

*Nuclear Power*

research and development and other overhead costs over a large number of units. They offer an opportunity to earn foreign exchange and make profits for our domestic firms. They also provide important experience in the management of international mega projects based on Canadian technology. Finally, of course, the demonstration effect from our Candu reactor sales can enhance Canada's broader ability to sell other high technology exports.

I am very pleased to have had the opportunity in recent months to participate in our sales efforts in both Yugoslavia and Mexico, two countries which are among those actively considering Candu reactors in their future energy programs. Korea is a satisfied customer already and is actively discussing with Atomic Energy of Canada the possibility of additional unit purchases. Romania has recently purchased a Candu reactor which is now under construction. During my recent visit to Romania, I found every indication that the Romanian government will pursue its intention to acquire a total of four Candu reactors in the time ahead.

The hon. member in raising the subject of nuclear energy today, and in proposing a moratorium on the further development of the industry, has referred in passing to concerns which he evidently has about certain aspects of safety and health regarding the generation of nuclear energy. He referred in particular to a question of uranium mining and the disposal of low level radioactive waste. In that regard and, indeed, with regard to other aspects of safety and health concerns, Canada's record is exemplary. I want to take a moment to touch on some aspects of those questions which are of some technical complexity but which are of great importance to the government of Canada and to provincial governments.

With reference to the disposal of low level radioactive waste, the bulk of the hundred million tonnes of uranium tailings disposed of today are safely isolated so that the environmental guidelines imposed by provincial governments and the Atomic Energy Control Board are met. The pollution abatement equipment installed in all operating mines prevents these systems from presenting any significant risk. The long-term problem is to replace the present control systems with passive systems or to dispose of the tailings safely.

In that connection, I am pleased to report that the Canada Centre for Mineral and Energy Technology has formed a group called the national technical planning group on uranium tailings research. The group includes representatives of the mining companies the federal and provincial government regulatory agencies, research groups, universities and consultants. This group is now in the final review stage of its report which will review present activities and sources of funding, propose a research program schedule, and propose a program management structure. The report is expected to provide the information necessary for the federal government to embark upon an expanded research and development program.

The hon. member opposite also referred in his statement to the question of reactor safety. I want to point out that the Candu reactor has an excellent safety record. It has less

over-all impact on the environment than fossil-fuelled stations and hydro dams.

In that regard, I want to say a few words about nuclear reactors and safety. How safe is the Candu reactor is a question that is sometimes asked. The record of the Candu reactor has been, over all, one of outstanding achievement. In the 30 years since Canada's first major nuclear research reactor began operation, no member of the public has suffered any injury from a nuclear reactor accident, not one person has lost working time through radiation injury in our nuclear stations, a record which cannot be matched by those of other energy industries. This is not to say, of course, there are no risks associated with nuclear power. As with all other industrial processes, risks do exist but major efforts have been made to quantify and to ensure that appreciably lower risks than society accepts from other energy sources exist in the nuclear industry.

The greatest risk associated with nuclear plants is the uncontrolled release of radioactivity. The radiation from the normal operation of nuclear power plants is only a very small fraction of the natural and man made radiation to which we are continuously exposed from various sources, such as cosmic rays, medical and dental X-rays, jet flights, colour television, and fallout from atmospheric weapons testing. To prevent the release of radioactivity beyond acceptable levels is a major goal of reactor designers and operators. A series of barriers has been designed into the Candu reactor to prevent unplanned releases. These barriers range from the sheaths surrounding the fuel pellets to the massive airtight containment building around the reactor, which is surrounded in turn by an enclosure zone extending for one kilometre around the reactor. These barriers are in turn backed up by separate safety systems whose sole purpose is to handle accidents, such as shutdown systems and the emergency core cooling system.

Since the first nuclear reactors were designed, scientists and engineers have studied a wide range of hypothetical accidents so as to give increasing protection to the public. Indeed, the excellent safety record of Candu is both the result and testimony of the care with which these stations have been designed, licensed, constructed and operated. In all these areas, safety requirements are a dominant factor and the protection of the public from radiation hazards is a major consideration.

Another question which is sometimes asked, to which the hon. member referred today, is how we dispose of spent fuel. As members of the House may now be aware, Canada already has a well established research and development program regarding the technologies needed for the safe and permanent disposal of our nuclear fuel wastes. As has frequently been explained, underground disposal in stable geological formations will effectively isolate the fuel wastes. The initial stages of the program have been designed to test, through laboratory and field research, the viability of this concept.