

ENERGY—NUCLEAR REACTORS AND HEAVY WATER PLANTS—DATE OF EXPANSION IN WESTERN CANADA—POSSIBLE INCREASE IN RESEARCH AND DEVELOPMENT FUNDS

Mr. Jake Epp (Provencher): Mr. Speaker, at the outset I should like to thank the minister for his presence tonight to speak on the topic of heavy water. In respect of the energy crisis, which we have all come to know possibly more as the delivery crisis, one matter which gives me satisfaction and which has come to the attention of many Canadians is the potential of Canadian use of nuclear reactors as an energy force.

Many people, possibly unknowingly, have had a feeling that nuclear energy brought with it many dangers. In many respects such a view is unfounded. One thing which seems to have developed from this energy crisis is that it is necessary to have adequate research and development in the area of nuclear power in order that Canada can take leadership in the world in respect of nuclear development. In this regard we have the capability and are well on our way toward this goal. I think that is one of the positive things resulting from the energy crisis.

The question of heavy water has been with us for some time. The Minister of National Defence (Mr. Richardson) has been quoted as saying that he would even find it difficult to live in the cabinet if the next such plant did not come to western Canada. Last Friday, the Minister of Energy, Mines and Resources (Mr. Macdonald) made a statement to the effect that the sale of a CANDU reactor had been made to Korea and that an option had been taken out by that government for a second one. This followed on the heels of continuing discussions in respect of a sale to Argentina.

In order to make the CANDU reactor it is necessary to have heavy water. In Canada we use a system involving heavy water and natural uranium, whereas in the United States conventional water and uranium is used. On the international scene, countries are directing their attention in respect of self-sufficiency with regard to supply to the CANDU reactor. I am thankful for this situation. On Wednesday, November 21, we find the following in an article which appeared in the *Ottawa Journal*:

Federal nuclear experts have predicted Canada will need three of four more heavy water plants during the next 15 years if Canada's fledgling nuclear industry is to continue expanding domestically, let alone on the international market.

The question of a fourth heavy water plant, specifically in western Canada, is one of very great interest to western Canadians as well as to Canadians generally. In Manitoba, specifically eastern Manitoba, unfortunately many people are unaware of the tremendous expertise that is available there and the research that has taken place concerning the CANDU reactor and the research that has taken place in respect of the development of the hardware for the CANDU reactor. In western Canada, specifically eastern Manitoba, the deuterium content in our water, particularly in the Winnipeg River and that area, runs at approximately 140 to 145 parts per million. This is very adequate in light of the amount of deuterium we would use. The content generally is 20 parts to the million. Canada has enormous uranium deposits, and various countries have asked us to enter bids in respect of the CANDU reactor. I

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commend the government for presenting this international theme.

One problem exists in relation to the CANDU reactor. If this program is to expand, specifically in respect of CANDU reactors, then we do need a larger supply of heavy water. Presently, along with the Gentilly announcement possibly we have sufficient heavy water production capability for the immediate future, but the minister is well aware of the lead time that is needed. If the CANDU reactor receives greater international acceptance, plus the fact that in Canada we are starting to look more and more to nuclear reactors because of the success at Pickering, I suggest to the minister that the decision as to where a heavy water reactor will be placed in western Canada should be made relatively soon because of the lead time that is necessary to make the decision, finish the research and build the plant. If the decision is made relatively soon, it would be to the advantage not only of Manitobans but also Canada's international trade and the development of CANDU.

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Eastern Manitoba has excellent water resources, and this is the number one requirement. The other one, of course, is energy. The Saskatchewan site does have energy, but there are various energy sources that we could use in Manitoba and personally I would like to see research done regarding the viability of the movement of adequate energy supplies for the eastern Manitoba market in relation to the building of a heavy water plant. Another aspect that has concerned me somewhat is that we must have adequate scientific support capabilities in that area. There has been a question from time to time in the installation at Whiteshell as to whether or not the government was really concerned with regard to directives—

Mr. Speaker: Order, please. I regret to interrupt the hon. member, but his time has expired.

Hon. Donald S. Macdonald (Minister of Energy, Mines and Resources): Mr. Speaker, I thank the hon. gentleman for his continuing courtesy in phrasing this question in particular. He has touched upon a number of significant aspects of the heavy water program, not the least of which is the importance of giving adequate lead time for the construction of additional heavy water plants to meet the expanding demand.

As I mentioned to the hon. gentleman the other day, Atomic Energy of Canada Limited has been active in seeking both domestic and international business for the highly successful CANDU nuclear reactor. As the hon. gentleman has mentioned, we have received a letter of intent for one and possibly for two reactors from the Republic of Korea. The Minister of Industry, Trade and Commerce (Mr. Gillespie), along with the president of Atomic Energy of Canada, has been active in attempting to persuade the British government to adopt the CANDU system for its nuclear program, and there is considerable optimism in the company about the possibility of setting up in Italy the CANDU system in partnership with an Italian firm.

All of this indicates, along with the prospect of the additional use of the CANDU system in Canada, that there