

National Nuclear Energy Strategy (Referred to the Board at AGM 09 - Adopted in December 09 Board Meeting)

The nuclear industry is experiencing a renaissance in which billions of dollars will be spent on hundreds of new plants around the world over the next 10 – 20 years. There are an estimated 200 Nuclear reactors in various stages of development around the world and Canadian manufacturing would like its share. The new plants will mostly be of evolutionary “next generation design”.

For Canada to continue to play a leading role in the global nuclear industry, we must develop a national nuclear energy strategy in conjunction with the key stakeholders in the nuclear manufacturing industry and all levels of government in Canada to create a more favorable climate for investment. The nuclear industry is in need of stable, predictable planning and regulatory regime to remain viable.

Historically, the Canadian nuclear supply chain has remained strong with enough work to retain experienced workers and through working closely with AECL (a Crown Corporation), has continued to develop intellectual property (IP). AECL has successfully survived through a “quiet period” in the industry to become one of an elite group of suppliers that has a competitive “next generation” design, the Advanced CANDU Reactor (ACR).

Canada’s nuclear industry has a demonstrated track record of safety, innovation, environmental stewardship and the Canadian innovative design and manufacture of nuclear reactors has proven to be competitive in world markets. There is a significant benefit in the Canadian government backing the Canadian design in the domestic market because Canada stands to benefit through the export of nuclear components and technology that a win in Ontario would lead to. There are many benefits arising from the success of the nuclear industry including;

1. GDP & Taxes
 - Significant tax revenues to the federal government.
 - The potential world wide market is \$1 trillion and that would potentially add \$80 billion to Canada’s GDP and create 500,000 person years of employment
 - The value of export manufacturing opportunities alone runs to some hundreds of millions of dollars through the fabrication of steam generators, fuelling machines and pressure tubes.
2. Creation of manufacturing jobs to support the export market
 - Significant new employment across a wide range of skills can be created and sustained. More than 150 Canadian companies currently employ over 12,000 high tech workers in the nuclear energy sector. Canadian companies have the opportunity to become leading suppliers throughout the “nuclear renaissance”, creating tens of thousands of jobs and billions of dollars of GDP.
 - Each reactor sale abroad brings billions of dollars into Canada and creates thousands of jobs. The estimate for a pair of CANDU’s – is 7,000 person years of employment are created in Canada.

- CANDUs are fuelled for 60 years using fuel produced in factories in Peterborough and Port Hope.

3. Brain Gain

- Brain gain - retention of Canadian scientists and engineers and potentially the attraction of hundreds of leading edge international scientists.
- Canada would become a world centre of excellence for the development of Nuclear technologies
- Heightened profile for Canada as an R&D leader
- Attraction of related industries and the further development of Intellectual Property
- Canada's only university which offers an undergraduate degree in nuclear engineering, UOIT is at the heart of the nuclear energy sector. The approximately 50 nuclear engineering graduates in each of the last two years were quickly absorbed into the industry, and many of this year's graduates have already secured employment. UOIT, in partnership with the energy companies in Durham Region, is preparing to meet the challenge of more than doubling the number of nuclear graduates in the next few years to provide the expert human resources needed for Canada's nuclear industry.

When questioned about the nuclear energy cluster, in November 2008 Perrin Beatty, President of the Canadian Chamber of Commerce stated at the Durham Economic Prosperity Conference, "Nuclear has to be a huge part of the solution to climate change" and added that "Canada has indigenous technologies which can be very positive for us." At the same conference, Dr. Richard Marceau, Provost UOIT stated "our manufacturing sector is ours to give away. We need to tell ourselves that we want to keep it and we need to keep it. There is a limit to the knowledge-based economy. Do we want everything we consume to be made or built off shore" adding, "there are things we make in Canada and we will be competitive we ought to be able to create wealth by exporting products".

The Canadian Chamber recognizes the importance of ensuring that Canadians and businesses are not at a competitive disadvantage in the world markets. Currently being battered by extensive job losses in the manufacturing sector, Canada has very few industries that offers the potential for ongoing long-term job and wealth creation as does the nuclear sector. There are numerous opportunities around the world for new nuclear reactor sales:

- In 2006, the United States implemented an Energy Policy Act encouraging construction of new nuclear plants as part of a diverse energy-production portfolio.
- In 2007 the Government of New Brunswick announced it had accepted the Team CANDU proposal to conduct a feasibility study for the construction of a Generation III+ Advanced CANDU Reactor. NB Energy Minister Jack Keir, stated "the energy sector has the potential to bring transformational change to our province, and this is further evidence of this fact."

- Also in 2007 Energy Alberta teamed with Atomic Energy Canada Limited to bring proven CANDU nuclear technology to Alberta. Energy Alberta was subsequently acquired by the large privately held Ontario nuclear power generator, Bruce Power, which is now investigating site near Peace River for the provinces first nuclear plant.
- In 2008 the Ontario Government chose Darlington as its new nuclear build site. Ontario will likely only build say 2-4 new reactors in the foreseeable future and the number of jobs created will be largely independent of the reactor type. The three companies bidding on the project are Atomic Energy of Canada (AECL), Head office Canada, Toshiba/Westinghouse (US based and now mainly owned by Toshiba in Japan) AREVA (owned by the French Government). The bidding process was suspended in mid 2009 partially due to a decrease in Ontario electricity demand and the lack of agreement between the parties on risk sharing .
- In 2009 the Saskatchewan Government released a report by the 12-person Uranium Development Partnership Panel that recommended that “Saskatchewan should include nuclear as part of the Province’s long-range energy mix given its cost-competitiveness as a baseload power alternative and the economic value it would generate within the Province”.

All of the reactors that are being bid are either “First of a Kind” or are early-series reactors. Typically the vendor invests in these early projects in order to be able to profit from later series sales. AREVA and Toshiba/Westinghouse made investments of this type in the Ontario bid. The investment are backed by their owners. It is entirely appropriate for a similar investment to be made in the Canadian technology (ACR). One can assume that it will be needed if we are to compete with reactors that are supported by such investments. AECL has substantial current investments, strategic partnerships and alliances in and with Canadian companies, and is prepared to further establish and demonstrate continued investment with them to enhance and provide sustainable employment opportunities for the new nuclear build project at Darlington and the global market.

AREVA has promised localization by allowing Canadian manufacturers to make components for the Darlington project. There has been no commitment on localization from Toshiba/Westinghouse. Localization can be problematic as companies with insufficient skills become involved and as a result the reactor gets delayed. Localization in the Finland project has caused the project to be 2 years behind primarily as a result of local supply chain problems and the two governments are threatening to sue each other.

The issue for Ontario is that the Federal Government is the owner of AECL but the largest beneficiary of the investment is Canadian industry. The Canadian Chamber believes it is right that Canada (and in the case of Darlington, Ontario) makes some of this investment. It is a great way for Canada to create a platform for job creation in its manufacturing industry for decades to come.

The nuclear manufacturing industry is at a critical juncture. The choice of reactor does make a huge difference to Canada’s export opportunities. The countries around the world that AECL is marketing Canadian technology to are presently waiting to see if

Ontario will buy the Canadian reactor technology. The nuclear energy sector in Canada is seeking investment to allow it to access that opportunity. The industry is not looking for protection; it is looking for investment and opportunities. If Ontario chooses to invest the right amount in making the ACR a success it will be the best choice for Canada. When it has been chosen the nuclear energy sector can start to sell it abroad! If Ontario chooses not to buy the ACR the future export opportunities will evaporate.

It is necessary for the Government of Canada to explain;

- how they are working together to keep our own nuclear manufacturing sector in Canada for domestic and export sales strong
- how the IP and the opportunities that that creates would be impacted if the Ontario Government chooses to purchase a foreign reactor system
- what impact such a decision would have on the Canadian economy, Canadian competitiveness world wide.
- Are jobs in jeopardy if the government chooses foreign as opposed to domestic?

It is about seizing a global opportunity. It is about thousands of highly skilled, well paying, long-term jobs, and in these economic times, we need to uncover opportunities for Canada's workforce. It is investment and it is a very good investment in a massively growing business where Canada can be a world leader competing effectively with others as soon as we have had a chance to demonstrate the technology. The Canadian government must fully understand the economic impact to the Canadian business sector that directly and indirectly relies on the nuclear industry to sustain their economy. The government must also understand and address the impact any change will have on, manufacturing, job creation as well as the building, shipping, transportation and tourism industry.

Recommendation

That the Federal Government

1. Work with with the provinces and territories and with all stakeholders (i.e. business, education and labour) to develop a Canadian Nuclear Energy Strategy that will continue to provide jobs, investment and economic strength for the Canadian economy in the coming decades.
2. Ensure the Strategy framework is national in scope and encompasses but not be limited to;
 - Research and Development and commercialization of technology
 - Fiscal Policy
 - Skills Policy for the education of the Canadian workforce
 - Intellectual property rights
 - Innovation Policy
 - Trade and Infrastructure issues