

Euratom of one or more reactors based on the Canadian natural uranium heavy water design; such a project would tend to provide an outlet for our uranium and would at the same time be of great assistance to us in developing and maintaining an atomic engineering industry which would apply the research and development work so far carried out. An alternative project would be to join with the United Kingdom in cooperation with Euratom in the construction of natural uranium graphite reactors in Western Europe; this approach, as Mr. Watson's paper explains, would probably provide for a larger uranium market but would contribute little or nothing to a Canadian atomic engineering industry. Either of these two approaches to cooperation with Euratom would appear to deserve some serious study.

9. I might now revert to what was originally intended as the subject matter of this memorandum, namely the financial aspects of cooperation with Euratom. The United States has proposed for its part to undertake a programme of cooperation involving the construction of up to six reactors (which would undoubtedly be based on enriched fuel) under which the United States would arrange a long-term low interest loan of \$100 million to assist in the construction programme. The United Kingdom has not as yet (at least as far as we know) offered such enticing bait for concentration upon reactors of the United Kingdom type, but there is no doubt that the United Kingdom has been making and will continue to make vigorous efforts to promote their reactors. If we are to work out some programme of cooperation with Euratom along either of the lines suggested, we should consider very seriously what inducement we are prepared to offer. We can of course offer an assured supply of natural uranium fuel, but so can several other countries and in particular South Africa. We can also offer the results of our ten years of experience with natural uranium heavy water reactors. It is difficult to say, however, that these assets in themselves will be sufficient to induce Euratom to look to Canada as an important partner in its programme of atomic construction or to offer us any preferred position either for the supply of fuel or for the development and construction of reactors and reactor components. It would seem to be probable that in order to obtain such a position we would have to offer something more; in effect, we would have to propose an arrangement where Canada had a stake in the project. This might be done by the device which the United States has decided upon, namely a long-term low interest loan of sufficient size to be attractive. I understand however that this particular approach does not appeal to the Department of Finance. It is questionable moreover whether we could effectively compete with the United States or even perhaps the United Kingdom at this particular game. Although the suggestion would obviously require pretty careful study in view of its manifold implications and consequences, I have the impression that a more promising and more constructive approach might be based upon the concept of a joint construction project. We might propose for example to enter into an agreement with Euratom jointly to build a full scale atomic power plant using a natural uranium heavy water reactor, the reactor portion of the plant to be designed and manufactured in Canada, the turbine and generator portion as well as such ancillary elements as buildings, etc. in Europe. Design development and construction costs for the reactor might be paid by Canada, all costs for the generating portion of the plant by Euratom and all local costs such as on site labour, etc., by Euratom.

10. At first glance such an arrangement might appear to involve Canada in assuming a disproportionate share of the costs. It should be recalled, however, that AECL has already budgeted a very substantial sum to cover the cost of design and development work for the construction of a somewhat similar reactor in Canada. I would see no insuperable barrier to a plan under which this design and development work could be lent to the construction of two more or less identical reactors, one in Europe and one in Canada. In that case the costs