

under the auspices of the International Atomic Energy Agency (IAEA) have completed an initial study for a facility to operate in the late 1980's in which the engineering problems associated with a commercial fusion power system would be investigated. This International Tokamak Facility (INTOR) would be concerned with power system technologies and would also demonstrate electricity generation. It is almost certain that the United States will proceed with the construction of a facility such as INTOR in the USA, if international accord cannot be reached on INTOR. Already the USA has a second independent study group about the same size as their INTOR team working to define a next generation fusion Engineering Test Facility (ETF).

In summary, fusion r&d is being actively pursued in the technologically developed nations. In these countries the budget devoted to fusion r&d has become a significant fraction of the fission budget (for USA and Japan greater than 25%, for the European Community about 10%, for Great Britain 11%). These nations are placing increased emphasis on fusion as a possible permanent energy solution.

There is considerable activity in the present situation; international development in fusion are accelerating, while Canada with no serious national fusion program has a long way to go up the "learning curve". Recent efforts by Canada to gain access to the International Tokamak Research Center (ITRC) (of which Australia is a member) were not with the reply that only countries with significant fusion programs would be accepted for membership. Further, in recent months commercial research reactors have been introduced at some of the large fusion centers in the USA, making access to information considerably more difficult. Even more important is the fact that a number of key Canadians have been attracted to programs in other countries and therefore predominantly lost to this country. Technical opportunities for international collaboration exist, but once again "break-even" has been demonstrated, a nation which does not have a credible fusion program would likely be excluded.

The immediate goal for Canada must be to establish a national program of technological and scientific capability and industrial prerequisites which would permit Canada to gain access to and be in a position to benefit from the vastly increasing international pool of knowledge and technology in fusion energy.

- The achievement of the above goal will require:
- (a) the federal government to take the lead in funding and initiating the program;
  - (b) a coordinated effort by both the federal and provincial governments involving the federal and provincial laboratories, the universities and particularly the utilities and Canadian industry.