

MARKETING CANDU INTERNATIONALLY

AN ADDRESS BY
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Good morning, ladies and gentlemen and guests of the Canadian Nuclear Association.

After accepting your invitation to present a paper on Marketing CANDU Internationally, I realized I needed a content and approach which would be of interest to one of Canada's most prestigious associations of business men, scientists, engineers and technologists and I also felt that you, my audience, deserved something better than a mere regurgitation of the many platitudes we have all heard on international marketing.

You may know that I have had considerable experience in International Marketing of high technology products, but I am relatively new to the world of selling nuclear reactors. As the new boy, I thought it appropriate that I offer you a newcomer's view of the factors involved in selling CANDU reactors and the needed emphasis in the CANDU marketing program if we are to enjoy an increased market share, or in fact, if we are even to retain our current market share.

I will review briefly the prospects for the nuclear industry worldwide, and then review the potential for CANDU in the Canadian market which we need to develop to serve as a base for expanding CANDU exports. Against this background of opportunities, I will review CANDU's inherent technical advantages, and then suggest how the organizational framework of the nuclear industry in Canada presents us with certain challenges not faced by our competition.

AECL is judged by many independent parties to have the finest reactor in the world, but it still has to be sold. To do this successfully, the nuclear industry must understand the environment, the market, the product, the competition; and "selling the system" but more important - "system selling" - the topic I wish to address today.

Let's begin with a look at today's marketing environment. There is a view in certain quarters that the prospects are glum; these people say that the world is approaching zero growth; the relative cost of nuclear power is going out of sight; there is increasing insurmountable opposition to nuclear power; and much of the initial potential market for nuclear power plants has been satisfied so that further sales are so far into the future as to be not worth considering, and so on.

Others feel that the nuclear power industry is poised for major growth. They point to France and to Romania citing their dedicated expansion by nuclear power as examples. I agree with this school of thought, and I would add that Korea has a major nuclear expansion under way, that Mexico is about to follow suit, that Japan, totally dependent on imported oil, must now turn even more to the nuclear option. Many other countries will have to make the same decision to speed up their development of nuclear power.

Numerous studies and analyses on the impending energy "crunch" have been conducted in different parts of the world, and on the consequent choices faced both by the developed and the developing countries. The "Energy Futures" report by Gander and Belair is a Canadian study on the subject.

While these studies usually differ in details, there is unanimity on the major findings. Some of these findings are:

- . fossil fuel conservation alone will not answer the energy needs of either developed or developing economies;
- . it is no longer mere conjecture that oil supplies will fall behind demand at some time in the future. The middle or end of the current decade are the actual dates being repeatedly forecast;
- . nuclear energy has to provide for a shortfall of between 18% and 30% of the world's energy requirements over the next 30 years.

What does this mean for CANDU in terms of sales prospects? Well, we all know that prophesy in modern times is a highly hazardous occupation, especially when it's related to our field. Nevertheless, we must have some rationale as a basis for planning. In an effort to provide this rationale, we recently took a long and careful look at this question of likely reactor demand in the '80s and into the early '90s. I won't burden you with a mass of statistics but a couple of highlights will, I think, be helpful.

We listed all the countries in the world which now have nuclear programs or which plan to initiate nuclear programs by about 1990. We dropped from the list most of the "centrally planned economy" countries (a) and the reactor exporting nations (b). This left 39 countries in what we call the "accessible offshore market". There are 123 reactors in-service or on order in these countries, six of which have been supplied by or ordered from Canada (c), for a market share of about 5%.

The published plans of these countries indicates their intentions to purchase over 100 additional units to be in-service this century. While some of these will likely be deferred or cancelled, some additional units will undoubtedly be added since the published plans are rather incomplete beyond 1995. Bearing in mind that it takes up to ten years between awarding the order and throwing the switch, this means these 100 or so reactors will have to be ordered by about 1990. Assuming Canada does no more than maintain its traditional share of this market, at least five will be CANDU's. From a review of our prospects in the countries on the list, I believe ten offshore CANDU sales in the next decade is not an unreasonable objective.

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- (a) USSR, Hungary, Czechoslovakia, Poland, and Germany (Democratic Republic)
 - (b) USA, UK, France, Germany (Federal Republic), Sweden and Canada.
 - (c) One in each of India, Pakistan, Argentina and Korea, and two in Romania.

The export market is, and will remain for a period, our principal source of new business but this is not to say that the domestic market is lacking potential.

According to Ontario Hydro's 1979 Annual Report, Ontario has 10 CANDU reactors producing nearly one-third of that province's electricity demand. Twelve more are under construction. In another 10 years, or earlier if electricity is further substituted for oil, the present excess Ontario generating capacity, some of which is now being exported to the United States, will be required at home.

Contrary to some public opinion, it is a fact well known to utility managements that the cheapest electricity in the long term comes from a system with a reserve margin of the order of 25%. If forecasting is uncertain, it is better to aim high than low since the cost of carrying a 40% reserve is less than the cost of the brownouts or blackouts which will inevitably occur if the margin drops to, say, 15%. And if excess capacity can be used to generate a profit through export sales, the utility wins all around by aiming at the high end of the uncertainty range of its forecast. And, of course, if the utility wins, its rate payers win. Indeed, in my view, bearing in mind that nuclear electricity is by nature almost inflation proof, we should be seeking to provide an excess of cheap power in the 90's that will encourage the continuation of Ontario's traditional competitive appeal to industry.

Let me hasten to add that this competitive edge need not be denied to any other Canadian region wrestling with the problem of creating and sustaining an attractive industrial climate.

Here, in the Province of Québec, Gentilly-2 is well in hand. However, it has been argued that Quebec needs to extend its nuclear program to preserve the industrial infrastructure it will need when its hydro resources are fully developed.

In New Brunswick, Point Lepreau is in the advanced stages of construction but in the Maritimes precious oil, and at an ever increasing cost, must be burned to generate needed electricity. Surely a good case can be made for more nuclear as a means of working towards self-sufficiency.

Looking westward across Canada, I believe a very good case can be made for the planning of a CANDU station on Vancouver Island to eliminate the present power flow from the mainland and to lower the cost of expensive transmission through submarine cables.

In Alberta, we believe there is potential for using nuclear energy as an energy source in the extraction of oil from the tar sands. Our preliminary studies show that an organic-cooled CANDU would be competitive with coal in the production of high pressure steam for in-situ extraction and that the CANDU-PHW might be able to economically supply energy to surface mining facilities. More detailed studies have now been undertaken.

Finally, the economics of exporting value-added uranium in the form of electricity deserves careful assessment generally by Canada.

Why so much interest in National Markets when the paper is entitled International Marketing?

Two reasons - first - we have a clean, safe, and highly efficient power generator in CANDU. All Canadians should have an understanding of its value and have an interest in sharing its benefits. Second - high technology export sales are most often built on a sound domestic base.

To hear those like me who really believe that CANDU is not just good but the best (CANDU's praises have been sung in no less a prestigious place than the British House of Lords as well as by U.S. Nobel Laureate, Hans Bethe) one could be tempted to echo the query: "If you're so smart, why ain't you rich?". Well, the fact is that we have some very stiff competition.

But the strength of our competition lies not in the product but more in its marketing, its momentum, and more important its channels of distribution. Our European competitors, selling light water reactors under licences granted from the USA, as well as our U.S. competitors, have the benefit of industrial breadth. They make not only reactors but a variety of other complementary industrial products as well. They have a worldwide network of plants and offices and they have certain other vital ingredients, the discussion of which I will return to later. The bottom line of these combined advantages means that one company we know is bringing reactors on line at home at the rate of one every two or three months and, therefore, has a formidable production base from which to launch export sales. The cost reduction advantages to such engineering, procurement and construction programs are obvious; as also are the benefits of mass production.

How do we compete? In a number of ways; but first we must realistically answer the question "Who needs us?".

First, we assess the merits of our product. This audience in particular needs no detailed explanation of the advantages of CANDU, but very briefly they are:

- . Lower lifecycle generating costs
- . Higher utilization of uranium - conservation of resources
- . The ability to use natural uranium which means greater independence of fuel supply
- . High plant availability of CANDU stations
- . Design features which enhance inherent safety
- . Ease of manufacture - ease of maintenance
- . Ease of handling and storing fuel - fresh or irradiated
- . Secure supply of heavy water from Canada
- . Obsolescence-resistant fuel cycle options that can be introduced in the future without major change of reactor design and manufacturing concepts
- . Canadian experience of industrial applications of nuclear heat

Having assessed our product, - which a recent lead editorial in the Globe & Mail kindly called "Our undersold wonder" - we recognize as that writer did that "a standing ovation won't pay the salaries of skilled teams of engineers and technicians who have turned the CANDU in Canada at least, into a success story". We next need a well organized marketing effort. Just over one year ago, AECL created AECL International. Concurrently, we have seen the development and the active and effective support of the Organization of CANDU Industries and the Joint Export Marketing Committee for CANDU, and are encouraged, as an industry, by the way that we are "getting our act together".

We are part way there, but much more has to be done if we are to mount a successful international marketing effort. We have a good product and we understand the environment, the market, and the competition. Now we need to :

- select the right markets for penetration;
- identify the influence groups in the selected markets;
- convince all levels of the influence groups of the benefits of CANDU. To do this we will require the continuing effort, with AECL leadership, of all levels of Government and industry when needed;
- and finally, we need a fully integrated CANDU package supported by competitive financing and under safeguards requirements which are consistent with the practices of the international nuclear community.

Clearly AECL cannot do this job alone.

Unlike our competition, we in Canada are marketing not through a single corporate entity as are several of our competitors but as a "loose knit" of government, a crown corporation, provincial utilities and private industry. As designers of the product, AECL can and does take the initiative in seeking new markets. However, once it has done this the whole marketing system has to act in concert and with enthusiasm. There are no prizes for second place.

In making these points I am not overlooking the contributions the Governments, the utilities and industry have made and continue to make. What I am saying is that the same effort must be forthcoming in each new marketing opportunity. Top technical and executive personnel must be available from all needed segments and they must be ready to travel and willing to invest money, time and a good deal of energy in trying to match this country's capabilities to our prospective customers' needs. Patience is also important; remember we are developing new generations of reactors, a market and a marketing process all at the same time.

At this point, let me make another observation. Evidence is clearly emerging that the customer is less prepared than in the past to sign on the line for a complete package off the shelf. More and more he is going to be looking for employment and industrial development opportunities for his country and will be very sensitive to the merits of energy self-sufficiency. And this isn't at all hard to understand if we look at our own recent negotiations for a new fighter aircraft. Again, I suggest that we must adopt a positive approach to this reality and think harder about the opportunities it may offer. Does it perhaps mean that as well as selling pressure tubes or the calandria or the fuelling machine, we sell our technology and experience at some time down the line? Does it suggest, where political ideologies permit, we consider the possibility of setting up branch plants in the customer's own country employing a combination of our own top people to work with their management and labour? OCI is responding to the need but possibly more integrated thought is necessary to implement continuing effective strategies.

Technology, hardware and engineering is not all we are marketing. We are also marketing money, a card competition plays with the finesse of a Baccarat Croupier. I suggest to you that this, too, is a problem which we must resolve. Long-term financing of projects such as nuclear power reactors, which today run into hundreds of millions of dollars for a single unit, is of great importance to our potential customers, particularly among those in the developing countries.

I have already referred to the unique Canadian situation in which CANDU is marketed by a group comprising the private sector, AECL, and Governments. Perhaps because this uniquely different situation is so well recognized by us, and so fully accepted, we seem in the past to have taken for granted that all elements would always be there with timely support. They will not be unless we in AECL assume the responsibility for mobilizing this support, particularly the all-important help from Government. Our competitors have in the past managed to play the "integrated selling" game more effectively in international markets than we in Canada.

The fact is, we are dealing in a sophisticated international market place that demands the highest levels of technical and commercial expertise and diplomacy. The effective presence and support therefore, of our government representatives is an essential component in our marketing efforts. Moreover, such evidence of our government's support provides essential verification of the value attached to AECL's endeavours by the Government of Canada. I am happy to say that the Government's perception of its role does not differ from that perceived by the Canadian nuclear industry.

In summary: The CANDU has been quoted by Hans Bethe as being a "technical wonder - not only is it very conservative on fuel but it works with a regularity and reliability that is absolutely fantastic". However, in the high technology industry of power generation and transmission even the super product must be marketed. This includes a careful analysis of the environment, the market, the competition, the product (CANDU) and finally a fully integrated marketing approach which includes the various Departments of Government, the OCI (Organization of CANDU Industries) and the Research, Development, Engineering and marketing expertise of Atomic Energy of Canada Limited. Clearly, the technical wonder CANDU has all the ingredients to become a financial success. There is a market and we know what should be done and how it should be done to obtain our share but competition won't move over - it must be pushed. We are pushing. And we will push harder! Together we have all the ingredients for the effective and profitable marketing of CANDU.

Thank you

