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Chair

Mr. Lee Richardson

Standing Committee on Natural Resources

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● (1530)

[*English*]

The Vice-Chair (Mr. Alan Tonks (York South—Weston, Lib.)): Ladies and gentlemen of the committee, welcome. Welcome to our deputants.

This is the 50th meeting of the Standing Committee on Natural Resources. So, deputants, you can appreciate why we look so tired and haggard.

[*Translation*]

Just a moment , please, Mrs. DeBellefeuille.

[*English*]

Pursuant to Standing Order 108(2), our witnesses will be talking today about the role and future potential of nuclear energy, as part of our study of the greening of electricity consumption in Canada.

We have Mr. Murray Elston, the president and CEO of the Canadian Nuclear Association. Welcome, Mr. Elston; it's good to have you here.

From the Energy Alberta Corporation, we have Mr. Wayne Henuset. Welcome; it's good to have you here.

Now I think I have a matter of order. Madame DeBellefeuille.

[*Translation*]

Mrs. Claude DeBellefeuille (Beauharnois—Salaberry, BQ): Good afternoon, Mr. Vice-Chair.

Yes, I have a question.

The Vice-Chair (Mr. Alan Tonks): Go ahead.

● (1535)

Mrs. Claude DeBellefeuille: I would like some information. Today, we have two association representatives with us. Perhaps I missed the presentation by the people from Atomic Energy of Canada, but will we also be having government representatives? Last week, I asked a government witness a question about research protocols that the federal government develops with different countries. I also wanted to know the status of the research. The witness told me to keep my question for the next session, because there would be members of the government who could answer it. I see that there is no one from the government, only representatives of private nuclear associations. Are we going to be able to ask them questions as well?

[*English*]

The Vice-Chair (Mr. Alan Tonks): Thank you, Madame DeBellefeuille.

I'll ask the clerk if he could please respond to that.

[*Translation*]

The Clerk of the Committee (Mr. Chad Mariage): Thank you, Mr. Chair.

At the moment, no, there is no other invitation. The committee did not instruct me to invite a government representative on nuclear matters. I act according to the will of the committee. If it decides that it will hold another session with departmental representatives, I am at its disposal.

Mrs. Claude DeBellefeuille: Mr. Vice-Chair, I think that it is important for us to have a government representative who can answer our questions, so that we can fully deal with the nuclear question. You know as well as I do that this matter is front and centre at the moment. If we only have representatives of private associations, we will not be getting the complete nuclear picture. Sir, I would really like you to consult the other members of the committee to know if they would agree to hearing from representatives of Atomic Energy of Canada or other government representatives. If I had known, I would have insisted that the government representative provide me with an answer when he refused to do so on Monday.

[*English*]

The Vice-Chair (Mr. Alan Tonks): I'll ask the clerk to share what he's going to tell me, and then we don't have to do it twice.

[*Translation*]

The Clerk: Mr. Vice-Chair, after the week's break, we will be receiving the witnesses who were added as a result of your letter to the chair. This will be the last session at which witnesses will appear, because after that, we will be moving on to the draft report. If we add more witnesses, the draft report will be pushed back until later. The research officers are currently studying the information received up until now. Of course, if the committee decides to add a meeting when it comes back from the break, I will be happy to arrange it.

Mrs. Claude DeBellefeuille: I am officially asking for a session to be added, because we were able to postpone the submission of a report on the tar sands. I do not think that our topic is as hot as that one. We need perhaps one more session to hear from government experts who can discuss nuclear energy.

[*English*]

The Vice-Chair (Mr. Alan Tonks): As Mr. Trost just came in, perhaps I can give a quick review.

Madame DeBellefeuille has just pointed out that in spite of the fact that she had originally asked whether it would be possible to have someone from the department talk about the nuclear issue, we have not had someone from in-house, if you will. I do recall that, but the question, I think, is really one of timing.

The clerk has pointed out to me that we simply have one deputant on the 28th. Is that right?

The Clerk: At the moment, Mr. Chair, we have one person confirmed, with the possibility of another, from the department, as requested by the Bloc. What we can do is to have those two in the first hour and someone from the department in the second hour, or we can do a full session on May 30, if that's what the committee wants to do.

The Vice-Chair (Mr. Alan Tonks): Madame DeBellefeuille, it would appear there's a choice.

My suggestion would be that we try to go for the 28th, because I think we're still operating under the assumption that we're going to try to get to a draft report. Rather than leave that shorter—though the committee will have to express what they would prefer—if the chair could give a little direction, it would be that we accommodate the request that Madame DeBellefeuille has made, and also leave a little bit more time in that window to discuss the draft report. We could do both of those, if we rescheduled Atomic Energy of Canada to the 28th.

Is that okay, Madame DeBellefeuille?

[*Translation*]

Mrs. Claude DeBellefeuille: I am satisfied with that. When we say someone from the government, we are also talking about Atomic Energy of Canada Ltd., that is, experts who represent the Government of Canada or who are funded by the Department of Natural Resources.

I remember Mr. Trost's comments; at the last meeting, he said that he was not opposed to nuclear energy but he did not want it to cost Canadians money and he wanted to know how much the use of nuclear energy in Canada costs. It is important that this kind of information come from specialized organizations funded by the Department of Natural Resources or from our government experts, so that the information answers the specific questions asked by Mr. Trost and by members of the opposition. I think that this is a subject which is of interest to several members of the committee, Mr. Chair.

[*English*]

The Vice-Chair (Mr. Alan Tonks): All right.

Do I have a consensus from the committee, in the first instance, that we reschedule Atomic Energy of Canada to the 28th?

Was your suggestion Atomic Energy Canada?

● (1540)

[*Translation*]

Mrs. Claude DeBellefeuille: Which is the more useful?

An hon. member: It should be someone from the department.

The Clerk: Mr. Chair, I can invite people in the department to decide who should appear. Atomic Energy of Canada Ltd. is a Crown corporation. So it comes under the department. If the department thinks that AECL is the most appropriate group to represent it, it will ask for AECL representatives to be sent to testify.

Mrs. Claude DeBellefeuille: They have to be able to answer questions.

The Clerk: If I understand correctly, I am to divide the meeting into two. Is that right? You will hear from experts on nuclear energy in the first hour, and representatives from the department in the second.

Mrs. Claude DeBellefeuille: Yes, that will do.

[*English*]

The Vice-Chair (Mr. Alan Tonks): That, I think, everyone can understand.

Do we have a consensus with respect to proceeding in that manner? Madame DeBellefeuille?

Okay, then we have a consensus. We'll request that the clerk make the appropriate arrangements.

Thank you very much.

We'll now go to our deputants. Perhaps we could lead off with Mr. Elston, if you would like to begin, and then we'll have Mr. Henuset.

Mr. Murray Elston (President and Chief Executive Officer, Canadian Nuclear Association): Thank you very much, Mr. Vice-Chair.

The Vice-Chair (Mr. Alan Tonks): Mr. Elston, you've been before the committee before, so you know that we generally allow ten minutes for each deputant, give or take. Then we go through our regular routine with respect to questions.

Mr. Murray Elston: Perhaps I'll move through these slides pretty quickly and have a little bit longer for questions, if you find someplace where I've gone too quickly for everyone. There are two handouts, actually. One is the hard copy of the slide show, and then a little handbook, which is really a detail of facts about the nuclear industry, which could be helpful as well when you're considering other issues.

Let me just say, first of all, thank you very much for inviting me here. I represent the Canadian Nuclear Association, which is made up of a series of members; I think it's about 72 or 73. Our numbers are growing now. It's not like the old days, when we were losing members because nothing was happening in the industry. We're extremely busy now. We represent people from private consultants all the way through academia to nuclear generators of electricity, the designers of technology, the processors, and mining companies. So we represent the entire industry, although not all the companies in it. We're very pleased to be here today to speak to you a little bit about the greening of electricity consumption, and certainly that is happening with nuclear.

I'll move through these very quickly. Everybody knows that the pressure of the need for energy, and including in that electricity, and the need for hydrogen and for safe water has pushed the methods of finding those quantities of those entities to consider nuclear, which is extremely good in producing mass amounts of energy, which can then be incorporated into finding new ways of releasing fuels in Alberta oilsands, for instance, or in helping with desalination projects around the world. We're very, very pleased that our technology is being considered in that.

The driver of that, obviously, is the development of the population growth in developing countries. A good part of the world is still without electricity. Some of you have probably heard that several times, but for those of us who have had electricity, and at relatively inexpensive prices for a long period of time, it seems almost unimaginable that there are people who have never had electricity.

That growing need, whether it's in India or in China or in other parts of the developing world, means that they're looking for large producers of electricity, and nuclear is being considered in all of those. Climate change, carbon issues, Kyoto, challenges of energy gap, all of those things, including energy security, are the things that are driving people to look towards nuclear.

I have included next a graph that indicates the interesting phenomenon occurring in this world, and that is that the OECD countries, which are shown as the red line on the graph, are about to be overtaken in the production of CO_2 by China and the developing countries. That is an important element for all of us, and I think that for those of us who hadn't considered the types of impacts that are about to occur, that particular graph from IEA World Energy Outlook 2006 is enough to let us know what really is coming upon us.

The next page just cites for everyone the fact that if we're going to wrestle with any of these issues, we are going to have to use a diversification of techniques that will permit us to make the biggest impact. We are not going to be able to do it with one technology at all, but we should make special efforts to combine technologies so that we can get the best out of all of the technologies and permit them to work together so that we can have a symbiotic relationship among all of the technologies that you recognize on that page.

The next graph, again from our friends, talks about aggressive processes that are required if we're going to contain CO_2 emissions. The first three lines on the left side of your graph indicate what happens if you have a base case for which no action is taken whatsoever. But as you move into the act scenarios, as they're described in English, to 2050, you will see that there are tremendous impacts to be had if we become aggressive in applying new technologies to the cause of carbon emissions.

● (1545)

Ultimately, if you go to that whole report, which was commissioned in response to the G-8 Gleneagles Summit, you will see the best approach they came up with. Going through all the scenarios was what was called a “TECH Plus” technology application. What that really meant was that there was an aggressive implementation of technology gains rights across the area. It not only includes, by the way, nuclear, but wind, solar, and any number of other options, including conservation and energy efficiency. We're pleased that the world bodies have seen nuclear as playing a particularly important part in that.

As I take a look at the next graph, again, it's a graph that comes from overseas, from the Paul Scherrer Institute in Switzerland, actually. It has accomplished something that not many organizations have. They have kept statistics about various kinds of industries for a long period of time, and they have been able to look at the internal and external costs of various types of generation.

Here you see a list, and there must be about 15 or 16 different types of generation, and they have brought together both internal and external costs associated with those generation types. You can see that nuclear fares very well when it comes to the types of externalities that are often measured.

Mr. Christian Ouellet (Brome—Missisquoi, BQ): Can you show us where you are?

Mr. Murray Elston: This one.

When you take a look at that graph, what it really says is there are a number of advantages to using low-carbon emissions and other atmospheric emissions-free technologies, including nuclear power.

If you turn to the next table, it comes from the Japanese Centre Research Institute and was released in 2002. Again, it looks at the relative placement of various types of generation fuels. Included in that you will see wind, nuclear, and hydroelectric at the very bottom course of that table indicating that there are some real advantages to going with emissions-free generation for the production of electricity.

The next two slides basically have quotes from two eminent environmentalists, James Lovelock, who has spoken at our seminar, and Patrick Moore, who has also spoken at our seminar, which is held every year either at the end of February or beginning of March. Both of those people, who have been instrumental in doing a great deal of active work to save the planet have, after years of examining what the options are, come to the conclusion that if we are really to have an impact on saving the globe from the carbon emissions issue, nuclear is going to be a big part of that, and those two quotations are there to remind us.

Well, let's take a look in Canada. The next table shows hydroelectricity at 61.5% of electricity generation in the country, and nuclear at 15.5%. When we look at nuclear at 15.5%, only three provinces have nuclear generation at the moment: Ontario, where we are over 50% of the electricity generated; Quebec has one plant at Trois-Rivières, Bécancour; and Lepreau at New Brunswick is our final generating nuclear facility. The table shows coal at 19.6%. Obviously, Alberta has a huge amount of coal. I think it's about 60% coal-generated electricity. So it's very obvious that people have chosen technologies that take advantage of their resident resources. I guess the exception might be, in that sense, Ontario. Although there used to be mining of uranium in Ontario, that has now changed and the uranium for Ontario basically comes from northern Saskatchewan.

Mr. Trost knows a little bit about that wonderful deposit in Saskatchewan. I have never seen anything like it, I must say. Cameco and Ariva Resources have a marvellous deposit there, sometimes over 90% pure ore, unheard of around the rest of the world. I don't like extending invitations on behalf of companies, but I would recommend that if people have a chance, if you can, visit that wonderful source of energy, not just for us, but for around the world, because a great deal of that energy, of course, is exported for consumption outside Canada.

The next slide reviews the nuclear industry in Canada. I won't stop there, but I must just highlight one thing, which is extremely critical for us in the nuclear industry. We have won one Nobel Prize. Dr. Bertram Brockhouse won it for his work in the nuclear industry. We are at the stage of being leading experts in nuclear technology in this country.

We are now at a stage where we need to renew the types of scientific and research facilities that are important for us to continue to keep that lead, so that we can stay at the head of this very competitive field these days. As I say, again, there are about 150 firms, 30,000 jobs, and growing because of the extra activity we are involved in, but you can see we are important in Canada, not only from the point of view of the commercial side, but also the academic and international slide.

The next slide is a very important item. It only is a snapshot of the fact that there are costs associated with each type of energy source—nuclear, coal, gas, biomass. All of those are at the very low end of costs—large hydro, obviously. All of that indicates to you that whatever we choose, there will be a cost, and we have to be cautious about the options we choose, because we are in a highly competitive international trading world that requires every advantage to be taken so that we can make sure Canadians come out on top.

● (1550)

I will just quickly go through two or three things.

For the first time in Canada, we have a private operator of a nuclear facility, at Bruce Power. They are, with private capital, starting to refurbish four units, which have been down. Two of them have been restarted; they are refurbishing units 1 and 2 on bank A at Bruce.

This is a $4.25-billion private capital investment on nuclear facilities. It is looking forward to highlighting the return to service of units that were shut down in 1997. Two of the units in the bank have already been brought back to service and have been performing very highly.

The next slide talks about oil sands extraction. My colleague will be talking more specifically about that, so I won't stop on this, other than to say that while people shouldn't say it's impolite to have your cake and eat it too, if we're going to get close to being able to liberate the oil from that wonderful facility in Alberta and keep our emissions low, then it would seem that nuclear offers the best opportunity of getting very close to it. We're very pleased in the industry that there are considerations to permit us to compete on a commercial basis for the wonderful opportunities that are there.

The next table lists something about which we're extremely proud, and that is the high level of performance you will see outlined in green. Bruce unit 6, Darlington unit 2, and Darlington unit 4 are at 97%, 98%, and 98.8% capacity factor for the year 2006.

One of the questions about our facilities has been whether or not they are reliable. The new technology and the upgrades that have been applied to these plants, and the new operating performance guidelines that each of OPG and Bruce have implemented, have driven us to provide this type of facility improvement, to the point where we are now approaching what most people wanted to see many years ago, and that is an 80% capacity factor lifetime for these units.

As you can see, we're not done yet with those improvements, and we're looking at going even further as we go on.

Here are a couple of quick points I can talk about a bit later in much more detail. Our safety record is second to none. There have been no fatalities related to radiation exposure at any of our plants. We have effective regulation with our regulator, the Canadian Nuclear Safety Commission, which is headquartered here in Ottawa, but which has representatives on each of our sites and is there to see what is happening on all occasions.

Concerning long-term fuel handling, we have a report in front of the government, which came in 2005 and is still residing there for decision, with respect to long-term handling of our used fuel. The report was made by the Nuclear Waste Management Organization in, I think, November of 2005. We are awaiting the option they have identified, which is, of course, deep geological storage. It is not just, in the words of an infomercial, to “set it and forget it”, but to maintain it in such a way that it can be monitored long-term and even recovered for the purposes of reprocessing, if that is seen to be necessary.

Something not well known is the fact that when those fuel bundles come out of our calandria, we have used less than 1% of the available energy, so there is a huge amount of energy still available in that spent fuel. We are looking forward to not just dumping it someplace, but to keeping it available so that the tremendous amount of energy there is available for us in the future.

Here are a couple of points along the lines of the inquiry from Madame DeBellefeuille. Electricity generation around the globe sees nuclear at about 16%. I will just touch on the fact that there are new units being built in Finland. One is under construction now, and a second is being planned. There is one that has just been approved for France at Flamanville. There are several in China.

In fact, we had both the Chinese and the U.S. ambassadors at our seminar a couple of years ago. China was looking at building 31 new units, which would increase their total electricity generated from nuclear power from 2% to 4%. That's 31 units of nuclear capacity.

● (1555)

The United States is looking at roughly a 20-number addition, and who knows what will happen as we move further down the road. In addition to that, there are obviously changes happening in Russia. There are considerations about where nuclear goes in many other of the European countries, including Germany, Sweden, and others as they look at that energy crunch, particularly around electricity.

I must say one other thing in summary. Globally we have saved between two billion and three billion tonnes of carbon dioxide per year because of nuclear generation. We have 440 nuclear units operating around the world, and several more are being planned—over 200, in fact.

Here I should say that our member company, AECL, has just signed an agreement to investigate the prospect of working collaboratively again with the folks in Argentina.

So there are very many opportunities. I can say that in Canada, the CANDU reactors have avoided about 1.4 billion tonnes of emissions since 1972.

All of that in a package indicates that we can help with the greening of the environment here by avoiding these emissions. We're pleased to do it on the basis of performance, on the basis of commercial competitiveness, and on the basis of timely building of our projects.

Thank you, Mr. Chair.

● (1600)

The Chair (Mr. Lee Richardson (Calgary Centre, CPC)): Thank you, Mr. Elston. Thank you for an excellent brief, very well done. It's material we can follow up on and look at.

We're going to continue with witnesses before we proceed to questions.

Our next witness is Mr. Wayne Henuset from Energy Alberta Corporation. Welcome again, Mr. Henuset. You know the game. Please proceed.

Mr. Wayne Henuset (President and Co-Chairman , Energy Alberta Corporation): Thank you, Mr. Chairman.

Thank you, ladies and gentlemen, for having me here again. I don't know if you remember, but I was here a couple of months ago, when I talked about nuclear power for the oil sands.

To date, we've moved along. I'll give you a quick overview of where we are today. If you remember who I am, it's Energy Alberta. This is a privately owned company. There are two shareholders to date, Hank Swartout and me, the owners of the company.

We have an exclusivity agreement with AECL, Atomic Energy of Canada, to build two reactors in Alberta. We're hoping to build the ACR-1000. We're actually putting in for our site licensing approval on June 15.

We're working with two communities as we speak. To give you an idea, tomorrow night I do my first open house at a town-hall meeting in Whitecourt. Not only are we doing the Whitecourt community, we will also do the first nations at three o'clock. We're having three meetings: we'll do the Rotary Club, the first nations, and the town-hall meeting, all in the same day, which is tomorrow. So my material for you is limited, because we're getting our material ready for the town-hall meetings.

I'm quite a firm believer in what Murray has just mentioned, which is what's happening in the world right now with the renaissance of nuclear power. We brought that power and that idea to Alberta. What has happened in Alberta that everybody here should be aware of is that Alberta does have some oil companies that are very concerned about the CO_2 issues. So we have an off-taker in Alberta that wishes to buy nuclear power in Alberta and likes the idea of using Atomic Energy of Canada's nuclear generation system.

This is private business for a private company that wishes to use the clean technology that nuclear power has to offer. Not only is it clean technology, but we, as well as our off-taker, believe that it's reliable and has stability of pricing. Here's a company in the oil business that believes that it needs a stable energy source, and it's going to use nuclear power. You can bring up a whole bunch of questions or concerns about whether it is right or wrong. Well, you have a private oil company that wishes to take that much power, which is a substantial amount.

Just to give you a quick rundown, to date, council members from two communities wish to host our facility. We are working closely with Whitecourt and Peace River in Alberta. Whitecourt is where we're going tomorrow. We've talked to the council in Peace River, as well, and they're very interested. In Whitecourt, not only do we have the council interested, we have the Chamber of Commerce and the Rotary Club interested. And the community hopefully will be interested tomorrow as well.

We actually have taken an approach that's a voluntary approach. So we're trying to inform the community about nuclear power to make them feel comfortable. We're asking them to host us. Tomorrow night, in both cases, we've been invited guests to the community. We did not go to the community.

Just to give you a little bit more of an idea of why I'm here today, I need government support on the regulatory side, as well. We're very concerned about what's happening on a regulatory basis in Canada today. They have a number of mining projects. They have a number of nuclear projects that are being planned. They have some upgrading facilities they're upgrading. We're concerned about their ability to look at our process in a timely fashion. That timely fashion comes from you people who give them the directions to make sure that not only do they have the resources, but they have a commitment from you people that you feel that this is the right thing to do for Canada today.

That timely review is important to us. Not only does it cost money, but you also have an off-taker that needs it in a timely fashion. If we don't meet that in a timely fashion, they won't take that power.

● (1605)

What's happening, what I'm hearing not only from yourselves but also from the community, is that they want us to clean up that CO_2 issue. This is an opportunity that we have to clean up the CO_2 issue, and we need you and the regulatory body to do that in a timely manner. If it's not done in a timely manner, we as a group fail. I think we as a group need to make sure that regulatory body does it in a timely manner.

That's what we're doing in Alberta, and I do need the help from the committee and from the government to make sure the regulatory body does their job in a timely fashion and they have the resources to do that job.

Thank you.

The Chair: Well, I'm sure that will provoke questions, in any event.

Thank you, Mr. Henuset, for that. That's an interesting disclosure.

I understand that many of the committee members were sent a detailed package from AECL some time ago, I think, outlining your proposal in Alberta and your intention to proceed as soon as possible to build two plants. Is that right?

Mr. Wayne Henuset: Yes. Thank you, Mr. Chairman.

We have informed the provincial government, we've informed some of the ministers here in Ottawa, we've informed the community, and now we're informing the general population of the communities where the reactor is going. So far, as my partner says, we've had fairly good, clear sailing, and hopefully we'll have clear sailing with the regulatory bodies in making sure our applications get reviewed in a timely manner.

The Chair: Thank you again for the presentation, and also Mr. Elston.

We'll proceed now to questions from the committee, beginning with Mr. St. Amand.

Mr. Lloyd St. Amand (Brant, Lib.): Thank you very much, Mr. Chair.

Thanks to both of you for presenting this afternoon.

Mr. Elston, I represent a riding in Ontario, and those of us from Ontario and probably others around the table will know how well you served the province of Ontario with integrity and great skill for some years. So it's nice to have you present before us.

I want to talk a little bit about the perceived risk vis-à-vis nuclear. Whenever nuclear is mentioned, in some circles it conjures images of Chernobyl and Three Mile Island, and it seems to me that at least in North America there are communities and individuals who have been scarred by what happened elsewhere. I appreciate the data with respect to the safety records, which is laudable, but do you find in your presentations or in your discussions with citizens a concern about the safety of nuclear, people saying it's relatively inexpensive, it doesn't produce the greenhouse gas emissions that coal, for instance, surely does, but they really don't want to live within 50 miles of a nuclear reactor? Is that still out there, that type of view?

Mr. Murray Elston: Yes, I think it is.

In fairness, people who have not had to live in close proximity to any major facility, any major industrial facility, I think understand less about the type of safety required of the people who work inside the plant gate. That's not only with nuclear, but it is particularly with nuclear an important one, because you've identified both Three Mile Island and Chernobyl, which were the two large events that everybody has been able to focus on.

In 1979, Three Mile Island, the interesting thing about this was that the vessel worked exactly as it was designed to do, there was total containment, and no loss of life. There was an incident inside the containment, but it was kept safely there. The big problem, obviously, was Chernobyl, which of course was designed without containment. That was in fact a weakness of that type of reactor going forward, and I think a lot of people knew that.

While accidents can always happen, and while we plan our safety systems in depth with respect to the Canadian technology, the type of accident that happened in Chernobyl cannot happen with our units.

That having been said, we spend all our time making sure the women and men who work inside our plant keep it safe. So we've now had I think probably fourth-generation people showing up at the gates of our facilities to work inside those places and we have host communities that are extremely supportive of the types of operations that go on there.

We do not just work inside the gate. We of course have very strong emergency measure planning, in conjunction with the communities, so we work with those communities at a very high level. But as you rightly identified, once you're a long way away from there and you don't understand all the things that happen, it's very hard to persuade people until they've actually become accustomed to the knowledge that comes from working with the technology over a series of years.

We have discovered over the last several months that the more we speak to people about the technology and the more they understand the record we have, there is an easing of the concern about safety. But there is no question that you've identified one of those issues. If we go to a brand-new community, as Mr. Henuset is, you start all over. You prime the community for questions and you show them what the technology can do, and then you demonstrate, through the 40-year history we have, that we can do it safely.

● (1610)

Mr. Lloyd St. Amand: If I may ask either of you, then, I understand that tremendous strides have been made with respect to the storage of nuclear waste. Can you touch on that a little bit?

Mr. Murray Elston: I can.

There are two stages now in the Canadian context, in the world context. As the material comes from the calandria, where it is generating the heat to generate the electricity, it is put in water sometimes called the swimming pool and it cools there between seven and ten years. Then it is moved into dry storage above ground in concrete designed facilities in Douglas Point, which was our first prototype commercial operation, a 200-megawatt unit at Bruce. Those are above-ground storage facilities that look like silos. At Becancoeur, they are what is called a “max store”, designed by AECL, which is a different shape, but they do the same thing. They contain in dry storage the spent fuel. And that is where it is now.

The third phase, which is what the NWMO has worked on, is then to take the material and introduce it into a deep geological repository with the prospect that there will be an intermediate step, slightly below-ground storage area, which would permit us not only to monitor the dry fuel storage area, but also to retrieve it, if we needed to reprocess it.

So I think the big thing is that when we first started taking the material from the calandrias, we theoretically had an understanding of what would happen. When I toured the Douglas Point facility, which was taken out of service in the mid-eighties, I asked if things were happening the way they were expected to with respect to the decommission that occurred there. And people identified that is exactly what's happening.

The interesting thing about physics is that it's physics, and once you know the properties of the materials you're dealing with, you can predict pretty well how this is going. What you can predict as well is how the man-made structures that are designed to contain and deal with them are working, and those structures are all working extremely well indeed.

So we've been very sophisticated. We've got a lot of science that goes into dealing with it. And I think the other thing that permits us some degree of comfort is that the deep geological repository option is one that is also well along the way in Finland as well as in Sweden as well as in France. Of course I think everybody has probably heard about the Yucca Mountain Program. So we're on the right track, a good strong record now of forty-plus years of storage. I think in the early days we thought we'd just be leaving it. I think now we're turning our minds to thinking about making sure we can get at that energy when we need it later.

● (1615)

The Chair: Last question.

Mr. Wayne Henuset: I want to add something to that. Murray mentioned one thing that's happening in France, U.K., Russia, Belgium, Japan. They're all refurbishing their fuel right now, so they're reusing it; 95% of the fuel can be reused. The United States right now is looking at building their own refurbishing facility, and Japan is well into the refurbishing facility.

Right now in Canada we don't refurbish. We store it on-site and then we hope to store it off-site in an underground facility. But that's an asset for our future generations. The technology has been around for 30 years, but when Canada gets to a point where we need to use that uranium and reuse it, we can do it. The technology is there. We have a lot of fuel available for our future generations' energy needs, and we should never not look at that.

Mr. Lloyd St. Amand: One last question, Mr. Chair. Thanks for your indulgence.

If there were a groundswell of support to increase our nuclear output by 10%, for instance, what would need to be done—an expansion of current plants, building of new plants? What would happen?

Mr. Murray Elston: Some of all of that, obviously.

In Ontario, for instance, we're at about 12,006 now, I think it says in my notes. We were around closer to 14,000 before, and then we shut down a couple of the units. But 10% is not that much any more. They put in a 1,000-megawatt unit, the ACR-1000, which produces about 1,175 megawatts gross power. So it doesn't take much to increase your output by 10%.

Two units that are being discussed for Alberta would more than match that. And there is consideration in the Ontario Power Authority's report in Ontario to build a couple of units. Part of that would be, of course, to replace the two Pickering units that are not going to be reopened. But I think it is not too difficult to see our moving well beyond an increase of 10% in nuclear generating capacity as we see our population grow.

What is so startling for us is—taking a look at Ontario as an example again—when people believed that we were oversupplied with electricity. I have a slide that shows the gap in supply for Ontario, but unfortunately I didn't bring it to this because I thought that would be a bit too long. Through the 1990s, we thought we had all kinds of electricity. If you go from one side of this country to the other now, there is a very strong belief, a very strong reflection in major parts of this country, that we do not have enough electricity supply at the very time when we're anticipating, for Ontario again, seeing about 300,000 people arriving here each year, in addition to the population we have. That's just the province of Ontario, but that is happening right across the country.

So looking at supplying the energy needs of people with computers and televisions, production facilities with computerized and mechanized operations, it's not too far beyond the prospects of the 10% increase.

Mr. Wayne Henuset: I'd like to add to that.

As a businessman, my biggest challenge is the regulatory issues. It scares the living death out of me to take four to five years. So my business model is nine years to build a nuclear power facility. There's no reason for nine years for this to happen. For some reason, we have a regulatory body that takes four to five years to come up with a "Yes, it's okay". If we can streamline that...we can get approval for a coal-fired power facility in Alberta in one year. For this process, I should be looking at anywhere between four and five years for that approval process.

For building a power facility.... This is a power facility, gentlemen. Yes, it's got nuclear attached to it, but that nuclear is quite similar in the sense that we do have coal facilities, we have gas facilities. Let's streamline that regulatory process, to make sure that Canadians are safe, yet we fix the CO_2 issue and we make it economical for people to build nuclear facilities.

You asked a question about what the community responses are. In the communities where nuclear power is today, there's a 90% approval factor: "Build more right here in my community, come on." Everybody is scared to death, saying that you can't build them in any other communities. I'm saying the opposite. I have everybody in that community, other than the general public, saying "Yes, come to my community".

So that little question and that cloud over everybody's head who's worried about opening and going to a new community.... I was invited to two communities. Since then, I've been invited to three others. These are communities asking me to come, not me going to them. So some of that is misbelief.

The other thing is, if we can clean up our regulatory issues so that it doesn't take four to five years to get approval, we would have more nuclear facilities. Because they've got such a stellar track record after the last 40 years.... What industry has that kind of a track record? And you could bring the cost down if you just clean up the timelines, because the cost of my funds is ridiculous. So that's just good business.

● (1620)

Mr. Murray Elston: I think what is critically important is that the regulator has mandated upfront consultation processes. The opening up, as it were, of nuclear industry transparency, the engagement with people in a way that I think has never been seen before, has helped us move the ball a great deal on that. As I said, what is helping us is the more people hear about us, know about us, and the more people they know who have worked in the facilities, the better it is for us. So maybe there are some advantages to having people being much more familiar with us and our industry.

You know, a 40-year history is not that long in the world of industrial development. This is really our first commercial run at using nuclear power as a commercial generating option. We're doing pretty well with it, but we need to get our story out, and that's what we're trying to do.

The Chair: Thank you very much.

Thank you, Mr. St. Amand. Those are questions that people like to have answered.

We'll proceed now to Madame DeBellefeuille.

[*Translation*]

Mrs. Claude DeBellefeuille: Thank you very much for your presentations. Nuclear energy is back in the news. Last evening, a Radio-Canada radio feature dealt with the pressure on uranium prices caused by the construction of nuclear power stations in China. This is a subject that interests me greatly. We have to be able to weigh the pros and cons. In that sense, your presentations gave us food for thought.

On the other hand, Mr. Elston, I am a little surprised to hear you call nuclear energy clean energy. It is as if the fact of reducing CO2 earned the title “very clean”. The problem of the waste remains very real, even if solutions are possible. The management of nuclear waste is our greatest environmental problem at a moment, and we still have no clear solution to it. As a result, some environmentalists and members of the public are afraid of radioactive waste being transported and buried, and of radiation. The public is really wary of nuclear energy.

To be considered clean, it is not enough that nuclear energy does not emit CO2. The question of waste must also be considered appropriately and responsibly. After all, Canada has still not decided how and where the waste will be buried.

Quebeckers are particularly concerned because one of the potential sites under consideration is the Canadian Shield, which in part lies in Quebec territory. Since Quebec uses only 2% of the country's nuclear energy, it is certainly not interested in burying waste that comes from Alberta or from other provinces. This is one of the reasons why Quebeckers are very sensitive to the nuclear question and why they follow it so closely.

Mr. Henuset, you make me smile when you say that oil companies want to reduce CO2. Actually, they have been very honest and are not embarrassed to tell us that their main concern is to reduce their consumption of natural gas because that is one of their greatest expenses in oil sands development. Nuclear energy is an alternative that would allow them to use less natural gas, and, above all, to reduce their energy costs for extracting oil from the tar sands.

I have two questions. The first is directed to Mr. Elston. I have carefully looked at the government budget that deals with natural resources and I have seen that a lot of money is being spent on the management of nuclear waste. Who is financially responsible for the management of waste?

You and Mr. St. Armand feel that development of nuclear energy in Canada is a viable option. What is the projected cost of managing the waste in the long term? How much is this going to cost Canadian taxpayers?

● (1625)

[*English*]

Mr. Murray Elston: Let me begin with the fact that we have three, I would guess, classes of nuclear waste, if you would describe it as that. One is the so-called “heritage waste”, which has actually come from the days when the federal government was responsible for and was managing the extraction and the shipment of all the uranium that was mined. There are sites, historically, that have fallen to the federal government to renovate.

Some of the first announcements made by this Minister of Natural Resources were around the funding, I think, of about $540 million towards dealing with the “legacy waste”, as it's called. It is in fact restoration work around transportation lines in northern Saskatchewan and other parts of the country. It is dealing with low-level waste at Port Hope, where there was a uranium facility, which probably most of you have read about. And there was, in fact, an office in Montreal that was dealing with the historic waste from the original sites where a lot of work was done.

That classification of material, which is left over from the heritage development of the industry, resides with the federal government and has, I think, in most cases, been the same for places such as the United States or Great Britain, or otherwise. In fact, when Great Britain sold their operations, their nuclear state-owned operations, they obviously retained the liability to deal with the historic waste, and I think that has been the model that has most effectively been seen to be fair for all of the people in the societies where those choices have been made.

The second classification of waste is the low and intermediate level of waste, which really represents the tools, coveralls, and clothing that people wear when they are inside the units. Tools used to do actual work are probably also intermediate waste, as opposed to low. Those are contained in a single facility in Ontario, and probably also at site in Quebec, and also at Point Lepreau, where the materials are compacted. They are treated in many ways just like regular garbage, if I can describe it that way. So it is contained in a special way, but likewise, by the people who are operating the facilities.

The third batch—actually I guess there's a fourth—is really the spent fuel bundles, and those I've described in my remarks to Mr. St. Amand. The material goes into water first, and then from the water into the dry storage and moves forward.

The siting, which is what the Nuclear Waste Management Organization is now waiting for permission to proceed with, is seen to take upwards of 30 years, to find a site that is appropriate. The process is, I think—

[*Translation*]

Mrs. Claude DeBellefeuille: Who pays for that, Mr. Elston? What are the projections? Who pays at each stage? You have just talked about a historical legacy of $540 million being paid by taxpayers. Who pays for the two other stages?

● (1630)

[*English*]

Mr. Murray Elston: The heritage, by the taxpayers. The intermediate and the low-level are paid for on site by each of the operators. The NWMO is mandated to be paid for by the operators of the nuclear sites, the owners of the nuclear sites. So Ontario Power Generation, Hydro-Québec, and New Brunswick Power are responsible for funding the operation of the Nuclear Waste Management Organization and for putting aside the money, through their operations, to set up a fund that will pay for the development of the repository and for the long-term management of that. There is already an amount that is assigned by each of those operators towards the future management of that material.

As I said, we looked at it in the beginning as being a waste stream, which meant that we would only have costs associated with its long-term containment. We now look at it as a very valuable resource, and there will be, in my view, a revenue stream coming from the material that we have in the repository.

I think Mr. Henuset also identified a very important element that is about to be considered, and that is the reworking of the material. At the current time, because of the value of the deposits in northern Saskatchewan, we have been able to use only new fuel. But there will come a time, I think, because the prices now have moved considerably higher in uranium because of worldwide demand, that there will be an economic case made for us reworking that. So our reprocessing plant would probably go along with the geological repository, and the people who buy that fuel would pay for it.

So right now the ratepayers in Quebec, in New Brunswick, and in Ontario are the ones who will be paying for the material that is to be managed into the future.

[*Translation*]

Mrs. Claude DeBellefeuille: Do you want to respond to the question? I have another one for you .

[*English*]

Mr. Wayne Henuset: Okay. I just wanted to add to that a little bit, and that was that we actually have to put money aside for management of the waste. So we actually, in our financial modelling, put money aside to manage the waste ongoing.

[*Translation*]

Mrs. Claude DeBellefeuille: Mr. Henuset, you seem dissatisfied with the regulatory framework. You consider that it takes too long for you to put your business plan into effect, and to achieve your goal of building your reactor in Alberta.

I am no environmental expert, but I assume that if five years are needed, it is for good reason. There are important stages to observe.

You are asking us to rationalize. Is that another word for reduce? What frightens me is that in your haste to build the reactor in Alberta, you are pressuring the government to reduce its environmental requirements. If five years are needed, it must be for good reason.

Tell me exactly what the steps are. Can you tell me what takes too long? Which environmental requirements would you like to see removed?

[*English*]

Mr. Wayne Henuset: I'll give you an example. We have to do an environmental assessment. To do the environmental assessment, there are probably about six bodies that have to come together. They have to give me an overview of what I should do to check the environment to make sure it's correct. It would be really nice for those six or seven bodies to get together and give me a plan and say these are the issues that we have at hand, rather than me now putting in my site application and then negotiating with each one of them what should be done.

I don't want to negotiate. Just tell me what you would like and expect to make sure that we have a safe environment moving forward for our fish and for our communities to live in, and here it is. Don't let's start into negotiations for a year and come up with this is what maybe we should do. Let's just have a little policy and say, “Mr. Henuset, you put your site licence in and here's what we have to do to make sure that our public is safe.”

Don't go into a negotiation factor and go through six different government bodies and everybody come up with a different plan. That's what it's at today. That's what I mean by streamlining. In fact, I like the idea of my environmental assessment being clear and decisive, so that 30 or 40 years from now I know what I started with.

I know what the environment is all about. I don't want to affect it. I have children, I have grandchildren. I want to live here. My children.... We moved. I'm no different from you. I want to make sure it's safe, but I want that process not to be who's around today or how they're feeling. I want, “This is it, Mr. Henuset; please do this to make sure our community is safe.” I'm not looking at streamlining anything. Just give me clear, definite direction.

● (1635)

The Chair: Thank you, Mr. Henuset.

Mr. Bevington is going to take the questions for the NDP.

Mr. Dennis Bevington (Western Arctic, NDP): Thank you, Mr. Chair.

A number of issues around waste of course are very important. I have actually had the experience of two waste cleanups in my community where I live in the Northwest Territories. One of them was the result of a trail of yellow-cake from the Port Radium mine that went through the system and 70 years later you could still find where anybody had dropped any of this material on the roadway or anything that had happened. It's a very long-term source of concern to people, nuclear waste, and it doesn't go away very easily.

As well, I went through the cleanup of Kosmos 954 when it burned up over the Northwest Territories. It burned up probably 300 kilometres away from my home, and still, when they did the cleanup, they could go into my driveway and they could sort the radiation. The particles of radiation had fallen in my driveway from a device about two-feet square. They could find those pieces in my driveway, and this was in a radius of, as I say, 300 kilometres from where the device burned up in the atmosphere.

I think you see where I'm going here. There is a lot of concern about nuclear waste, because it doesn't go away. You can put it in storage. You have to maintain the storage. You have to ensure that it is done well. And if anything goes wrong in the process, such as with Three Mile Island or Chernobyl, you have a problem with this particulate through the system. It's not a light matter.

Who, ultimately, has responsibility for the nuclear waste now existing in Canada?

Mr. Murray Elston: I identified for Madame DeBellefeuille exactly who was responsible. Heritage waste is with the federal government. In fact the long-term mining, which you just identified—the uranium mine, for instance—is federal government.

I think the folks who are actually contracted to do it.... The reason money is going through the natural resources department is it has fallen to the AECL operation to take over or take charge of it. The people who are on site at each of the operating facilities manage that.

I haven't talked about the material that comes from research reactors at universities and others, but those likewise, I think, are contracted to AECL. I could stand to be corrected on those, but I think almost all of those find their way back through to AECL's operation. Ultimately the operators manage their own sets of waste and, as I say, it is not waste with respect to the fuel, but the used fuel. I think it will again become a source of more energy for us.

Mr. Wayne Henuset: To add to that, we're concerned about a waste that we actually hold on to—that we actually have control of it and make sure we monitor it. If you put that in an idea of what's happening with the waste from a coal facility and where it's going, I can't see its being comparable. Today we accept coal and its going into a dumping ground in the sky, but we're not acceptable to understanding that we can actually hold on to it and manage that waste.

Not only does that happen, but in 30 years of experience they can actually re-use that waste. I don't know why we keep going back to that same thing. I know it's very dangerous, but it also has a very fast timeline of the radiation dropping out of it. You can maybe allude to the timeline and how fast it drops out and the percentage that's dropped out.

● (1640)

Mr. Dennis Bevington: I think we've gone into that in enough detail right now.

What's the cost right now for a 1,000-megawatt plant?

Mr. Murray Elston: I'm not the technology seller, so I'm not in a position to answer that. Mr. Henuset is a buyer, but I'd prefer the commercial guys to give you prices. I'm not in that—

Mr. Wayne Henuset: I think that's between us and the AECL, that costing, but right now we feel we can deliver somewhere around 6¢ to 7¢ a kilowatt. That's about the going price right now. In order for me to develop our facility it would cost us about that.

Mr. Dennis Bevington: That includes the decommissioning cost and the dealing with the nuclear waste. That's your whole package.

Mr. Wayne Henuset: That's our whole package; that's correct. We have decommissioning costs in there, as well as looking after the waste fuel.

Mr. Murray Elston: If you want to take a look at a very practical operation at the moment, it's the refurbishment at Bruce. They're doing the two units at Bruce A, units 1 and 2, plus some upgrades at units 3 and 4 once they've done units 1 and 2. That's a $4.25 billion operation, which will yield a price of about 6.5¢ a kilowatt for the movement back on of 1,500-plus megawatts at Bruce units 1 and 2.

Mr. Dennis Bevington: How is that price dependent on the price of uranium?

Mr. Murray Elston: It's a minor amount in terms of the overall operation.

The big disadvantage for nuclear is that the cost associated with constructing the facility is big compared to a lot of other generating types. Our operation costs are really quite small. In most cases we would see the uranium fuel cost as being under 5% of the cost of operating. Hence, while we've seen an increase in the price of uranium—for instance, when I came here in 2004, it was $7 a pound, and it is now up over $100 a pound on the spot market—still, because it's such a small part of the overall operating component, it leaves us a very competitive production facility.

Mr. Dennis Bevington: Is there any thought of using other sources of radioactive material, such as thorium?

Mr. Murray Elston: Yes, there have been.

There are a couple of things that are happening. The one important element that I didn't get to touch on was the movement of the technology into new areas of consideration. For us, thorium is not now seen to be an opportunity because we have such good and high-grade deposits of uranium.

Thorium is being actively considered in India, however, because they have big deposits of thorium. So there are considerations of using it, but under the current circumstances, we did a very quick calculation....

I'll step back one step. The biggest reserves that we know of right now, in order of the first three, are Australia, Kazakhstan, and Canada. Those are the ones we know. We've got about 3.3 million tonnes of known reserves. There are another projected 7 million tonnes of expected reserves.

We think, overall, there are probably 14 million to 15 million tonnes of uranium available before we really have to start looking for other types of generators.

But if you take a look at how Canada produces electricity, people go to what is regionally available. So Alberta has lots of coal and they've been using coal. Water is abundant in Quebec, B.C., and Manitoba, so water is a chief resource. While we end up having a lot of access to uranium and for a long period of time, it doesn't preclude others from going to thorium.

Likewise, it hasn't precluded us from moving our technology. The ACR-1000, which is being designed by our friends at AECL, will probably get more output with a third less fuel than we're getting from our current reactors, which means that the reserves we know about in respect of the amount we're now consuming will be extended even further.

In addition to that, we've got the Generation IV International Forum on which the Canadian government has signed a treaty with international partners. There are 11 partners involved.

The folks at Natural Resources Canada are involved in looking at high-temperature reactors, which again will have efficiency quotients that will permit us to extend our fuel opportunities.

But the short answer is, we have lots of available material and at reasonably good prices compared to others.

And as I said before, we do it in an environmentally sensitive way. We're the only technology that knows exactly what goes into our units, when it went in, how long it was there, when it came out, and where it's been since it came out of the reactors. That very important containment chain, the unbroken carriage of that material, is what I think sets us aside from all other types of generating capabilities.

● (1645)

The Chair: Thank you, Mr. Elston.

Thank you, Mr. Bevington.

We'll proceed now to Mr. Trost.

Mr. Bradley Trost (Saskatoon—Humboldt, CPC): Thank you, Mr. Chair.

There are a couple of major areas I want to get into. I'm most interested of course in the regulatory aspect that was brought up. And specifically, I'm looking for examples, comparisons, etc., that you might have from other jurisdictions internationally, and of course I'm thinking of other jurisdictions that take a very rigorous approach to the environment, to safety—France, Finland. Do you have any numbers, statistics, etc., about how long they would take for their regulatory process, and various aspects they might approach differently from the Canadian experience, regulatory-wise?

Mr. Murray Elston: I'm afraid I don't have any statistical comparators at all. I apologize for that.

I know our own regulator fairly well, but not the ones outside.

Mr. Wayne Henuset: On that comment, I just see that we have an opportunity here not to worry about others, but actually to bring a process that's fairly straightforward to our system. We are very concerned about our environment and our people, so if we're that concerned, we should have a process that's very defined so that I, or any other builder of a nuclear facility, can walk in and say here's what we need to do to make sure that it's safe.

In environmental assessment, different processes ask for different environmental assessments, but this is one that we know now and for which we should be ready, after 40 years.

Mr. Bradley Trost: Yes. I would say my concern wasn't so much that we are concerned about others, but I think it might be prudent if there are other countries that have found rather efficient, streamlined ways of getting this done. France has considerable expertise. So if there's something we can learn from how they do regulatory approach, that might speed it up. I think that would be a positive.

Mr. Wayne Henuset: Well, the United States has the largest number in the world right now. They've now streamlined their process to where you actually pre-approve your facility. They actually have a pre-approval process. You can say, “I want to use X reactor”, and they say, “yes, that's fine, here it is.” The drawings have been done and approved by the regulatory body.

Mr. Bradley Trost: So basically, once a certain style of reactor has been approved, that reactor is then streamlined for approval? A little bit of siting work done for the local conditions, and away they go?

Mr. Wayne Henuset: Exactly.

Mr. Bradley Trost: So I'm assuming, then, that their timelines would be dramatically shorter than what you're looking at.

Mr. Wayne Henuset: They're hoping to move it along a lot faster, that's correct.

Mr. Murray Elston: Can I just make one comment? I think what is extremely important to understand here is that we are emerging from what has been roughly a 15-year decline in activity around the nuclear industry. We haven't built in Canada since the finishing of the Darlington plants in the early 1990s. We've built externally, we've built in Romania and China and South Korea. To the extent that the boom days of the 1970s and 1980s built up capacity in the industry and the regulator, that capacity was lost.

Now, having to restart the engine has caused lots of scratching of heads, if I can say that, as to how we can make things move fairly quickly and smoothly.

● (1650)

Mr. Bradley Trost: So you're saying this could be a little bit of growing pains, and once we get a little bit through here, we can actually make this more efficient.

Mr. Murray Elston: Part of it is. I think that with the re-launch of almost anything...and not to put too fine a point on it, but having been in campaigns, you know by the time you get to the end of a campaign you're doing pretty well, but the first couple of days on the road, you can have a couple of glitches. I think that we're experiencing this new plateau of activity, the type of hesitancy that will be well exercised away by the time we're in full swing.

We've found, as we've talked to the regulator, a willingness to look at opportunities to collaborate on ways of ensuring that there's greater transparency, more of a connection with the public. And Mr. Henuset, earlier on when he introduced his remarks, had already indicated that he has a very intensive on-the-ground campaign prior to his doing anything at all in the formal sense.

It seems to me that there are parts of things that will help us, but as we try to re-launch, there will be some stops and starts. I think all of us, though, would like to anticipate that the two primary issues that are of big concern are one, the timing of decisions to proceed, outside the regulatory, but then, two, the acquisition of the human resources to permit us to do all the work that is out there, in fact the capacity to do not only refurbishment but the new build and new projects, which Mr. Henuset has described are of some concern.

That, I think, forces people into positions where they reconsider what they used to do as a matter of course. So you will have seen, for instance, the regulator has released a couple of new editions of the status of the way processes are to work with new-build operations and with the way we're conducting our refurbishment operation.

It's not like we're not considering it. I think it's like, “once I get the applications, then I can really do it”, but government doesn't like to fund people who get ready for things that may not happen. So there has been that sort of tentativeness.

Now, instead of zero new-build requests, we have a request for an EA for a new build at Bruce, an EA at Ontario Power Generation Facilities at Darlington, and we have Mr. Henuset now out in Alberta. So we have three opportunities to build new, and we have a regulator that had none of that before.

I think it's understandable. That doesn't make it less anxious and stressful for people who are in the middle of it. I think by the time we get the first one under our belts, we'll be well exercised and able to get these things done pretty well.

Mr. Bradley Trost: But just to be curious, what international cooperation does there tend to be? We won't be unique in this situation. This is an international renaissance we're talking about.

I'm assuming the Finns haven't had dozens and dozens of reactors over the last few years. They have a new one now. Other countries.... Going back to my question, what can we steal, borrow, beg from other places that would apply? Isn't there some way we can learn from other people's experience?

Mr. Murray Elston: It's interesting. You can deal with processes, but you can't steal the engagement with the public, which is what Mr. Henuset's doing now.

The Finns engage with their public. They have four units, they're building a fifth, they're now considering a sixth. The interesting thing about Finland is that the unit they're building now is a 1,600 megawatt unit, far bigger than anything we have here, almost twice as big as our biggest at Darlington.

You cannot steal, beg, or borrow the engagement with the public. The engagement with the public is extremely critical. Being transparent, laying out what has to happen, whether it's greenfield or whether it's building on an existing site, is really important.

Then I think, following along with the questions from Mr. Bevington, Madame Faille, and Mr. St. Amand, there's the importance of what you're going to do next: managing safety, managing the stream of spent fuel and waste. All of that stuff has to be laid out for people, so that they can get to the point where Mr. Henuset wants to be in 40 years, knowing exactly what's going to result from these units.

So we do look around the world at what's happening. We're a much more transparent industry than we were in the 1960s or 1970s —actually, very much more transparent—and from my point of view, better off in terms of our own performance inside the gate as a result of our relationships with the people outside the gate.

● (1655)

The Chair: Thank you, Mr. Trost.

Mr. Wayne Henuset: I have to say I can work with the timelines as long as the reviews are done as they're stated and we're not held up. I'm just nervous because of so much that's coming on.

So far, with the CNSC and AECL, I believe that everything's been going unbelievably smoothly, but because there's so much coming down and it is all, basically, brand new, I think all of us have to support and work with those regulatory people to understand their issues and problems as they come forward, and try to help them come to conclusions they feel comfortable with.

So far, everybody I've worked with in nuclear power is nervous; everybody's skittish about it. Yet when you're working with the community and the people who actually work at it every day, they aren't skittish. Everybody here has that same response: don't bring that to my community, because I'll lose my riding; they'll all run to somebody else. But we're not talking about—

A voice: Actually, we're a little bit different.

Mr. Murray Elston: I think it's really important as well, as I've said before, that these nuclear plants are big industrial sites. I went to the University of Western Ontario, and two of the guys who were in residence with me—one from Iroquois Falls, one from Kapuskasing —were crawling in underneath rolls of flying paper. I wouldn't do that for a moment. There is dangerous work, if you're not trained to be safe and secure.

The difference between a lot of places and nuclear is that we spend all of our time considering the safety elements. The women and men who work there are trained and retrained. It takes six and eight and nine years for people to get certified to be operators in our plants. We are preoccupied with safety. It isn't just that you get inside and once you're there you quit thinking. It's like any sophisticated apparatus: you have to be respectful of it, you have to be vigilant with it, and you have to keep it repaired and fixed as though it were your own piece of equipment in your own basement. Then it's going to run well.

What has happened—you saw the table—is that as we get better at looking at how we run our plants safely and how we make sure our maintenance is done in a timely fashion, we're getting even better performance out of these things. It's like one of those cases when people say win-win, but these are win-win-wins. This is better production of electricity at a better price, a better operation of our plants, with safer outcomes for the women and men who work inside the gate and better outcomes for the people who are around them in communities. We're having a huge impact on the economies of each of those host communities.

But we don't do it by taking anything for granted. Wayne's right: people who don't work with a certain type of industrial apparatus are skittish of it—and not just nuclear. But nuclear has the problem associated with the events Mr. St. Amand identified: Chernobyl and Three Mile Island. In our case, containment and safety and security in depth—this apparatus around our units—makes us preoccupied with keeping these things safe so that people can enjoy a safe, healthy, and long life.

The Chair: Thank you, Mr. Elston.

Well, we did allow a little latitude with that first round of questions so I'm going to have to ask you to tighten up on the second round.

With no particular offence to Mr. Boshcoff, I'm going to ask that you try to keep questions and answers to about five minutes. That should give you adequate time.

So we'll begin the second round with Mr. Boshcoff.

Mr. Ken Boshcoff (Thunder Bay—Rainy River, Lib.): Because it's my first time with you as the chair, I'll let you have that latitude of now you can throw us the rules.

The environmental movement remains largely skittishly anti-nuclear, whereas the term “reuse” or “refurbishment” is essentially a fundamental of environmental training or anything that you'd study. A year ago here they had these regular breakfasts called Bacon and Eggheads by the science council. They demonstrated very clearly and articulately the relative safety of nuclear waste disposal—those types of things—and several of the options, but even at that there was no mention of this refurbishment concept. Now it seems it's like going to a sludge pit and finding gold in them there hills and that type of thing, which makes a lot of sense.

So I'm going to ask you this. How new is this refurbishment concept? It seems new to most of us. Secondly, has it helped make any progress in forming allegiances within the environmental movements and organizations?

● (1700)

Mr. Murray Elston: On the latter point, the changes in perspective of a number of people involved in the environmental community are happening as a result of things other than the reuse of the fuel, or at least the reworking of the fuel for use again. I think it is because of the containment of waste and because there are no emissions of greenhouse gases and other things. That's tending to move people there, but it is not from the reprocessing of waste.

The concept of reprocessing waste has been with us for a long, long time. In fact, as soon as we started using it, people understood that there was a huge amount of energy still left there, but the economics around reworking the waste, the used fuel, was seen to be commercially less opportune of good results. So that's why it hasn't been promoted. Canada in particular, of course, has had the advantage of having a lot of natural deposits.

I think there are a couple of things. Even inside the nuclear industry, the debate about reworking the spent fuel generates a discussion, because once you get into reworking the fuel that you've used once, you will get into some chemical processes that end up generating, again, their own new type of separate waste stream. While you are reducing the volumes left over, ultimately by the reprocessing and otherwise, you do create a different set of waste issues to manage. We can do that, and I think the discussion has been largely academic because we've had these great natural reserves that have been able to take us away from doing that.

The people in France have been reprocessing fuel for a long time. The people in other parts—Britain and some other places—have been doing some things as well, but here we haven't had to.

Mr. Ken Boshcoff: In many communities across the country in the eighties, there were resolutions passed declaring them nuclear-free, primarily because of the fear of fuel transport, either by rail or truck. I'm wondering whether the remnants of those resolutions are presenting problems perhaps for Mr. Henuset or your members.

Mr. Murray Elston: I think there's still a residue associated with the eighties.

Certainly it's interesting to consider some of the things internationally that happened. Australia declared itself a nuclear-free country. They have come to reconsider their whole nuclear program over there, because they of course, as I identified, have the largest reserves of uranium in the world. In fact, the Olympic Dam mine, which I think is the largest, is one that is very beneficial to that economy. Lately, Mr. Howard has been discussing the prospect of moving further even and considering reactors for Australia.

The eighties are still there. Some of us spent our best days in the eighties, one might say, and we can recall them. But when you take a look at what's happening now, there are two very important changes. One, we recognize that there is a real crunch on energy generally. So what do you do to substitute energy uses? One of them is to fuel-switch. If we go into something like electricity for cars eventually, then we're going to need more electricity generated from one source or another.

At the end of the day, we expect, when people bring those motions forward, that we will have people in almost every community across the country who can stand up and provide some detailed and very specific information that will help the communities understand that it's not necessary to be nuclear-free in this day and age.

● (1705)

Mr. Wayne Henuset: I want to add a little bit to that.

Right now, radiation is moved around cities everywhere. Radiation is used in the hospitals and it's fully insurable. It's transported every day throughout Canada and the world and it's not something that's uncommon. I see it behind vehicles on a regular basis on the road. They use it for X-raying, they use it for X-raying welds. It's almost a silly question.

Mr. Ken Boshcoff: The question then, from an association standpoint, is the scope and degree of international competition. If Finland is exporting their technology or has it available for export—

Mr. Murray Elston: The Finns are building Areva, which is a French model. The Areva unit is a 1,600 megawatt, which is going to be duplicated at Flamanville by Areva for Électricité de France. There is competition among Areva, General Electric, Westinghouse, the CANDU product, and it's very intensive. The Russians, of course, are building in some areas, although they are not generally active in many of the markets in which we are. The South Koreans have technology available as well. So there is a lot of competition around the world in this field.

The Chair: Thank you, Mr. Boshcoff.

I'll go now to Monsieur Ouellet.

[*Translation*]

Mr. Christian Ouellet: Thank you, Mr. Chair.

Mr. Elston, for 60 years, nuclear energy has been heavily subsidized in Canada. At one point, research alone was subsidized to the tune of $550 million annually.

How is it that at present, the nuclear energy industry cannot do without government assistance?

[*English*]

Mr. Murray Elston: There are two very important observations to make. Not all expenditures made by the Government of Canada on research can be described as subsidy. There are lots of places where investments are made in basic science for the benefit of the population generally. This is one of those areas in which the investment in nuclear technology that's been happening for more than 60 years now has paid off, with the export of units to Argentina, Romania, South Korea, China, where the benefits have flowed back into a number of communities and significant businesses in this country. So I would say that for basic science understanding, for academic understanding, the $540 million you identified is not to be described as a subsidy as much as it is to be described as basic science understanding.

[*Translation*]

Mr. Christian Ouellet: This year, the government is spending $840 million on nuclear energy. The figures are correct. I quoted them in the minister's presence the other day, and he did not contradict me. Security is involved. Of course, if we did not have nuclear energy, we would not need security. Research and oversight are also involved.

Why does nuclear energy need $840 million? It would be fantastic to invest $1 billion per year in hydroelectric energy. Did you know that the hydroelectric dams are going to increase their output by 40% without building other dams, simply by changing the turbines? That is going to cost $10 billion in Quebec. The province would like to receive $1 billion per year too.

Why does Atomic Energy of Canada and your 72 companies receive $840 million each year? Why do you need it?

● (1710)

[*English*]

Mr. Murray Elston: I think what you are doing is confusing the announcement of the $540 million that is associated with the flowing of money to the heritage waste issue. That is not money that is going to subsidize—

[*Translation*]

Mr. Christian Ouellet: It is only $94 million for the environmental problems that we inherited. It is not the total.

[*English*]

Mr. Murray Elston: There's a cash flow, but I'm not sure it's $840 million. I haven't seen those numbers anywhere.

Mr. Christian Ouellet: I'll send them to you.

Mr. Murray Elston: You can send them to me, but I think you have misconstrued some numbers.

[*Translation*]

Mr. Christian Ouellet: No, I am not mistaken.

[*English*]

The Chair: May I just intervene to suggest, Monsieur Ouellet, that I think it's not up to Mr. Elston to explain where the government spends its money. You can probably better put that question to the government when they appear—as you did, and you got an answer from the minister when he was here. But I don't think it's fair to ask Mr. Elston the question of how the government invests its money.

[*Translation*]

Mr. Christian Ouellet: We are still looking for an official site to bury leftover waste. It has been discussed for 30 years. Where in Canada do you find a site like that? You must have an idea, given that you have been looking for 30 years.

[*English*]

Mr. Murray Elston: There is a process available to find a site that has been offered for decision to the federal authorities. It was filed by the Nuclear Waste Management Organization in November of 2005. It resided with the previous government. It is now residing with the current government to give the go-ahead to begin a process to find a site.

There is no site yet identified. It is particularly important for us to find one eventually, but in the current state of affairs, our management of the waste stream, which is quite modest by comparison to the amount of electricity we've generated, is well handled on each of the sites we now run in the country.

[*Translation*]

Mr. Christian Ouellet: Do you not think that it is dangerous to want to keep producing nuclear energy without having a site to bury leftover waste? You have been looking for a site for 30 years. With no site considered safe and officially approved by the government, you are still advocating nuclear energy. Do you find that appropriate and rational?

[*English*]

Mr. Murray Elston: There is a secure, safe, well-founded, and well-funded way to manage our waste currently. Our capacity to manage going into the future is well secure until the process that has been identified by the Nuclear Waste Management Organization has been permitted to proceed.

There is no danger with respect to the fuels we now manage. There is not an issue with respect to capacity. Every time there is a building of a new containment facility in dry storage, there is a request for a licence to the regulator. We go through all of the things we have to go through to make sure that the people know we are being safe and wise with respect to that management. So there is not an issue of safety with respect to managing.

There is not an issue with respect to capacity. In fact, as we get more experienced with our operations, we are getting more mileage out of the materials we use and we see a reduction in the waste stream or the used fuel stream as we introduce new technologies going forward.

So far from there being a safety or security issue without the long-term repository, we are well set, with safe and secure management of our waste facilities.

[*Translation*]

Mr. Christian Ouellet: You surprise me greatly. In the United States, NASA considers present and future waste as a terrorism-related danger. But you do not consider it a danger.

[*English*]

Mr. Murray Elston: The advantage of having CANDU technology has been that the used fuel we generate is not as easily used for the purposes of terrorism. It is very difficult to....

You've seen the fuel bundles, I suspect, which are basically a series of cylinders formed in a larger-cylinder style. They are not easily moved into a terrorist's undertaking that would cause the same problems.

Having said that, we have very strong security measures, as everybody has since September 11, which have been increased. We look at the way we manage our entire site, and that includes the management of the waste stream. So ultimately, while terrorism is always out there and always a consideration, just as safety is inside the plant, we are not unprepared for it. We are not a security problem in the same way as I think other facilities might be.

● (1715)

[*Translation*]

Mr. Christian Ouellet: I just wanted to say to—

[*English*]

The Chair: Thank you, Mr. Ouellet.

Thank you, Mr. Elston.

We'll go now to Mr. Harris.

Mr. Richard Harris (Cariboo—Prince George, CPC): With regard to the talk recently about the application of nuclear energy as a power source in the Athabasca oil sands area, have there been professional feasibility studies to determine whether this is feasible both from an environmental and a business point of view?

Mr. Wayne Henuset: On the business point of view, we did that ourselves. We did that because it's for us and it's for a company that's actually taking it, so they did the feasibility on whether it's economical. We're selling them that power at a price for which AECL says they can actually build the facility as well as looking at all the economics of running the facility, buying the uranium, commissioning, and operating the facility day to day. So, yes, we have.

Mr. Richard Harris: From a business point of view, it has thumbs up?

Mr. Wayne Henuset: We're going.

Mr. Richard Harris: You're going, okay.

The Chair: I think Mr. Gourde has a question.

[*Translation*]

Mr. Jacques Gourde (Lotbinière—Chutes-de-la-Chaudière, CPC): Thank you.

Do you have data showing support for nuclear energy from communities that get their electricity from that source?

[*English*]

Mr. Murray Elston: In what way? I'm sorry, we have lots of statistics and we have lots of material with respect to satisfaction generally in the area. But I can tell you, just like working with safety, keeping host communities content that you are doing all that you should for the benefit of safety and security is an ongoing business that each of our operators works pretty hard at. In terms of statistics, I'm not sure if you want satisfaction levels or what.

Mr. Wayne Henuset: I can answer that a little bit. On the economical side, with having so much power in Quebec and Ontario, with 50% of it coming from nuclear in Ontario, with their hydro, that brought a great economic base to your community with a stable energy cost. That stable energy cost is very important for the majority of manufacturing businesses to make sure that they can stay alive, because that's one of their major costs.

Is that what you're looking for?

[*Translation*]

Mr. Jacques Gourde: Yes. I would like to know if communities that have lived near a nuclear power station for 20, 30 or 40 years are still afraid. How have they come to terms with the situation?

[*English*]

Mr. Wayne Henuset: For our town-hall meeting tomorrow, we're actually bringing one of the mayors from one of the existing communities that actually has nuclear power today. The polls generally show that there's substantially more approval for nuclear power in the communities that actually have nuclear power today, so they accept it, like it, and feel it's safe, and they work in the facilities every day. That's why you're getting such a positive opinion in those communities.

Mr. Murray Elston: I think there are two responses, however. One is that people generally, and this I shouldn't think would surprise us, are comfortable with what they have, but when people decide that they're going to change the nature of a unit, maybe add or whatever, people want to go back to square one and go through the very ideas that are going to be put in front of them. So generally there are very high satisfaction rates, but when there are changes to the processes, changes to the size of the plant, that generates as much interest in the local communities as anything else.

We had one situation in Port Hope where in fact people who had historically worked at what used to be the Eldorado facility there, and now is a chemical facility, the application to CNSC turned out to be quite a major community issue. Just because a community is host to a facility doesn't mean that they are not questioning and are not very concerned about changes. Ultimately, that's why there's a tremendous amount of outreach now being done by each of the operators at each of the facilities.

● (1720)

Mr. Wayne Henuset: I have just one thing to clarify that. OPG or Bruce has done four open houses in the communities to tell them what they are doing with their plans of siting more reactors on the existing site, and in four open houses, they had fewer than 200 people show up. So people aren't that concerned, to only have 200 people in four different open houses.

Mr. Murray Elston: I think the other thing that happens, particularly in a place like Bruce, is that the population generally knows everything that's going on at that plant. It's relatively small by numbers, compared to Toronto or Montreal or Vancouver or anything like that. So people are generally aware of what's happening. And I think those who recognize that there's a certain transparency that's going along with the operation already, as you move into other facilities where the people have moved towards and have settled in around an existing facility, you tend to have a lot more interest and activity. But certainly it's not uncommon to have the open houses generating modest returns where people have already been informed about a whole lot of things happening.

[*Translation*]

Mr. Jacques Gourde: From the point of view of energy security in Canada or in the world, can you talk to us about the role that nuclear energy is playing in diversifying different forms of energy?

[*English*]

Mr. Wayne Henuset: What's happening in Alberta is we have an appetite for oil and gas, and we have oil and gas there, so that appetite is amazing. But our conventional oil is pretty much used up, or the idea of finding more of it in our area, so they're going to the oil sands because it's there. They know it's there. There's no finding cost, it's just getting the product out of the ground. So we have to have a stable energy cost in order to get that fossil fuel out of the ground. Right now, with using natural gas, not only having the CO_2 liability that coal has but also the fluctuation in prices, that's why nuclear power makes sense. It also, as you say, diversifies our economy, and it brings in a cleaner form of energy in order to produce that fossil fuel.

Mr. Murray Elston: There are two opportunities with respect to nuclear. One, because it produces large amounts of energy and because it runs best at 24/7, it is capable of helping to sustain the intermittent nature of some other of our renewable fuels, like solar and wind. So we end up being able to help the system manage the intermittent nature of those units. So that is one opportunity.

The second opportunity is that because we can produce, again, 24/7 at a very high level, we are looking at being able to produce hydrogen. Right now, we're looking at the production of hydrogen from electrolysis. But when we go to the generation four project that I was earlier describing and a higher heat temperature coming from the reactors, there will be a possibility of getting into a thermal-chemical production of hydrogen, which will again permit us to move beyond where we are today into a different style of economy that will see the deployment of hydrogen as a more standard fuel around Canada.

The Chair: Thank you, Mr. Elston.

Thank you, Monsieur Gourde.

That completes our second round. We are just a bit short of our time. But I think that's probably going to conclude.

● (1725)

Mr. Murray Elston: Do you want us to talk longer?

Voices: Oh, oh!

The Chair: No, I think you've done an excellent job, frankly—some very good questions and very good responses. I do appreciate the work you've gone into in preparing for this meeting and the answers you've given.

As usual, we appear to have a final comment from Monsieur Ouellet.

[*Translation*]

Mr. Christian Ouellet: Thank you, Mr. Chair.

I would like to hear from Mr. Henuset. He said that he would like to shorten the time needed to evaluate a project. When my colleague asked him what he would like to shorten, he replied that he would like to shorten the evaluation time to one year.

Mr. Henuset, as a planner, I can tell you that it cannot be done like that. When you begin a project, you have to consider the water, the terrain, the resistance, wind direction, the presence or absence of trees, the distance between your site and neighbouring communities, security, etc. All those factors mean that you cannot get an answer easily. People have to evaluate things in different ways. You are putting up something that is more complex than a wind turbine. So it is normal that it takes some time.

[*English*]

Mr. Murray Elston: It is indeed a fair comment that this is a complex package. But I think what Mr. Henuset was really commenting on was that it would be nice to be able to have one package that considered all of the elements inside. He has one project, but I think what is happening is that there are a number of places where duplication occurs. You begin, and you may go through the same principles on each of those elements, and then someone may come along from another site and say, “Go through the elements you discussed with the other regulator for me as well”, and you end up having things that are consecutive as opposed to concurrent.

If only there were some of those places is, I think, what really Mr. Henuset was talking about. But I totally agree: thoroughness of preparation, thoroughness of disclosure are all going to help us get the right responses. Ultimately, the rigour, which we can get, can be managed—and lots of places are trying to manage it—by going to one site with respect to a timely intervention. BAP in Quebec is an attempt to put in place a process that is rigorous, public, and transparent, and which I've attended, but it is a thorough process that contains all of the elements. I think that's what people are longing after.

I suppose once you get to the other side of the fence and see how green the grass is, you might look to the other side again, but it looks as though people are working to contain the entire package.

We're not looking for less rigour, nor is Mr. Henuset, but we are looking for movement that lets us be methodical. Large construction projects, large logistics projects of any sort, whether they're wind or hydro or nuclear, are most economically done when you can go methodically from one step to the next with predictability, and that's when we get the best value for the consumer.

The Chair: Thank you again, Mr. Elston, for speaking on behalf the Canadian Nuclear Association, and Mr. Henuset, on behalf of Energy Alberta Corporation. I very much appreciate your appearance today. The work you put into these presentations and the clarity of your answers are very much appreciated.

That, ladies and gentlemen, will conclude the meeting today. We will meet again in two weeks.

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