Canada

1. Location and Capability of Nuclear Facilities

Canada relies on a variety of energy sources to meet its energy needs. Hydroelectric power and nuclear energy are the largest sources of electric energy representing 59% and 12% of the nation's supply, respectively. Federal energy policy encourages a market-driven approach and energy programs focus on developing conventional energy, preservation of the environment, and nuclear energy. Nuclear energy development is encouraged and subsidized by the Canadian government. Since 1969, Canada has been an exporter of most energy forms, with 91% of its exports going to the US. Canada is also the world's leading producer and exported of uranium, representing about 31% of total world production. http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm

Power Reactors
Operational - 17
Shut Down - 8
http://www.iaea.org/programmes/a2/index.html

Nuclear Power Reactors and Uranium Requirements: 1692 tons (2004)
http://www.world-nuclear.org/info/reactors.htm

Research Reactors
Operational - 8: MNR McMaster Univ; NRU; Slowpoke Alberta; Slowpoke Saskatchewan; Slowpoke 2 Halifax; Slowpoke 2 Montreal; Slowpoke 2RMC; ZED-2
Shut Down - 5: NRX; PTR; Slowpoke 2 Kanta; Slowpoke 2 Ottawa; WR-1
Decommissioned - 3: SDR-Slowpoke Demo; Slowpoke 2 Toronto; ZEEP
Under Construction - 2: MAPLE 1; MAPLE 2
Planned - 1: CNF
http://www.iaea.or.at/worldatom/rrdb/

Uranium Enrichment Plants
Cameco-owned and controlled uranium hexafluoride conversion facilities are located in Port Hope, Ontario and have the capacity to produce 10,500 metric tons of uranium (MTU)/year.

Zircatec Precision Industries-owned and controlled heavy water reactor fuel fabrication facilities are located in Port Hope, Ontario and have the capacity to produce 1,500 MTU/year.

General Electric Canada-owned and controlled heavy water reactor fuel fabrication facilities are located in Peterborough, Ontario and have the capacity to produce 1,200 MTU/year.
http://www.antenna.nl/wise/uranium/efac.html

Uranium Mines
Active and Proposed

Andrew Lake · Asiak River · Baker Lake · Black Lake · Black Lake /2 · Boomerang Lake · Boulder Train · Brown · Cigar Lake · Cluff Lake · Crawford · Crawford Lake · Collins Bay · Compass Lake · Coppermine River · Cyprian Lake · Dawn Lake · Dieter Lake · Dominique-Janine · Eagle Point · Henday Lake · Hidden Bay · Hocking Lake · Hump Lake · Jasper · Kernaghan Lake · Key Lake · Kiggavik · La Rocque Lake · Lazy Edward Bay · Marean · Mazenod Lake · McArthur River · McClean Lake · Michelin · Midwest · Moore Lake · Morin Lake · Newnham Lake · PEC · Perch River · Perpete · Post Hill · Rabbit Lake · RAE · Riou Lake · Riou Lake /2 · Rocky Brook · Russell Lake · Serendipity Lakes · Shea Creek · Virgin River · Yalowega Lake
http://www.antenna.nl/wise/uranium/uocdn.html

Decommissioned
Port Radium, Rayrock, Beaverlodge, Gunnar, Lorado, Nisto, Rabbit Lake, Cluff Lake, Key Lake, McClean Lake, Pronto (Rio Algom), Quirke, Denison, Panel (Rio Algom), Can-Met, Stanrock, Stanleigh, Buckles, Milliken, Lacnor, Nordic, Agnew Lake, Bancroft

Total production - 321,626 tons Uranium (as of end 1998)
http://www.antenna.nl/wise/uranium/uddcdn.html

Uranium Mine Production
Canada is the world's largest producer of uranium, producing about one-third of the world's total.

Canada's uranium production is expected to increase by 2006, as it transitions into new high-grade mines from second generation uranium mines (1975-83).

2. Fissile Material Holdings

Cumulative Plutonium Discharges From Civilian Power Reactors: 1.7 tons
http://www.isis-online.org/publications/puwatch/puwatch2000.html

Waste Disposal
Producers and owners of radioactive waste bear the responsibility for its long-term management and disposal; responsibility includes ensuring and developing institutional (plans, programs, organizational structures) and financial arrangements.

NWMO, Natural Resources Canada (NRCan) and Canadian Nuclear Safety Commission (CNSC) are some of the agencies responsible for developing policies on management of nuclear waste and the enforcement of management plans.

Ontario Power Generation, Hydro-Quebec and New Brunswick Power, Atomic Energy of Canada are the major entities responsible for nuclear waste management, as they are the main producers.
http://www2.nrcan.gc.ca/es/erb/erb/english

IRUS LILW repository site was commissioned in 1999 with storage capacity of 2000 cubic meters.
http://www.world-nuclear.org/waste/report99/annex2.htm

3. Nuclear Activities and Cooperation

Nuclear Research Centers
AECL - Atomic Energy of Canada Ltd
Canadian Water Network
Centre for Nuclear Energy Research
CLS - Canadian Light Source
CNF - Canadian Neutron Facility
CTN - Canadian Technology Network
GSC Airborne Geophysics Section
IREQ - Hydro Quebec Research Inst Kinetics
NRC - National Research Council
NSERC - Natural Sciences & Engineering Research Council
OHT - Ontario Hydro Technologies
SNO - Sudbury Neutrino Observatory
TRIUMF
http://www.radwaste.org/research.htm

Nuclear Cooperation
USA: Sixty-five percent of Canada's uranium exports go to the US.

India: Canada assisted India with the construction of two reactors based on the CANDU design. Canada seized cooperation with India in 1974, when India began testing nuclear devices.

Pakistan: Canada supplied a CANDU-type reactor to Pakistan in 1964 and currently provides limited safety assistance through the CANDU Owners Group. Canada terminated all other nuclear cooperation with Pakistan in the early 1970s when Pakistan did not agree to meet Canada's non-proliferation policy requirements.

China: Two CANDU reactors are currently under construction at Qinshan, China under a $4 billion contract between Atomic Energy of Canada Limited, Crown Corporation and China National Nuclear Corporation (CNNC)

South Korea, Argentina and Romania: All purchased CANDU reactors from Canada.

Bilateral Nuclear Cooperation Agreements: Canada has nuclear cooperation agreements with the following countries: Argentina, Australia, Brazil, China, Colombia, Czech Republic, Egypt, Euratom, Hungary, Indonesia, Japan, Republic of Korea, Lithuania, Mexico, Philippines, Romania, Russia, Slovenia, Slovakia, Switzerland, Taiwan, Turkey, Ukraine, Uruguay, United States
http://www-pub.iaea.org/MTCD/publications/PDF/cnpp2002/index.htm

4. International Nonproliferation Efforts

Treaties Signed and Ratified, Date of Deposit
APM Treaty, 3 December 1997
Comprehensive Nuclear Test-Ban Treaty, 18 December 1998
Nuclear Non-Proliferation Treaty, 8 January 1969
Outer Space Treaty, 10 October 1967
Partial Test Ban Treaty, 28 January 1964
Sea Bed Treaty, 18 May 1972

Multilateral Groups
Conference on Disarmament
Missile Technology Control Regime
Nuclear Suppliers Group
Zangger Committee (1974), and Wassenaar Arrangement (1996)

5. Positions Taken in International Fora on Various Issues of Nuclear Disarmament

Nuclear Testing: "We are committed as well to a comprehensive nuclear test ban, essential to both non-proliferation and disarmament. Though several key states have yet to sign or ratify the CTBT, encouraging progress has been achieved. Ninety-four states are on board and an impressive international monitoring system has been established to deter and detect explosive nuclear tests. We urge all states to ensure its continued funding and to support the Provisional Technical Secretariat's vital work - and, of course, we urge all states to sign and ratify the Treaty itself. Meanwhile, it is crucial that the moratorium on tests be sustained." - **Statement by Ambassador for Disarmament Christopher Westdal, to the First Committee of the 57th Session of the General Assembly of the United Nations, 30 September 2002.**

Disarmament: "Canada remains convinced that the elimination of nuclear weapons can be achieved, sooner rather than later, by universal adherence to and compliance with the Nuclear Non-Proliferation Treaty. The Final Document of the 2000 NPT Review Conference established the 13 practical steps for the systematic and progressive efforts to achieve complete disarmament. These 13 steps provide the world with a road map to achieve what successive generations have sought since 1945: a world without nuclear weapons." - **Statement by Second Secretary John Gosal at the 2003 Substantive Session of the UN Disarmament Commission, 1 April 2003.**

Safeguards: "There has been some direct experience with non-compliance in the NPT context, which has been only partially addressed. A key step is to reinforce the IAEA's safeguards system, through universal adherence and full respect of obligations. Canada calls upon the 51 NPT States Parties that have not yet done so to sign comprehensive safeguards agreements, and calls on all States that have not yet done so to bring into force an Additional Protocol, as Canada has done in September 2000." - **Notes for Remarks**

by Ambassador for Disarmament Christopher Westdal, at the Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 9 April, 2002.
http://www.un.int/canada/english.html

"It is clearly essential to ensure that nuclear material, equipment and technology are kept out of the hands of terrorists. In this context, our collective work to strengthen the Convention on the Physical Protection of Nuclear Material is urgent. We can contribute as well by strengthening the IAEA and ensuring that it has the resources it needs to achieve our non-proliferation objectives. We can strongly endorse its Plan of Action on protection against nuclear terrorism, we can fully implement the strengthened safeguards system, we can review our export controls and national legislation." -
Notes for Remarks by Ambassador for Disarmament Christopher Westdal, at the Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 9 April, 2002.
http://www.un.int/canada/english.html

Security Assurances: "From our vantage, Mr. Chairman, Negative Security Assurances, a key basis of the 1995 extension decision, remain essential. We hope and expect that this Preparatory Committee will witness their strong reaffirmation." - **Notes for Remarks by Ambassador for Disarmament Christopher Westdal, at the Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 9 April, 2002.**

"The political value of nuclear weapons must be devalued, particularly as their purpose is primarily political. The negative security assurances provided by nuclear-weapon states to non-nuclear weapon states party to the NPT are a vital element in international security and must be preserved and respected." - **Statement by Minister of Foreign Affairs Bill Graham to the Conference on Disarmament, 19 March 2002.**

NWFZ: "In addition to ensuring the efficacy of the existing instruments and measures, we will continue to explore possibilities for preventive diplomacy in the NACD realm, to preclude the introduction of arms and adversarial attitudes into new environments. Outer space is one such realm, in which humanity has an increasing stake in maintaining a non-threatening, non-weaponized environment." **- Statement by Ambassador for Disarmament Paul Meyer to the First Committee of the 58th Session of the General Assembly of the United Nations, 8 October 2003.**
http://www.un.int/canada/english.html

Peaceful (sic) Uses: "The NPT offers concrete benefits to all States Parties. It enables the peaceful uses of nuclear science energy for a wide variety of important purposes, ranging from energy generation to medical care. Canada values these applications[…]Canada is pleased to share its knowledge and expertise with many States Parties, including developing countries. It is therefore important for all States Parties to ensure that the conditions exist to allow these peaceful uses of nuclear energy to be sustained, without concerns that they will in any way contribute to proliferation." - **Notes for Remarks by Ambassador for Disarmament Christopher Westdal, at the Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, 9 April, 2002.**