Mr. Guay (St. Boniface): Somebody is going to learn something tonight.

Mr. Stanfield: I hope so.

● (2010)

Mr. Maine: If you want to make plutonium 239 for a bomb, you use an NRX type of reactor, which the Indians already have in the CIRUS reactor and which already makes 80 pounds of plutonium per year. I think the hon. member for Halifax (Mr. Stanfield) mislead the House when he used plutonium in a generic sense and said we were contributing to the over-all massive increase in the production of plutonium, as if all plutonium were the same and as if there is no difference in the types which are generated and the uses to which they can be put.

CANDU is not an efficient or useful way to make effective weapons. An air-cooled graphite-moderated reactor should be used, which is much simpler and easier to run than the power reactor, or another approach could be used such as the approach of the Chinese. They used a centrifuge to concentrate uranium 235 for their weapons programs to produce bombs. This would be smaller, much easier to conceal, and is one tenth of the cost, approximately $50 million as opposed to $500 million.

I agree that it is not impossible to produce bombs with CANDU plutonium, but it is not practical. The value of electricity to the Indian economy is much higher than that of producing bombs, and we should weigh our foreign aid as to the possible abuse of it in weapons versus the aid we should be giving to the poor, starving nations of the world. We are not giving them new technology, just the capability to produce nuclear electric power, and even without the safeguards we would not be helping them one iota with any ideas they may have about a weapons program. Indeed, we had an international obligation when we signed the non proliferation treaty not only not to pursue a weapons program ourselves, but to help undeveloped and underdeveloped nations with peaceful developments of nuclear energy.

Why is there this interest and concern about energy? In this world today there are three major problems; over population, lack of food, and shortage of energy, and they are interrelated. We face an energy problem in this country as all countries around the world do. As the poorer and less developed nations of the world ask for a new international economic order, they are also asking for a higher standard of living which is derived from the utilization of energy. Where can we get that energy today? In the short term there are only two possible solutions where technology is already available, and they are using coal to generate electricity, and nuclear fission to generate electricity. The technology is here. It is a matter of economics and transportation. Those are the key problems to be resolved.

Our product mix of energy of the past is changing, and will change in the future. We have come from an era where wood and coal were primary sources. We are presently in an era where petroleum, both oil and natural gas, are significant contributors to our sources of energy, and in the short term future, coal and nuclear fission are great hopes because of increasing demands for energy.

[Mr. Maine.]

By the middle of 1980's there will be contributions from the Alberta tar sands followed by contributions from Arctic and Atlantic offshore areas of oil and natural gas, and by the year 2000 we should be getting our energy from solar and possibly nuclear fusion. There will be no significant contributions before that time from new technologies such as the wind, geothermal, tidal and other such novel techniques which are presently being investigated. For this reason research is being done in the nuclear fission area, but several things are needed.

What is the future program and the ongoing program for deriving electricity from fission after the present CANDU system with its pressurized heavy water reaction? The next generation will see plutonium used as a fuel in a boiling light water reactor. After that, as it becomes more expensive, we will see plutonium used to transform thorium into uranium 233, which is fissionable. It is more expensive to do, and we will not be doing this until our present supplies of uranium and more expensive uranium in the lower concentrations in ore are exhausted, but there is more thorium around than uranium, and this certainly will see us off into the future.

When those two technologies have been developed and utilized, we see the possibilities of nuclear fusion. India has the CIRUS research reactor it got from Canada. It got its heavy water from the United States and its reprocessing plant from France, which is needed to separate the plutonium and which will be used for the fuel cycle, which uses plutonium, as well as for the generation after that which will use the plutonium thorium cycle which makes uranium 233. Unfortunately some of the plutonium was sidetracked from their research reactor for a detonation. This is regrettable and should be safeguarded against, and as the hon. member for Northumberland-Durham (Mr. Lawrence) mentioned this afternoon, these safeguards should ensure against that in the future.

In addition, with India signing these new safeguards, which have been and are being signed by such countries as South Korea and Argentina, it is certainly not acceptable internationally to have one standard for South Korea and Argentina and another standard for countries such as India. They should all be following the same rules and getting the same help.

I should like to make a few comments in reply to some of the remarks made by hon. members of the opposition.

[*Editor's Note: A power failure extinguished the lights in the Chamber for 15 seconds.*]

Some hon. Members: What happened to the lights?

An hon. Member: You are ruined, Frank.

Some hon. Members: Oh, oh!

Mr. Maine: Hon. members should really appreciate how important energy is to us today. We just cannot get along without it.

Some hon. Members: Hear, hear!

Mr. Maine: If we do not do something about it, we will not have it in the future. We will have blackouts and