House of Commons
CANADA

Standing Committee on Natural Resources

RNNR • NUMBER 036 • 2nd SESSION • 39th PARLIAMENT

EVIDENCE

Thursday, June 5, 2008

Chair

Mr. Leon Benoit

Standing Committee on Natural Resources

Thursday, June 5, 2008

● (1105)

[*English*]

The Chair (Mr. Leon Benoit (Vegreville—Wainwright, CPC)): Good morning, everyone.

We're here today pursuant to Standing Order 108(2) and the motion adopted by the committee on June 3, 2008, to study the decision of Atomic Energy of Canada Limited and the government to discontinue the MAPLE reactors project and its ramifications on the supply of isotopes.

In the first hour, we have as a witness the Hon. Gary Lunn, Minister of Natural Resources. Welcome, Minister. With him is Sue Kirby, assistant deputy minister of the energy sector, and Tom Wallace, director general of the electricity resources branch. Welcome to you both as well.

Minister, go ahead with your statement, and then we'll go directly to questions following that.

Minister, I would like to say how much I and the committee appreciate you responding so quickly to our invitation, which was only made a couple of days ago. Thanks for being here.

Go ahead, please.

Hon. Gary Lunn (Minister of Natural Resources): Thank you very much, Mr. Chair. It is my pleasure to be back before you. Thank you very much for the invitation. We are quite pleased to be here.

You've just introduced my two officials at the table, Sue and Tom, who work at Natural Resources Canada and do a great job.

I would like to use the time I have available this morning in my opening statement to provide the committee with some background on the MAPLE project and the challenge our government inherited.

In accepting the decision of AECL to terminate the project, this government responded in the best interests of the Canadian taxpayer, the best interests of AECL, and the best interests of the medical community. In terms of the history of this project, let me say at the outset that the MAPLE reactors have never produced a single isotope. A reactor of this type, designed solely for the production of isotopes, has never been built anywhere in the world. The MAPLE project was unproven technology.

I want to emphasize that the risks of this project were known from the very beginning. We'll get into the timeline of this project in a minute. In fact, the Liberal government of the day was warned by AECL that this was an extremely high-risk project and was advised not to proceed. Despite this advice given to the previous government, this project began in 1996, the construction for the MAPLE reactors began in 1998, and the two reactors were in essence completed in 2000 at a cost of $140 million. It's well known that the MAPLE reactors were plagued with a variety of technical and regulatory challenges almost from the very beginning. In 2000, when the reactors were completed, the technical problems began to occur.

In 2003, three years behind schedule, the issues were severe enough that AECL had to delay the start-up even further. AECL at that point called for a full investigation of the technical problems using outside experts. Experts in nuclear technology found no solution to these problems. The reactors were not able to operate, and hence they could not produce isotopes.

Finally, 12 years later, eight years behind schedule, the reactors were still not up and running, still had not produced a single isotope. Hundreds of millions of dollars have been invested in this project. The Auditor General reported—and, I will say, on numerous occasions—that this project did have difficulties, and recently she reported that it would take hundreds of millions of dollars to continue the project. Even then there was no guarantee that the technical problems could ever be resolved or that the reactors could be licensed.

Mr. Chair, on May 16 of this year, the termination of the MAPLE project was announced by AECL. After careful review of the project, including testing done as recently as April of this year, the AECL board of directors and senior managers came to the conclusion that it was not feasible to complete the commissioning and start-up of the reactors. Complete due diligence was done on this decision. The project had failed to achieve any of its goals. No definite solutions could be found, and even at the cost of hundreds of millions of dollars, there was still no proof the reactors would be able to be licensed.

It was an unacceptable risk to the taxpayer to continue with the failed project, and it was a waste of resources to keep it going. Good governance, good business, and common sense dictated that the project had to be terminated. The reasons are obvious: it would cost hundreds of millions of dollars; it had significant unresolved technical problems; and it was eight years behind schedule and did not produce one single medical isotope.

The MAPLE reactors are in stark contrast to our CANDU reactors. The proven AECL CANDU technology has been successfully brought into production in Canada and around the world, whereas the MAPLEs have not. These two technologies exist for very different purposes. CANDU reactors have been operating safely around the world, meeting their design requirements for decades. MAPLE reactors have power output of 10 megawatts versus over 1,000 megawatts for the new ACR now under development.

● (1110)

The CANDU is a power reactor that runs on natural uranium. The MAPLEs were designed to use small quantities of highly enriched targets to produce isotopes that could be further processed at facilities at Chalk River and in Ottawa. In short, people who attempt to compare the MAPLE and CANDU reactors are comparing apples to oranges, as any nuclear professional will testify.

AECL has a long and well-proven track record in designing and building power reactors. CANDU 6 reactors are generating electricity in Canada, Korea, Romania, China, and Argentina. In fact, just recently I came back from Korea and China and had an opportunity to visit the reactors in China. These were the most efficient reactors running in the Chinese fleet. In Korea they have 20 nuclear reactors, and of the 20 nuclear reactors, AECL reactors are running one, two, three, and five in efficiency and performance. They are very well received.

As for the implications of the decision to terminate the MAPLE reactors, I will be very clear. The termination of the MAPLE project will have no impact whatsoever on the production of medical isotopes. The MAPLE reactors have never produced an isotope.

Isotopes will continue to be produced by the NRU reactor, which is licensed until 2011. The NRU is performing better and more safely than at any time in its operational history. I have asked AECL to pursue an extension of the NRU licence beyond that date.

Our government will work closely with AECL and MDS Nordion to pursue a life extension of the NRU to ensure that the medical community and Canadians get the supply of isotopes they need. We are also prepared to work with the international community to facilitate international supplies if the NRU needs to be shut down for periods of time in order its secure its life extension.

Over the long term, we will work with the private sector to develop solutions to bring on new sources of isotope supply. Some of the private sector solutions could be in Canada and others outside the country.

While research reactors operated by governments and universities could play a role, we expect that private sector enterprises will determine the shape of the industry. This is as it should be for isotopes and for the supply of other drugs and medical technology.

In fact, it is likely the termination of the MAPLE project will encourage additional investments to develop new sources of supply now that industry knows for certain that the project will not be completed and that there's a market opportunity. AECL and its employees are now able to concentrate on the company's core business line, the design and construction of CANDU power reactors for use in Canada and in other countries. I am assured by AECL that the direct impact on employees will be minimal.

Winding down the project and the safe shutdown of the reactors themselves will occupy many of the existing staff for at least several months. After that time, AECL expects there will be significant opportunities to re-deploy staff at both its Chalk River and Sheridan Park operations. It is also well understood that the global nuclear industry is expanding, and therefore the demand for people with these types of skills will continue to grow. In short, there are going to be more jobs than there will be people to fill them in this industry in the future.

The MAPLE reactors were born of litigation and have been the subject of commercial disputes throughout their life. AECL and MDS Nordion are now reconsidering their business relationship, as may be expected. In these circumstances, I am not at liberty, nor would it be appropriate for me, to comment on the business relationship between these two companies, nor to entertain hypotheses on how that may develop.

I understand that the committee has agreed to ask AECL and MDS Nordion to testify as well, and I imagine they will be under similar constraints. I would therefore appreciate the committee's forbearance in recognizing that I am not in a position to discuss matters that are confidential in a commercial sense.

I'd like to thank your for inviting me, and I would be pleased to take any of the members' questions. Thank you.

The Chair: Thank you, Minister, for your very informative and concise comments.

We'll go directly to questioning, starting with the critic for the official opposition.

Mr. Alghabra

● (1115)

Mr. Omar Alghabra (Mississauga—Erindale, Lib.): Thank you, Mr. Chair.

Minister, I want to echo the chair's thanks to you and your officials for being here on short notice.

Minister, my question is, when did you realize that the MAPLE reactor had no future?

Hon. Gary Lunn: That was a long time coming. I can go back to Auditor General's reports from 1998—

Mr. Omar Alghabra: No, I'm asking you—

Hon. Gary Lunn: I'm going to answer your question—before construction even began, the flags were there in numerous Auditor General's reports.

Obviously, when I became the minister, we were looking at all this information; we had concerns, and we started looking at the possibilities. We really came to the conclusion late last year or early this year. We were conducting some tests that would, we hoped, resolve the technical challenges. Those tests were going to be concluded some time in April 2008, so we said we needed to do our due diligence, we needed to be prudent, and we'd wait until the conclusion of those tests to see if they could resolve the technological challenges, or even make any kind of progress in resolving them.

Those tests were concluded in the middle of April this year, and they provided absolutely no solutions to the technological challenges. The following week our government decided to accept the decision of AECL's board of directors.

Mr. Omar Alghabra: Minister, I have a briefing note sent to you, dated November 1, 2007, saying that the board of directors recommends that you suspend or terminate the project.

Hon. Gary Lunn: That's correct.

Mr. Omar Alghabra: I'll repeat the question. When did you know that MAPLE reactors would have no future?

Hon. Gary Lunn: I knew they had problems from almost the moment I became the minister. I was aware—

Mr. Omar Alghabra: No, everybody knew—

Hon. Gary Lunn: Let me answer your question. I just want to answer.

Mr. Omar Alghabra: I know, but, Chair—

The Chair: Order, please.

Hon. Gary Lunn: I do understand, so I'll be brief.

Obviously we were engaged in this as soon as I became the minister, discussing it with my officials, looking at this. Yes, we received information from the board in November saying they had serious concerns about the future of this project.

But we were also advised that they were conducting tests that would be concluded in the middle of April, so we came to the conclusion and said that to do our due diligence, to make sure... they've done all this work, so let's wait until the middle of April for the results. Once we had those results, we would make the final determination.

There was no question that is the direction in which it was leaning, but a final determination was not made until those tests were concluded in the middle of April.

Mr. Omar Alghabra: Minister, the briefing note I have considers three options and comes up with the recommendation that the third option, which is terminating the project, is the one you'd be taking.

Now, I want to—

Hon. Gary Lunn: And we did that.

Mr. Omar Alghabra: I want to remind you of what you said before this committee:

> Experts we consulted confirmed that a continued shortage of these substances would have meant life or death for some patients.

That was the justification you gave for, in my opinion, the unjustified firing of Ms. Keen. You certainly exploited the angst and frustration of many Canadians who were waiting for isotopes. Now you're telling us you made this decision without offering a plan B, how to secure the supply of isotopes where AECL has a 40-year contract.

At least from November 2007, you knew this project would be terminated. Why didn't you take this time to prepare a plan B so that Canadians and other people around the world would have some sense of comfort that the isotopes would be provided and the supply would be secure, in case something else happened to the NRU reactors?

Hon. Gary Lunn: First, let me just say this for the record. We're still on plan A. If you think the MAPLE reactors were plan B...the MAPLE reactors never produced one isotope. Even if we had a technological solution, it would be many, many years—it would be five to 10 years—before even that could be resolved, if there was a solution, but unfortunately one was unable to be found.

The decision we made provides greater certainty for the industry by providing the certainty. We are committed to ensuring an adequate supply of isotopes. As I said in my opening comments, we're committed to working with AECL to do everything we can to ensure that the NRU's licence gets extended, but private sector solutions will be coming forward now that we've made this decision. We have people approaching us now with possible solutions for an alternative supply for isotopes, but these MAPLE reactors were not going to produce any isotopes.

● (1120)

Mr. Omar Alghabra: You say that now there is more certainty to the future supply. How is that?

Hon. Gary Lunn: The reality to there being more certainty is there were a lot of people in the private sector who were wondering.... Listen, there are two dedicated reactors, the MAPLE reactors, which were built, and they're not going to get into the business of producing isotopes as long as this is out there.

The fact that we have now terminated this project and come to the conclusion we have will allow others in the longer term to come forward with other proposals. Those are happening now. But we are committed to extending the NRU—

Mr. Omar Alghabra: I don't want to sound—

Hon. Gary Lunn: —to ensure that it can produce isotopes

The Chair: Mr. Alghabra, you asked the question. The minister is not stalling in an answer. He is giving a very concise, direct answer. Please give the minister a chance to finish. You can go on with another question after.

Were you finished, Minister?

Hon. Gary Lunn: Yes.

The Chair: Go ahead, Mr. Alghabra.

Mr. Omar Alghabra: I don't mean to appear rude, Minister, but I have seven minutes. You had the opportunity to make your presentation, and I have lots of questions to ask.

Hon. Gary Lunn: I'm happy to answer them.

Mr. Omar Alghabra: I hope you help me out in making sure your answers to the questions are shorter.

Are you saying with certainty that AECL is getting out of the isotope business?

Hon. Gary Lunn: I stated in my opening comments that the NRU, which is a marvellous piece of technology, is producing isotopes. The NRU reactor is operating more efficiently and safer today than at any time in history.

An hon. member: It's 50 years old.

Hon. Gary Lunn: We are committed to working with AECL to extend its licence. Canadians can be assured that they will have an adequate supply of isotopes.

Mr. Omar Alghabra: Minister, you're confusing me. You're saying the private sector is going to step in, but you're not willing to say that AECL is getting out of the isotope business. What is it?

Hon. Gary Lunn: I am saying that we are working with AECL to extend the licence of the NRU beyond 2011. As well, now that the MAPLE decision has finality to it, you are seeing private sector solutions coming forward. Those will evolve and develop in the coming years.

As a government, we are committed to ensuring that there is an adequate supply of medical isotopes for the medical community.

Again, looking ahead, we believe the private sector will come forward with those solutions.

The Chair: Thank you, Mr. Alghabra.

Madame DeBellefeuille, for seven minutes, please.

[*Translation*]

Mrs. Claude DeBellefeuille (Beauharnois—Salaberry, BQ): Thank you, Mr. Chairman.

Welcome, Minister. You are here for the second time in a fairly short period. I would like to remind you that, during your last visit, we asked your department to provide certain documents. We have not yet received them, however. That means either that your visits are too close together, or that your department people are too busy. I will let you draw your own conclusions. We are eager to have the documents.

Minister, the decision to terminate the MAPLE project was made on May 16. In February, I was present at the Canadian Nuclear Association annual seminar. In the hallways, I was already being told that the MAPLE project would never see the light of day. Industry people as well as the people I spoke to told me that quite frankly. It seemed to be a fact. I think the industry was waiting for AECL's decision. My reaction as a citizen and as a member new to nuclear issues was to wonder why it had taken so long, why millions of dollars of Quebec and Canadian taxpayers' money had been sunk into a project that no one, it seemed, actually expected to see implemented.

You also say that nuclear energy is clean energy. But in my view it is also very expensive energy. In your comments, you say that hundreds of millions of taxpayers' and private sector dollars were sunk into the project and spent needlessly.

I would like to know the exact amount that taxpayers and the private sector were obliged to invest in this project, which will never see the light of day. This is a very short and succinct question. Do you have the figures, Minister?

● (1125)

[*English*]

Hon. Gary Lunn: I do. First of all, on the timing of your announcement, I've been hearing the same information that you have from the private sector. I was at the same conference you were at in February. We'll give you the exact numbers. There are hundreds of millions of dollars being spent—$590 million in total to date between the private sector and the federal government, taxpayers' money, on this project.

We were in the process of doing some significant tests. The main technological problem with the MAPLE reactors is what's called the positive power coefficient, which means they cannot be licensed. They were trying to resolve this positive power coefficient. We felt with the fact that these significant amounts of moneys had been invested that it would be prudent to wait another few months for the conclusion of these tests to see if there was a technological solution that could be found, so we would have all the information. To go that far up and then to cancel it two months...without waiting for this last piece of data.... Those tests were concluded around the middle of April. There were different people from different schools of thought telling us how we could make some progress, but the result was that there was no progress.

[*Translation*]

Mrs. Claude DeBellefeuille: Thank you, Minister. I'm satisfied with your answer.

You seem very optimistic, even candid, about the future of medical isotope production. You tell us that the permit is valid until 2011, and that the private sector and AECL are already working on alternative solutions. As you know, the reactor is 50 years old. Even if an alternative solution is found, I don't know whether the life of a reactor like this can be extended for many more years. In my view, it already seems to have reached an unacceptable limit.

The Canadian Society of Nuclear Medicine does not share your optimism. On May 21, the society issued a press release in which it expressed concerns about isotope supplies. It stated that it was aware of no realistic contingency plan for the medium and long term, and believes there is a lack of planning that is jeopardizing medical diagnostic services. That is the position of the Canadian Society of Nuclear Medicine.

The experts—those who use the isotopes—are not convinced your optimism is well placed, and have no information on what may really happen in the future.

At this moment, Minister, are there any plans on the development of the reactor's safety beyond 2011 that we could look at? What sort of planning is th ere? Until now, I have not been very impressed by the planning performance of AECL. AECL failed in its duty in administering and managing the medical isotope crisis.

Can you tell us specifically what is on the table, and what the short term plan is? Everyone knows that a reactor is not built in three years, and that solutions must frequently be implemented over the long term. Since the medical community is concerned, I would like you to tell us clearly what the plan is for action beyond 2011.

[*English*]

Hon. Gary Lunn: Thank you very much.

With respect to this decision, obviously to terminate the MAPLE project...there were no isotopes being produced, so this decision does not impact on the production of isotopes. As far as the future goes—and I hear your comments loud and clear—let me say this. The NRU, as I've said, is a marvellous piece of technology. You're correct, it's 50 years old, but in fairness, it's had a number of upgrades done recently to meet the current licensing conditions. The reactor is operating as efficiently and as safely as it ever has before in its entire history.

When I speak with the experts—and you're going to get an opportunity to talk to AECL, I understand, after me, and you can question them—they are now working with the CNSC. They've engaged in those discussions about post-2011, and I have no reason to believe they will not be able to license that. They may require some further upgrades. I don't know that, but I can tell you this. The government is committed to putting the resources that are required to ensure that this can be done.

Those discussions are ongoing, and the fact that we've made this decision on the MAPLE project allows us now to ask, what is going to be out there in the long term? Already people from the private sector have approached me about different possibilities. Now, they are just literally discussions coming into my office, but from pretty serious people. I'm not going to get into those details. I believe that would be in their interest, not mine, to start speculating about what may or may not come out. But the fact is that we've made this decision. We can now focus on other alternatives as well.

But the NRU is doing an amazing job right now. As I said earlier, it's an amazing piece of technology. I have every reason to believe it will continue. I hear the concerns of the medical community. That is why we made the decision we did. It was long overdue. This project should never have begun. They were warned. The Auditor General, on numerous occasions, warned of the problems with this project.

This is well over a decade. I think we're acting very prudently, very responsibly. They're nuclear decisions. You just don't make them overnight. You have to do your due diligence. You have to do your homework, and that is exactly what we have done.

● (1130)

The Chair: Thank you, Madame DeBellefeuille.

Ms. Bell, for seven minutes.

Ms. Catherine Bell (Vancouver Island North, NDP): Thank you, Mr. Chair. I'd like to thank the minister again for appearing before us on this very important topic.

You mentioned you inherited a problem in the MAPLEs, and this was a long time in the making. It had been around 12 years. There had been delays and problems. I'm just curious to know how many years ago.... When, if you know, was the first time the industry warned the government that the MAPLEs would not work.

Hon. Gary Lunn: The MAPLE project began in 1996. Construction began in 1998, and it was basically completed in 2000. I'm advised that AECL warned the government of the day in 1996 that this was an extremely highly risky project. If I go back to the Auditor General's report of 1998, this is before construction even began, and I'm reading from the Auditor General's report. She's talking about the MAPLE project—in those days they called it the MMIR. It had "tight timelines and budgets and an unexpected regulatory event", and again, she doesn't get into the specifics, but the flags were back there in the very beginning.

You can go to the Auditor General's reports. They've been in all of them, in fact, right from 1997.

Ms. Catherine Bell: They've been in three of them, I think.

Hon. Gary Lunn: Yes, three of them, and she flags that this problem was plagued.... As you know, we took office two years ago. Suddenly I became engaged on this file, and we've done our due diligence to come to the decision we have.

Ms. Catherine Bell: Were the tests that you were waiting for initiated by your government, or had they been initiated by the previous government?

Hon. Gary Lunn: These tests were all conducted under our government. They were done in 2008.

Ms. Catherine Bell: We know that the NRU is the only isotope producer in Canada—

Hon. Gary Lunn: Well, that's not entirely accurate. There's a particle accelerator at UBC that produces isotopes, but the vast majority of the supply comes from the NRU.

Ms. Catherine Bell: So without any replacements now on board, how long do you think it would be—and I understand what you said, that the private sector is coming forward and starting to look at developing something, but how many years away are we from any kind of a replacement, and will the NRU at Chalk River last long enough to see something new come online?

Hon. Gary Lunn: I believe it will. From everything I have been briefed on and from everything I know of NRU, I'm confident that we'll be able to extend its licence beyond 2011 and it can continue to operate safely.

Having said that, ultimately it's a decision of the CNSC. I know AECL will engage them. But from the information I have, I have no reason to believe they will not be able to extend that beyond 2011. This gives us adequate time to ensure that that extension, and depending how long that goes for, will afford us an alternate supply of isotopes, more than likely being developed from the private sector. There are also international possibilities as well, and all of those are being explored.

● (1135)

Ms. Catherine Bell: Then, quickly, the MAPLES, what's left of them or what's there, will have to be decommissioned in some respects. What will be the process there, the cost? And is there anything salvageable from what we have there that could be sold or reused somehow?

Hon. Gary Lunn: AECL will salvage all the parts and the pumps and motors, any parts that are salvageable and they can retrieve. One of the reactors is not radioactive at all. In fact, it has never been radioactive.

The first MAPLE reactor is doing their tests, in fact. So there will be some costs in the decommissioning of that, and we'll come back with those costs. Obviously, that's part of the process that will be in the decommissioning of the MAPLE project. So they will salvage everything that can be reused and is salvageable; then there will be some decommissioning costs.

The second MAPLE reactor, because it has never been radioactive, will obviously be much easier.

Ms. Catherine Bell: How much time do I have?

The Chair: You have two minutes.

Ms. Catherine Bell: Those must have been short answers. Thank you, Mr. Minister.

Back to the NRU, the safety issues. You did outline some of the things to a previous question, but I think it's something Canadians are very concerned about, so I'm glad to hear you're going to make sure that CNSC is on board and having oversight. I think it's something that's critically important for Canadians, to have the security and peace of mind they need, to know there is oversight.

Again, back to NRU, because it's an aging facility, f there were to be any kind of a problem because of its age, is there a process in place to quickly rely on the world stage for our acquisition of isotopes, if we ever need that?

Hon. Gary Lunn: In a managed shutdown...if we have to make enhancements or upgrades to the NRU, when they can be managed, then we can go to our international partners, and in their production schedules and their supplies, the isotope supply can be managed. That can be effective.

Obviously, they're very careful to ensure that they do.... I mean, it's the nuclear industry. There are so many safety systems. There are so many checks and balances to ensure that the ongoing NRU continues to operate in a safe manner. I can't predict what could happen in the future, but we're confident in the technology. We're confident in AECL and their ability to manage this and that the medical community will have isotopes.

Ms. Catherine Bell: In the case of an emergency, what processes are in place to rely on in world markets?

Hon. Gary Lunn: There are a number of things that happen. In the event of an unexpected shutdown, they would go into the isotope supplies that we have and would manage that supply to ensure that the most urgent needs are met. Then we would engage with our international partners around the world, looking for alternate supply and doing everything we can.

We don't expect that to happen. As I said earlier, the NRU is operating more safely today than it ever has before in its 50-year history. It has more safety systems on it today than ever before. The CNSC is part of the checks and balances and inspections that happen, to ensure that it can be operated safely and can continue to operate.

Again, we don't anticipate that there will be any issues there. It's not impossible, but it's not something of which I believe there's a very high risk of its happening.

● (1140)

The Chair: We'll go now to the government side, to Mr. Allen for up to seven minutes.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you, Mr. Chair.

Thank you, Minister and folks, for coming here today. I appreciate it.

In one of his questions, Mr. Alghabra talked about your November 1 memo in which you were provided with three options. I'm comforted to see that at least the management oversight gave you options to look at it, even though there's a recommendation. You made the comment that we might be looking a number of years out before this could ever be done.

The Auditor General, in her remarks of September 5, 2007, on the special examination, said that the estimate at that point in time was for probably around $130 million to complete the two reactors, one of which would be done in 2008 and one in 2009.

Given that consideration, what kinds of estimates did you foresee that it would have taken—just a ball park range—to finish these if you went ahead?

Hon. Gary Lunn: They were a lot higher than that. Here's what I have been briefed on.

If there were a technological solution, the timeframe would be 2013 to 2018. If they found the technological solution to solve the positive power coefficient, and they haven't, the cost to make those changes and complete the project—and I find this troubling—would be in the range of over $300 million, bringing the total cost of the project to over $900 million. That's what it would take to complete, if they were able to find the solution. But I want to stress that the last tests, completed in the middle of April, were completely negative.

Mr. Mike Allen: Thank you. That's significant.

Can you or your staff tell me or briefly explain, because you talked about this positive power coefficient, what the technical problems are? It seems strange. Why couldn't they be corrected once you get this all built? I'd like to get my head around it.

Hon. Gary Lunn: First let me have a kick at it, to see whether you can understand it. Then I'll ask Tom, who's the nuclear guy, and he can probably give us a more technical answer.

I want to stress that this is a small reactor; it's 10 megawatts. I've been advised that this is part of the problem. AECL built a research reactor in Korea, which is not the same, and it's 30 megawatts, three times the size. Part of the problem, they believe, is the size of the reactor. This has never been built before. That's why this project was so high-risk.

When it's operating, the reactor core cannot have a positive power coefficient; it's designed to have a negative power coefficient. I will say that they have engaged nuclear experts not just from AECL but from around the world to look at all the technical questions and all the modelling. In the modelling, it actually should have a negative power coefficient, but in reality it's the opposite. Nobody has been able to determine or ascertain why that is. That is the challenge.

I don't know whether Tom can add to that.

Mr. Tom Wallace (Director General, Electricity Resources Branch, Department of Natural Resources): I think Mr. MacDiarmid may be able to provide further technical details, but the problem, as the minister outlined, is that there was behaviour that was predicted by the design and safety codes that were presented to the CNSC, and there was an observed behaviour that was different. AECL to date has not been able, despite engaging experts from all over the world, to ascertain exactly why the actual behaviour observed is different from that predicted in the safety case.

Mr. Mike Allen: On November 15, 2002, the Auditor General wrote to the then minister, the Honourable Herb Dhaliwal, to talk about some of the issues regarding the inconsistent application of quality assurance processes. One of the comments was that from 1999 to 2001, internal and external audits of QA identified numerous weaknesses in AECL's QA processes, the most serious being in the MAPLE reactor project.

Mr. Dhaliwal, in his interview this year, said that they actually set up a process whereby they were evaluating their different options. He said that unfortunately he had left politics while they were looking at this, and final decisions were not being made. "[W]e did have a process in place to make those decisions. People who came on later decided it was not a priority; only they can answer for that."

Was there any priority put on this from 2002 on?

● (1145)

Hon. Gary Lunn: You can read between the lines, and you can read what Mr. Dhaliwal has said. I'll let the media and the public judge for themselves what he was saying.

The reality is that under the previous government, which began the project in 1996, up until they left office in 2005—despite numerous warnings from the Auditor General—the flags were there. This was a political decision. They elected not to make that decision. For whatever reason, they chose to ignore this and not make the decision.

I'll say that we've been in office for two years. Listen, when you're making nuclear decisions, there's a lot of work to be done. There's a lot of due diligence. You know, you don't come into office and make a decision six months later. These are significant decisions. I think we've acted appropriately. Should a decision have been made a long time ago? I think these tests and this work could have been done a long time ago, and it would have saved a significant amount of money. The fact is that they weren't, but our government is prepared to take leadership and make the decisions we have made to terminate this project. We believe it's in the best interest of the taxpayer, AECL, and the medical community.

I'll just add something. Why is it in the best interest of AECL? As you know, we are having a nuclear renaissance. And I want to say this about AECL. They are in the business of building power reactors. Their reactors operate as some of the most efficient reactors anywhere in the world. Their performance on the international stage has been to build nuclear reactors on time and under budget. The men and women who work at AECL—the nuclear engineers, the nuclear scientists—are some of the best in the world. I think this decision also allows them to focus on what they do best, and that's building nuclear reactors to produce electricity.

The reality is that the world is changing. We're seeing opportunities both at home and abroad. That's another reason this decision is so important. They warned previous governments about the risk of this project. I think it's safe to say that this project should never have started. But we can allow them to get back to what they do well. That's an important part of this decision.

The Chair: Thank you, Mr. Allen and Minister.

We'll go to Mr. St. Amand for up to five minutes.

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

Good morning, Minister. Thank you for coming. It is nice to see you.

I can't resist just a bit of a comment with respect to your approach to decision-making—being deliberate and thoughtful and not rushing into decision-making.

You'll know, Minister—and I'm not inviting an answer to this—that many have suggested, with justification, that you and the Prime Minister acted with uncommon haste in firing Linda Keen. You know that's out there.

Minister, with respect to AECL, as I understand your presentation to the committee this morning, the possibility of AECL being privatized is there. That is one of the options being looked at.

Is that fair to say?

Hon. Gary Lunn: I wouldn't draw any conclusions to that effect, no. But we have not taken any options off the table. I wouldn't want to acknowledge that as being where we're going, because I think that would be a misrepresentation.

Mr. Lloyd St. Amand: If it transpires that AECL is in fact privatized, then it will be up to the private owner or entity to decide whether isotopes will any longer be produced at Chalk River.

Would you agree with that?

Hon. Gary Lunn: First of all, you're speculating about what may or may not happen to AECL, and I'm not going to speculate on that. Therefore, I can't answer the question.

We haven't taken any options off the table. But I don't want to leave anyone with the opinion that this is a course we are pursuing or even that it is a preferred option. I think that would be inaccurate.

● (1150)

Mr. Lloyd St. Amand: Minister, you've said that, and you've repeated it now. If AECL is privatized, the Government of Canada will no longer be a decision-maker with respect to whether or not isotopes will continue to be produced at Chalk River. Would you agree with that?

Hon. Gary Lunn: No, I wouldn't at all, and let me explain why. We are doing a review of AECL. Without trying to speculate, there are many pieces to AECL. There is the research side; there is the production of medical isotopes; and there is the commercial side to produce power reactors. Part of this could be to do just one piece of that and maybe not necessarily the other pieces, or a combination. Again, I would completely disagree with that statement.

Mr. Lloyd St. Amand: Through the diligence of my colleague, Mr. Alghabra, we've received, under access to information, a briefing note, Minister, that you received back in September. It is a briefing note dealing with the Auditor General's special examination with respect to Chalk River. And her report, as you've come to know, talked about a significant deficiency regarding AECL's ability to resolve certain challenges, one of them being the replacement of aging facilities at Chalk River.

You'll know that in your briefing at that time, the Office of the Auditor General would encourage the public disclosure of the report. Some four or five months later the report was tugged or coaxed out of the government. The briefing note you received, which shed some light on the reticence of your ministry to release the Auditor General's report, says the following:

> While the tone of the report is balanced, critics of AECL will find ammunition if the document is published, particularly vis-à-vis its performance on the dedicated isotope facility.
>
> Given the totality of the significant deficiency and other problems identified by the OAG, making the report public may have an impact on the AECL restructuring project and reduce interest from the private sector investors.

Minister, I put it to you again: there's not just a possibility but a very strong possibility that this government is going to allow the privatization of AECL. Do you have any comment?

Hon. Gary Lunn: First of all, let me respond to a couple of things. Regarding the 1997 report, the ministers and the government absolutely receive an advance copy. The timeline for when that report was released—and it wasn't tugged out of us; our government releases absolutely every single Auditor General's report without question. And let me just mention—

Mr. Lloyd St. Amand: You do that four months later?

Hon. Gary Lunn: Absolutely. In fact, if you go to the record of the previous Liberal government, they took a year to release the 2002 Auditor General's report.

Mr. Lloyd St. Amand: But you're the transparency guys.

Hon. Gary Lunn: That's why we released it in four months. We released it well within the normal timeframes to do the review and release that report.

I will also say that the period covered under that Auditor General's report largely was during the previous government. Her report covered a period, the majority of which was actually reporting on the record of the previous Liberal government. This report was completed about a year after we took office, and there was about six months, I believe, if my memory serves me correctly, of time covered by our government. But prior to that it was the previous government.

Instead of getting into a discussion of whether I released it within three months or four months or two months...we absolutely released it. But more important is what's in the report, which is that the major deficiencies were never corrected. She identified the same problems in her 2002 report, which the previous government ignored.

I think our performance with respect to the MAPLE decision indicates we did the right thing. We did it in the right timeframe. We did our due diligence. We did the tests to ensure that we adequately protected the investment by the taxpayer. And once we had done all of that work, we made the correct decision.

I think the Auditor General, in a subsequent report, will applaud our decision and the steps we took to do our due diligence.

The Chair: Thank you, Mr. St. Amand and Mr. Minister.

Madame DeBellefeuille, you have five minutes.

[*Translation*]

Mrs. Claude DeBellefeuille: Thank you, Mr. Chairman.

Minister, Atomic Energy of Canada Ltd. decided to withdraw from the assessment of ACR reactors in the United Kingdom. Ontario decided to open up its call for tenders to firms other than Atomic Energy of Canada. There was also the failure of the MAPLE research reactor project. Nonetheless, Canada is an expert in nuclear technology—you said so. All this raises doubts regarding AECL's ability to deliver the goods. If we were to look at these events from the outside, we might perceive AECL as lacking credibility.

Minister, how can we guarantee that ACR reactors won't have the same design problems as MAPLE reactors? Earlier, you said that we could not compare CANDU reactors to MAPLE reactors, because we cannot compare apples and oranges. However, can we compare the MAPLE design with the ACR design? In the eyes of the world, we seem to have come up short in quite a few areas.

● (1155)

[*English*]

Hon. Gary Lunn: First of all, I think that's a legitimate question. It's a concern for me and it's a concern for AECL. Even though they identified the MAPLE as a high-risk project and advised against it, they are concerned about that. But I will say emphatically that the MAPLE technology is completely separate. It's completely different from the ACR technology, which they're doing. And to their credit, the ACR technology, the advanced CANDU reactor, is built on the CANDU 6 platform. About 80% of the parts, or even more, in the CANDU 6 are interchangeable with the ACR. So that's the platform.

Look at their record. That's what I say. Look at the record. I was in Argentina, and I went inside the reactor. They have awards for the most efficient reactor in the world.

In China there is Qinshan 1 and 2. I was there a few weeks ago. Again, if you listen to the engineers there, of all the Chinese reactors in the entire Chinese fleet, the two CANDUs have the shortest construction time, are the most efficient reactors, were on time and under budget, are the least expensive per unit of energy, and use the least amount of uranium per unit of energy produced. They're marvellous pieces of technology.

It's the same thing in Korea. They have 20 reactors. Ours are four of the top five, and soon, I'm told, will be four of the top four.

Let me just finish.

The record is very strong.

As far as the England bid in the U.K is concerned—you raised this, so I just want to touch on this if I can—the cost of just doing the bid is $25 million to $30 million. They have opportunities here at home. They want to do what they do, and they want to do it well. So they had to make a strategic decision.

We have a lot of work here in Canada. We have New Brunswick talking to us. We have Ontario. And we're hearing interest in Alberta. Let's focus our priorities on Canada right now to get the ARC platform and get it producing electricity. I actually think it's going to be award winning, from everything I read.

So I think they made the right decision, a strategic decision, to not continue the U.K. bid process. That's not to mention the cost.

The Chair: Madame DeBellefeuille, make it a very brief question, please.

[*Translation*]

Mrs. Claude DeBellefeuille: Thank you.

Minister, are there any problems associated with the ACR-700 and ACR-1000?

[*English*]

Hon. Gary Lunn: There's a CANDU 6 or 6E, the enhanced CANDU 6, which produces 740 megawatts. That's probably around 726 or 740. The ACR-1000 actually produces 1,140 megawatts of electricity. I'm not even sure how they came up with these numbers.

As for its problems, the CANDU 6 is a tried and proven technology that's operating well. It's operating in Canada and operating around the world.

The ACR has never been built, so it is a new technology. It's built on the CANDU 6 platform. It's about 80%.... You know, the parts are interchangeable, but it's the next generation. It's called Generation III technology. There are no Generation III reactors operational anywhere in the world. There are a few under construction, and they are not without their challenges.

Listen, we have some of the best people at AECL. I have been out to meet the nuclear scientists and engineers at Chalk River and at Sheridan Park. I absolutely believe that our greatest asset is our people at AECL, and I have a lot of confidence in them. I do. And I think we have an ability to create a Canadian champion.

That's why our government has put the resources into it. In the budget of this year we put $300 million into AECL. The reality is that I think nuclear is going to play a much increased role in electricity production. It's greenhouse-gas-emission-free. It's pollution-free. It's not without its challenges, but it will be part of our energy mix in the future. We're seeing that Ontario has launched a bid process for two new reactors, something we haven't built for decades in Canada.

● (1200)

The Chair: Thank you, Minister.

We have to go. We'll give the government member, Mr. Trost, just a couple of minutes. I know your time is very limited here.

Go ahead, please, Mr. Trost.

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

I think I know the answer, but just for greater certainty on this point, in terms of continuing the project, even if there had been hundreds and hundreds of millions of dollars more poured into this, was there any certainty that this project, the MAPLE reactors, would ever work?

Hon. Gary Lunn: There was absolutely none. No technological solution has been found, as we speak.

Mr. Bradley Trost: I understand.

My other question relates back even further on the timeline. The Auditor General's report from 1998 says that both of these projects—referring to the MAPLE reactors—involved significant risk to AECL. It talks about tight timelines and budgets and unexpected regulatory events.

I think the term you used when you were talking earlier in your testimony was high technological risk. At what point was this known to be a high technological risk? Was this from day one known to be a very risky project, which is what it turned out to be? Or was it thought to be new technology but with high probability and only later was it understood that it was a high-risk problem, as it turned out to be?

Hon. Gary Lunn: First of all, I actually meant to address Madame DeBellefeuille. That just flagged my memory. She actually raised the question. She hadn't received responses from the department from my last appearance. I will follow that up. I don't agree. That's not acceptable. I'll get you the answers.

I don't have the specifics. I'm not sure if Tom does. That's something you may want to ask AECL. I'll ask Tom to answer that in a minute.

What I do know is that the government of the day was advised that it was an extremely high-risk project, and AECL had significant concerns about it. I don't know if the risks were technological, the timeframe, or what. And I don't know what the Auditor General meant in her 1998 report when she talked about a regulatory event. But maybe Mr. Wallace can answer.

The Chair: Go ahead, Mr. Wallace.

Mr. Tom Wallace: The only thing I can say about the technical risk is that the predecessor project to the MAPLE was a MAPLE X reactor. AECL terminated that program in the early nineties, and indeed, that sort of precipitated a bit the actions leading to the MAPLE.

Now with respect to the regulatory reference in the Auditor General's 1998 report, I wasn't engaged in the file at that time. I understand there were regulatory decisions taken to the effect that the operators for the MAPLE reactor had to have the same type of training as the operators for power reactors. That required a certain amount of expenditure to get the people trained to operate the reactors and to get the more qualified people engaged. That's my understanding of the history.

Hon. Gary Lunn: The MAPLE X was never constructed. It was terminated before any construction ever happened.

The Chair: Thank you very much, Minister, and Ms. Kirby and Mr. Wallace. I appreciate very much the information you've given us. It will be very helpful in finishing this study. Thanks again.

We look forward to seeing you in the future, Minister.

● (1205)

Hon. Gary Lunn: I just wanted to comment on your statement in the House yesterday. I was quite moved by that. It was one of the nicest statements I've heard, Leon. It was very good. Thank you for that.

The Chair: The meeting will be suspended for two minutes. We'll just change the witnesses as quickly as we can and reconvene in two minutes.

● _____ (Pause) _____

●

The Chair: We will reconvene the meeting now with witnesses from Atomic Energy of Canada Limited.

We have Hugh MacDiarmid as a witness, president and chief executive officer. With Mr. MacDiarmid today is Allan Hawryluk, legal counsel. The committee, of course, knows that as legal counsel, Mr. Hawryluk is not allowed to answer questions. He will just give advice to the witness, if the witness seeks advice from him. So we will proceed in that way.

Mr. MacDiarmid, do you have a statement to make?

Mr. Hugh MacDiarmid (President and Chief Executive Officer, Atomic Energy of Canada Limited): Yes, I do, Mr. Chairman. Thank you very much.

[*Translation*]

Thank you, Mr. Chairman and members of the Standing Committee on Natural Resources.

I am here with our vice-president and general counsel, Allan Hawryluk.

[*English*]

Ladies and gentlemen, I joined AECL in January, on the same day that Glenna Carr was appointed chair of our board. We joined a company with a proud 56-year history of being the stewards of Canada's nuclear platform. We joined a company with a tremendous future as we stand on the cusp of a global nuclear renaissance. I joined the company from outside the nuclear industry, but with experience in both the transportation and technology sectors. In fact, as a former officer of the Canadian Pacific Railway, I feel rather comfortable in the railway committee room today.

AECL has a dual mandate. The first is to be a successful architect and developer of commercial nuclear power reactors around the world, something we do very well and in which we have a tremendous future. The committee is well aware of the strong business and environmental case that exists for nuclear power, and we are determined to be a major player in the global market with our CANDU brand.

The second part of our mandate is to be the platform for Canada's nuclear science and technology. AECL's major research and development efforts take place at the Chalk River laboratories. Our scientists and engineers perform research and product development to support and advance CANDU's nuclear reactor technology. The facility has world-class expertise in physics, metallurgy, chemistry, biology, and engineering. AECL's research and development infrastructure there enables the production of medical isotopes, and we supply those through an exclusive business arrangement with MDS Nordion.

The special examination report of the Auditor General, released in January, highlighted three deficiencies, as they termed it, in the company that needed to be addressed, one being the resolution of issues surrounding the dedicated isotope facility. That report succinctly summarized some of the challenges this project faced. So, as would any incoming business executive, I wanted to undertake a broad-gauge review of the business and the issues.

The first and largest is the technical challenge. The physics of the MAPLE reactors were presenting certain mysteries, most particularly in regard to the PCR coefficient, the power coefficient of reactivity. We made every effort to solve these mysteries, but the answers were eluding the best minds in nuclear science. Furthermore, the costs and timeframes for commissioning and licensing the MAPLEs were increasing in the absence of a technical solution.

A second issue related to the uncertainty of the marketplace. The market for isotopes produced by AECL was changing, and it was clear that new sources of supply were coming onstream around the world. It was also clear that the worldwide movement towards producing isotopes from low-enriched uranium targets, a movement born out of concern for nuclear proliferation, could leave a facility designed on the basis of highly enriched uranium targets—the MAPLEs—obsolete in a matter of a few years, even prior to completion.

Thirdly, we looked at our obligations and options with regard to our contract with MDS Nordion, in particular a deadline to bring MAPLE 1 into production by October of this year. We were very aware of the concerns of the health care community for their patients. It was clear that swift resolution was key and that if the MAPLEs couldn't be the solution, we needed to be mobilizing quickly with another workable plan.

Another consideration, of course, in all of this was for the hundreds of dedicated AECL employees who have devoted the past 12 years to this project. Taken together, it became clear to AECL management and was confirmed with our board that meeting the October 2008 deadline for commissioning MAPLE 1 was improbable.

Throughout the process, we continued our work on solving the technical challenges leading up to a milestone test, as the minister mentioned, on the reactor in mid-April. Once that test was conducted and failed to resolve the PCR issue, there was a tipping point for our decision. The factors we considered—the significant cost, the technical risk, the timeframe, as well as our contractual obligations—were placed in the context of a broad look at the marketplace, and we came to the conclusion that the case for continuing the MAPLE project could not be supported.

This is what got us to where we are today.

Discontinuing the dedicated isotope facility project does not affect the short- or medium-term supply of isotopes. We will continue to supply and continue to produce from the NRU, and our focus now is on making sure this reactor is as reliable as it can possibly be until the end of its current licence period, and taking the steps necessary to extend that licence beyond 2011.

● (1210)

[*Translation*]

It was a difficult, but necessary, decision.

[*English*]

It was made based on facts and the best available evidence and advice. It was made by looking forward, not back, and made in good faith and with the best interests of the taxpayers of Canada in mind.

Mr. Chairman, that concludes my remarks.

[*Translation*]

I would be pleased to answer questions from committee members.

[*English*]

The Chair: Thank you very much, Mr. MacDiarmid, for your very concise remarks.

We will now go to the official opposition for seven minutes.

Please go ahead, Mr. Tonks.

Mr. Alan Tonks (York South—Weston, Lib.): Thank you very much, Mr. Chairman, and thank you, Mr. MacDiarmid and Mr. Hawryluk for being here.

You have at least this member at a decided disadvantage. You've listed a number of issues as to why the MAPLE reactor is being abandoned, and you used the term “deficiencies”. You said it was improbable—not impossible, but improbable—that these deficiencies could be accommodated.

The one you've selected is the one I have the most difficulty understanding. That's the PCR. PCR, for the members of the committee—and I think Mr. Trost would understand this—is the power coefficient of reactivity.

In other words, you have decided to abandon the MAPLE project, notwithstanding consumer and international issues with respect to other facilities coming on board, because it's improbable that the PCR issue could be accommodated.

Is that the conclusion you reached in the April 2008 study that the minister referred to? Is that the major part of the study?

● (1215)

Mr. Hugh MacDiarmid: No, sir.

My reference to “improbable” predated mid-April, in the sense that the mid-April tests were specifically designed to test a hypothesis that we could move the PCR coefficient closer to the acceptable range for which it could be licensed. Unfortunately, the results of that test showed absolutely no movement. It really was a situation in which we had mixed views within our own technical team. We had optimists, pessimists, and those from Missouri, but frankly, at the end of the test it was very clearly the view of all that we did not achieve the indications that would give us any confidence about licensability based on PCR.

Mr. Alan Tonks: All right.

I'm going back now. My memory may be incorrect or vague, but other members of the committee might be able to fill in some of the gaps.

When the isotope shortage.... The discontinuation of the NRU reactor for a period of time was made on the basis of two assumptions: one was the safety assumption and the other was certification.

In your overview you indicated that AECL will be going ahead with at least one of those issues—certification—and you've indicated that you're doing that now. What is the status of that particular issue?

Mr. Hugh MacDiarmid: We are engaging in discussions with the CNSC with the goal of establishing a very clear process that will determine the licensability requirements and conditions that we need to meet in order to successfully apply for a new licence effective 2011.

In that process with them we are subject to their final determination, but our goal, as you can imagine, is to achieve the greatest certainty and the greatest transparency we can with respect to what those conditions will be and our ability to meet them, and to do so on a timely basis so that we can raise the confidence level of everybody that the licensing extension application will be successful. We don't want to wait until the last minute. We want to establish it as quickly as we can.

Mr. Alan Tonks: What about the safety issues that were cited at the time? What is happening with respect to those issues as we speak?

Mr. Hugh MacDiarmid: Sir, basically the issues that resulted in the NRU shutdown were ones that in our view really revolved around the licensing basis and licensability, as opposed to safety. That having been said, the decision made by both sides—by CNSC and AECL—was that we needed an independent review to be conducted to ascertain what happened, why it happened, and how we could avoid it in the future.

As I believe you know, we did co-sponsor an independent research study that is coming close to the point of being ready for public release. Once that public release occurs, we, on both sides—AECL and CNSC—will be in a position to respond to the findings and to give reassurances that we are implementing the lessons learned and steps that will avoid any further occurrence along the lines that took place last fall.

Mr. Alan Tonks: Do I have just one minute?

The Chair: You have two minutes.

Mr. Alan Tonks: I have one last question. You will recall, Mr. MacDiarmid, although you weren't in that position at the time, the trauma that was created with respect to the shutdown of the NRU. I understand and appreciate that your analysis vis-à-vis the MAPLE is based on there being other facilities coming onstream that will be able to meet the medical isotope need—that is, eventually.

Are you satisfied, from a business plan perspective, that those events will not occur again and that we won't be right back in the same position: that the NRU facility will not be able to meet national and international needs?

● (1220)

Mr. Hugh MacDiarmid: I honestly am quite convinced that we have dramatically improved the working relationships and communications with the CNSC. We respect their role as the regulator, and they respect ours as the licensee and the operator. I think we have today an interchange with them that is open and clear, and clearly we both share the desire that there never be a reoccurrence of an unplanned shutdown such as that.

Mr. Alan Tonks: Mr. Chairman, I believe this committee asked, as a result of deputants whom we heard during that particular phase, that there be a strategic plan presented to the committee with respect to matching the needs, both nationally and internationally, and I would just like to clarify whether that was ever received. If it was, that's fine. If it wasn't, I'd like an assurance from Mr. MacDiarmid that it is in process of being submitted to the committee.

The Chair: I chatted with the clerk earlier, based on some comments Madame DeBellefeuille made during her first round of questioning, about information that hadn't been received, and the clerk indicated to me that in fact all of the information asked for had been received.

We will check into that specifically. I'll have the clerk ask you directly specifically what you are looking for, and if you still have a question at the end of the meeting, you can bring it back to my attention. I will find that out.

Mr. Alan Tonks: It was on the medical isotope issue.

The Chair: Thank you, Mr. Tonks, and thank you for your questions.

We now go to Madame DeBellefeuille, for up to seven minutes.

[*Translation*]

Mrs. Claude DeBellefeuille: Thank you, Mr. Chairman.

Mr. MacDiarmid, the U.S. Nuclear Regulatory Commission...

[*English*]

The Chair: We are resolving a technical problem facing the interpreters. We certainly will start the time over.

Now the interpreters are connected. Go ahead, please.

[*Translation*]

Mr. Hugh MacDiarmid: My French is not good enough to talk about such complex issues.

Mrs. Claude DeBellefeuille: The U.S. Nuclear Regulatory Commission assessed the ACR in 2005. Two problems were identified—positive reactivity, which was compensated for by using enriched uranium, and a design problem. In the text, we read that, as a result of these two problems, the negative reactivity objectives established by AECL were not attained.

Changes were supposed to be made, to the design among other things. As you were saying earlier, it is a complex issue. As members, we don't have university degrees in nuclear energy. Earlier, I asked the minister whether we could compare the MAPLE reactor to the ACR reactor, but I found his answer more confusing than enlightening. The U.S. Nuclear Regulatory Commission finds that the ACR has positive reactivity problems and design problems, something that would run counter to the objectives set by AECL.

[*English*]

Mr. Hugh MacDiarmid: Maybe before I do that I should just say a good thank you to Mr. Wallace for handing off the technical explanations to me, drawing deeply on my five months of experience in the industry.

With respect to the ACR you mentioned—and I'm not talking based on first-hand knowledge, but more recounting what my colleagues have briefed me on—the machine that was being evaluated at that time was the ACR-700, as opposed to the ACR-1000. So it was indeed an earlier generation of the current product.

At that time, the NRC said there were no fundamental barriers to the licensability of the machine, but it was clear from a marketing point of view that we needed to make changes that would result in a power reactor, the ACR-1000, that had a negative PCR design. That is in fact the case today; the ACR-1000 is indeed designed to that basis.

The other thing I should point out, though, is that although these measures are cousins of each other, they are not the same. So the PCR coefficient and the way it's measured and applied and interpreted, as it relates to the MAPLE reactor, is not the same, and you can't draw a direct conclusion between one and the other.

● (1225)

[*Translation*]

Mrs. Claude DeBellefeuille: You say that the reactions are similar and different. Could you please be more precise?

[*English*]

Mr. Hugh MacDiarmid: That's where I run out of depth, to be perfectly honest. My staff have done their best to brief me and to put me in a position where I can carry on a reasonably superficial conversation about it. But basically, the message I want to leave is that the design of the ACR, as it's currently being put forward and currently being developed for introduction to the marketplace, is one that was soundly researched and validated to have a negative PCR or value on this dimension. It is not the same measure.

[*Translation*]

Mrs. Claude DeBellefeuille: So you are telling me that the ACR-1000 has no positive reactivity problems at the moment because it is not on the market yet.

[*English*]

Mr. Hugh MacDiarmid: Again, I'm not the right person to answer that question; however, I will say that based on all of the briefings I've had from all of my senior technical staff, the answer to that is—you're correct—yes. We don't believe we have any issues whatsoever on that score. One of the significant adjustments that was made in the design was in the fuel; the fuel that's used in the reactor has a very significant impact on the coefficient of reactivity.

[*Translation*]

Mrs. Claude DeBellefeuille: Are you talking about enriched uranium?

[*English*]

Mr. Hugh MacDiarmid: Yes, it's slightly enriched uranium.

[*Translation*]

Mrs. Claude DeBellefeuille: But I think I've done my reading properly, and I noted that the ACR-1000 design did not provide for using enriched uranium. That means AECL had to change its plans a bit.

Am I right or wrong?

[*English*]

Mr. Hugh MacDiarmid: The ACR-1000 today is designed around the use of slightly enriched uranium. So it is a higher uranium content than the natural uranium we use for the CANDU 6. We say it is "slightly enriched" because it is less enriched than the low-enriched fuel that's used in the light water reactors, which is in the range of 4% to 5%. The ACR is, I believe, just over 2%, versus 0.9% in the natural uranium.

[*Translation*]

Mrs. Claude DeBellefeuille: So we can say that the ACR-1000 did have a design problem, and to solve the problem—in fact, to solve the positive reactivity problem—a compromise was needed and the use of enriched uranium had to be envisaged.

[*English*]

Mr. Hugh MacDiarmid: I would not characterize it as a design flaw; I would characterize it as a design attribute. The decisions were made balancing many different factors—again, predating my arrival, so I'm only repeating what I'm told. But the decisions have been made to optimize the various factors in the design of the ACR-1000 in a way that achieves our objectives in performance, productivity, cost, and all the other factors that are important to our customers and are important to being competitive in the international marketplace.

Product development in any industry is iterative and involves examination of technical risk and the review of different alternatives. So as the concept and the definition of the next generation of CANDU reactor beyond the CANDU 6 took shape, inevitably changes were made. Design decisions were made, but not to correct flaws; in fact, to optimize the product and to make it as competitive as can be in the market.

The Chair: Thank you, Madame DeBellefeuille.

Now we go to Ms. Bell for seven minutes. Go ahead, please.

Ms. Catherine Bell: Thank you, Mr. Chair.

Thank you, Mr. MacDiarmid, for appearing before us today.

I asked the minister a question regarding isotope supply in the event of, God forbid, any disaster at Chalk River, which is going to be the largest supplier of isotopes in Canada and to the world. What I asked him was what processes were in place in the event of an emergency or a prolonged shutdown, because the licence runs out in 2011. I know you're trying to get it extended, but if that's not the case, I asked him what kinds of processes would be there.

The minister said he has confidence that everything will be fine, but I didn't really get the sense that a process was in place. Because we don't want to end up in a situation...and we are talking about isotope supply because of the MAPLEs, I just want to know what processes are in place and what discussions on the world stage you have had that will ensure a supply.

● (1230)

Mr. Hugh MacDiarmid: I am certainly happy to talk about that, because it is important.

The first thing is that we have implemented a communications protocol that is clearly understood at all levels within our organization and various aspects of the supply chain, such that in the event that there is even the risk of a shortage of delivery, all of the appropriate communications take place and the ability to start to plan alternative sources kicks in. You know well that these isotopes have a short half-life, so there's not a lot of time.

We also understand that our colleagues at Health Canada are actively examining ways to improve the communications and coordination across the supply chain and the reach into the medical community so that there's a coordinated response in the event of an unplanned outage.

Certainly our goal, as you can imagine, is that we not have any outage caused by the same factors that occurred last November and December. Equally, in relation to the technical performance of the reactor today, we have every evidence to suggest that it's been operating at the highest levels of reliability and continues to do that.

As we move closer to the end of the current licensing period, there will likely be some periods when we will need to shut the reactor down for a longer period of time than is currently the case. It will be measured in weeks rather than days. Our view today is that with proper planning and coordination, we will be able to successfully coordinate and manage a reactor outage of, say, three weeks' duration, such that we will be able to undertake any work that needs to be done. It is certainly in our planning frame to be able to deal with that kind of eventuality in a planned way.

Ms. Catherine Bell: Thank you.

Another question I have is on the generation III technology that the minister talked a little bit about. He mentioned that these reactors are not without their challenges. Could you outline the challenges he was referring to, if you know? I didn't get to ask him the question.

Mr. Hugh MacDiarmid: That actually puts me in a bit of an awkward position, because the guidelines imposed by the Ontario bidding process preclude me from making any comments with respect to competitive reactor-makers in a public forum, so I'd prefer, if I may, to defer and not respond directly to that, if it's appropriate.

The Chair: That is understandable, Mr. MacDiarmid.

Go ahead, Ms. Bell.

Ms. Catherine Bell: I had one more question. Where did it go? Oh, there it is.

The special examination of the Auditor General that you mentioned in your presentation highlighted three deficiencies in the company that needed to be addressed. You talked about one. What were the other two?

Mr. Hugh MacDiarmid: The other two were the requirement to fund the ongoing development of the ACR-1000, which we've just been talking about, and the requirement to begin to invest in the renewal of the infrastructure at our Chalk River laboratories. Those were identified in the course of the special examination as being the three major issues that stood in the way of AECL's fulfilling its mandate.

To be perfectly honest, we at AECL welcomed that report, because it shone a spotlight on the issues that we felt needed to be addressed, and addressed by providing adequate funding to our organization. We draw a direct linkage between that report and the ultimate decision to provide us with the funding support for this year that has allowed us to work directly on those three issues.

We are, indeed, funding the development of the ACR-1000 at a level that allows us to respond to the marketplace time windows. We are also moving ahead expeditiously to begin the Project New Lease program, which is the infrastructure renewal at Chalk River. And the third was the DIF.

● (1235)

The Chair: Ms. Bell, you have about one minute.

Ms. Catherine Bell: Can you tell me, then, when that special examination was started? Was it started under the current government or the previous government?

Mr. Hugh MacDiarmid: I can't necessarily respond. The work was done and the report was issued in the early fall timeframe of 2007. So the work was done in the spring and fall of 2007, I would assume. That's not firsthand knowledge.

Ms. Catherine Bell: Thank you.

The Chair: Thank you, Ms. Bell.

We go now to the government side and to Ms. Gallant, for up to seven minutes.

Mrs. Cheryl Gallant (Renfrew—Nipissing—Pembroke, CPC): Thank you, Mr. Chairman.

The Chalk River site of AECL is in my riding, Renfrew—Nipissing—Pembroke, and it's a significant employer. Employment has increased significantly over the last two years since this government has taken office. It has given cash injections, the highest cash injections in more than 30 years. So we've seen a growth in employment.

We've had many talented individuals working on the MAPLE project. What impact on the overall employment at AECL is the termination of the MAPLE project going to have? Are we still going to see a net increase in employment?

Mr. Hugh MacDiarmid: Yes. We expect we will be employing more people at both Chalk River and Sheridan Park in the future.

I just mentioned Project New Lease, a project at Chalk River. It is a significant multi-year project that will require very sophisticated engineering and scientific expertise to pull off. From my perspective, the ability to redeploy the staff from the DIF project onto Project New Lease is very welcome. We have demands and we have open positions as we speak. We do not expect any employment effects at all.

Mrs. Cheryl Gallant: We've heard from various members of this committee concerns over contingency plans with the NRU. What has been the operational performance of the NRU reactor over the last few years? Are you confident of its operating safely?

I'd also like to understand AECL's commitment to cooperating with the stakeholders throughout Canada, including the National Research Council, in making plans for the future. The Canadian Institute for Neutron Scattering represents the academic community across Canada that needs access to neutron beams for research and education.

What is the direction and thinking of AECL to supersede the three missions of the NRU reactor for the next 50 years—the three missions being materials research with neutron beams, support for Canada's nuclear power technology, and Canada's world-leading business in isotope production for nuclear medicine?

Mr. Hugh MacDiarmid: I must admit, I lost track a little bit of what you wanted me to comment on.

Mrs. Cheryl Gallant: First of all, I'd like to know what the operational performance of the NRU has been over the last few years.

Mr. Hugh MacDiarmid: We have achieved a 95%-plus reliability track record in terms of delivery of isotopes. We have invested substantial funds in maintaining and upgrading the reactor to be able to maintain that high level of performance.

As a newcomer to the company, I find it quite impressive that our operations team has been able to achieve that level of operating performance from what initially was a research reactor design.

Mrs. Cheryl Gallant: You mentioned that we were going to go through some infrastructure extensions at NRU. At the same time that there are going to be NRU extensions, are you considering at all an eventual replacement for the NRU?

Mr. Hugh MacDiarmid: The exploration of a successor research reactor is something that extends well beyond the walls of AECL. It's something that has certainly been discussed very thoroughly in research, academic, and scientific circles, and there's a strong desire that there be an ongoing research reactor.

From our perspective of supporting our core mission, the power reactor business, we believe a long-term multipurpose research reactor is a very important component of providing the research and scientific platform for our ongoing fleet of reactors, supporting not just AECL but the Canadian nuclear industry. There are many compelling reasons that a future reactor should be built.

At the same time, it is not without cost, and at this point, I'm just engaging in the general discussion of saying, let's see what the business case is and what the longer-term future should be.

● (1240)

Mrs. Cheryl Gallant: Can you explain to this committee what the difference is between a CANDU reactor and a MAPLE reactor?

Mr. Hugh MacDiarmid: Well, at the highest level of aggregation, which is where I play in this particular area, essentially the CANDUs that we design are literally 75 to 100 times the power output of the MAPLE reactor; that is, 750 megawatts to more than 1,100 megawatts versus 10 megawatts. The CANDU reactors are the size of Scotiabank Place while a reactor core in the MAPLE is the size of a large oil drum.

The designs are not similar. Equally, the MAPLE reactor was a one-of-a-kind device that was designed with low energy output to produce isotopes, versus a proven design that has been built and installed over 30 times around the world and is reliably producing over 50% of Ontario's electricity every day, which is what CANDU is all about.

Mrs. Cheryl Gallant: Is AECL willing to work with universities or others who have indicated they'd like to explore how they can produce medical isotopes at other existing research reactors in Canada?

Mr. Hugh MacDiarmid: I've had direct discussions with one institution and I know there are others that have expressed an interest. We certainly are very receptive to any and all parties interested in undertaking some element of isotope production.

Mrs. Cheryl Gallant: Some have suggested that the unresolved technical problems with the MAPLE projects should be a concern for a province considering purchasing CANDU power reactors. Could you comment on AECL's ability to deliver the advanced CANDU power reactor?

Mr. Hugh MacDiarmid: We have in our recent history—in the last 12 years—delivered CANDU 6 reactors successfully in several foreign jurisdictions, notably Korea, China, Romania, and, prior to that, Argentina, and in all cases have delivered those reactors on time and on budget to the customer.

One of the reasons we're able to do that is that the fundamental design of the CANDU allows us to have a diverse supply chain and to have the redundancy of supply that can sometimes cause difficulties for other designs. We are very confident in the ability of our design to be constructed. We have a modularity built into the way we design our reactors that optimizes our ability to design, build, and deliver them on time, and we have demonstrated that conclusively in several markets.

The Chair: Thank you, Ms. Gallant. Your time is up.

We go to the second round. We'll go to four minutes for each party because of time restrictions.

We'll start with Mr. Boshcoff, who may split his time with Mr. Alghabra.

Go ahead, please.

Mr. Ken Boshcoff (Thunder Bay—Rainy River, Lib.): Thank you very much.

Highly skilled nuclear researchers confirm I think what you just said, Mr. MacDiarmid, that the size of the facility for producing isotopes doesn't necessarily have to be as gargantuan as previously. I'm wondering whether within the realm of physics it is possible now for locations that have the concrete and the protection, such as cancer research centres or biomedical research facilities, to produce isotopes for the market safely. And do they have to be licensed by AECL? Do you have the monopoly on the franchise, or is there room for commercial competition in this?

The Chair: Mr. MacDiarmid is consulting with legal counsel.

Mr. Ken Boshcoff: Can you stop the clock?

Mr. Hugh MacDiarmid: Certainly we at AECL are contractually bound to produce isotopes for our business partner, MDS Nordion, so we have a business relationship in place. In terms of other producers who have a nuclear reactor and can do that, there is no intellectual property control that we exercise over that at all.

● (1245)

Mr. Ken Boshcoff: Do they have to be licensed from you to get a nuclear reactor producing this, even if it's the size of an oil drum or smaller?

Mr. Hugh MacDiarmid: No.

Mr. Ken Boshcoff: Thank you very much.

The Chair: Mr. Alghabra, you have about two and a half minutes.

Mr. Omar Alghabra: Thank you, Mr. Chair. Mr. MacDiarmid, thank you very much for appearing before us on short notice. I appreciate it.

AECL signed a 40-year supply agreement with MDS Nordion in February of 2006 for the supply of isotopes. Everybody who has been following the MAPLE development, especially over the last while, could sense that its future is in jeopardy. We were talking with the minister about when the decision was really made, but I think the fact remains that it's been contemplated for a while.

Can you tell me why AECL did not engage MDS Nordion, given the 40-year supply contract and legal and financial obligations at the time, in trying to work out an agreement before the announcement was made?

Mr. Hugh MacDiarmid: First of all, there is some dispute between our view and the MDS Nordion view of that 40-year agreement. I don't want to get too far down a path of discussing our legal situation, but I need to say that you made the statement on the presumption that we have a 40-year supply agreement. Our view is that the agreement was conditional upon the completion of the MAPLE reactor on time, and that did not occur, so we have to resolve an issue surrounding the interpretation of the agreement.

I think it's very important to say that we believe we're acting within the terms of our agreement.

Mr. Omar Alghabra: Are you saying that from your perspective, AECL doesn't have a 40-year obligation to MDS Nordion any more?

Mr. Hugh MacDiarmid: We do not have, in our opinion, a 40-year supply obligation as per the contract.

Mr. Omar Alghabra: Does AECL intend on getting out of the isotope supply business?

Mr. Hugh MacDiarmid: We intend to continue supplying isotopes from the NRU through to 2011, and we intend to pursue the relicensing of the NRU to extend it beyond that time and to continue to produce isotopes.

Mr. Omar Alghabra: In your estimate, how long will the NRU be able to produce isotopes?

Mr. Hugh MacDiarmid: I can't give you an answer to that. It would be fair to say that a typical licence extension would be for a five-year period, so we would expect that would be the minimum we would plan to apply for in relicensing the reactor.

Mr. Omar Alghabra: Do you agree with me that there's a sense of discomfort among many Canadians after the shortage that happened late last year and earlier this year and the appearance that there's no plan B for MAPLE reactors, as well as the realization, following the cancellation, that there's no second proposal, except for maintaining the NRU? Do you agree that there's a sense of discomfort, and that perhaps AECL can shed some light on reassuring people who expect the isotopes to continue to be produced?

Mr. Hugh MacDiarmid: What I can say is that we certainly understand the concerns that anybody in this supply chain or in the medical or health care community might have and their desire to have the highest level of certainty they can. We can only control what we can control, which in this particular case is operating the NRU reliably, delivering on our supply commitments, going ahead in good faith and applying to relicense the NRU, and moving forward with doing that and continuing that supply.

The Chair: Thank you, Mr. Alghabra.

We now go to the Bloc and Madame DeBellefeuille, for four minutes.

[*Translation*]

Mrs. Claude DeBellefeuille: Thank you.

Mr. MacDiarmid, the government and AECL seem to be putting a lot of hope into the ACR-1000. You say that you're not an expert on this, but it seems to me that the CEO of AECL should be in the best position to answer these questions for members of Parliament, even though he has held the position for only five months.

When you are an expert on nuclear technology and you want to market a high-performance reactor, why choose to use enriched uranium? I believe that Canada does not have the technology needed to enrich uranium. We would therefore be dependent on other countries for our enriched uranium supply. I don't understand why Atomic Energy of Canada chose to use enriched uranium in its new ACR-1000. I would like you to explain that.

● (1250)

[*English*]

The Chair: Mr. MacDiarmid, you can choose to answer that or not, but Madame DeBellefeuille, you have strayed from the topic we're here to discuss today, which is the decision to discontinue the MAPLE reactors.

If Mr. MacDiarmid wants to answer, he may. But I would really encourage you to get back on the topic of the day. We certainly in the future can discuss this; I think it would be a very interesting topic for committee. But let's deal with the topic that is on the agenda for today.

Mr. MacDiarmid, go ahead, please.

Mr. Hugh MacDiarmid: I do want to respond, because in a sense the design process for a large sophisticated machine like this, as you can imagine, involves the interplay of many design factors that go into optimizing it.

The design objectives for the ACR-1000 were to achieve the safest possible reactor we could, built on a CANDU architecture, and to achieve the lowest lifetime unit electricity cost we could and be competitive with the global market requirements.

In order to do that, there were several important design adjustments made from the CANDU 6 starting point to the ACR-1000 evolution. Those included the move to slightly enriched uranium and also the move to a mixture of heavy water moderation and light water coolant, as opposed to the CANDU 6's being a pure heavy-water-based reactor. A number of other factors went into the desire to achieve a reactor with high productivity: high on-time reliability, serviceability—you name it, a number of design considerations.

The fuel design is a very important component of the lifetime economic performance of the reactor, and the use of slightly enriched uranium brings significant benefits when you optimize it with the other elements of the design.

[*Translation*]

Mrs. Claude DeBellefeuille: Thank you.

When the committee examined the crisis caused by the shutdown of medical isotope production, the Canadian Nuclear Safety Commission and AECL undertook to conduct a joint review of the circumstances leading up to the shutdown, and the shutdown itself.

Is that examination completed? Can you tell me what conclusions, if any, you have reached after that study?

[*English*]

Mr. Hugh MacDiarmid: The study has been concluded. It has not yet been published.

[*Translation*]

Mrs. Claude DeBellefeuille: Forgive me, but I did not hear the interpretation.

[*English*]

The Chair: There was no translation of that.

Mrs. Claude DeBellefeuille: Can you repeat it, please?

[*Translation*]

Mr. Hugh MacDiarmid: The study was carried out, but

[*English*]

we haven't published it yet. The timing of the finalization and the review of it is simply unfolding over the next while. I think it would be premature for me to talk about the report until it's ready to be published and made public, which is in the summer timeframe.

[*Translation*]

The Chair: Thank you, Ms. DeBellefeuille.

[*English*]

Your time is more than up.

Mr. Trost, you have up to four minutes.

Mr. Bradley Trost: Thank you, Mr. Chair.

We're talking about how much money went into the MAPLE reactors, and they're not going to be put into their ultimate use. One of the things I was wondering is whether there is any way to get any financial revenue at all out of this project. Is there any technology that was newly developed that can be sold, or, ultimately, is every penny that went into the MAPLE reactors just going to become red ink?

Mr. Hugh MacDiarmid: You can imagine that we feel it's part of our job to look for any residual value that we can realize. One of the things we are doing is ensuring that we very systematically and very carefully put the reactors into a guaranteed safe shutdown state and then ultimately move them towards decommissioning.

We are also capturing all of the intellectual property in terms of the physics codes and all of the work that's been done, to the extent that if at some unknown future time there were to be a new revelation or some new development that we haven't considered at this point in time, I suppose.... But frankly, our view right now is that all of the evidence suggests that we are going to have some costs of decommissioning and that there's no significant realizable value out of those assets.

● (1255)

Mr. Bradley Trost: Okay.

With everything put together—the costs for decommissioning, the initial ballpark—what are we looking at for the ultimate, final bill? What is this ultimately going to cost the shareholders of AECL?

Mr. Hugh MacDiarmid: It's a dangerous game for me to speculate, because those numbers really aren't finalized.

Mr. Bradley Trost: Well, let's start it there. Currently, what has been spent, and then what's to be done? Give a neighbourhood figure as well as you can.

Mr. Hugh MacDiarmid: The AECL financial statements through to the end of the 2007 fiscal year will show $167 million of asset value, the carrying value of the assets, on our balance sheet.

Mr. Bradley Trost: That's of the MAPLEs.

Mr. Hugh MacDiarmid: It's the MAPLEs and the DIF, the new processing facility, so the total DIF project is $167 million.

Mr. Bradley Trost: It's an asset of $167 million.

Mr. Hugh MacDiarmid: That's at the end of 2007. We have not yet approved and released our financial statements for this year, but I can give you a ballpark figure that says we will be roughly in the mid-$200 million range in terms of the total expenditure through the end of 2008 fiscal year.

Mr. Bradley Trost: But eventually you're going to have to write that asset down.

Mr. Hugh MacDiarmid: Yes.

Mr. Bradley Trost: So right now we've spent about $200 million, and we have an asset that we're probably going to have to write off completely.

Mr. Hugh MacDiarmid: That's correct.

Mr. Bradley Trost: Thank you.

The Chair: Thank you very much, Mr. MacDiarmid and Mr. Hawryluk, for being before the committee today. The information is very helpful for us as we move ahead in this study, and I'm sure we'll see you sometime in the future.

For the meeting on Tuesday we have one witness confirmed—MDS Nordion—and we will consider a second. We're working on it. I'll see you, then, on Tuesday as we continue with this study.

Oh, one thing I do want to mention is in answer to a question asked by Mr. Tonks regarding information. That document you were asking about is in the clerk's office. We actually had indicated that earlier, but it's 2,000 pages, so we're just leaving it available in the office. It's good bedtime reading, but you'll have to read it in the clerk's office.

Mr. Alan Tonks: We'll refer that to Mr. Trost for an executive summary.

The Chair: That's a very good choice.

An hon. member: Be careful what you ask for.

The Chair: Madame DeBellefeuille as well commented on some information. I had indicated I thought all the information had been provided, but the information Madame DeBellefeuille was asking about had to do with the appearance on the estimates, I understand. That is coming. It is not here yet; we'll make sure you receive it.

Thank you all very much. We'll see you on Tuesday.

The meeting is adjourned.

Published under the authority of the Speaker of the House of Commons

Publié en conformité de l'autorité du Président de la Chambre des communes

Also available on the Parliament of Canada Web Site at the following address:
Aussi disponible sur le site Web du Parlement du Canada à l'adresse suivante :
http://www.parl.gc.ca
