimed at fostering innovation and enhancing the global competitiveness of Canada's offshore industries. NRCan will also review the current environmental assessment process for northern pipeline projects and propose any necessary amendments to federal regulations, legislation or Canada-U.S. agreements to accomplish policy or regulatory goals. Moreover, the department will work in partnership with federal regulatory authorities and First Nations groups to design an efficient and responsive regulatory system. NRCan will also work with provincial departments and regulators and the NEB to promote Canada-wide standards for liquified natural gas (LNG) import terminals, and will also pursue Memorandum of Understanding (MOUs) with provinces so that various federal and provincial regulatory requirements are coordinated and dealt with in the most time-efficient manner. Its petroleum activities will also encourage the cost effective use of existing viable technologies and techniques for carbon dioxide (CO_2) capture and storage and enhanced resource recovery.



Energy S&T strongly supports the department's **Energy and the Environment** priority through, for example, the development of technologies to produce and use energy more cleanly and efficiently, the capture and disposal of carbon dioxide, and the development of clean, alternative energy sources and clean-burning fuels in support of reducing the emissions of GHG to the atmosphere and eliminating toxins from our air, water and soil. It also supports the international trade priority, by working with Canadian companies to help give them a competitive edge in the global marketplace. Finally, it supports other governmental priority areas such as building more sustainable communities, including remote and Aboriginal communities. More information on energy S&T can be found at http://www2.nrcan.gc.ca/es/es/main_e.cfm.

Moreover, the Energy program activity contributes to the Energy and the Environment priority through multiple fora, such as the development and management of key policies to reduce GHG emissions from energy. A wide range of measures are in place to improve energy efficiency and increase the use of alternative transportation fuels and renewable energy in Canada, which constitutes the core of the federal strategy to reduce GHG emissions that contribute to climate change.

The Department's initiatives in the area of energy efficiency (http://oee.nrcan.gc.ca) encourage and assist Canadians to improve their energy use in all of the major end-use sectors: housing, buildings, equipment, government operations, industry and transportation. Outreach activities are designed to increase Canadians' awareness and understanding of climate change and the link to energy use, and to encourage Canadians to take action. Several federal initiatives aid in the deployment of green heat technologies such as solar heating systems as well as increased production of green electricity from emerging renewable energy sources such as wind energy. Financial incentives are offered to businesses, industries, institutions and governments to further use of these resources for their energy requirements (www.canren.gc.ca). A CO_2 capture and storage initiative (http://www2.nrcan.gc.ca/es/erb/prb) seeks to create conditions for the development of a CO_2 capture and storage market in Canada that would allow to significantly improve the recovery of, and make use of its abundant fossil fuel resources without emissions of CO_2. Through its Opportunity Envelope (www.climatechange.gc.ca/english/oppenv), the department will assist the provinces and territories to reduce their emissions within their respective jurisdictions while contributing to national climate change goals. An emissions reduction framework and associated targets is also being developed for large final emitters (www.nrcan.gc.ca/lfeg) collectively responsible for nearly half of Canada's GHG emissions. Finally, the Department will continue with activities associated with the remediation of a number of radioactively contaminated sites.

The Energy program activity promotes **Public Safety and Security** initiatives that strengthen the protection of Canada's critical energy infrastructure through close liaison with other federal government departments, provincial governments, regulatory agencies, and the energy industry and associations. Two key initiatives are underway in this regard. First, pursuant to the Smart Border Declaration of December 2001, NRCan is engaged in a joint Canada-U.S. initiative to assess the vulnerability of cross-border energy infrastructure networks such as electrical generation and transmission facilities, oil pipelines and gas pipelines. Second, working with Public Safety and Emergency Preparedness Canada, we are taking the necessary measures to implement the security-related recommendations outlined in the final report of the U.S.-Canada Task Force on the Power System Outage of August 14, 2003.

Energy - Key Programs/Services

<table>
<tr><th>Expected Results/Planned Spending Related To Achieving Departmental Priorities</th><th>Performance Indicators</th></tr>
<tr><td colspan="2">Departmental Priority – Knowledge, Innovation and Productivity : 2005-06 $55.7M; 2006-07 $55.0M; 2007-08 $52.4M</td></tr>
<tr><td colspan="2">Electricity resources policy – 2005-06 $4.6M; 2006-07 $3.8M; 2007-08 $3.4M
Federal policy development, including strategies and programs and expert advice, in the area of renewable, electrical, and nuclear energy, uranium and radioactive wastes.</td></tr>
<tr><td>• Effective federal policy that meets Canada’s energy security, economic, environmental, and social objectives in the areas of renewable, electrical, and nuclear energy, uranium and radioactive wastes.</td><td>• Progress in elaborating a renewable energy and wind energy strategy for Canada in cooperation with the provinces and territories.
• Completion of a report on the implementation of the recommendations of the U.S. Power System Task Force.
• Demonstrable progress in modernizing Canada’s nuclear legislative framework, including a review of the Nuclear Liability Act.
• Government policy positions elaborated for the Advanced Candu and Generation IV technologies.</td></tr>
<tr><td colspan="2">Petroleum resources policy - 2005-06 $3.7M; 2006-07 $3.7M; 2007-08 $3.5M
Canada's petroleum resources policy has been market-based since 1986, and rests on the principles of sustainable development and deregulation (with the National Energy Board (NEB) applying light-handed regulation to ensure a level playing field and protect the long term interest of consumers). Market-based policy relies on global and regional market forces and signals to both consumers and producers resulting in transparent, efficient and effective decision-making; the private sector is left to make investment allocations based on commercial market forces. In this context, this sub-sub-activity performs ongoing work related to Canadian oil policy, natural gas policy, offshore oil and gas policy, and energy infrastructure protection policy. This involves analysing and advising senior management on the state of domestic and international markets as well as on issues and developments affecting current policies or requiring new policy approaches. This can involve legislative and regulatory frameworks as well as trade frameworks. It can also involve liaising with the Privy Council Office and other federal departments, the NEB, provincial energy departments, the oil and gas industry, the Canadian public, and foreign governments and international organizations.</td></tr>
<tr><td>• To contribute to efficient oil and natural gas markets in Canada, to ensure effective regulatory regimes are in place to promote those efficient markets, to provide accurate and insightful analysis and advice to senior management, and to liaise effectively with stakeholders.</td><td>• No performance indicators available.</td></tr>
<tr><td colspan="2">S&T - Built environment (see also the Energy and the Environment priority for balance of planned spending on this sub-sub-activity) 2005-06 $3.3M; 2006-07 $3.2M; 2007-08 $2.8M
This sub-sub-activity consists of S&T (R&D and late-stage development and demonstration of technologies) for promoting the efficient and environmentally-friendly use of energy in new and existing residential and institutional buildings, both stand alone and as they form part of communities (i.e., community energy systems). It includes the integration of energy from renewable sources, particularly in remote communities that are not connected to the grid.</td></tr>
</table>

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
• New knowledge and advanced technologies that increase energy efficiency, and reduce the environmental impact of energy-use in new and existing residential and commercial building stock.	• Annual reporting of the sub-sub-activity results. This could include such things as number of projects, publications and reports produced, citations, intellectual property information, partnerships data, communication products as well as the results of surveys and evaluations.
S&T - Power generation (see also the Energy and the Environment priority for balance of planned spending on this sub-sub-activity) **- 2005-06 $4.7M; 2006-07 $4.0M; 2007-08 $3.4M** This sub-sub-activity consists of S&T (R&D and late-stage development and demonstration of technologies) for promoting clean and efficient power generation, both centrally and distributed, the production of energy from renewable sources, and the reduction of greenhouse gas emissions and toxic pollutants from the production of energy from fossil fuels.	
• New knowledge and advanced technologies that increase unit and system efficiency, and reduce emissions (e.g., GHG and non-GHG, including priority substances) and fossil-fuel dependency in power generation.	• Annual reporting of the sub-sub-activity results. This could include such things as number of projects, publications and reports produced, citations, intellectual property information, partnerships data, communication products as well as the results of surveys and evaluations
S&T - Transportation (see also the Energy and the Environment priority for balance of planned spending on this sub-sub-activity) **- 2005-06 $7.0M; 2006-07 $5.2M; 2007-08 $4.4M** This sub-sub-activity consists of S&T (R&D and late-stage development and demonstration of technologies) for promoting clean and efficient energy for the transportation sector. It encompasses transportation energy efficiency and optimisation, advanced fuels such as ethanol, biodiesel and hydrogen, and the characterization of the combustion and emission reduction of those fuels, and infrastructure necessary to promote the adoption and use of those fuels.	
• New knowledge and advanced technologies that increase efficiency and reduce the emissions and fossil-fuel dependency of the transportation sector.	• Annual reporting of the sub-sub-activity results. This could include such things as number of projects, publications and reports produced, citations, intellectual property information, partnerships data, communication products as well as the results of surveys and evaluations.
S&T - Conventional oil & gas (see also the Energy and the Environment priority for balance of planned spending on this sub-sub-activity) **- 2005-06 $9.9M; 2006-07 $9.1M; 2007-08 $9.2M** This sub-sub-activity consists of S&T (R&D and late stage development and demonstration of technologies) to address cross-cutting environmental and safety issues in support of the production of Canada's onshore and offshore oil and gas resources.	
• New knowledge and advanced technologies on the production and transportation of onshore and offshore conventional oil and gas that enhance production, improve safety, and reduce environmental impacts.	• Annual reporting of the sub-sub-activity results. This could include such things as number of projects, publications and reports produced, citations, intellectual property information, partnerships data, communication products as well as the results of surveys and evaluations.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
S&T - Unconventional oil & gas (see also the Energy and the Environment priority for balance of planned spending on this sub-sub-activity) **- 2005-06 $16.0M; 2006-07 $19.3M; 2007-08 $18.1M** This sub-sub-activity consists of S&T (R&D and late-stage development and demonstration of technologies) for promoting the efficient, economic and environmentally-friendly development of Canada's unconventional fossil fuels, focussing on oil sands and heavy oil, coal bed methane, gas hydrates, and the frontier regions.	
• New knowledge and advanced technologies on the production and processing of bitumen and heavy oil, and on the production of coal bed methane and gas hydrates that enhance production, improve product quality, and reduce environmental impact.	• Annual reporting of the sub-sub-activity results. This could include such things as number of projects, publications and reports produced, citations, intellectual property information, partnerships data, communication products as well as the results of surveys and evaluations.
S&T - Industrial sector (see also the Energy and the Environment priority for balance of planned spending on this sub-sub-activity) **- 2005-06 $6.5M; 2006-07 $6.7M; 2007-08 $7.6M** This sub-sub-activity consists of S&T (R&D and late-stage development and demonstration of technologies) to help industry use energy efficiently, reduce waste and use bio-based energy-related systems and technologies.	
• New knowledge and advanced technologies that increase energy efficiency and reduce emissions at unit, process and system scales.	• Annual reporting of the sub-sub-activity results. This could include such things as number of projects, publications and reports produced, citations, intellectual property information, partnerships data, communication products as well as the results of surveys and evaluations.
Departmental Priority – Energy and the Environment : 2005-06 $387.0M; 2006-07 $196.0M; 2007-08 $152.2M	
Opportunities Envelope (OE) - 2005-06 $12.6M; 2006-07 $0.6M; 2007-08 $0.0M The Opportunities Envelope (OE) was announced in August 2003 and received an initial Treasury Board approval in February 2004. The three-year, $160 million OE is intended to allow the federal government to contribute funds to initiatives proposed by the provinces and territories that will result in cost-effective reductions in greenhouse gas emissions within their respective jurisdictions. Either discrete projects or broader emission reduction programs in any sector of the economy are eligible for OE funding. The OE is a joint NRCan/Environment Canada initiative: these departments will administer the OE funding but it is up to the provinces and territories to develop the emission reduction proposals in the first place and be willing to co-fund them.	
• The OE will result in increased collaboration with provinces and territories and their partners on climate change by supporting new projects and programs that will result in GHG emission reductions within their respective jurisdictions while contributing to national goals.	• Level of awareness and interest from provinces and territories through number of inquiries, bilateral meetings, conference calls and formal Expressions of Interest (EoI). • Uptake of program through the number of jurisdictions participating and the number of complete proposals received and recommended for funding.
Renewable energy programs - 2005-06 $36.3M; 2006-07 $44.3M; 2007-08 $30.2M Federal policy development, including strategies, programs, and expert advice, in the area of renewable energy including solar, wind, water, earth and bioenergy, and energy from waste.	

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
• Effective federal policy development and efficient delivery of several initiatives to encourage the development and use of renewable energy sources and technologies.	• Increase the proportion of electricity generated in Canada by emerging and low-impact renewable energy sources. • Increase the proportion of electricity generated by emerging renewable energy sources in total federal electricity purchases to 20% by 2010. • Significantly increase the proportion of electricity generated from wind energy in total electricity generation in Canada. • To influence, by 2007, the deployment of 600 active solar thermal systems and high efficiency and low-emitting biomass combustion systems along with 6,000 ground source heat pump systems.
Low-level radioactive waste management (including Port Hope): 2005-06 $8.8M; 2006-07 $7.6M; 2007-08 $27.9M Management of the federal government's program for historic waste; low-level radioactive wastes that are not managed in an appropriate manner for the long-term and for which it has been determined that the owner can not reasonably be held responsible, including the provision of policy direction, funding, and oversight for the Low-Level Radioactive Waste Management Office.	
• Implementation of historic waste management strategies that meet health, safety, and environmental criteria in an economically and socially appropriate manner. In the case of the Port Hope area wastes, the result will be the cleanup of historic waste in the area, the remediation of local waste sites, and the consolidation of the material in new state-of-the-art long-term licensed waste management facilities.	• Complete the environmental assessment study reports for radioactive waste management projects being advanced through the Port Hope Area Initiative and begin the Government review of those reports, pursuant to the *Canadian Environmental Assessment Act.*
CO_2 capture and storage - 2005-06 $8.8M; 2006-07 $0.0M; 2007-08 $0.0M CO_2-capture-and-storage, in general terms, involves the capture, treatment (additional, as required), transportation and injection of CO_2 into a suitable geological formation. In this process, CO_2 is first captured from a suitable industrial source. The CO_2-bearing gas stream is treated, as required, and transported to the intended geological storage site where it is injected into the selected geological formation. Potential commercial opportunities exist to store CO_2 while at the same time enhancing production in depleted oil reservoirs through enhanced oil recovery (EOR) or in un-minable coal beds through enhanced coal bed methane production (ECBM).	
• To advance the understanding of the optimal use of the capture and subsequent storage of CO_2 in geological formations as a means of reducing Canada's greenhouse gas emissions and to promote its commercialization. The goal of the CO_2-Capture-and-Storage Initiative is to advance deployment of commercial opportunities and through a financial incentive program, to facilitate the development of a CO_2-Capture-and-Storage ($C0_2C$&S) market.	• Phase I – number of staff hired and trained; final reports received on: identifying regulatory constraints, inventorying sources of $C0_2$ and additional suitable storage sites, health, safety and environmental impacts; messaging created for public and investors; and signed MOU for EIA Weyburn Storage and Monitoring Project. • Phase II - incentive program design approved; number of signed contribution agreements; and number of tonnes of CO_2 stored.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Housing - 2005-06 $41.9M; 2006-07 $20.6M; 2007-08 $2.5M This sub-sub-activity targets Canadian homeowners and homebuilders. The objective of the program is to promote and increase energy efficiency of new and existing housing in Canada. NRCan promotes the economic, health and environmental benefits of energy-efficient homes. Additionally, NRCan supports the implementation of energy-related retrofits as well as a reference baseline for new construction designs.	
• Increased use of energy-efficient technologies in houses.	• Installation of energy-efficient technologies by builders.
• Energy savings in homes that undertake a post-retrofit and post-design EnerGuide for Houses evaluation.	• Identified energy savings in homes that undertake a post-retrofit and post-design EnerGuide for Houses evaluation.
• Increase in percentage of new housing at EGH80-R2000 level.	• Improvement in EGH Rating of new houses over time. • Percentage of new housing at EGH80-R2000 level.
Buildings - 2005-06 $52.3M; 2006-07 $13.4M; 2007-08 $0.0M This sub-sub-activity targets Canadian builders, designers and organizations. The objective of the program is to accelerate the change in building design and construction practices and to encourage individual organizations to increase the energy efficiency of their operations, thereby contributing to the reduction of GHG emissions. NRCan promotes the economic and environmental benefits of energy-efficient construction. Additionally, NRCan encourages organizations in the commercial/institutional sector to increase energy efficiency in their operations, and provides incentives for the design of energy-efficient buildings.	
• Improved average energy efficiency in retrofitted commercial/institutional buildings that have received financial incentives.	• Average energy efficiency improvement in retrofitted commercial/institutional buildings that have received financial incentives.
• Greater energy efficiency of Commercial Building Incentive Program (CBIP) buildings versus similar buildings built to the Model National Energy Code for Buildings (MNECB).	• Difference in energy efficiency of CBIP buildings versus similar buildings built to MNECB and difference versus the building stock.
• Energy savings from Energy Innovators Initiative (EII) incentive program.	• Energy savings attributable to EII incentive program.
• Increased use of energy-efficient technologies in buildings.	• Energy intensity in GJ/m2 of CBIP or EII buildings by building type compared to the building stock energy intensity by building type.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Equipment - 2005-06 $17.9M; 2006-07 $7.1M; 2007-08 $1.3M This sub-sub-activity targets Canadian consumers and manufacturers of energy-using equipment. Energy-efficiency regulations prohibit the imports of, or interprovincial trade in, prescribed products that fail to meet minimum energy performance and labeling requirements. The objective of the program is to gradually exclude the least efficient energy-using equipment from the market and to influence consumers to select, and manufacturers to produce, energy-efficient products that perform above the minimum standards. NRCan encourages consumers to purchase energy-efficient products and informs them of the energy consumption implications of their equipment purchases. NRCan requires dealers to apply accurate EnerGuide labels to certain household products. In addition, NRCan promotes the most efficient energy-using equipment available by its endorsement of Energy Star qualified products.	
• Improved average energy consumption of new equipment.	• Average energy consumption of new versus old appliances. • Year-to-year improvement in energy consumption of new equipment.
• Accelerated stock turnover of less efficient equipment.	• Increase in stock retirement rate - average age of stock.
• Energy savings due to regulations.	• Estimated energy savings from regulations.
House in Order/Government Operations - 2005-06 $5.2M; 2006-07 $1.6M; 2007-08 $2.1M This sub-sub-activity targets federal government departments. The objective of the program is to improve energy use within the Government of Canada. Responsibility for achieving the federal greenhouse gas (GHG) reduction target of 31 percent below 1990 levels by 2010 is shared by 11departments. NRCan is taking a lead role in managing this task and is encouraging Government of Canada departments and agencies to improve energy use. NRCan is also facilitating comprehensive energy-efficiency upgrades and retrofits in government facilities. Additionally, NRCan supports partnerships with energy management firms, assists federal departments and agencies to decrease fuel use in vehicle fleets and purchases of energy-using products and aims to create a market for new technologies on the verge of becoming viable.	
• Reductions in GHG intensity of federal vehicles.	• Higher use of E10 and alternative fuels. • New alternative fueling facilities. • Number of hybrid and alternative fuel vehicles purchased for the federal fleet.
• Improvement of energy efficiency in federal buildings.	• Energy intensity improvements in federal buildings
• Reductions in GHG emissions from federal facilities.	• GHG emissions reductions in federal facilities.
• Annual purchases of hybrid and alternative fuel vehicles by the federal fleet.	• Purchasing trends reflect move towards more cars than trucks and vans. • Higher use of E10 and alternative fuels • Green Defensive Driver Training.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Industry - 2005-06 $7.9M, 2006-07 $2.8M; 2007-08 $3.8M This sub-sub-activity targets the Canadian industrial sector. The objective of the program is to encourage and facilitate action, both at the industry level and in individual companies. NRCan promotes energy efficiency and innovation through an industry-government collaborative initiative, the Canadian Industry Program for Energy Conservation (CIPEC), as well as on an individual company basis through the Industrial Energy Innovators Initiative. Additionally, NRCan attempts to improve the quality and availability of energy intensity data and the analytical framework for understanding and tracking industrial energy end-use.	
• Improvement of aggregate energy intensity of CIPEC mining, manufacturing and construction industries leading to reduced GHG emissions.	• Aggregate energy intensity improvement of CIPEC mining, manufacturing and construction industries.
• Improvement of aggregate energy intensity of CIPEC energy-producing industries leading to reduced GHG emissions.	• Aggregate energy intensity improvement of CIPEC energy-producing industries.
Transportation - 2005-06 $90.1M; 2006-07 $13.4M; 2007-08 $4.1M This sub-sub-activity targets the Canadian vehicle market, individual drivers, and operators of commercial vehicle fleets. The objectives of the program are to improve the energy efficiency of new vehicles, to influence vehicle operations and vehicle maintenance and to support the use of alternative road transportation fuels. NRCan works to introduce more fuel-efficient vehicles into the Canadian market and to influence consumer demand for such vehicles, as well as provides information on fuel options. Additionally, NRCan supports driving training and awareness to ensure drivers understand the effect of driving behaviour, operation and maintenance practices. NRCan also provides operators of commercial and other non-Government of Canada vehicle road transportation fleets with information and assistance to help fleet managers improve operating practices and vehicle selection.	
• Improvement in on-road fuel efficiency.	• Fuel saved from fuel saving devices. • Fuel saved from improved driving and maintenance behaviours. • Fuel saved from the purchase of fuel-efficient vehicles.
• Expansion of ethanol fuel production and use in Canada by 2010.	• Volume of ethanol production.
• Improved fuel efficiency of new vehicles.	• Fuel efficiency of new vehicles
Outreach - 2005-06 $8.1M; 2006-07 $0.0M; 2007-08 $0.0M This sub-sub-activity targets the Canadian general public. The objective of the program is to increase Canadians' awareness and understanding of climate change and the link to energy use, and to encourage Canadians to take action on climate change. NRCan provides information on energy efficiency and climate change and develops outreach initiatives that establish NRCan as a centre for energy efficiency knowledge and programs. Additionally, NRCan produces communications and marketing materials and operates a toll-free publications distribution service.	
• Increased participation in outreach activities.	• Percentage increase in participation in outreach activities.
• Increased awareness and understanding of the need to take action on climate change.	• Percentage awareness and understanding of the need to take action.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
S&T - Built environment (see also the Knowledge, Innovation and Productivity priority for balance of planned spending on this sub-sub-activity) **2005-06 $15.0M; 2006-07 $14.3M; 2007-08 $12.7M**	
S&T - Power generation (see also the Knowledge, Innovation and Productivity priority for balance of planned spending on this sub-sub-activity) **2005-06 $21.3M; 2006-07 $18.3M; 2007-08 $15.4M**	
S&T - Transportation (see also the Knowledge, Innovation and Productivity priority for balance of planned spending on this sub-sub-activity) **2005-06 $20.0M; 2006-07 $14.9M; 2007-08 $12.5M**	
S&T - Conventional oil and gas (see also the Knowledge, Innovation and Productivity priority for balance of planned spending on this sub-sub-activity) **2005-06 $2.2M; 2006-07 $2.0M; 2007-08 $2.0M**	
S&T - Unconventional oil and gas (see also the Knowledge, Innovation and Productivity priority for balance of planned spending on this sub-sub-activity) **2005-06 $9.4M; 2006-07 $11.3M; 2007-08 $10.6M**	
S&T - Industrial sector (see also the Knowledge, Innovation and Productivity priority for balance of planned spending on this sub-sub-activity) **2005-06 $22.9M; 2006-07 $23.9M; 2007-08 $27.1M**	
Large final emitters GHG reduction - 2005-06 $6.3M; 2006-07 $0.0M; 2007-08 $0.0M The Large Final Emitters sub-activity works with key industry sectors to establish reduction targets for greenhouse gas emissions. Through discussions with industry, provinces and territories, and other stakeholders, NRCan designs policies and legislative measures that are effective in encouraging reductions, are administratively efficient and clear, and help to maintain the competitiveness of Canadian industry.	
• Development of the approach and the supporting legislative framework that will commit covered industrial sectors to reduce their GHG emissions for the first Kyoto commitment period (2008-12).	• Completion of the legislative package for presentation to Cabinet.
Departmental Priority – Public Safety and Security : 2005-06 $0.4M; 2006-07 $0.4M; 2007-08 $0.4M	
Energy infrastructure protection 2005-06 $0.4M; 2006-07 $0.4M; 2007-08 $0.4M –This sub-sub-activity develops policies, legislation and regulations to promote initiatives to strengthen the protection of Canada's critical energy infrastructure through close liaison with other federal departments, provincial governments, regulatory agencies, the energy industry and energy associations. It provides expert advice and direct program support to Public Safety and Emergency Preparedness Canada in formulating the National Critical Infrastructure Assurance Program. Development of the Business Continuity Plan for the Energy Program Activity also falls under this sub-sub activity. Internationally, this sub-sub-activity is engaged with the United States on issues related to cross-border energy infrastructure protection, information sharing and on other areas of interest. It represents NRCan in the Canada-U.S.-Mexico North American Energy Working Group to promote international cooperation and to exchange ideas on areas of mutual interest related to critical energy infrastructure protection and emergency preparedness.	
• To increase the security posture of Canada's critical energy infrastructure, and in collaboration with the U.S., assess the vulnerability of cross-border energy infrastructure.	• Performance evaluations completed in 2005 and 2007.

Energy – Other Programs and Services

Other Programs and Services ($M)	Planned Spending 2005-06	Planned Spending 2006-07	Planned Spending 2007-08
Energy policy development and analysis	18.7	6.8	6.7
Hibernia interest assistance	21.4	13.9	5.5
Statutory programs Atlantic	136.4	299.2	472.7
Program management and support	9.3	9.3	9.3
Sub-total	**185.8**	**329.2**	**494.2**
Corporate management	32.8	26.2	25.5
Total	**218.6**	**355.4**	**519.7**

Program Activity #3: Forest

Forest	Planned Spending ($M)		
	2005-06	2006-07	2007-08
Key Programs/Services Related to Achieving Departmental Priorities			
• Knowledge, Innovation and Productivity	13.0	9.4	9.4
• Trade and Investment	28.1	21.9	10.9
• Energy and the Environment	23.2	16.7	16.7
• Northern and Aboriginal Communities	13.8	13.7	13.7
Sub-Total Key Programs/Services	78.1	61.7	50.7
Sub-Total Other Programs/Services	82.4	81.9	81.1
Total	**160.5**	**143.6**	**131.8**
FTEs	973	963	963

The **Forest** program activity promotes the sustainable development of Canada's forests for the social, environmental and economic well-being of present and future generations of Canadians. As the national forest policy coordination and S&T research agency in Canada, this program plays a pivotal role in leading change for a healthy forest and a strong forest products sector by: building consensus on key forest issues; shaping national and international forest policy agendas responding to forest-related international commitments and obligations; enhancing the competitiveness of Canada's forest sector; generating, assembling and disseminating forest S&T and policy information; and in developing, implementing and transferring sustainable forest management knowledge, products, strategies and technologies to Canadian forest managers and to interested nations around the world.

Expected Results at Program Activity Level	Performance Indicators
• Canadians derive balanced social, environmental and economic benefits through activity-led improvements to the sustainability of Canada's forests and forest sector.	• Policies, knowledge, science-based technologies and management strategies developed to prevent and mitigate identified forest and forest sector threats. • Market development opportunities in support of Canada's forest sector including responses to non-tariff barriers to forest products trade and international outreach. • Capacity building opportunities for Canada's First Nations peoples. • Progress towards achieving Canada's international forest-related commitments and obligations, including climate change related commitments and obligations under the Kyoto Protocol.

The Forest program activity pursues NRCan's **Knowledge, Innovation and Productivity** priority through a variety of forest research and knowledge-based sub-activities including the Sustainable Forest Policy and Stakeholder Relations sub-sub activity. This sub-sub activity involves working with a wide range of government and non-government forest stakeholders, partners, advisory boards, councils, private woodlot owners, Aboriginal groups, and forest industry to establish shared values and approaches in the sustainable development of Canada's forest sector. Over the planning period, the Program will be working with provincial/territorial and industry partners to establish a coherent forest sector innovation system aimed at maximizing the innovative capacity of the Canadian forest sector to promote industry profitability, environmental quality, and community stability. It will also pursue a national government/ industry partnership aimed at engaging Canadians in an informed dialogue on the status, values and issues around the boreal forest. There is an opportunity to bring northern boreal forest nations together for a significant dialogue on the boreal forest which will, in turn, enhance Canada's reputation abroad and ensure that our forest management approaches are viewed in a global context. Through the Forest Fire and Management Practices, Alien Invasive Species and Native Insects and Diseases sub-sub activities, the department is working with all levels of government to ensure the safety of Canadians and minimizing property loss from threats such as wildfires and deforestation due to pests and diseases.

The Forest program activity will also focus efforts on pursuing NRCan's **Trade and Investment** priority by increasing emphasis on addressing forest industry trade and competitiveness issues through its Competitiveness of Canada's Forest Sector sub-sub activity where a multi-year strategy aimed at positioning Canada's forest sector to take advantage of a changing global environment will be developed. As well, the program activity will continue its efforts to maintain and enhance market access and secure international arrangements to promote and safeguard

Canadian forest interests and will advance forest sector positions and commitments in international climate change negotiations and the Canadian Biodiversity Strategy through its International Forest Leadership and Protocols sub-sub activity.

Moreover, the Forest program activity pursues the **Energy and the Environment** priority through its forest carbon modelling; impacts and adaptation; forestry practices; water/air quality; and biodiversity monitoring and conservation strategies sub-sub activities to help Canada meet its international obligations related to forest carbon, to ascertain the impact of climate change on Canadian forests, and to ensure the sustainability of the sector under a changing climate.

The department's priority in **Northern and Aboriginal Communities** is supported through the Forest program activity's First Nations/Aboriginal capacity-building sub-sub activity using community-based partnerships and strategic economic development initiatives aimed at strengthening the capacity of First Nations peoples to engage in on-the-ground application of sustainable forestry practices across Canada.

Forest – Key Programs/Services

<table>
<tr><th>Expected Results/Planned Spending Related To Achieving Departmental Priorities</th><th>Performance Indicators</th></tr>
<tr><td colspan="2">Departmental Priority – Knowledge, Innovation and Productivity : 2005-06 $13.0M; 2006-07 $9.4M; 2007-08 $9.4M</td></tr>
<tr><td colspan="2">Sustainable forest policy and stakeholders relations - 2005-06 $6.3M; 2006-07 $2.8M; 2007-08 $2.8M
This sub-sub-activity consists of initiatives related to: building relations and consultations with industries, government and non-government organizations; developing consensus and Canadian position on forest issues, implementing federal action plans in support of forest sector issues; providing support to the Canadian Council of Forest Ministers (CCFM), the National Forest Strategy Coalition (NFSC), National Advisory Boards on Forests (NABFOR), Forest Sector Advisory Council (FSAC) and Canadian Forest Innovation Council (CIFC); and developing Aboriginal and private woodlot policy, and strategic forest policy.</td></tr>
<tr><td>• Increased consensus among diverse stakeholders on Canadian position on forest issues.

• Implementation of strategies and action plans in support of sustainable forest management.</td><td>• Development of geographically-based clusters consisting of forest-science research capabilities and expertise in support of innovation processes.

• National, regional and local level partnerships, advisory bodies and/or councils supporting the forest sector.
• Forest-based communities engaged in public debates about forests.
• Progress in the implementation of Canada's National Forest Strategy (2003-08).</td></tr>
</table>

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Forest fire and management practices - 2005-06 $2.3M; 2006-07 $2.3M; 2007-08 $2.3M This sub-sub-activity consists of research initiatives to improve Canada's understanding of the risks associated with forest fires; forest fire and wildfire management strategies; and developing options for planning and protecting forests and community resources. It involves the development and implementation of fire management decision support systems; understanding forest-climate interactions and large scale responses to climate change; and developing prediction models and information databases for public and professional access.	
• Improved knowledge and understanding of the risks associated with forest fires and wildlife management, and options for planning and protecting Canada's forest and communities.	• Development and implementation of a new national wildfire strategy. • Development of fire management decision-support systems, tools, prediction models and technologies.
Native insects and diseases - 2005-06 $1.7M; 2006-07 $1.6M; 2007-08 $1.6M This sub-sub-activity focus is on identifying the hazards of native forest insects and diseases and development and transfer of naturally-based forest pest control technologies.	
• Improved hazards ratings of natural insects and diseases, development and transfer of publicly acceptable forest pest control technologies.	• Science-based risk assessments and the development of environmentally-safe alternatives to chemical pesticides and herbicides.
Alien invasive species - 2005-06 $2.7M; 2006-07 $2.7M; 2007-08 $2.7M This sub-sub-activity centers on the identification and detection of alien invasive insects and fungi; the development and transfer of safe-handling protocols; commercial registration of environmentally safe pest control products; and risk analyses.	
• Improved methods to detect, identify, control, monitor, manage and report on alien invasive insects and fungi that impact on Canada's forests.	• Development and implementation of a national forest invasive alien species strategy, in collaboration with members of the Canadian forest sector.
Departmental Priority - Trade and Investment : 2005-06 $28.1M; 2006-07 $21.9M; 2007-08 $10.9M	
International forest leadership and protocols - 2005-06 $7.3M; 2006-07 $1.7M; 2007-08 $1.7M This sub-sub-activity consists of promoting Canada's sustainable forest agenda within the international forest community and to level the trade playing field. It consists of developing/coordinating bilateral and multilateral forest sector agreements; providing international forest policy development and support for the advancement of a sustainable forest agenda in international fora; and advancing Canadian forest sector positions and commitments in international climate change negotiations and the Canadian Biodiversity Strategy .	

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
• Achieving the Canadian Government's foreign-policy objectives while supporting achievement of its domestic forest policy objectives.	• Development, follow-up and monitoring of United Nations Forum on Forests (UNFF) activities and international conventions; bilateral and multi-lateral arrangements and agreements; processes and initiatives; and forest-related MOU's which secure and promote the interests of Canada's forest sector. • Partnerships established with the international forest community and with developing/emerging forest countries. • Integration of the *Forest Biodiversity Expanded Programme of Work* (FBEPW) as part of the forest sector's commitment to the Canadian Biodiversity Strategy.
• Compliance with the United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol reporting requirements.	• Reporting requirements met through the development, refinement and use of Canada's National Forest Carbon Monitoring, Accounting and Reporting System (NFCMARS).
• Policy options aimed at mitigating climate change through forest related afforestation, reforestation, deforestation and forest management activities.	• Extent to which information and estimates on climate change are more precise, more defined and more complete relative to baseline information.
• Realize removals of atmospheric GHG emissions through the Forest 2020 Plantation Demonstration and Assessment Initiative (PDAI).	• Full implementation of the Forest 2020 PDAI completed with atmospheric GHG removals as carbon is sequestered.
Competitiveness of Canada's forest sector : 2005-06 $20.8M; 2006-07 $20.2M; 2007-08 $9.2M This sub-sub-activity relates to the development and implementation of programs and initiatives that enhance the competitiveness of Canada's forest sector and to prevent and/or address trade barriers being erected in traditional forest product markets. It involves developing and implementing market expansion programs, providing expert advice on forest products trade and disputes settlement; supporting Canada's three forest industry research institutes in primary and value-added research; conducting research and analyses on forest industry structure, trends, resource supply, and competitiveness; and developing markets for Canadian products in select foreign markets.	
• Competitiveness of Canada's forest sector enhanced and maintained through trade promotion, market acceptance of Canada's forest products, and knowledge/information support in the resolution of trade disputes.	• Programs and initiatives that improve international market access for Canada's forest products and address the potential for non-tariff trade barriers being erected. • Increased off-shore representation of Canadian industry associations delivering market development initiatives.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Departmental Priority – Energy and the Environment : 2005-06 $23.2M; 2006-07 $16.7M; 2007-08 $16.7M	
Forest carbon modelling - 2005-06 $4.8M; 2006-07 $4.8M; 2007-08 $4.8M This sub-sub-activity consists of developing and implementing processes and tools for measuring Canada's forest carbon; providing estimates of carbon sequestration; detecting change; and forecasting the impacts of climate change. It involves: developing computerized tools for carbon stock measuring; capacity building, testing and reviewing the tools at model forest sites; and facilitating technology transfer to the larger forest management community across Canada.	
• Knowledge/understanding of Canada's forest carbon stocks.	• Development and implementation of reporting processes and tools to measure, monitor and report Canada's forest carbon.
Impacts and adaptation - 2005-06 $1.5M; 2006-07 $1.5M; 2007-08 $1.5M This sub-sub-activity consists of research initiatives to develop knowledge and improve Canada's understanding of the impacts of climate change on Canada's forests, their ability to adapt, and options for mitigating the effects. It involves: determining climate change stress factors; providing ozone information and modelling support for the Canada Wide Air Quality Model; assessing the relative importance of climatic, fuel, and topographical factors on forest fire occurrences; and developing models for tree improvement under changing climatic conditions.	
• Improved knowledge and understanding of the forests' ability to resist and adapt to climate change in Canada.	• National climate change detection and prediction methodologies and models developed and implemented under various climate change scenarios. • Assessments on the ability of forest species and ecosystems to resist, moderate, and/or recover from climate change related stressors in Canada.
Forestry practices - 2005-06 $12.4M; 2006-07 $5.9M; 2007-08 $5.9M This sub-sub-activity consists of investigating the safe management and use of Canada's forests by advocating sustainable forest management practices that protect and preserve forest health and non-timber values and lead to increased efficiency and silviculture methods by forest managers.	
• Increased knowledge, understanding and use of science-based evidence developed to support forest management decision-making.	• Develop and make accessible to forest managers across Canada sustainable forestry practices, methodologies, tools and techniques in the protection of forests and forest watersheds.
Water/air quality - 2005-06 $1.0M; 2006-07 $1.0M; 2007-08 $1.0M This sub-sub-activity consists of water and air quality research to determine the effects of human activities and other disturbances on indicator forest organisms and the environment. It involves: the development of guidelines and policies for the protection of water in forest watersheds; and monitoring of air quality impacts on forest health.	

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
• Increased knowledge on the effects of human and natural disturbances on forest watersheds and the effects of air quality on forest health.	• Research information, policies and guidelines related to air and water quality to help offset the effects of human activities and other disturbances on forest organisms and the environment. • Develop and make accessible to forest managers conservation strategies, methodologies, tools and techniques that address the impacts of natural and human disturbances on forest biodiversity.
Biodiversity monitoring and conservation strategies - 2005-06 $3.5M; 2006-07 $3.5M; 2007-08 $3.5M This sub-sub-activity consists of studies examining the impacts of disturbances and forestry practices on biodiversity; the methods to evaluate and predict biodiversity; and the development of strategies for conserving biological diversity. It involves: capturing information on databases, developing prediction models, web-based diagnostic tools and transfer of technologies to stakeholders; and developing markers for selected tree species to identify genetic variations caused by natural and human disturbances.	
• Increased knowledge on the impacts of forestry practices on biodiversity.	• Methods to determine the impacts of disturbances and forestry practices on biodiversity and the development of conservation strategies for biological diversity.
Departmental Priority – Northern and Aboriginals Communities : 2005-06 $13.8M; 2006-07 $13.7M; 2007-08 $13.7M	
Sustainable forest management and urban, regional & international partnerships - 2005-06 $7.9M; 2006-07 $7.8M; 2007-08 $7.8M In collaboration with participating partners, this sub-sub-activity consists of the programs and initiatives aimed at promoting sound sustainable forest management practices and involves: providing coordination and funding support to Canada's network of 11 model forests and assistance to international model forests; supporting on-the-ground demonstration projects; conducting knowledge transfer and outreach activities; and supporting urban forestry initiatives.	
• Programs and initiatives to promote sustainable forest management practices in Canada and abroad using knowledge transfer, outreach activities and providing expert advisory support to stakeholders.	• Number/value of projects developed, implemented and transferred to forest managers under Canada's Model Forest Program. • Number of communities developing and implementing innovative urban forest management practices. • The degree to which the international forest agenda is shaped and/or influenced by Canada's concept of sustainable forest management.
First Nations/Aboriginal forestry capacity-building - 2005-06 $5.9M; 2006-07 $5.9M; 2007-08 $5.9M This sub-sub-activity consists of programs and initiatives aimed at improving the Aboriginal capacity to participate in, and benefit from Canada's forestry opportunities. It involves: managing Canada's First Nations Forestry Program (FNFP); developing and implementing the Aboriginal Strategic Initiative under Canada's Model Forest Program including supporting the Waswanipi Cree Model Forest and Innu Labrador Project; governance support to the South Moresby Forest Replacement Account; and forest advisory support to Aboriginal treaty negotiations in British Columbia.	

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
• Improved economic conditions and self-reliance in First Nations and other Aboriginal communities	• Number/value of sustainable development projects requested and undertaken by First Nations and other Aboriginal peoples across Canada. • Training/employment levels of First Nations peoples participating in sustainable development forest projects. • Level of First Nations funding contributions in sustainable forest projects across Canada.

Forest – Other Programs and Services

Other Programs and Services ($M)	Planned Spending 2005-06	Planned Spending 2006-07	Planned Spending 2007-08
Social and economic research	0.9	0.9	0.9
Forest information systems and inventory	2.8	2.8	2.8
Forest information synthesis and dissemination	5.8	5.7	5.7
Forest biotechnology	8.2	8.4	8.4
Forest productivity	4.5	4.4	4.4
Pest management	15.8	15.0	14.5
Forest health monitoring and reporting	2.3	2.3	2.3
Private woodlots	0.3	0.3	0.3
Management and support	29.0	29.0	29.0
Sub-total	**69.6**	**68.8**	**68.3**
Corporate management	12.8	13.1	12.8
Total	**82.4**	**81.9**	**81.1**

Program Activity #4: Minerals and Metals

Minerals and Metals	Planned Spending ($M)		
	2005-06	2006-07	2007-08
Key Programs/Services Related to Achieving Departmental Priorities			
• Knowledge, Innovation and Productivity	6.7	6.5	6.5
• Trade and Investment	4.6	4.6	4.4
• Energy and the Environment	16.2	13.9	13.9
• Northern and Aboriginal Communities	0.7	0.7	0.7
• Public Safety and Security	9.8	9.8	9.8
Sub-Total Key Programs/Services	38.0	35.5	35.3
Sub-Total Other Programs/Services	21.5	21.0	20.8
Total	**59.5**	**56.5**	**56.1**
FTEs	625	626	626

The **Minerals and Metals** program is the Government of Canada's leader in promoting the sustainable development and responsible use of Canada's mineral and metal resources. A fundamental objective of the program is to develop: (i) technologies and solutions to problems in order to increase the competitiveness of the mining and processing industries; and (ii) new materials and processes to enhance the competitiveness of the construction, transportation and energy sectors.

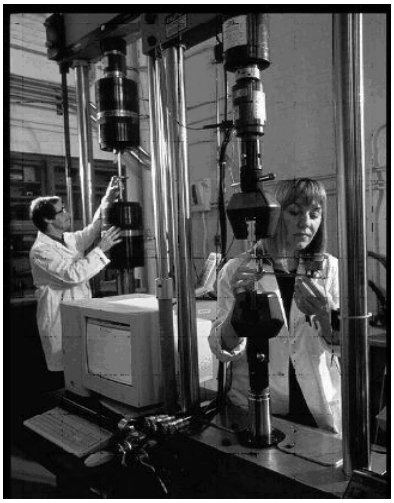
The program includes significant international activities to address barriers to market access and to communicate the benefits of Canadian expertise and products. Minerals and metals activities also focus on assessing the investment climate for exploration and mining in Canada and abroad and making policy recommendations. The program aims to increase the contribution of mineral development to the prosperity and well-being of Aboriginal and northern communities.

The program applies its extensive knowledge and expertise to: (i) fulfil its statutory responsibilities for mining projects under the *Canadian Environmental Assessment Act*; (ii) develop environmental technologies for application both at home and throughout the developing world; (iii) limit the impact of climate change; and (iv) ensure that environmental policies and regulations pertaining to the mining industry are based on sound science. Finally, the program is committed to enhancing the security and safety of: (i) workers in underground mines through the development of new technologies; and (ii) Canadians through the implementation of explosives regulations under the *Explosives Act* and the development of advanced technologies.

Expected Results at Program Activity Level	Performance Indicators
Canadians derive sustainable social and economic net benefits from the assessment, development and use of mineral expertise, mineral resources, and related industries.	• Support for initiatives that utilize Canada's mineral resources and expertise is increased in order to fulfill domestic and foreign policy objectives of the Government of Canada.

The Minerals and Metals program is committed to developing technologies and solutions to expand **Knowledge, Innovation and Productivity** and increase the competitiveness of Canada's mining and processing industries. Priorities include the development of advanced drilling and transportation technologies, including the application of hydrogen fuel cells to vehicles in underground mines.

The minerals and metals program also focuses on the development of new materials, such as metallic and polymer composites for application in vehicles, and processes, such as the forming of magnesium and aluminum, to enhance the productivity and competitiveness of the construction, transportation and energy sectors. The program includes the Academic User Access Facility, which partners with Canadian universities to produce highly qualified personnel; and the non-destructive testing program, a Canada-wide program to certify personnel, based on national standards, who apply non-destructive methods (e.g., industrial radiography and ultrasonic technology) to analyze materials.



Staff conducting a fatigue test of a welded joint (left) and a standard tensile test (right) in the Mechanical Testing Laboratory of CANMET's Materials Technology Laboratory.

With respect to **Trade and Investment**, Canada's exploration and mining companies have a strong global presence, operating in over 100 countries and, at the end of 2003, holding more than 2800 properties abroad. Minerals and metals account for 13% of Canada's exports. Consequently, the minerals and metals program includes significant international activities such as addressing barriers to market access and expanding markets abroad for Canadian suppliers of equipment and services to the mining industry. (For more information on the international priorities of the minerals and metals program, see Section IV.)

Investment is a priority of the minerals and metals program. A favourable investment climate is key to creating jobs, economic growth, and raising the standard of living of Canadians. Therefore, the program focuses on activities to improve the investment climate such as: (i) assessing tax regulations for exploration and mine development, and recommending improvements; and (ii) ensuring that the mandated responsibilities of the Minister of Natural Resources under the *Income Tax Act* and *Excise Tax Act* are fulfilled.

As with the government as a whole, the minerals and metals program is responsible for helping the world meet environmental challenges. In support of the **Energy and Environmental**

priority, the program applies its extensive knowledge and expertise to: (i) fulfil its statutory responsibilities for mining projects under the *Canadian Environmental Assessment Act*; (ii) develop environmental technologies for application both at home and throughout the developing world; and (iii) ensure that environmental policies and regulations pertaining to the mining industry are based on sound science. Environmental priorities include identifying alternatives to cyanide used in gold processing; expanding knowledge of the behaviour of metals in soils and aquatic environments; improving technologies for the treatment of effluents and solid wastes from mines, mills and metallurgical operations; and developing materials and technologies to enhance the reliability of oil and gas pipelines, particularly those in the North.

The minerals and metals program is committed to limiting climate change through initiatives such as: (i) the Canadian Lightweight Materials Research Initiative (CLiMRI), which aims to improve the fuel efficiency of vehicles by developing new advanced lightweight materials; and (ii) the development of technologies that focus on substituting portland cement in concrete with industrial by-products, such as fly ash and slag from blast furnaces. The manufacturing of portland cement from limestone accounts for 5 percent of the world's emissions of carbon dioxide. The minerals and metals program is also addressing climate change through the development of a resource recovery and recycling strategy. Typically, materials recovered through recycling use only a fraction of the energy required to produce the same materials from new resources.

Mineral exploration and mining offer some of the most significant opportunities for economic development in **Northern and Aboriginal Communities** throughout Canada. The Diavik diamond mine in the Northwest Territories spent $500 million during its construction through Aboriginal joint ventures. Over the past 10 years, Syncrude purchased $500 million in goods and services from Aboriginal companies. Approximately, 1200 Aboriginal communities are located within 200 kilometres of mines in Canada. In keeping with the Government of Canada's commitment to address Aboriginal issues, the minerals and metals program is preparing a strategy to further increase the contribution of mineral development to the prosperity and well-being of Aboriginal communities.

In support of the Government of Canada's first-ever comprehensive strategy for the North announced in the most recent Speech from the Throne (October 2004), the minerals and metals program is pursuing the establishment of the Northern Mining Research Centre and providing advice to Indian and Northern Affairs Canada on the preparation of the strategy. The program is also participating in the Mineral and Energy Resource Assessments, which are undertaken in advance of the establishments of national parks and marine conservation areas in the North.

As also stated in the most recent Speech from the Throne, the **Security and Safety** of Canadians is a key government-wide priority. The minerals and metals program is committed to enhancing the security and safety of Canadians through the implementation of explosives regulations and the development of advanced technologies. As the administrator of the *Explosives Act* and related regulations, the program is responsible for protecting the security and safety of Canadians from explosives and fireworks through a national system of licences and permits supported by

inspections. The program also improves the security and safety of workers and the public through the development of new and modified technologies and by better understanding the causes and processes that lead to accidental explosions. Since the tragic events of September 11, 2001, increasing emphasis has been placed on public security by exploring blast mitigation and contributing to international standards for explosives markers (odours that allow explosives to be detected). The minerals and metals program also aims to enhance the health and safety of workers in underground mines through: (i) the development of new technologies to control rockbursts and improve ventilation; and (ii) the application of wireless communication systems to transmit data and video images (http://www.nrcan.gc.ca/mms/hm_e.htm).

Minerals and Metals – Key Programs/Services

Expected Results/Planned Spending Related To Achieving Departmental Priorities	**Performance Indicators**
Departmental Priority – Knowledge, Innovation and Productivity : 2005-06 $6.7M; 2006-07 $6.5M; 2007-08 $6.5M	
Mining, processing and environmental research (see also Energy and the Environment and Public Safety and Security priorities for balance of planned spending on this sub-sub-activity) **2005-06 $1.8M; 2006-07 $1.8M; 2007-08 $1.8M** This sub-sub-activity focuses on research and development in the following main areas of mining, processing, and related environmental issues: ground control; mine mechanization/automation; underground mine environment; metallurgical processing; mineralogy; mining effluents; tailings and waste rock; and metals in the environment. The sub-sub-activity's international reputation for technical excellence in conventional mineral processing is augmented by recognized leadership in developing technological solutions to reduce the environmental liabilities facing the minerals industry. Wherever possible, the sub-sub-activity works in partnership with industry, provincial/territorial governments, universities and other research institutes. Current activities focus on three principal strategic directions: promoting sustainable development by finding technically sound solutions to environmental problems; improving industry competitiveness through enhanced productivity; and improving health and safety in underground mining.	
• The productivity and competitiveness of Canada's mining and processing industries are improved while environmental, health and safety impacts are reduced.	• Research is conducted in cooperation with industry. • New targeted programs for deep mining and processing are developed and proposed.
• Developing countries benefit from Canadian expertise.	• Program activity experts are invited by the Canadian International Development Agency and other organizations to advise developing countries.
• Trade is facilitated by the establishment of standards to ensure accuracy and consistency in analytical determinations by mineral analysis laboratories worldwide.	• Laboratories worldwide continue to rely on these reference standards and certification of proficiency.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Advanced materials technology development (see Energy and the Environment priority for balance of planned spending on this sub-sub activity) **2005-06 $4.9M; 2006-07 $4.7M; 2007-08 $4.7M** In collaboration with industry, this sub-sub-activity develops and deploys technologies that improve all aspects of producing and using value-added products derived from metals and minerals. Emphasis is placed on solving technological problems of relevance to NRCan's mandate in sustainable development, and on transferring materials technology to Canadian companies. It uses its specialists and one-of-a-kind laboratory facilities in metal processing and joining, corrosion prevention, ceramic and concrete technology, physical and mechanical testing, micro-characterization of materials, prototype fabrication, and advanced materials. The sub-sub-activity conducts research through five programs, each of which is led by a senior scientist with an extensive network of external contacts. The five research programs are: Infrastructure Reliability; Advanced Materials Processing; Advanced Concrete Technology; Sustainable Casting; and Efficient Metal Production. Additionally, the sub-sub-activity manages the Certification Program for Non-Destructive Testing (NDT) Personnel; administers tests and certifies non-destructive testing personnel for competence in various NDT evaluation techniques according to international criteria. Furthermore, by agreement between the Energy Sector and the Minerals and Metals Sector, the sub-sub-activity manages the Engineering and Technical Services group which designs, builds, operates, services and maintains equipment for use in research laboratories in both the Energy and Mineral and Metals Program Activity areas.	
• Competitiveness and productivity are improved through the development of new materials and processes for the construction, transportation and energy sectors while greenhouse gas emissions are reduced.	• Targeted research is conducted in cooperation with industry, e.g., light metals research in cooperation with both Canadian and U.S. industry. • The Academic User Access Facility trains highly qualified personnel in Canadian universities.
• Security and safety of pipelines are better ensured.	• Results of research are tested in cooperation with industry, for example, in relation to the Mackenzie Valley pipeline.
• Developing countries benefit from Canadian expertise.	• Departmental experts are invited by the Canadian International Development Agency and other organizations to advise developing countries, e.g., on the use of fly ash in concrete in India.
• Public safety is improved through the Canada-wide program to certify personnel who apply non-destructive methods (e.g., industrial radiography and ultrasonic technology) to analyse materials.	• The number of personnel in Canada who are appropriately certified for non-destructive testing methods is maintained.
• Contributions are made to international standards relating to materials performance and integrity.	• Standards are accepted relating to offshore steel structures among others.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Departmental Priority - Trade and Investment : 2005-06 $4.6M; 2006-07 $4.6M; 2007-08 $4.4M	
Economic and regional analysis - 2005-06 $1.0M; 2006-07 $1.0M; 2007-08 $1.0M This sub-sub-activity promotes the international competitiveness of the Canadian minerals and metals industries, and a favourable investment climate for exploration and mine development in Canada. The sub-sub-activity is responsible for developing and recommending federal financial and economic policies, providing detailed information and analysis to Canadian communities and potential investors in Canada and abroad, and providing advice and support to other federal departments in implementing policies and administering laws that affect the minerals and metals industries. The sub-sub-activity is a major source of analysis and advice on a wide variety of topics including: all aspects of Canada's competitiveness in mining, and the economic and financial impacts of mineral development, and the raising of capital for exploration and mining. The sub-sub-activity also conducts a wide range of seminars and participates in conferences in Canada and internationally to broadcast messages about the attractiveness of mining in Canada and the optimum conditions for economic and social development.	
• Input to policy and economic decisions is provided at the regional and national levels.	• Decisions on transportation, investment, human resource, environmental and other policies as they pertain to the minerals and metals industries are influenced.
Tax and exploration - 2005-06 $1.0M; 2006-07 $1.0M; 2007-08 $1.0M This sub-sub-activity promotes the international competitiveness of the Canadian minerals and metals industries and a favourable investment climate for mineral exploration and mine development in Canada. It is a major source of analysis and advice on the appropriate design of federal policies to achieve taxation and related goals. The sub-sub-activity is responsible for the collection or analysis of selected information on the Canadian minerals and metals industries describing ore reserves and for analysing exploration levels and trends. It provides technical interpretation of the federal *Income Tax Act* and *Excise Tax Act* as they relate to mining, and issues mineral resource certifications in compliance with the *Income Tax Act*. Finally, the sub-sub-activity leads federal-provincial/territorial-industry task forces in the analysis of the impact on Canada's mineral investment climate of changes in mineral taxation, and other policy areas.	
• The tax aspects of the investment climate for mineral exploration and mining development are assessed and recommendations are made for improvements. • The Minister's mandated responsibilities under the *Income Tax Act* and *Excise Tax Act* are discharged.	• The domestic investment climate for exploration and mine development is improved, as measured by average exploration expenditures in Canada. • Analysis and statistics compiled by a federal/provincial partnership on Canadian exploration expenditures are published. • New incentives are developed and proposed. Mining tax issues that arise under the *Income Tax Act* and the *Excise Tax Act* are resolved.
International liaison and trade relations - 2005-06 $1.0M; 2006-07 $1.0M; 2007-08 $1.0M This sub-sub-activity formulates and implements strategies and initiatives to advance Canada's minerals and metals interests with other countries and international organizations. The sub-sub-activity provides expertise and advice on life-cycle management for metals and minerals, and manages the domestic and international promotion and advancement of the Safe Use Principle for minerals and metals.	
• International policy decisions as they pertain to strengthening Canada's minerals and metals industries are influenced.	• Canada establishes the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development. • The international strategy on minerals and metals is developed.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Industry and commodity market analysis - 2005-06 $1.1M; 2006-07 $1.1M; 2007-08 $1.0M This sub-sub-activity conducts commodity, industry and market research, analysis and policy/program development with respect to metal and nonmetallic mineral industries. The sub-sub-activity positions and recommends policies and actions on behalf of Canada in response to market access issues for Canada's minerals and metals industries and related products. The sub-sub-activity provides advice to the Government of Canada on the performance of mineral and metal commodities and industries, and the sustainable development of mineral resources.	
• Unnecessary restrictions on market access and investment are minimized or eliminated.	• Global commodity analyses in selected minerals and metals are produced. • Cooperative efforts with the United States through an MOU are pursued. • An MOU with the National Development and Reform Commission of the Government of China is signed to allow for discussions to minimize investment restrictions. • An industry-NRCan market access committee is established.
Business development (see also the Energy and the Environment priority for balance of planned spending on this sub-sub activity) **2005-06 $0.5M; 2006-07 $0.5M; 2007-08 $0.4M** In cooperation with other federal departments, Crown corporations, provincial governments, industry associations and companies, this sub-sub-activity guides initiatives for new business development. It arranges trade shows and trade and investment missions to help Canadian minerals and metals supply and service companies increase exports. The sub-sub-activity is also a source of analysis and advice on the economic and financial benefits of these trade shows and trade and investment missions to Canada, as well as the overall importance of minerals and metals supply and service companies to Canada's economy. The sub-sub-activity also promotes the recycling of end-of-life products, especially those containing minerals and metals.	
• Canadian suppliers of equipment and services to the mining industry gain access to new markets and increase existing markets.	• The value of sales and transactions in progress, partly as a result of participation in trade shows, is increased. The return on investment by the Government of Canada in trade shows is also increased. • A database of Canadian suppliers and a strategy are prepared.
• Policies and programs are developed to increase recycling of minerals and metals.	• A resource recovery and recycling strategy is developed.
Departmental Priority – Energy and the Environment : 2005-06 $16.2M; 2006-07 $13.9M; 2007-08 $13.9M	
Business development (see also the Trade and Investment priority for balance of planned spending on this sub-sub activity) **2005-06 $0.1M; 2006-07 $0.1M; 2007-08 $0.1M**	
Mining, processing and environmental research (see also Knowledge, Innovation and Productivity and Public Safety and Security priorities for balance of planned spending on this sub-sub-activity) **2005-06 $10.6M; 2006-07 $8.4M; 2007-08 $8.4M**	
Advanced materials technology development (see Knowledge, Innovation and Productivity priority for the balance of planned spending on this sub-sub-activity) **2005-06 $4.8M; 2006-07 $4.7M; 2007-08 $4.7M**	

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Environmental assessments and regulatory processes - 2005-06 $0.7M; 2006-07 $0.7M; 2007-08 $0.7M The environmental assessments and regulatory processes sub-sub-activity provides information and expertise for the development of domestic and international policies and regulations affecting minerals and metals; implements policies through its support of environmental and regulatory processes; and develops, administers and delivers programs and other minerals- and metals-related initiatives to meet the department's statutory obligations and government objectives. This sub-sub-activity is the unique and primary source of information and knowledge for the review and design of efficient and effective federal environmental legislation and regulations affecting minerals and metals. This includes having statutory responsibilities as a responsible authority for mining projects under the *Canadian Environmental Assessment Act* and related processes in the Northwest Territories, Yukon and Nunavut; providing policy advice in support of NRCan's role in the National Orphaned and Abandoned Mines Initiative; and leading the Minerals and Metals Program involvement in the five-year review of the *Canadian Environmental Protection Act* and regulatory reform activities under the Smart Regulations initiative.	
• NRCan's obligation under the *Canadian Environmental Assessment Act* is met. • Environmental policies and regulations take into account the concerns of minerals and metals stakeholders.	• Recommendations are accepted by mining companies to mitigate the negative environmental impacts of their mining projects. • The program activity is invited to participate in bilateral and interdepartmental discussions, e.g., the *Canadian Environmental Protection Act*. • The program activity ensures that the concerns of the mining industry are considered in the government's Smart Regulations agenda.
Departmental Priority – Northern and Aboriginals Communities : 2005-06 $0.7M; 2006-07 $0.7M; 2007-08 $0.7M	
Aboriginal affairs and sustainable communities - 2005-06 $0.7M; 2006-07 $0.7M; 2007-08 $0.7M This sub-sub-activity promotes Aboriginal participation in exploration and mining activities in Canada, the use of mining as an economic activity to contribute to the development of sustainable communities, and partnerships between Aboriginal communities, the mining industry and governments. The sub-sub-activity is responsible for the generation and dissemination of knowledge, information and tools for capacity building and sound decision-making in Aboriginal communities, and for working with Aboriginals to increase their understanding of mining and involvement in its component parts. The sub-sub-activity is also responsible for promoting sustainable development of mining activities through development of information and initiatives aimed at ensuring that economic development during exploration and mining, and after closure of mines, is geared to developing sustainable communities. The sub-sub-activity is also involved in promoting corporate social responsibility at the national and international levels, including working with other departments to promote international agreements such as the OECD Guidelines for Multinational Enterprises.	
• Knowledge and understanding of the minerals and metals industries and their potential contribution to the well-being of Aboriginal communities are expanded.	• Aboriginal involvement in mining and related activities continues to rise. • Information (e.g., toolkits) is delivered to Aboriginal communities. • Economic, social and environmental data on Aboriginal communities in terms of the minerals and metals industries are obtained. • An Aboriginal strategy with regard to the minerals and metals industries is developed for input to the government-wide Aboriginal initiative.

Expected Results/Planned Spending Related To Achieving Departmental Priorities	Performance Indicators
Departmental Priority – Public Safety and Security : 2005-06 $9.8M; 2006-07 $9.8M; 2007-08 $9.8M	
Mining, processing and environmental research (see also Knowledge, Innovation and Productivity, and Energy and the Environment priorities for balance of planned spending): **2005-06 $4.4M; 2006-07 $4.4M; 2007-08 $4.4M**	
Explosives regulations and permitting - 2005-06 $3.2M; 2006-07 3.2M; 2007-08 $3.2M This sub-sub-activity is responsible for administering Canada's *Explosives Act* and regulations. This is done through a national system of licenses and permits supported by a compliance inspection program. The importation, manufacture, storage, sale and some aspects of transportation by road of propellants, fireworks and other pyrotechnics in Canada are controlled under this program. The sub-sub-activity's principal thrust is public and worker safety throughout Canada. Other strategic thrusts include: delivery of easy-to-understand regulations in plain language; accessibility; consultation; security of explosives; and education.	
• The *Explosives Act* and associated regulations to protect the safety and security of the public are effectively administered.	• Inspections, training, information distribution and certifications are delivered to mitigate the risk associated with explosives and fireworks.
Explosives science and technology - 2005-06 $2.2M; 2006-07 $2.2M; 2007-08 $2.2M This sub-sub-activity comprises the Canadian Explosives Research Laboratory (CERL), Canada's national centre for the advancement of technology related to the manufacture, storage and transportation of explosives. It is the only Canadian facility of its kind for testing equipment for use in hazardous locations. CERL is accredited as a testing laboratory under ISO/IEC Guide 17025. CERL provides a variety of services to clients including: testing of explosives, fireworks, pyrotechnics and other energetic materials for classification and authorization under the *Explosives Act*; testing and certification of equipment for use in hazardous locations (explosive atmospheres); safety-related science and technology, such as the assessment of the hazards associated with energetic materials to improve process safety; and security-related science and technology such as new systems for blast mitigation, or improved methods for identifying and detecting explosives.	
• The safety and security of workers and the public from the threat of explosives are improved through the development of new and modified technologies.	• The safety and security activities are of high quality and valued by stakeholders, as measured by: • the impact of technical work on policy decisions; • client feedback through formal surveys; • the number of national and international standards contributed to through committees; and • revenue from contracts with other government departments and external clients.

Minerals and Metals – Other Programs and Services

Other Programs and Services ($M)	Planned Spending 2005-06	Planned Spending 2006-07	Planned Spending 2007-08
Minerals and metals statistics collection and dissemination	2.5	2.5	2.5
Special projects and strategic priorities	0.5	0.5	0.5
Program management and support	4.9	4.9	5.0
Sub-Total	**7.9**	**7.9**	**8.0**
Corporate management	13.6	13.1	12.8
Total	**21.5**	**21.0**	**20.8**

Section III - Supplementary Information

Management Representation

I submit, for tabling in Parliament, the 2005-06 Report on Plans and Priorities (RPP) for Natural Resources Canada.

This document has been prepared based on the reporting principles contained in the *Guide to the preparation of Part III of the Main Estimates: Report on Plans and Priorities*.

- It adheres to the specific reporting requirements.
- It uses an approved program activity architecture (PAA) structure.
- It provides a basis of accountability for the results achieved with the resources and authorities entrusted to it; and
- It reports finances based on approved planned spending numbers from the Treasury Board Secretariat.

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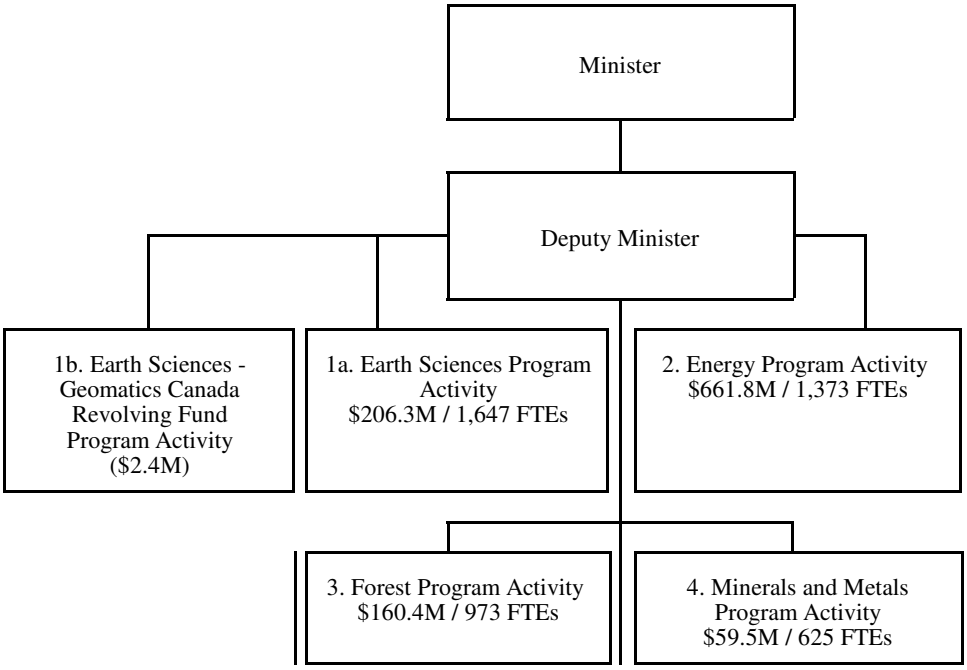
George Anderson
Deputy Minister

Organizational Information*



* Information shown is the 2005-06 Main Estimates – $1,085.6M / 4,618 FTEs

Program Activities - Accountabilities:

1a. Earth Sciences – Assistant Deputy Minister, Earth Sciences Sector
1b. Earth Sciences – Geomatics Canada Revolving Fund – Assistant Deputy Minister, Earth Sciences Sector

2. Energy – Assistant Deputy Minister and Associate Assistant Deputy Minister, Energy Policy Sector; Assistant Deputy Minister, Energy Technology & Programs Sector

3. Forest – Assistant Deputy Minister, Canadian Forest Service

4. Minerals and Metals – Assistant Deputy Minister, Minerals and Metals Sector

1. Planned Spending and Full Time Equivalents

($ millions)	Forecast Spending 2004-05	**Planned Spending 2005-06**	Planned Spending 2006-07	Planned Spending 2007-08
Budgetary				
Earth Sciences	228.0	**209.3**	202.2	196.5
Energy	642.8	**670.5**	615.6	733.5
Forest	178.0	**162.6**	145.5	133.7
Minerals and Metals	69.3	**68.4**	65.4	65.0
Earth Sciences - Geomatics Canada Revolving Fund	(2.4)	**(2.4)**	(2.4)	(2.4)
Budgetary Main Estimates (gross)	1,115.7	**1,108.4**	1,026.3	1,126.3
Less: Respendable Revenue	(22.8)	**(22.8)**	(22.6)	(22.6)
Total Main Estimates	1,092.9	**1,085.6**	1,003.7	1,103.7
Adjustments:				
2004-05 Supplementary Estimates (A)	43.4	**0.0**	0.0	0.0
2004-05 Supplementary Estimates (B)[1]	221.6	**0.0**	0.0	0.0
Expenditure Review/Procurement Savings[2]	0.0	**(27.4)**	(28.9)	(30.6)
Budget Announcements[3]	250.0	**75.0**	131.0	160.0
Total Adjustments	515.0	**47.6**	102.1	129.4
Total Planned Spending	1,607.9	**1,133.2**	1,105.8	1,233.1
Less: Non-respendable revenue	(184.0)	**(133.5)**	(296.5)	(469.5)
Plus: Cost of services received without charge	38.0	**36.7**	35.2	34.7
Net cost of Program	1,461.9	**1,036.4**	844.5	798.3
Full Time Equivalents (FTEs)	4,356	**4,618**	4,377	4,359

1. Additional funding to the Newfoundland Fiscal Equalization Offset Payment to offset increased energy royalties flowing to Newfoundland.
2. Includes productivity improvements in programs where activities are deemed lowest priority; corporate efficiencies through the creation of a single shared services organization that consolidates common services (IM/IT, Finance, Communication, Administrative Support, Human Resources); and lower than originally budgeted government liability under the terms of the Hibernia Interest Assistance Program.
3. 2004-05 includes $150M for Green Municipal Funds announced in Budget 2005 and $100M for Sustainable Development Technology Canada announced in Budget 2004. Budget 2005 indicated new or additional funding over the planning period for several initiatives including: GeoConnections; Targeted Geoscience Initiative, Energuide for Houses Retrofit Incentive Program, Quadruple Wind Power Production Incentive, Renewable Power Production Incentive, Sustainable Energy Science and Technology Strategy, Invasive Species, and Emergency Management Initiative. Details for these initiatives are still under review. In addition, the Government also announced its support for other programs such as Northern Oil and Gas Development: $150M over four years, the Partnership Fund: $250M over five years; and the Clean Fund: $1B over five years. Details are still under review.

2. Planned Spending by Program Activity for 2005-06

($ millions)	Program Activity					Total
	Earth Sciences	Energy	Forest	Minerals and Metals	Earth Sciences - Geomatics Canada Revolving Fund	
Operating	198.0	285.7	118.7	66.3	15.4	684.1
Capital	2.5	2.6	1.5	1.1	0.0	7.7
Transfer Payments	8.8	382.3	42.3	1.0	0.0	434.4
Gross	209.3	670.6	162.5	68.4	15.4	1,126.2
Less Respendable Revenue	(3.0)	(8.8)	(2.1)	(8.9)	(17.8)	(40.6)
Total Main Estimates	206.3	661.8	160.4	59.5	(2.4)	1,085.6
Adjustments	15.8	31.1	0.8	(0.1)	0.0	47.6
Total Planned Spending	**222.1**	**692.9**	**161.2**	**59.4**	**(2.4)**	**1,133.2**

3. Voted and Statutory Items Listed in Main Estimates

($ millions)

Vote or Statutory items		Current Main Estimates 2005-06	Previous Main Estimates 2004-05
1	Operating expenditures	**587.1**	578.8
5	Capital expenditures	**7.7**	12.7
10	Grants and contributions	**298.0**	289.8
(S)	Minister of Natural Resources - Salary and Motor Car Allowance	**0.1**	0.1
(S)	Contributions to Employee Benefit Plans	**58.6**	58.4
(S)	Canada-Nova Scotia Development Fund	**0.5**	1.6
(S)	Canada-Newfoundland Development Fund	**0.0**	1.4
(S)	Canada-Newfoundland Offshore Petroleum Board	**3.9**	3.6
(S)	Canada-Nova Scotia Offshore Petroleum Board	**2.7**	2.5
(S)	Payments to the Nova Scotia Offshore Revenue Account	**60.0**	30.0
(S)	Payments to the Newfoundland Offshore Petroleum Resource Revenue Fund	**69.4**	116.4
(S)	Earth Sciences -Geomatics Canada Revolving Fund	**(2.4)**	(2.4)
	Total NRCan	**1,085.6**	1,092.9

4. Net Cost of Program for 2005-06

($ millions)	**Total NRCan**
Total Planned Spending (Total Main Estimates plus Adjustments)	1,133.2
Plus: Services Received without Charge	
• Accommodation provided by Public Works and Government Services Canada (PWGSC)	11.7
• Contributions covering employers' share of employees' insurance premiums and expenditures paid by TBS (excluding revolving funds)	23.5
• Worker's compensation coverage provided by Social Development Canada	0.3
• Salary and associated expenditures of legal services provided by Justice Canada	1.2
Total Services Received without Charge	**36.7**
Less: Non-respendable Revenue	133.5
Net Cost of Program	**1,036.4**

5. Summary of Major Capital Spending by Program Activity

($ millions)

Program Activity	Forecast Spending 2004-05	**Planned Spending 2005-06**	Planned Spending 2006-07	Planned Spending 2007-08
Earth Sciences	4.6	**2.5**	0.7	0.8
Energy	3.9	**2.6**	0.8	0.7
Forest	2.3	**1.5**	0.9	0.9
Minerals and Metals	1.9	**1.1**	0.3	0.3
Earth Sciences - Geomatics Canada Revolving Fund	0.0	**0.0**	0.0	0.0
Total Main Estimates	12.7	**7.7**	2.7	2.7
Adjustments: (planned spending not in Main Estimates)	0.0	**0.0**	0.0	0.0
Total Planned Spending	12.7	**7.7**	2.7	2.7

6. Loans, Investments, and Advances (Non-budgetary)

($ millions)

	Forecast Balance April 1st, 2005	Receipts and other credits	Payments and other charges	Forecast balance March 31st, 2006
Atomic Energy of Canada Ltd.				
- Heavy Water Inventory	3.5	(1.0)	0.0	2.5
Hibernia Development project	36.8	(9.2)	0.0	27.6
Nordion International Inc.	82.0	(4.0)	0.0	78.0
Total	**122.3**	(14.2)	0.0	108.1

7. Source of Respendable and Non-Respendable Revenues (Excludes the Earth Sciences-Geomatics Canada Revolving Fund)

($ millions)	Forecast Revenue 2004-05	**Planned Revenue 2005-06**	Planned Revenue 2006-07	Planned Revenue 2007-08
Respendable Revenue				
Earth Sciences	2.8	**3.0**	3.0	3.0
Energy	8.7	**8.8**	8.8	8.8
Forest	2.5	**2.1**	1.9	1.9
Minerals and Metals	8.7	**8.9**	8.9	8.9
Total Respendable Revenue	22.8	**22.8**	22.6	22.6
Non-Respendable Revenue[1]				
Earth Sciences	1.4	**0.3**	0.3	0.3
Energy	182.1	**133.0**	296.0	469.0
Forest	0.3	**0.0**	0.0	0.0
Minerals and Metals	0.2	**0.2**	0.2	0.2
Total Non-Respendable Revenue	184.0	**133.5**	296.5	469.5
Total Respendable and Non-Respendable Revenues	206.8	**156.3**	319.1	492.1

1. Non-respendable revenues in the current year reflect most recent receipts and updated forecasts.

8. Geomatics Canada Revolving Fund

($ millions)	Forecast Revenue 2004-05	**Planned Revenue 2005-06**	Planned Revenue 2006-07	Planned Revenue 2007-08
Respendable Revenues:				
Products	12.1	**12.3**	12.3	12.3
Service	3.0	**3.1**	3.1	3.1
Consulting	2.3	**2.3**	2.3	2.3
Total respendable revenues	17.4	**17.7**	17.7	17.7
Operating Expenses:				
Cost of sales	2.9	**2.4**	2.4	2.4
Salaries and employee benefits	5.5	**5.9**	5.9	5.9
Depreciation	0.1	**0.1**	0.1	0.1
Repairs and Maintenance	0.6	**0.5**	0.5	0.5
Administrative and support services	2.3	**1.9**	1.9	1.9
Utilities, materials, and supplies	0.4	**0.3**	0.3	0.3
Rental	0.3	**0.2**	0.2	0.2
Interest	0.0	**0.0**	0.0	0.0
Transportation and communication	1.0	**0.8**	0.8	0.8
Professional and special service	4.1	**3.2**	3.2	3.2
Total operating expenses	17.2	**15.3**	15.3	15.3
Operating Surplus (Deficit)	0.2	**2.4**	2.4	2.4
Non cash item: Depreciation	0.1	**0.1**	0.1	0.1
Change in working capital	(0.3)	**(0.3)**	(0.3)	(0.3)
Other items	0.2	**0.2**	0.2	0.2
Investing activities: Capital acquisitions	0.0	**0.0**	0.0	0.0
Surplus (Deficit)	0.2	**2.4**	2.4	2.4

9. User Fees

Name of User Fee	Fee Type	Fee Setting Authority	Reason for Fee Introduction or Amendment	Effective date of planned change to take effect	Planned Consultation & Review Process
Explosives Licence, Permit and Certificate Fees	Regulatory	*Explosives Act*	Distribute burden of cost recovery more fairly	Autumn 2005	All affected stakeholders through web and meetings
Earth Sciences products and services including: maps, air photos, digital data, and remote sensing products	Other	*Resources and Technical Surveys Act*	Cost increases	Fiscal 2005-06	TBD as required by *User Fees Act*

10. Summary of Transfer Payments

($ millions)	Forecast Spending 2004-05	**Planned Spending 2005-06**	Planned Spending 2006-07	Planned Spending 2007-08
Grants:				
Earth Sciences	0.2	**0.3**	0.2	0.2
Energy	18.2	**13.6**	10.4	0.5
Forest	0.1	**0.8**	0.8	0.8
Minerals and Metals	0.1	**0.1**	0.1	0.1
Total Voted Grants	**18.6**	**14.8**	**11.5**	**1.6**
Contributions:				
Earth Sciences	11.1	**8.5**	2.0	0.5
Energy	208.5	**232.2**	114.8	73.2
Forest	50.7	**41.5**	32.3	24.1
Minerals and Metals	0.9	**1.0**	0.3	0.1
Total Voted Contributions	**271.2**	**283.2**	**149.4**	**97.9**
Total Vote 10 Grants and Contributions	**289.8**	**298.0**	**160.9**	**99.5**
Statutory Contributions	155.5	**136.5**	299.2	472.7
Total Grants and Contributions	**445.3**	**434.5**	**460.1**	**572.2**
Plus: Adjustments to Planned Spending				
Supplementary Estimates (A) - Contributions	1.4	**0.0**	0.0	0.0
Supplementary Estimates (B) - Statutory Contributions[1]	221.6	**0.0**	0.0	0.0
Budget Announcements[2]	250.0	**0.0**	0.0	0.0
Total Planned Grants and Contributions	918.3	**434.5**	**460.1**	**572.2**

1. Additional funding to the Newfoundland Offshore Revenue Fiscal Equalization Offset: increased production and oil prices have increased the volume of royalties under this program.

2. Includes $150M for Green Municipal Funds announced in Budget 2005 and $100M for Sustainable Development Technology Canada announced in Budget 2004.

Budget 2005 indicated new or additional funding over the planning period for several initiatives including: GeoConnections; Targeted Geoscience Initiative, Energuide for Houses Retrofit Incentive Program, Quadruple Wind Power Production Incentive, Renewable Power Production Incentive, Sustainable Energy Science and Technology Strategy, Invasive Species, and Emergency Management Initiative. Details for these initiatives are still under review.

In addition, the Government also announced its support for other programs such as Northern Oil and Gas Development: $150M over four years, the Partnership Fund: $250M over five years; and the Clean Fund: $1B over five years. Details are still under review.

11. Listing of Transfer Payment Programs Exceeding $5 million/year

Over the next three years, NRCan will manage the following transfer payment programs in excess of $5 million. Further information on these transfer payment programs can be found at http://www.tbs-sct.gc.ca/est-pre/estime.asp.

2005-06

1. In support of organizations associated with impact and adaptation research related to climate change
2. Model Forest Program
3. Forest 2020
4. Assistance to the Canadian softwood lumber sector
5. Measures to mitigate the impact of the mountain pine beetle
6. In support of the energy efficiency and alternative energy programs
7. Hibernia Interest Assistance
8. Payments to the Nova Scotia Offshore Revenue Account
9. Payments to the Newfoundland Offshore Petroleum Resource Revenue Fund
10. Contributions in support of carbon dioxide capture and storage projects
11. In support of electricity distributors to promote the sale of electricity from emerging renewable energy sources
12. Wind Power Production Incentive Contribution Program
13. Contributions in support of the Technology and Innovation Initiative
14. Contributions in support of the Ethanol Expansion Program
15. In support of the EnerGuide for Houses Retrofit Initiative

2006-07

1. Model Forest Program
2. Assistance to the Canadian softwood lumber sector
3. Measures to mitigate the impact of the mountain pine beetle
4. In support of the energy efficiency and alternative energy programs
5. Hibernia Interest Assistance
6. Payments to the Nova Scotia Offshore Revenue Account
7. Payments to the Newfoundland Offshore Petroleum Resource Revenue Fund
8. In support of electricity distributors to promote the sale of electricity from emerging renewable energy sources
9. Wind Power Production Incentive Contribution Program
10. Contributions in support of the Technology and Innovation Initiative
11. In support of the EnerGuide for Houses Retrofit Initiative

2007-08

1. Model Forest Program
2. Measures to mitigate the impact of the mountain pine beetle
3. In support of the energy efficiency and alternative energy programs
4. Hibernia Interest Assistance
5. Payments to the Nova Scotia Offshore Revenue Account
6. Payments to the Newfoundland Offshore Petroleum Resource Revenue Fund
7. Wind Power Production Incentive Contribution Program
8. Contributions in support of the Technology and Innovation Initiative

12. Foundations (Conditional Grants)

In the upcoming year, NRCan will contribute to the Sustainable Development Technology Canada (SDTC) foundation and the Green Municipal Funds. Further information on these conditional grants can be found at http://www.tbs-sct.gc.ca/est-pre/estime.asp.

13. Horizontal Initiative - Climate Change

Addressing climate change is the most 'horizontal' issue facing NRCan. More than ten different departments are actively involved in one or several aspects of this issue. Similarly, within the department, all sectors have climate change related activities. Key aspects of this important issue are:

- climate science: understanding how human activities are affecting the earth's climate;
- international relations: finding international solutions to this global problem;
- mitigation: realizing greenhouse gas emissions reductions and removals;
- public education and outreach: encouraging individual Canadians to take action on climate change;
- technology and innovation: advancing climate change mitigation technologies to achieve longer term solutions; and,
- adaptation: helping Canadians adapt to a changing climate.

A wide range of activities takes place within each of these key areas. The federal focus so far has been with respect to domestic mitigation efforts. NRCan plays a leading role in this regard, implementing a wide range of programs and initiatives to achieve emissions reductions from all sectors of Canadian society such as the built environment, transportation, industrial activities and electricity generation. Accountability for individual climate change programs resides with individual departments. Information on these programs, including strategic objectives and results achieved, is made available in program documentation (e.g. publications, web sites).

To allow a more strategic management of the climate change issue, there is a need to aggregate program-level information into higher level communications. This has taken place in the past through discrete initiatives such as the preparation of the *2001 Canada's Third National Report on Climate Change*. Given increased federal investments in climate change announced in Budget 2003, an inter-departmental process has been set up to formalize the consolidation of program-level information. An 'horizontal' results-based management accountability framework is being developed for the climate change issue at a broad level. In addition helping the assessment of current climate change efforts at a broad level, this horizontal framework will also facilitate a better communication of federal climate change efforts. Further information on this horizontal initiative can be found at http://www.tbs-sct.gc.ca/est-pre/estime.asp.

Section IV - Other Items of Interest

1. Corporate Management

The Corporate Management activity is focussed on ensuring leadership and good management practices, compliance with government policy, reporting to Parliament, as well as transactional services to the other four program activity areas. Within this activity, the corporate services sub-activity provides support in the following functional areas: financial management; information management; human resources management; workplace well-being; environmental affairs; security, safety and emergency management; contracting and procurement; information technology; and real property. Other services are provided to the department through the following sub-activities: policy and portfolio coordination; audit, risk management and evaluation; S&T coordination (which includes NRCan On Line), communications and legal services. The resources for this activity are distributed across the Earth Sciences, Energy, Forest and Minerals & Metals program activities.

Space at 555 Booth Street is being better utilized to permit eventual decommissioning of older buildings such as 550 and 552 Booth Street.

NRCan's key management activities respond to various federal drivers such as the Public Service Employee Survey 2002; Modern Comptrollership; Service Improvement Initiative; Government on Line; *Human Resources Modernization Act*; and the Management Accountability Framework (MAF). The MAF is the tool that will enable NRCan to make the necessary changes to facilitate better program delivery in order to meet departmental priorities.

Key Management Programs/Services

Shared services within NRCan bring together people, processes and structure to create an organization that supports departmental goals, including those related to savings. Service delivery functions will be more effective and efficient through the implementation of process improvements, elimination of duplication, and improved human resource management. NRCan is also a leader in supporting the Government of Canada's advancement towards government wide corporate shared services as a means to make more efficient use of non-program resources. Through this internal initiative, the department expects to achieve the following targeted savings to support departmental goals: $1 million in 2005-06, $5 million in 2006-07, and $10 million in 2007-08.

With respect to **human resources planning**, NRCan is committed to attracting and retaining a highly skilled, knowledgeable and diverse workforce capable of delivering on the department's mandate (policy, programs and S&T); a workforce that continually strives to realize its full

potential and provide maximum value for Canadians. Over the planning period, the department will: identify positions at risk and skill gaps; continue to provide training, learning and development opportunities; and increase the use of existing student programs and other internal recruitment programs such as the Policy Analyst Recruitment and Development Program.

The **real property strategy for the National Capital Region** has specific emphasis on addressing the most deficient assets located at the Booth Street complex. The implementation plan involves a partnership with Public Works and Government Services Canada (PWGSC) and Canada Lands Company to support the redevelopment and renewal of essential government accommodations which may include a strategic disposal of real property deemed surplus to federal government requirements. Over the planning period, the department will finalize the Booth Street Redevelopment Strategy with PWGSC; complete functional planning and obtain project approval and associated funding for the redevelopment; and implement the redevelopment plan with PWGSC.

S&T coordination includes providing corporate leadership in developing, monitoring and implementing strategies, approaches, processes and initiatives to articulate, foster and advance a comprehensive future vision and strategic direction for S&T for the department. It also includes communicating the complexity and scope of NRCan's S&T to internal and external audiences and providing expert science policy advice and corporate leadership in identifying and addressing issues, policies, opportunities and initiatives required for refocusing the department's S&T function. Over the planning period, the department will improve capacity for departmental level decision-making affecting NRCan's S&T portfolio (i.e., S&T information system operational by 2006), and enhance governance structures that support greater integration and horizontal coordination within the department.

2. Other Items of Interest Within Program Activities

Earth Sciences - Aligned with, and Responsive to, Government Priorities

The Earth Sciences program activity recognizes the importance of ensuring that its programs and activities respond to, and are aligned with, the government's strategic policy priorities. Earth Sciences monitors current government issues and priorities, constantly analysing emerging issues for changes in long-term government direction and policies and positioning itself to provide information to support sound decision-making.

To maximize its impacts, the Earth Sciences program activity implemented an S&T strategy in 2003-04. The strategy has led to a range of programs that are issues-driven and results-based. These programs normally have a finite funding life-cycle, and are reviewed annually as to whether they are to be augmented, refocused, reduced or terminated, according to their effectiveness in achieving their stated outcomes.

The Earth Sciences program activity has reallocated a significant portion of its resources to better meet the government's priority policy issues. It has reduced or phased-out existing lower priority

programs and activities such as the minerals- and energy-related geological mapping program in southern Canada, and paper based map production. Funds for these activities were reallocated to new programs such as Sustainable Development through Knowledge Integration, and Gas Hydrates; and to existing programs and activities. The Earth Sciences program activity is also developing a program through extensive consultation with a variety of stakeholders to place greater focus on energy issues, to be in place by April 1, 2005.

Earth Sciences – Connecting Canadians

The Earth Sciences program activity also ensures that it remains aligned with, and responsive to, government priorities by pursuing new initiatives in partnership with other federal departments and agencies. Some of these initiatives include:

- new funding received, in partnership with the Department of Fisheries and Oceans, to support an international commitment to submit a claim under the United Nations Convention on the Law of the Sea (UNCLOS);
- in collaboration with the Department of Indian Affairs and Northern Development, work with other departments (Environment Canada, Fisheries and Oceans Canada, Transport Canada, National Energy Board, and Canadian Environmental Assessment Agency) to ensure a single federal response to pipeline development in the North;
- new funding received, in partnership with Foreign Affairs Canada, for the next 10 years beginning in April 2005, to support the Canadian section of the International Boundary Commission;
- new funding received for GeoConnections, a federal-provincial-territorial government, industry, and academic partnership initiative to develop a Canadian Geospatial Data Infrastructure and make Canadian geographic information interoperable and accessible on the Internet; and
- new funding received to launch the Cooperative Geological Mapping Strategies, a ten-year, federal-provincial-territorial initiative to renew Canada's geoscience knowledge base and catalyse mineral and energy exploration in the North.

Priorities in Energy S&T

Investments in energy-related science and technology (S&T) have a particularly important role to play in bringing about the transformational changes needed to address Canada's energy challenges such as energy security and reliability, affordability, and environmental sustainability. Technological progress can lower the cost of producing energy and thus contribute to prosperity in both energy-producing and energy-consuming industries. It can make our energy supply more secure, more reliable and more environmentally-friendly. It can open up promising new transformative technologies, laying the foundation for future commercial development that will

position Canadian businesses to be world leaders in the industries of the future. This requires action by the department across the innovation spectrum, from basic research, applied R&D and demonstration to advance new technologies towards prompt commercialization by industry.

Over the planning period NRCan will develop an energy S&T strategy, in full consultation with external stakeholders, using assessment and evaluation criteria, in order to identify and prioritise the S&T that will be needed to address those challenges. Meeting them will require international cooperation.

NRCan will also continue, over the planning period, to promote international cooperation by working with the International Energy Agency (IEA), and the U.S. government on energy S&T activities. For example, work with the IEA will include a review by member countries of their energy S&T activities, a new implementing agreement to integrate industrial S&T programs, and coordination of bioenergy S&T activities. NRCan will also continue to chair the IEA's Committee for Energy Research and Technology and to participate in its working parties.

Work with the U.S. government will focus on:

- establishing a new formal mechanism for agreements that meets the needs of both countries;
- helping organize and implement effective, efficient, and focussed joint R&D projects, and support activities that advance hydrogen and fuel cell technology progress through the International Partnership for the Hydrogen Economy;
- developing carbon capture and storage technologies to accomplish long-term stabilization of GHG levels in the atmosphere through the Carbon Sequestration Leadership Forum; and
- finalizing a formal agreement that includes the Mexican government to define trilateral energy S&T activities.

NRCan also works closely with the U.S. to address cross-border energy issues. An example was the Canada-U.S. Power System Outage Task Force, which issued its report in 2004 on the causes and recommendations related to the August 2003 blackout that affected 50 million people in Ontario and the U.S. northeast. The governments of Canada and the U.S. extended the task force for one year to oversee and report on the implementation of the recommendations by the power industry, reliability organizations, and governments.

In the nuclear area, departmental staff participate actively in representing Canadian interests in nuclear policy committee discussions at the International Atomic Energy Agency and the OECD Nuclear Energy Agency. Canada is also a key participant in the Generation IV International Forum to collaborate on the R&D necessary to develop future nuclear energy systems for deployment in 2020-30.

Canada's Boreal Forest

The boreal forest constitutes approximately 75 percent of Canada's forest cover. Wood and paper products produced from the boreal represents a major proportion of a $70 billion/year forest industry and generates some 800,000 forest-sector related jobs.

A number of major non-profit organizations have been forming coalitions to build market pressures against timber and paper products originating only from Canada's boreal forest and are actively promoting increased protection from industrial development. There is a risk that messaging from conservation advocates may detract from the sustainable forestry approaches that forest managers have worked hard to achieve in the management of Canada's boreal forest over past decades. As well, the economic, social and environmental debate over Canada's boreal forests does not reside exclusively with the forest sector. It also extends to the mining and energy sectors where, for example, 64 percent of the petroleum produced in Canada comes from the boreal region.

As national and international stewards of sustainable forest management, and the federal agency responsible for providing balanced national forest policy and science information and knowledge, NRCan's forest program activity will focus on bridging these diverse economic, social and environmental positions by building consensus around these issues and by providing balanced information through coordinated national forest policy and scientific research efforts in collaboration with primary stakeholders and partners. It will also emphasize that the boreal forest is a circumpolar ecosystem, and that any concerns and resolution strategies regarding boreal forest sustainability takes into account the global boreal forest in other northern countries such as Russia, Sweden, Finland, Norway, the United States and Japan.

In addition to establishing a common national boreal forest vision, this program activity will lead the recently established national Boreal Research Partnership Steering Group – consisting of major environmental and conservation organizations, First Nations peoples, and the forest industry – in five key areas of cooperative action: forest inventories; adaptive management; science-based indicators of sustainability; knowledge and information systems; and Aboriginal issues. The forest program activity will also develop and implement a governance structure for guiding the engagement and coordination of the various areas of action; develop action plans for programs and activities for use in the boreal; develop departmental positions on the boreal and related issues; and implement a national strategic communications strategy. Moreover, the forest program activity will review and realign, as necessary, current federal S&T and policy development initiatives with Canada's boreal forest initiative.

Minerals and Metals - International Priorities

Exploration and mining companies represent Canada's most important linkage with many developing countries. For example, at the end of 2003, the stock of direct investment overseas by Canadian metal companies was nearly $50 billion, the largest cumulative direct investment abroad of all Canadian goods producing industries. Investment abroad by Canada's exploration and mining companies has created extensive trade and investment opportunities for the country as a whole. For example, investment by Canadian mining companies in Chile formed the basis of the Canada-Chile Free Trade Agreement. Canada's exploration and mining companies provide additional opportunities to other sectors of the Canadian economy. Many small and medium-sized enterprises gain their first international experience by following their Canadian mining clients abroad. A number of Canadian suppliers of equipment and services to the mining industry have parlayed this relationship into substantial foreign sales.

In 2003, Barrick Gold Corporation, Canada's largest gold mining company, and World Vision Canada launched a long-term joint initiative to support sustainable development in Peru, with a focus on the needs of children. The initiative ensures that members of the local community, such as these school children shown in the vicinity of Barrick's Lagunas Norte development project in Peru, share in the benefits of mining. The minerals and metals program is promoting such initiatives around the globe.

The minerals and metals program brings unique strengths to international initiatives. The extensive experience and expertise of the program's staff in areas such as governance, finance, resource policy, the organization and management of data, and science and technology are making, and will continue to make, significant contributions to many developing and emerging countries. The program is recognized as a global leader in the sustainable extraction and processing of mineral resources.

As with the government as a whole, the minerals and metals program is well aware of Canada's global responsibilities and wishes to maintain Canada's place of pride and influence in the world. To this end, the program is developing an international thrust with the aim of positioning Canada as an important international centre within the global mining and metals sector, and positioning its mining sector as a clear contributor to Canada's domestic and foreign policy objectives.

International leadership includes implementing the *Export and Import of Rough Diamonds Act*, designed to prevent illicit rough diamonds from entering Canada as part of the international Kimberley Process Certification Scheme, and establishing the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, which will promote good governance internationally and counter unjustified barriers to trade and investment. Canada has been nominated to host the forum's secretariat. Another key activity is the expansion of bilateral and regional cooperation relating to the minerals and metals sector (http://www.nrcan.gc.ca/mms/topi-suje/ia_e.htm).