

# II. The Canadian Nuclear Safety Commission

## Overview

### Mission and Vision

It is the CNSC's mission to regulate the use of nuclear energy and materials to protect health, safety, security, and the environment and to respect Canada's international commitments on the peaceful use of nuclear energy. In pursuing its mission, the CNSC<sup>1</sup> is working toward its vision of becoming one of the best nuclear regulators in the world. To realize its vision, the CNSC is committed to:

- the effectiveness of its regulatory regime;
- operating with a high level of transparency;
- attracting and retaining excellent staff; and
- efficiency of its regulatory regime.

To assess the achievement of this vision, the CNSC participates in domestic and international regulatory fora, benchmarks its activities against other domestic and international regulators by sharing and adopting best practices in a global context and meets the principles of Smart Regulation.

### Regulatory Policy and Program Delivery

The CNSC's Regulatory Fundamentals Policy (P-299), which was adopted in January 2005 by the Commission, is consistent with the principles of good governance and the Government of Canada's Smart Regulation initiative. It states that persons and organizations subject to the *Nuclear Safety and Control Act* (NSCA) and regulations are directly

responsible for managing regulated activities in a manner that protects health, safety, security, and the environment, while respecting Canada's international obligations.

The CNSC regulates the use of nuclear energy and nuclear materials in Canada. Its regulations apply to the following areas:

- Nuclear power reactors
- Non-power reactors
- Nuclear substances and radiation devices used in areas such as health care and research
- Nuclear fuel cycle from uranium mining through to waste management
- Imports and exports of controlled nuclear materials, dual-use materials, equipment and technology

The CNSC is a departmental corporation under Schedule II of the *Financial Administration Act* and a separate employer under the authority of the *Public Service Staff Relations Act*. The CNSC is an independent federal regulatory agency and a quasi-judicial administrative tribunal. To serve Canadians, the ultimate outcome of the CNSC is safe and secure nuclear installations and processes solely for peaceful purposes; and public confidence in the nuclear regulatory regime's effectiveness. Consistent with the Government of Canada's Smart Regulation principles, the CNSC engages in extensive consultation and communication to ensure that information is clearly understood and accepted by stakeholders, including licensees.

<sup>1</sup>Note: The Canadian Nuclear Safety Commission is referred to as the "CNSC" when referring to the organization and its staff in general, and as the "Commission" when referring to the tribunal component.

The CNSC reports to Parliament through the Minister of Natural Resources, but it remains an independent entity. This independence is critical in order to ensure that the CNSC is able to maintain an arm's length relationship with government when making legally-binding regulatory decisions. The CNSC is not an advocate of nuclear science or technology. Rather, its mandate and responsibility is to regulate users of nuclear energy or materials to ensure their operations will not pose unreasonable risks to Canadians. Canadians are the sole clients of the CNSC.

The CNSC's operations are funded through an annual appropriation from Parliament. The CNSC's workload and therefore its resource requirements are largely driven by the level of demand for licensing and oversight and by the nature of Canada's international commitments. Most costs incurred for the CNSC's regulatory activities are recovered by the federal government from licensees under the Canadian Nuclear Safety Commission *Cost Recovery Fees Regulations* (2003). Some licensees, such as hospitals and universities, are exempt from paying fees, which accounts for approximately 10 percent of total CNSC operational costs. Fees are not chargeable for activities that result from CNSC obligations that do not provide a direct benefit to identifiable licensees. This includes activities with respect to Canada's international obligations, including the non-proliferation of nuclear weapons, public responsibilities such as emergency preparedness and public information programs, and maintenance of the NSCA and associated regulations. This work amounts to approximately 20 percent of the CNSC's program costs.

The CNSC expects to recover approximately 70 percent of its total cost of operations from fee-paying licensees. Fees are collected by the CNSC and deposited to the Consolidated Revenue Fund. Fees are not a source of revenue for the CNSC or for its use without Parliamentary authority. External charging information for the CNSC's Cost Recovery Program is available on page 52.

The CNSC also administers the *Nuclear Liability Act* (NLA). It designates nuclear installations and sets the nuclear insurance requirements to be carried by the operators of such nuclear installations. The CNSC receives premiums paid by the operators for supplementary insurance coverage and credits these premiums to the Nuclear Liability Reinsurance Account in the Consolidated Revenue Fund. The NLA is currently undergoing review, which could change the role of the CNSC.

### The CNSC and Results for Canadians

The CNSC is a key contributor to the Government of Canada's outcomes, which are the long-term and enduring benefits to Canadians that federal departments and agencies are working to achieve. The CNSC contributes directly to assuring the health of Canadians, the protection of the environment and the protection of Canadian society from potentially harmful effects of nuclear materials, substances and processes.

The CNSC also plays a significant role in bringing Canada's expertise and perspective to the world on the safety and security of nuclear materials and technology, in matters such as possession, use, transport and international transfer of high-risk radioactive sources, radiation protection, international safety approaches for research reactors and global safeguards concepts and approaches used by the International Atomic Energy Agency (IAEA). As a well-established, independent, world-class regulator covering the full nuclear cycle, the CNSC's expertise is sought regularly by countries throughout the world. The CNSC is the Canadian lead on many international Conventions, and serves as the focal point to prepare, deliver and monitor Canadian compliance with these undertakings.

## CNSC Challenges and Risks

In 2004-2005, the CNSC's operating context became increasingly complex. The Canadian nuclear industry has experienced significant growth in all segments of the nuclear cycle and in virtually all areas where nuclear substances are used for industrial, medical or other purposes. There is unprecedented demand across most nuclear sectors for regulatory decisions and oversight. At the same time, threats and challenges to the international nuclear non-proliferation regime are substantial. Some of the challenges the CNSC faced in 2004-2005 are outlined as follows:

### 1. Power Reactors

Many of Canada's existing nuclear reactors are approaching the end of their designed operating lives, which has an impact on Canada's electricity supply. The most pressing decision facing the nuclear power industry is the refurbishment of many of Canada's fleet of 22 nuclear reactors. Operators have been considering the feasibility of refurbishment and the construction of new reactors.

The CNSC will need to provide clear, consistent input to licensees on regulatory requirements for each of the options under consideration. At this time, CNSC staff are fully occupied with the licensing and compliance work associated with existing facilities and were unable to allocate resources to prepare for the impending increase in regulatory workload.

### 2. Waste Management

Domestic and international pressure is being placed on Canadian industry and governments to handle nuclear waste more effectively and expeditiously. Waste management issues of significance in Canada include the storage of radioactive waste from power reactors, and the clean-up of legacy wastes from uranium mining and processing. Canadian industry and various levels of government are all moving forward with a number of initiatives to address nuclear waste management issues.

### 3. Uranium Mines, Refineries and Processing Facilities

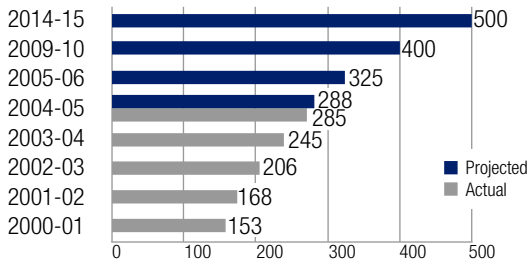
The world demand for uranium has increased substantially over the last five years, and prices have risen as a result. Responding to this demand, licensees have been accelerating production from existing mines and expanding exploration programs. This increased activity resulted in greater demand for regulatory oversight by the CNSC. The increase in mining activity has significant economic impact for licensees, and provincial and federal governments. CNSC staff faced this licensing challenge with limited resources and provided risk-informed regulatory oversight throughout the construction licensing process.

At the same time, some mining facilities are reaching the end of their useful lives and the CNSC has been encouraging progressive remediation with ongoing regulatory oversight throughout the winding-down of the mining operation, rather than at the end. The first modern-day mine decommissioning was started in Cluff Lake, Saskatchewan.

### 4. Nuclear Medicine

The demand for nuclear medicine has increased substantially in recent years, and this demand is expected to grow, due in part to the recent federal-provincial health accord. The graph on the next page indicates that licence applications for Class II nuclear facilities (principally, cancer treatment facilities) have grown from 153 in 2000 to 285 in 2004, which represents an 86% increase over four years. The number of these facilities is expected to increase to approximately 325 in 2005 and 500 units by 2015.

Number of Class II Facilities  
Projected and Actual, 2000 – 2015



## 5. Safeguards

With the discovery of undeclared nuclear activities in Iraq in the 1990s and the growing concern about North Korea's nuclear programme, the IAEA and its Member States, including Canada, decided to strengthen the verification system by means of additional measures which significantly extend the IAEA's rights and obligations beyond the scope of the existing Nuclear Non-Proliferation Treaty (NPT) agreement (the combination of the traditional measures and the new measures is commonly referred to as "strengthened safeguards"). Canada accepted the requirement for additional measures and the IAEA has been implementing strengthened safeguards in Canada since September 2000. As a consequence, the CNSC is obligated to provide the IAEA with considerably more information about Canada's nuclear and nuclear-related activities, and enhanced access to sites and locations where nuclear material is customarily used and to sites and locations where nuclear material is not present.

The objective is to allow the IAEA to provide a more comprehensive annual conclusion to the world community that not only are declared nuclear materials and facilities in Canada used exclusively for peaceful purposes, but that there are also no undeclared nuclear materials and activities in Canada. In addition, in another effort to strengthen the verification regime, the IAEA recently decided to extend the scope of safeguards coverage under the 1972 Agreement to include uranium conversion and refining facilities. Canada possesses the world's largest commercial facilities of this type. Considerable CNSC resources are being utilized in the new effort to design, develop and

implement an appropriate safeguards approach at these facilities on a priority basis. Despite the CNSC's best efforts to find resources to respond to this new work by pursuing efficiency measures, lack of resources is hampering efforts to meet our international commitments to the IAEA with respect to safeguards implementation in Canada.

## 6. Security

Physical security and emergency preparedness are important components of the overall safety of nuclear facilities, and have received increased public attention since the events of September 11, 2001. The CNSC provides oversight of the physical protection and emergency preparedness programs of the licensed facilities.

In addition, issues related to border security and import/export controls over the movement of nuclear material have increased the CNSC's regulatory work and level of responsibility in these areas, especially in the North American context.

## 7. Governance and Accountability

There has been an unprecedented demand from central agencies and Parliament for increased accountability. In 2004, the CNSC undertook a self-assessment against the elements of the Treasury Board's Management Accountability Framework, a framework of management expectations for modern public service management. This assessment indicated that, consistent with the CNSC's 2002 Modern Comptrollership Capacity Assessment, governance, accountability and stewardship are strong at the CNSC. The CNSC has demonstrated that it is well-governed in performance reviews by a number of oversight agencies in areas from financial and auditing obligations, to official languages, to human resources, to privacy matters and access to information. The Auditor General, in a statement made in February 2005, said that "the CNSC has made significant progress in acting on the recommendations [the OAG] made in 2000 on the licensing and regulation of nuclear power reactors." She also added that "the CNSC stands out as an example of an organization that took [the OAG's] recommendations very seriously..."

## 2004-2005 Performance Summary

The CNSC uses an established strategic framework for planning, monitoring and reporting (see page 38). Plans for future years are articulated in our annual Report on Plans and Priorities (RPP). The plans for this reporting year were outlined in the 2004-2005 RPP.

The CNSC has the following five immediate outcomes:

1. A clear and pragmatic regulatory framework
2. Individuals and organizations that operate safely and conform to safeguards and non-proliferation requirements
3. High levels of compliance with the regulatory framework
4. CNSC cooperates and integrates its activities in national/international nuclear fora
5. Stakeholders' understanding of the regulatory program

Underlying the CNSC's strategic framework is its management and enabling infrastructure. This infrastructure consists of management, human resources, finance, information services, processes and infrastructure programs that enable the CNSC to perform the activities required and meet the requirements of good governance with a high level of accountability.

For 2004-2005, the CNSC planned its expenditures for each immediate outcome. The 2004-2005 plan incorporated the CNSC's logic model for the first time. The following table shows a comparison of actual expenditures incurred against planned spending.

Outcome	2004-2005 plan (000's)	2004-2005 actual (000's)	2004-2005 plan FTEs	2004-2005 actual FTEs
1. A clear and pragmatic regulatory framework	\$ 6,986	\$ 6,130	44.61	38.1
2. Individuals and organizations that operate safely and conform to safeguards and non-proliferation requirements	16,366	13,318	133.34	99.4
3. High levels of compliance with the regulatory framework	28,462	34,004	230.76	252.1
4. CNSC cooperates and integrates its activities in national/international nuclear fora	14,635	15,360	91.29	96.2
5. Stakeholders' understanding of the regulatory program	4,146	4,368	30.2	31.0
<b>TOTALS</b>	<b>\$70,595</b>	<b>\$73,180</b>	<b>530.2</b>	<b>516.8</b>

The table below indicates the status of planned activities as set out in the CNSC's RPP 2004-2005. More details concerning these activities can be found on the relevant page of this report, where indicated, or by contacting the CNSC.

**Status (as of March 31, 2005)**

- Completed
- Partially completed
- I Initiated
- D Delayed
- > Ongoing core activity

“T” indicates that the information on the relevant plan is available in the Annual Report of the Commission Tribunal, on the reverse side of this document.

<b>1. Immediate Outcome: A clear and pragmatic regulatory framework</b>			
<b>2004-2005 RPP committed Priorities:</b>	<b>2004-2005 RPP committed Plans:</b>	<b>Status</b>	<b>Page</b>
Modern <i>Nuclear Safety and Control Act</i> (NSCA), with powers to protect health and safety, security, the environment and to respect Canada's international commitments on the peaceful use of nuclear energy	Review on an ongoing, systematic and consultative basis, the NSCA, regulations under the Act and regulatory practices codified in regulatory documents	>	17
Efficient regulatory system into which licensees and other stakeholders have appropriate input	Review <i>Rules of Procedure</i> for the Commission tribunal	•	T
An evergreen risk-informed approach to regulatory strategies, regulations and licensing requirements in line with Smart Regulation	Input into the Smart Regulation initiative of the Government of Canada	••	17
	Develop specific <i>Safeguards Regulations</i> based on the requirements of the Safeguards Agreement and Additional Protocol	I	--
	Revise the following existing regulations: <i>Nuclear Security Regulations</i> <i>Class II Nuclear Facilities and Prescribed Equipment Regulations</i> <i>Nuclear Substances and Radiation Devices Regulations</i> <i>Nuclear Non-Proliferation Import and Export Control Regulations</i>	•	18
		•	18
		•	18
Comprehensive, integrated and consistent set of regulatory documents (Policies, Standards and Guides) to clarify regulatory requirements and expectations	Develop regulatory policies, standards and guides in accordance with priorities identified in CNSC-approved Regulatory Documents Framework; start with a regulatory policy to promote consistency and clarity regarding the way in which the CNSC achieves its regulatory objectives	>	18
	Influence and adopt international standards where applicable to the Canadian context	>	29

<b>2. Immediate Outcome: Individuals and organizations that operate safely and conform to safeguards and non-proliferation requirements</b>			
<b>2004-2005 RPP committed Priorities:</b>	<b>2004-2005 RPP committed Plans:</b>	<b>Status</b>	<b>Page</b>
Optimization of the licensing principles, framework and methodology for all licensing and certification activities	Use a consistent risk-informed methodology for licensing priorities and resource allocation across all licensing areas	•	20
	Optimize licence periods for verification of performance and compliance	I	21
	Formulate an approach for licensing of new or refurbished nuclear power plants and possible waste management solutions	•	20
	Formulate an approach for decisions on end-of-life of facilities	I	--

	Integrate the licensing for nuclear facilities where a number of licences are now required for different processes at a single facility	I	21
Clarification of licensing and certification processes	Clarify licensing expectations and application requirements through clear communication with licensees and improved documentation of processes	I	20
Assurance that nuclear activities and facilities in Canada are conducted with adequate provision for protection of health, safety, security and the environment and the fulfillment of commitments to the peaceful use of nuclear energy	Continue to conduct the CNSC's comprehensive and diligent system of licensing and certification	>	21
	Continue the special focus on security within updated government and international requirements	>	24
Utilization of information technology to strategic advantage in licensing and certification consistent with the Government-on-Line initiative	Enhance and integrate a system for capturing licensee information including developing and implementing a secure electronic business-based licensing system	I	--
	Implement a new, integrated system to account for nuclear materials subject to IAEA safeguards and bilateral agreements	••	25
Improvement of the effectiveness of the role of the Commission Tribunal in licensing	Undertake an evaluation and implement improvements to the tribunal process	>	T

### 3. Immediate Outcome: High levels of compliance with the regulatory framework

2004-2005 RPP committed Priorities:	2004-2005 RPP committed Plans:	Status	Page
A fully integrated system for planning, conducting, reporting and measuring the effectiveness of compliance activities for all licensees	Develop integrated strategies emphasizing licensee safety culture and safety management	I	26
	Promote inter-licensee dialogue on compliance	>	--
	Develop integrated inspection plans	>	26
	Complete integration of the management of compliance activities into the results-based corporate planning and accountability processes and implement relevant performance measures	I	34
	Build an on-line system for CNSC staff to access current compliance information, inspection results and trends	I	--
Risk-informed compliance strategies to guide all compliance activities	Implement a dynamic risk ranking process for all licensees that informs the selection of compliance strategies	I	24
Provision of regulatory assurance to Canadians of the continuing compliance and safety performance of licensees	Continue to conduct a strong compliance program	>	26
	Continue to improve communication of compliance results to stakeholders	>	24

### 4. Immediate Outcome: CNSC cooperates and integrates its activities in national/international nuclear fora

2004-2005 RPP committed Priorities:	2004-2005 RPP committed Plans:	Status	Page
Effective cooperation with international, federal and provincial organizations, departments and agencies	Develop a framework for establishing and reviewing cooperative arrangements with federal and provincial organizations, departments and agencies, and foreign nuclear regulators on an evergreen basis	•	26
Effective, efficient and cooperative CNSC Emergency Preparedness framework and infrastructure	Maintain and continuously improve the CNSC's emergency response capacity and influence on other federal, provincial and municipal participants	•	29
Effective and targeted participation in international organizations, conferences and workshops Strong cooperative working relationships with strategic nuclear regulatory partners	Implement a framework, including tracking and reporting mechanisms, for determining and evaluating the CNSC's participation in international activities on nuclear-related matters	••	26

Effectively and efficiently implement Canada's international commitments on the peaceful use of nuclear energy	Apply the requirements of multilateral conventions and arrangements on the physical protection of nuclear material, nuclear power reactor safety, spent fuel and radioactive waste management safety, and the safe transportation of radioactive material	>	28
	Strengthen the multilateral guidelines and export control lists on nuclear supply to counter contemporary nuclear proliferation threats, in collaboration with other nuclear suppliers	>	28
	Exercise controls with bilateral partners on the peaceful use of nuclear goods and technology exported or imported under Canada's nuclear cooperation agreements	>	28
	Cooperate with the IAEA on domestic safeguards challenges by improving the efficiency of international verification of nuclear material in Canada and addressing Canada's safeguards equipment requirements	>	28
Contribute to improving the effectiveness and efficiency of the IAEA safeguards regime	Provide technical support and other resources necessary to strengthen IAEA safeguards	>	29
Optimization of safeguards implementation in Canada, taking account of all information and measures made available to the IAEA	Cooperate with the IAEA in the development and introduction of an integrated safeguards approach for Canada	>	29

#### 5. Immediate Outcome: Stakeholders' understanding of the regulatory program

2004-2005 RPP committed Priorities:	2004-2005 RPP committed Plans:	Status	Page
Increased knowledge of key stakeholder issues and concerns	Undertake stakeholder surveys to form a baseline of information on knowledge of the CNSC and level of satisfaction with the CNSC's performance as regulator	●●	31
Assurance that Canadians have knowledge of and confidence in the CNSC as regulator	Implement a well-structured and sustainable Outreach Program	>	31
Improvement in communication, consultation and sustained, predictable relationships with key stakeholders directly affected by the CNSC's regulatory regime	Review the CNSC Web site and revise the information to improve its interactivity, user-friendliness, etc. on an evergreen basis	>	31
Awareness among stakeholders of the process to become an active intervenor in the licensing process (e.g., participation in Commission Hearings)	Implement better processes for diffusion of Commission proceedings including such tools as Web-casting and increased access to documentation	>	T

#### Management and Enabling Infrastructure

2004-2005 RPP committed Priorities:	2004-2005 RPP committed Plans:	Status	Page
Results-based planning and management processes	Implement an integrated planning process that links strategies to results and to budgets – integrate into the performance contracts for all management	●	32
	Implement a systematic Performance Management and Reporting Process including key corporate measures of performance	●	34
	Integrate a corporate risk framework into the strategic planning process	I	--
	Improve the timeliness and relevance of management information	>	--
Corporate processes to enhance effectiveness, efficiency and consistency in the CNSC's management	Clarify roles, responsibilities and accountabilities within key business processes	>	32
	Implement an integrated information management improvement plan including developing required information technology tools	I	--



	Maximize efficiency and consistency of CNSC accommodation policies and utilization	••	--
	Benchmark the corporate services against those of similar public sector organizations	••	32
	Develop a business continuity planning program to ensure minimal or non-interruption to the availability of critical services and assets	I	32
Attraction and retention of excellent staff	Implement the workforce sustainability strategy	• >	32
	Implement health and safety improvement initiatives for staff (i.e., physical environment, health evaluations, protective equipment, training, etc.)	••	--
	Establish an employment equity plan	••	--
	Implement a modernized Values and Ethics program	••	32
Leadership	Strengthen leadership and management capacities	>	32