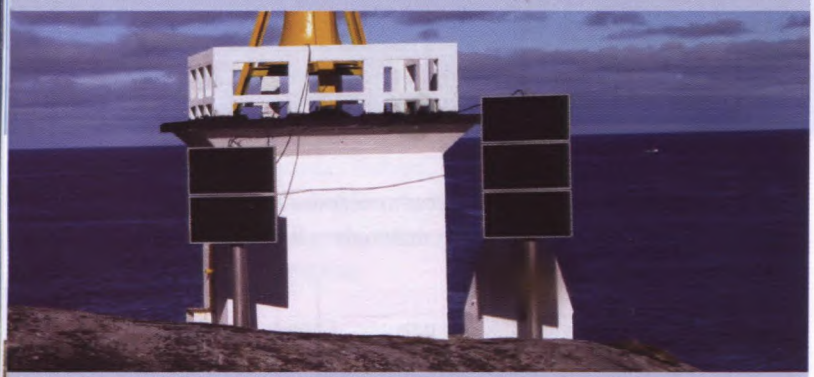
Perimeter security fences help ensure that terrorists do not gain access to dangerous nuclear materials. Photo Credit: Canadian Nuclear Safety Commission



Solar cell panels provide a sustainable alternative power source for lighthouses formerly powered by highly radioactive material. Photo Credit: County Governor of Finnmark (Norway)

Sustainability of the upgrades is a key concern, and sustainability measures are embedded in every Canadian project. Through the IAEA, Canada is also funding the development of a nuclear security-training centre at Obninsk in Russia. The Canadian-Russia Group remains an effective mechanism to facilitate cooperation between the Russian Federal Agency for Atomic Energy (Rosatom) and DFAIT. DFAIT continues to receive valuable technical support from Raytheon Canada Limited.

Radiological security – Securing highly radioactive sources: Russia has an estimated 600 radioisotope thermoelectric generators (RTGs), which are used to power navigational devices such as lighthouses in remote areas. These RTGs contain highly radioactive material, which could be used in a dirty bomb. Many are inadequately protected and vulnerable to theft. Russia is working with other Global Partnership members to address this pressing threat and to secure these sources as quickly as possible.

This year, Canada completed two key projects aimed at removing bottlenecks hindering the recovery, securing, replacement and decommissioning of RTGs. The RTG Strategic Master Plan was successfully completed, and will serve as a central guiding document for Russia and its international partners to help secure RTGs. It will help to ensure efficient coordination of efforts and allocation of funding. Canada also funded the manufacturing of RTG infrastructure, including 17 transportation and 16 security-shielding containers, which are needed to ensure the safe and secure transportation of RTGs. Canada also signed a $2 million agreement with the U.S. Department of Energy (DOE) Global Threat Reduction Initiative (GTRI) to remove, secure, replace and decommission Russian RTGs.

DESIGNING A PHYSICAL PROTECTION SYSTEM

DETECTION	DELAY	INTERVENTION
• Sensors • Alarm communication and assessment • Entry control	• Barriers	*Interruption* • Communication to Response Force • Deployment of Response Force *Neutralization*

A well-designed physical protection system will prevent adversaries from accomplishing their goal of theft of nuclear and other radiological materials.

A physical protection system has three key functions:

1. To detect intruders using a sophisticated combination of infrared and movement sensors, alarms, and vehicle and pedestrian entry control;
2. To delay the intruders' progress towards the target material by erecting perimeter fences, vehicle bollards, and other obstacles; and
3. To strategically position the response force to give them sufficient time to interrupt and neutralize the intruders.

Canada applies IAEA standards and guidelines when upgrading physical protection systems at Russian nuclear facilities.