

[Chairman: Mr. Oldring]

[2 p.m.]

MR. CHAIRMAN: Good afternoon everyone, and welcome to another meeting of the Alberta Heritage Trust Fund. With us this afternoon we have the Minister of Energy, the Hon. Neil Webber, and with Dr. Webber we have Mr. Bill Yurko, the chairman of AOSTRA. Delighted to have you with us this afternoon, gentlemen.

The matter to be dealt with this afternoon actually falls under three different programs within the capital projects and Alberta investment division. They are the Alberta Oil Sands Technology and Research Authority, the Alberta Energy Company Ltd., and Syncrude. So I'd appreciate it if we could keep the discussions within the parameters of those three programs.

It has been customary, Mr. Minister, to extend an opportunity and an invitation to you to open with some brief comments. Following that we'll turn it over to the members for questions.

DR. WEBBER: Thank you very much, Mr. Chairman. Members of the committee, I appreciate the opportunity to make some opening comments with respect to, primarily, AOSTRA. I recall last year being before the same committee responding to questions on AOSTRA and then following up with some of the unanswered questions by getting back to individual members with information that they had asked for. I welcome that possibility again. Any questions that I am unable to respond to or answer and my colleague is unable to respond to, we would follow up with information to the committee.

As you are all aware, I am sure, AOSTRA was established some 12 years ago at a time when the government wanted to put a great deal of emphasis into doing research and development in developing oil sands, heavy oils, and was involved in enhanced oil recovery in this province to develop and recover these very valuable resources with new technology. They gave to AOSTRA at that time as its primary mandate to develop technology for the efficient and economic recovery in the processing of bitumen, heavy oil, and crude oil, and that these technologies would be environmentally acceptable.

Twelve years later we have seen approximately \$0.5 billion, just under \$500 million, having been invested on research and development, and most of that was from the Heritage Savings Trust Fund; in fact, precise numbers: \$407.7 million from the heritage fund and \$61.6 million from the General Revenue Fund. Industry has invested almost dollar for dollar the amounts invested by AOSTRA, so we have seen approximately \$1 billion invested in research and development in heavy oil, oil sands, enhanced oil recovery, and related projects over this 12-year period.

A tremendous amount has happened over those years in development. We see today a situation where our heavy oil reserves in this province are being developed at a faster and faster rate, and I would give a great deal of credit to the research and development that has gone on over the years. We see two field plants in particular that graduated to commercial projects. These were in situ operations related to Shell in Peace River and BP/Petro-Canada, Wolf Lake.

One of the exciting projects that AOSTRA is involved in today is their underground test facility in the Fort McMurray area. Mr. Chairman, I have some little pamphlets that I would be happy to provide to you for the members, which give information regarding this underground test facility. One of the difficulties of getting our reserves developed is the tremendously thick, in certain places, overburden. This particular project in-

volves a mine shaft that goes some 600 feet below the surface, where you're into a mine and drilling operations are under way there where shafts or holes are drilled up into the oil sands. So rather than accessing the oil sands from above, you're accessing from below, injecting steam up one shaft, and then having gravity pull the oil down on the other one. AOSTRA was involved in this alone. However, industry, in seeing the potential for this technology now, are meeting with AOSTRA, and investments are coming about as a result of that, with industry investing in that particular project.

AOSTRA is recognized, I think throughout the world, as probably the leading group in the world in terms of development of technology related to oil sands and heavy oils. An important aspect of this, too, is that AOSTRA owns the technology that it has developed over the years, and this technology is available under the right market terms and conditions. So now we're starting to see some revenues come into AOSTRA; I think almost \$2 million is expected this year from the technology that's being developed.

One of the questions members may ask relates to the investment that has been made by the government over the years, as to really how cost-effective this investment has been. Well, there is a report that we made public a couple of years ago -- I believe it was tabled in the Legislature as well, when my predecessor, John Zozirny, was minister -- a 10-year review of the research for AOSTRA. We have copies of that, too, for members of the committee, if they wish to have that. I think we have enough here for almost everybody. That report is encouraging from the perspective of, I think, encouraging the government and those associated with oil sands development and heavy oil development to continue on with the work they have been doing. Also, annually we table in the Legislature the annual report, which outlines the mandate of AOSTRA and a review of the different projects and proposals they are involved in. I'm sure most members have here the 12th annual report.

At this time, I would like to indicate that I'm very happy we have Bill Yurko as the chairman of AOSTRA. Members know Bill well from the past, his involvement in this Assembly as a member and as a minister of the Crown. Bill has a background which suits very well his position as chairman of AOSTRA. After a very thorough search, the government appointed Bill as chairman of AOSTRA last April 15, if my memory serves me correctly.

The board of AOSTRA consists of public representatives, and that particular board, the members of which are listed in the annual report, are some nine in number -- or there is potential for nine in number. We saw the retirement of Mr. Carrigy recently, who had been acting chairman. He was at this meeting a year ago when I was here. I believe it was an early retirement that he took. He was a very effective member of AOSTRA for many years and provided a very valuable contribution to research and development in this field. Dr. Gunning, who used to be president of the University of Alberta, and Mr. Harvie from Calgary were two public appointees. Their terms came to an end at the end of December. Two new appointments: a fellow by the name of Joe Richardson from Calgary, and Dick Aberg I think is also from Calgary.

I expect we will see more changes before the end of the summer in terms of some new members coming on. I say that in that I think it's important from time to time to make sure we have new ideas come to a board such as AOSTRA. The people that have served on there from 1975 until the present have performed a very valuable service and a great contribution, and we

now want to see some new people come in. I think change is always important, to have some kind of turnover.

With regard to the future of AOSTRA -- and I would ask the chairman to make some comments here shortly; he may want to touch on that -- I see AOSTRA moving in a direction more of trying to commercialize the technology that has been developed over the years, so with a greater emphasis on moving from the pilot experimental stages to the commercialization stages to develop our oil sands and heavy oil projects. There's no doubt in my mind of the tremendous demand that's going to be placed upon us in the future for our reserves.

The free trade deal between Canada and the United States I think will help in that regard as well. The access to the U.S. markets is very, very important. By the time the mid-1990s come, we will see a considerable increase in the demand for Canadian supplies of oil and, of course, gas as well. With the free trade agreement, this has ensured us of access to that market. I have to say, though, that we had moved in the direction of deregulation in both oil and gas over the last few years, so we were essentially moving towards a free trade situation in any case. However, there's added protection for us, if you like, in the sense that we are given a greater assurance of those markets with the free trade deal than what we had before; also, a greater assurance that the central government, whoever they might be, would not come in and provide the same kinds of difficulties as occurred in the past with the national energy program a few years ago.

We look to the oil sands and the heavy oils as having tremendous potential for the future of this province, and so we see a continued emphasis on doing research and development, commercialization of that research and development, in the future. We are as a government now involved in discussions with a number of companies about potential projects for the future, the most promising of which would be, I would say, the so-called OSLO project: Other Six Leases Organization. The participants in that particular project are essentially the same participants that are in the Syncrude operation, except for Dome and Alberta Energy Company. The proposal there would be for Esso to be the operator of the project. It would be a \$4.2 billion project for 75,000 barrels a day at a site called Kearn Lake, which is across the river and a bit to the north of the current Syncrude site. It looks very promising from a number of perspectives, one being that the overburden is not as thick as it is on the Syncrude site, and the ore is richer. The reserves there are tremendous. There is estimated to be a potential for some 200,000 barrels a day production for a period of 50 years -- the potential just on that one site.

One of the results of the collapse in world oil prices, if there's anything good that came out of that collapse, was the fact that companies in many different aspects of the energy field made their operations more efficient. We saw Syncrude and Suncor improve their efficiencies tremendously. Their operating costs have been reduced to the point where, I believe, Syncrude operating costs are approximately \$15 a barrel, Canadian. The rest of the industry now are saying that that makes any future plans much more economical -- a potential for them to be much more economical -- and they are therefore looking at what possibilities there are for working with government to try to see those projects come about now, because if construction or the engineering starts now, it will be 1994, 1995 before a major oil sands project would come on stream. I would think that almost all forecasters of future oil prices would say that at that time the prices would be such that these operations

would be economic.

So coming back to AOSTRA -- and members may want to ask some questions about some of the different projects that may have some potential -- I think I should indicate that I think there is an important role for AOSTRA to play in assisting and seeing that these new projects come about with improved technology.

This summer, between August 9 and 11, there will be an international conference held here in Edmonton, an international conference and show on heavy crude and tar sands, sponsored by UNITAR. I don't know exactly what that stands for -- United Nations international tar sands organization? AOSTRA is one of the sponsors of this. There will be delegates from some 23 countries in the world and probably some 500 to 600 delegates at this particular conference, many of whom would be providing papers. So I think it's an opportunity to show the world AOSTRA's significant contribution and the knowledge that's there in terms of the potential for developing these operations. The chairman may want to comment on the demands that are being placed on AOSTRA, the requests that are coming to AOSTRA from other countries for technology that we have.

Hon. members may note that there's been a decline in the amount of funding from the Heritage Savings Trust Fund that had been going to AOSTRA. We made the decision a couple of years ago that the funding of AOSTRA would move from the Heritage Savings Trust Fund over to the General Revenue Fund. One of the main reasons for that was that in the capital projects division of the Heritage Savings Trust Fund, the 20 percent limit, we were bumping against the ceiling on what moneys could be spent there. So it was decided to move some of the expenditures or the investments for research and development from AOSTRA over to the General Revenue Fund and decrease the amount in the Heritage Savings Trust Fund to the point where last year, I think, around \$20 million came from the trust fund and around \$30 million from the General Revenue Fund. I think there's a commitment for approximately \$15 million left in the Heritage Savings Trust Fund for future investments into research and development in AOSTRA. Again, Mr. Chairman, I have some handouts on the conference this summer, which I would leave with the Chair for distribution.

With those opening comments, Mr. Chairman, I would ask Bill Yurko, chairman of AOSTRA, to add to those comments, and then I'm in your hands.

MR. YURKO: Thank you, Mr. Minister. It's good to be back here and look around this room and recognize that a good part of my past was spent in this place. I appreciate seeing some of the old faces again. One never forgets those memories because this is an unusual and very distinctive place. Very few of us have the opportunity to serve in this place on behalf of the people of Alberta.

I want to start by indicating that I was one of the people associated with structuring the AOSTRA legislation back in '74 in regard to the energy committee of cabinet at that time. There was a real reason for it. The world bitumen resources are of the order of 4 trillion barrels in place, and about 2.4 trillion of that is right here in Alberta. We have seven deposits, and approximately 1.2 trillion are associated with the carbonates, which were laid down in the Devonian period, and they're farther underground under the Wabasca area. The other deposits are in connection with Peace River, Wabasca, Athabasca, Cold Lake: again equivalent to about 1.2 trillion barrels of oil in place.

Today, after a dozen years, we have established technology

which has been indicated to be able to extract at reasonable prices in the order of 240 billion to 250 billion barrels of that bitumen in place. This overshadows totally our conventional oil reserves, which are in the order of 7 billion barrels plus, and our heavy oil, in the order of 30 billion barrels. So the resources in Alberta into the future are our oil sands and the content of the bitumen in place.

AOSTRA was given six key objectives in 1975-76. The first was to develop an in situ process for each deposit. The second was a resolution of the major problems in surface mining technology. The third was alternative extraction technology. The fourth was high recovery from in situ processes. The fifth was better upgrading technology. The sixth was higher valued products from bitumen. Later on, I believe in 1980, a seventh was added, which was testing of advanced EOR processes -- enhanced oil recovery processes -- in Alberta.

Just a note on EOR and enhanced oil recovery. It's recognized that we can recover about 12 to 15 percent of the original oil in place by primary recovery. If you get into secondary recovery, you can recover an additional 15 to 20 percent of the original oil in place. If you go into tertiary recovery, which involves thermal processes, chemical processes, or admissible displacement processes, you can recover an additional 20 percent of the oil in place. So this seventh objective given to AOSTRA was an extremely important one in the early '80s, in fact to increase the recovery in all our conventional reservoirs.

The future: the minister indicated that I might say a few words. As indicated, we now have processes that we're very pleased with and that have resulted in commercialization of the Peace River deposits and the Cold Lake deposits. We do not yet consider that we have a suitable process to recover economically the Athabasca in situ resources. I'm not talking about surface mining; I'm talking about the in situ resources. We do not as yet have a process for recovering economically the carbonates in in situ oil sands.

For the future, AOSTRA will attempt to continue to achieve its original seven objectives. Work will continue towards achievement of the original AOSTRA goal of commercial development in Alberta oil sands deposits plus the Devonian carbonates. Technology will be developed to economically double the recovery from Alberta's heavy oil pools, and in some cases that recovery is extremely low: 4 or 5 percent of the oil in place. Technology will be developed to increase recovery by 50 percent by EOR -- that's enhanced oil recovery -- in Alberta from conventional oil pools. More efficient upgrading processes will be demonstrated. An alternative to the hot water extraction processes for mined oil sands will be demonstrated, we hope, before too long in the future. Surface mining technical problems have been mainly overcome, but those remaining problems should be addressed, and we hope to. New technology needs to be identified worldwide and the useful elements transferred to Alberta for the benefit of Albertans, and the successful in situ recovery methods need to be improved to provide improved yields in economics.

So we see the future as increasing the recovery from each and every reservoir of hydrocarbons that we have in the province. If we're getting 14 percent, we want to get 20 percent; if we're getting 20 percent, we'd like to get 25 percent recovery; if we're getting 30 percent, we'd like to get 35 percent. So there is a requirement to extract as much as possible of the hydrocarbons in place. So the need for AOSTRA, in my view, is as much there today as it was back in the '70s.

Initially, as the minister has indicated, \$100 million was allo-

cated to AOSTRA, and then there was a series of four RFDs to allocate another \$318.7 million, for a total of \$418.7 million. Of that, including this year, we'll have drawn \$403.6 million, leaving in reserve \$15.1 million. Initially the fund was set up to last to 1991-92, but because the draw was fairly substantive up to 1987-88, the government has brought forth an RFD with an additional \$235 million to be spread out and tied in with the initial allocation from the Heritage Savings Trust Fund to fund AOSTRA to the extent of approximately \$35 million to \$40 million of capital per year to the year 1991-92. But obviously, as you know, we are under budgetary review every year, as any other department is at this time. We've averaged over the life of AOSTRA the investment of approximately \$38 million to \$39 million per year. Initially the investment was quite low, but it went up rather substantively.

The administrative function has been of the order of \$3 million to \$4 million a year, or approximately 5.6 percent of the total allocation of money to be used by AOSTRA. We have contracts with approximately 33 different companies. Our production is basically related to production by the private sector rather than AOSTRA itself. We only have 49 employees in AOSTRA, so AOSTRA basically is using industry to a very large degree in terms of developing the processes for economic recovery of our in situ resources or our hydrocarbon resources.

I should tell you that at the energy options conference, this structure of AOSTRA was identified on several occasions as an ideal structure for government to get involved in the industrial sector for research and development, because it doesn't permit the growth of a massive bureaucracy. It's really a small entity that's handling a lot of funds, working with industry. We've built a remarkable relationship with industry and with other institutions. We don't build our own institutions; we work with the Alberta Research Council, with universities -- in fact, all universities in Alberta now. We do try to accomplish a number of things besides research. We try to train as many people as we can in the whole knowledge of heavy oil resources and oil sands processes, so we have programs associated with NAIT and SAIT and the co-op program in terms of hiring students. So we try to train as many people as we can.

Mr. Minister, those are a few remarks I thought I'd put on the table, but if there are any questions, I'd be very pleased to try to answer them.

MR. CHAIRMAN: Good. Thanks very much, Mr. Minister and Mr. Yurko. The Chair would now recognize the Member for Calgary-Buffalo.

MR. CHUMIR: Thank you, Mr. Chairman. I'd like to welcome the minister and Mr. Yurko back to his old stomping grounds. I appreciated in particular hearing the very brief comments of the minister with respect to the OSLO project. The Syncrude investment has been an excellent investment for the Heritage Savings Trust Fund. I'm wondering whether the minister might educate us a bit further with respect to prospects for further oil sands plants, the likelihood of the OSLO plant proceeding, other plants, and in particular whether or not we as a province are seeking an equity position on behalf of the heritage trust fund or in some other capacity. Are we going to get a piece of the action for whatever largesse is required on our part to advance these projects?

DR. WEBBER: First of all, as I mentioned earlier, the participants in the OSLO project are the same group that are in

Syncrude except for Dome and Alberta Energy Company. One of the encouraging things about the potential with regard to the OSLO project is that there are outside companies wanting to get a piece of the action on the OSLO project; they're not involved now. Alberta Oil Sands Equity, our government's equity group, is involved in the Syncrude operations, as you know. We have a 10 percent equity in the OSLO group. At the moment I know there are some historical reasons why it's not 16 percent. I think we are approximately around a 16 percent investment in the Syncrude operation, but we are involved in a 10 percent way with OSLO.

I mentioned the potential with OSLO. We are working hard to see whether we can get this project moving quickly. There have been a series of meetings between the OSLO group and the Alberta government, a series of meetings between the OSLO group and the federal government, and a series of meetings between the federal government and the provincial government. We have yet to sit down at a table, all parties together, to negotiate. As I think members can appreciate, a lot of work needs to be done before we arrive at that particular point. I say a lot of work needs to be done in terms of searching out the options for our government involvement and the risks government is prepared to take in these kinds of projects, but any equity involvement would be through the Oil Sands Equity group.

Other possibilities: as you also know, there has been a lot of discussion over the last few years about the Syncrude expansion. Engineering money was provided for the potential there, and the decision-making time period for the expansion process to occur was, as I recall, toward the end of 1988. Now, Syncrude expansion still looks like an excellent project. The participants at Syncrude want that expansion to occur. One of the problems with having two operations, two major developments, occurring simultaneously is obvious with respect to manpower and the stresses on the infrastructure in the province. So I think it would be better to see a staggering of those projects, either Syncrude expansion proceeding first, followed in a year or two by the OSLO project, or vice versa. So we haven't heard much lately about the Syncrude expansion possibly, but it's still there as a project that all parties are vitally interested in.

I believe it will be around June 1 when the capital addition project at Syncrude will come on stream, which would enable Syncrude to increase its production by, I believe, about 20,000 to 25,000 barrels a day. Syncrude had a record year in 1987 in terms of production and is becoming more efficient all the time. That was a very good project in terms of seeing some work being done in a time when oil prices were low and we weren't seeing a lot of action on the oil sands side in the province. That project will start up, I believe, around June 1, July 1, under budget and would enable Syncrude to increase its production capacity.

There are other possibilities. At this time the discussions are at a point where it would not be appropriate to publicly comment on them. But there is interest in other possibilities. So I believe that covers . . .

MR. CHUMIR: Thank you, Mr. Minister. The price of oil impacts not only upon provincial revenues but directly affects the performance of the heritage fund's investment in Alberta Energy, Syncrude, and prospects for further oil sands plants.

You referred in your opening comments to the impact of free trade. I've been particularly interested in attempting to assess the potential impact of a matter which is being discussed in the United States; that is, the possibility of imposing an import levy

on oil imports into the United States. I am wondering whether the minister has had an opportunity to familiarize himself with that issue and, if the free trade pact went ahead, whether or not it would apply to Canadian oil and just what revenue implications this would have for our investments and for the potential of future tar sands plants and our investments in AOSTRA.

DR. WEBBER: Well, an import duty or an import tax has been under discussion for some time, ever since I've started this position as Minister of Energy -- discussions and rumours about import duties, particularly after the collapse in world oil prices, and there are discussions on it now. I think with world prices where they are now and hopefully moving steadily upward into the future, the likelihood of an import duty or levy is very low. However, it is my understanding with the free trade agreement that Canada would be caught inside the circle as opposed to being on the outside if an import levy were to come about. That has some implications which aren't negative for selling into a market where the prices are higher than they might be here. But I think the free trade agreement, as I mentioned, encourages us more with regard to the oil sands and heavy oil developments from the two perspectives of assured markets and, secondly, in terms of increased investment, both of those obviously important in developing those reserves.

So from an energy perspective, we see the free trade agreement as very, very positive with regard to secondary industry or development, the diversification of our economy into the petrochemical industry, the removal of a 12, 13 percent import duty making our petrochemical industry more competitive with the U.S. petrochemical industries. I believe those would be some remarks I'd make on that.

MR. CHUMIR: Just in closing, the minister mentioned that he thought Canada would be inside the circle in the event that import tax were imposed. I'm wondering whether he might check that out with the United States end of the negotiators as well and advise members of this committee. Because I think that's potentially a very, very significant aspect of benefit or otherwise to this country from that pact.

DR. WEBBER: It's obviously been discussed and checked out, and all indications are very positive in that we would not be on the outside of that kind of tax.

MR. CHAIRMAN: Member for Athabasca-Lac La Biche, followed by the minister.

MR. PIQUETTE: Thank you, Mr. Chairman. I'd like to welcome Mr. Bill Yurko and Mr. Webber today. I'd like to start off by going over the Syncrude project. We have given to Syncrude out of general revenues \$85 million to do engineering studies to be completed; as well, we have a \$483 million investment in Syncrude. From what I was led to understand, there's been a \$150 million royalty break as well for production out of that expansion of a \$750 million capacity addition project, which is coming on stream. Now, it's also been indicated that this \$750 million expansion project is going to create no net permanent jobs. Does the minister consider a lot of these investments to be for job creation or basically to help these companies expand their capacities and subsidize their operations at, in the long term, no net benefit for job creation? Or are you tying in job creation in terms of agreements you enter with companies such as Syncrude?

DR. WEBBER: Well, Mr. Chairman, I think it's absurd to think there's no job creation on a \$750 million project in that the construction aspects of it created many jobs. Obviously this is in addition to a current operation. In terms of full-time employees that would be required in addition to those that Syncrude already have, I don't have those numbers in front of me, but I'd be happy to try to get them for the member. The Syncrude investment, the Alberta government's equity investment in Syncrude, has been very, very good from the perspective of getting an excellent rate of return. Again, the numbers are not at my fingertips, but I can provide those numbers. The total revenues that have come into this province from the Syncrude operation have been in the hundreds of millions of dollars in return for our original investment -- an excellent rate of return and a deal which was good for the government in terms of a business economic investment. The \$85 million for engineering was provided, as I recall, as a form of a loan with respect to the capital addition project. Obviously, we wanted the engineering work to occur, and \$85 million was for the expansion, not the capital addition project. Obviously, that's to lead up to the potential for a significant expansion which would result in increased full-time jobs.

The OSLO project: again, the manpower potential is phenomenal. I would think that at least 2,000, maybe 3,000, permanent jobs would be created by that project and operationally afterwards, possibly some 10,000 full-time jobs over the course of the construction of that project. So these investments in oil sands projects do create jobs and economic activity, not only just jobs and economic activity in this province but right across the country. So the numbers I was guesstimating with regard to the OSLO project are only the direct jobs. There will be many, many indirect jobs created.

MR. PIQUETTE: Mr. Minister, in terms of the \$85 million from general revenue to do engineering studies to be completed by the end of 1988 on the major \$4 billion expansion at Syncrude, in your opening statement you indicated that there is no fixed target when that \$4 billion expansion will take place. When these loan guarantees -- from what I understand, they're not loan guarantees; they're actually money spent for engineering studies. Isn't there any job performance or guarantee or any written understanding that these projects will take place and that we're not simply subsidizing the large companies to have a make-believe work project with maybe not any kind of guarantee for a plant to be built? I'm relating as well here to Husky, where we've poured a lot of money as well for engineering studies and nothing seems to be happening. I'm just kind of wondering if we're not just simply subsidizing a lot of companies here with no guarantee, on behalf of the province of Alberta, that that money will actually result in the expansions of these refineries or tar sands.

DR. WEBBER: Well, Mr. Chairman, I would expect that even the party the hon. member belongs to would be enthusiastic about trying to create investment opportunities for the private sector and for government involvement in these projects in the future. So the negative picture I hear I don't believe is one that any political party in this province would condone. In terms of investment -- and that's what it is, investment. This is not a subsidy program; it is an investment program. Therefore, I think Albertans look upon government as being responsible in trying to develop these kinds of projects and working with them in whatever way we can to see that they come about and that there

be a return to the people of Alberta, as there has been on the Syncrude project and as there will be on the OSLO project and on any other project we develop in the oil sands and heavy oil areas.

MR. CHAIRMAN: Final supplementary.

MR. PIQUETTE: Yes. I'm not being negative about the potential for job creation. This is not at all the thing here. What we hear is money that we are investing as Alberta taxpayers but we're not seeing any guarantee from you as the minister that these projects will take place. Is there any written contract with Syncrude and Husky Oil which will guarantee that the money we've invested in these companies won't be simply not acted upon by these companies, like we see with CN and the city of Edmonton here, which have basically entered into agreements with a nonperformance type of agreement? Can you produce, for example, the kind of information for me as an MLA to be able to prove to my constituents that actually the money invested will have a net return down the line and will actually guarantee these projects get under way? Is there any such agreement we can see here as members of the committee?

DR. WEBBER: Contracts are entered into in these projects. There's a Syncrude agreement, and that agreement is modified as we move along in terms of whether it be the capital addition project or the expansion. So yes, there are written contracts, written agreements that are in place, as there would be with OSLO or any other future project: an agreement with respect to the risk of government, the risk of the private sector or the return to government and the return potential to the private sector as well.

With respect to activity, we have seen a significant increase in activity in the last year, not only in terms of current work I've referred to with Syncrude operations but in the heavy oil areas, with Esso making considerable investments and announcements of future investments for development of their Cold Lake project. BP/Petro-Canada, Wolf Lake; Amoco; Shell: a tremendous number of companies are indicating that they're proceeding to do more work in those areas. I should say that AOSTRA as well is playing a role in some of these projects, as they are with the OSLO project, and that expertise will be used there as well.

MR. CHAIRMAN: Member for Pincher Creek-Crowsnest, followed by Lloydminster.

MR. BRADLEY: Thank you, Mr. Chairman. I have a couple of questions which I raise annually with the Minister of Energy. I'm pleased to see Mr. Yurko here, having served with him in the Assembly between '75 and '79 and knowing his unique talents and capabilities. I know that AOSTRA's in good hands under his chairmanship.

But to the minister. In the '86-87 fiscal year, in the estimates of the Heritage Savings Trust Fund, there was \$1 million allocated for a solar and wind initiative. Last year of course, due to the unique problems we faced with the deficit, there were no funds allocated from the Heritage Savings Trust Fund in the previous fiscal year. I believe there is a commitment that we will see this project proceed at some point in time. Could the minister update us as to where the solar/wind initiative is? Is it going to continue to be funded from the Heritage Savings Trust Fund in the future, or is the province considering funding it from gen-

eral revenues? Could the minister just give us an update of when he anticipates this project may get off the ground again?

DR. WEBBER: Well, the hon. member is correct, Mr. Chairman, in that there is a commitment to proceed with a solar and wind project in the Pincher Creek area, and because of the financial difficulties with lower revenues coming to the province last year, this was one project that was put on hold. We are now going through the budget process again, and at least we'll find out in March sometime the overall budget and where moneys have been allocated. Whether there is funding or not for this project this year, it's our intention to work with the local MLA and to establish a board or an advisory group of people in the area to work with us, because I think there's a lot of work that can be done before capital expenditures can be laid out. I know the Member for Pincher Creek-Crowsnest has communicated with me on a number of occasions his meetings with the people in that area, and some excellent ideas have come forth. But I think we are in a position now where we can come down to some specific projects to be recommended to the government. The commitment is still there. The money decisions have not been made yet for the coming year, but we will be continuing to work, moneys or not, to see that when moneys are made available the project will come about.

MR. BRADLEY: Mr. Chairman, a supplementary in a little different matter. On page 22 of our report last year, we recommended:

That funding be provided for the research and development of coal transportation technologies, and that consideration be given to investing in new generation coal rail cars as a means of reducing coal transportation costs in order to assist in the development of markets for Alberta coal (e.g. the Ontario market place).

I wonder if the minister might just be able to update us with regard to his department's involvement with regard to research and development in the coal area, looking at ways of reducing cost to get our coal into the Ontario marketplace and, in particular, the status of the intergovernmental secretariat's report to the three western Premiers, the Premier of Ontario, and the Deputy Prime Minister with regard to this important matter of getting our coal into the Ontario marketplace.

DR. WEBBER: This topic is a very important and timely one, Mr. Chairman, in that the intergovernmental secretariat report I believe is going to be made public tomorrow, Wednesday. That particular report is a result of the governments of Alberta, Saskatchewan, and B.C. and the federal government and the government of Ontario working together to see what can be done to make it more economic for Alberta coal, western Canadian coal, to be used by Ontario Hydro and others in Ontario and central Canada.

The hon. member referred to some research being done on modification of rail cars to improve the efficiency of moving coal by rail. I think Economic Development are providing some funding in that area.

One area where we spent some time with respect to discussions with industry is the area of a coal/oil slurry pipeline, to look at the existing pipeline systems we have moving oil eastward and to see if there is a possibility of moving both oil and coal through one of those pipelines, for the coal to be separated from the oil at the Lakehead area and then moved by boat over into Ontario. As the hon. member knows, Ontario Hydro, for a variety of reasons but one of them primarily being environ-

mental, has been taking less and less U.S. coal because of acid rain concerns. So by 1992 it's expected there is potential for more western Canadian coal to be used by Ontario Hydro. We want to make our coal more economic in the meantime, because there is a potential for Ontario Hydro to put in place very expensive scrubbing equipment that would take sulphur out of the U.S. coal. If they were to go in that direction, likely there would be more U.S. coal used than western Canadian.

But I think the chances look very good of enhancing the quality of our coal and reducing the transportation costs. The different governments, in this report that will be released tomorrow, have indicated the ways in which these cost efficiencies can come about. So I think that that is my comment on that. The Devon coal centre is doing significant research in the area of trying to take out certain ingredients for the coal to be cleaner to make it more economic to move it.

I think it's important not to just focus on Ontario when we talk about the future of coal in this province. Certainly there is potential there, but the international markets for our coal are great as well. As the hon. member knows, we have considerable sales into Japan, Korea, and South America. The world coal situation is difficult, as it had been for the oil side of things where prices were relatively low, still are relatively low, and it's very, very competitive. There's an oversupply and a lack of demand. But our coal industries are out there working hard, competing in that market, and we're working with them to try to develop those markets.

But I think the greatest potential for future coal use is within this province itself, not only in terms of generation of electricity as we have in projects now. One of the areas where we have great potential is in our heavy oils area where we're now using natural gas to generate the steam to be injected into the heavy oil sands and then to loosen up the oil so it's pumped out or we get it out by different techniques.

To replace the use of gas by the use of coal: several companies have done some work in this area and are having discussions with the government. I'm not sure if they've had discussions with AOSTRA at this stage. Mr. Yurko may want to comment on that. But the potential for tremendous use of coal in generating steam in our heavy oil projects is there. I think it's an excellent idea, because one aspect of it is that we can always sell natural gas to our markets elsewhere. It's easier and less expensive to move our natural gas than it is to move coal, so if we can use coal in place of natural gas for steam generation, then I think it's the right direction in which to move. There is some work that needs to be done in an experimental way in designing boilers to be able to accommodate the use of coal as opposed to natural gas.

Bill, did you want to comment on that?

MR. YURKO: Just very briefly, Mr. Minister. The whole hydrocarbon cycle goes from hydrogen at one end to coal at the other, and there's an interrelationship in terms of upgrading, in terms of extraction, and so forth. The use of coal has been examined and is being examined for (a) the production of steam for injection for thermoprocesses for extraction of heavy oil and, indeed, enhanced oil recovery as well as in situ recovery of bitumen. It's also being examined for the production of hydrogen for upgrading, because Syncrude and Suncor have basically been upgrading by removing carbon rather than adding hydrogen. From here on in, most of the processes for upgrading will be adding hydrogen rather than removing carbon, including Syncrude expansions.

The use of coal and its relationship to price is something we just can't overlook. It's being looked at seriously from a technological point of view, from a transportation point of view, and from an economic point of view. Companies are studying this. There are committees now set up between the coal producers, some of the heavy oil producers, and in fact the department and AOSTRA.

MR. CHAIRMAN: Final supplementary.

MR. BRADLEY: Thank you, Mr. Chairman. I appreciated very much the remarks of Dr. Webber and Mr. Yurko and am looking forward to the report that the minister acknowledged will be released tomorrow. It's too bad you couldn't come back tomorrow after the report is released, and we could continue these discussions as to the ramifications of the recommendations of the secretariat.

Just in commenting on the whole utilization of coal in the oil sands and bitumen upgrading, there is a coal agglomeration process which mixes coal with heavy oil. It removes the impurities from the coal. You have an upgraded coal product, and by distilling the coal, you also have, I believe, an upgraded synthetic or crude oil that comes out the other side, which benefits also the bitumen in terms of the quality of crude oil that would come out the other side.

So it's a unique mixture we have here, with the tremendous heavy oil resources we have in this province. Canada has the fourth largest coal reserves in the world, and Alberta has some 80 percent of those coal reserves. We get a unique mixture using our coal and heavy oil that is a combination that speaks well for the future.

My final supplementary. I wanted to ask about the value of our Syncrude investment, in terms of page 40 of the annual report that shows an investment of some \$483 million to date. Could the minister comment on what is the market value of that investment today? If we were to put it out on the marketplace, would we just realize the \$483 million or is it worth a considerable amount more than just the amount we have invested to date?

DR. WEBBER: I can't answer that question, Mr. Chairman, but I would certainly get back to the member on that.

MR. CHAIRMAN: Member for Lloydminster.

MR. CHERRY: Thanks, Mr. Chairman and Mr. Minister. I guess what I would like to talk about is the heavy oil and the Husky upgrader in the Lloydminster area. No doubt over the past four years we've heard many, many comments of a positive nature. Then, if you pick up the right paper, you'll see more negativism than anything else. So I wonder if you might take a few moments and bring us up to date on the current status of the upgrader project.

DR. WEBBER: Through you, Mr. Chairman, I thank the hon. Member for Lloydminster, who obviously has a great deal of interest in this particular project. I've had several visits to the community of Lloydminster and visited with the local people to discuss this particular project as to where we are and how we see things going. Unfortunately, it's a proposal that's been discussed for a long, long time. I think many people, particularly in the Lloydminster area, are wondering if and when this is going to come about, and I certainly can't blame them for that.

The collapse of the world oil markets in 1986 certainly set back the development of our heavy oil, oil sands as far as new projects are concerned, and also upgrading projects and set back any discussions on the Husky upgrader. However, there hasn't been any lack of discussion in the last six months on this particular project, particularly in the last six months, with the last meeting having been held in Calgary just before Christmas, December 15, between the federal minister of energy, the Saskatchewan minister of energy, myself, and Husky officials to follow up on many discussions that had occurred between our officials and Husky, as well as between the different levels of government and ourselves before going to meet with Husky again.

As hon. members may recall, Husky made a proposal many months ago now which had as one element that there would be a guaranteed price for the product. That guaranteed price would be above market price for oil. Both the federal government and ourselves found it an unacceptable approach. We feel that the marketplace should determine the price of the product and that the heavy oil coming into the upgrader should be at market price, that the gas that's used should not be royalty free but should be at market prices, that the government is to receive its royalties, and that there should be no subsidization as far as input costs are concerned. So it would be a stand-alone upgrader, which in today's market is uneconomical. Since 1986 it has been an uneconomical project in the market at today's prices. Our forecast for future prices of oil would be such that this project would be economical by the time it would come on stream or shortly afterward.

It's not so much related to predicting the world price of oil but to predicting what the differential price is between the value of heavy oil and synthetic crude once it comes out of the upgrader. Today that differential is approximately \$4 U.S. or \$4.50 U.S. a barrel, and at that price the project is not economical. It starts to become economical in a price range differential between \$5 and \$7 a barrel.

There is an excellent demand in the marketplace today for heavy oil, so that in itself adds to the value and discourages industry from wanting to go ahead and do this on their own now. But the world supply of light and medium crude is on the decline, and heavy oil is becoming a larger and larger share of the world's production. So the future demands for light and medium crude are such that those prices should be substantially above the value of heavy oil. If a spread of from \$5 to \$7 comes about, then it should be an economical project.

The discussions that have taken place to this time have been centred around the level of risk the government is prepared to take and the level of risk the government expects industry to take. In any negotiating process, obviously, industry tries to get by with as little risk as possible and governments want to come up with as little risk as possible as well. So not only do we want to look at the risk factor; we want to also look at the sharing of the upside when the project becomes economical.

There were reports recently in the news media that the project was on hold because of the recent dip in world oil prices, and that was an entirely false statement. The project is not on hold for any reason other than the fact that we have not negotiated an agreement yet. As I mentioned, the table discussion with Husky was on December 15. We are now assessing our position relative to those discussions and are continuing to have discussions with our federal colleagues and in Saskatchewan to see what we are going to do relative to the next step in the process.

I can't say at this time if and when there will be an agreement. I will say that if there is an agreement, it'll be one whereby any downside risk that the government is prepared to take would have associated with it some upside potential when the project becomes economical.

MR. CHERRY: Mr. Minister, a supplementary. You would be requesting funds from the Heritage Savings Trust Fund for the project, I would imagine, if it does get the green light. Would that be correct?

DR. WEBBER: As Minister of Energy, I personally have not addressed the question of where the money would come from. I would leave that to the discussions that would follow upon an agreement. Certainly the Heritage Savings Trust Fund could well be a source for any investments that would be required as a result of an agreement.

MR. CHERRY: My last supplementary would be: would the federal government, to your knowledge, put equity into it in the form of loan guarantees? Would you have any knowledge of that?

DR. WEBBER: Yes, I certainly would. All three governments -- the federal government, Saskatchewan, and ourselves -- have indicated that we'd be prepared to be involved in the Husky upgrader project in an equity way, so there is the degree to which government and the private sector would be involved in an equity way and the degree to which the private sector and government would share the debt obligations. It's around those topics that the primary discussions are related right now. We think it's important that we have the private sector involved in as big a way as possible as far as equity and risk-taking is concerned.

Another possibility relates to the upgrader being a utility type operation where the private sector would put up the equity and the debt, and the project receive an assured rate of return. If it's uneconomical in the first few years, governments would be involved in providing, if any risk would be involved there. That's one area where discussions have occurred as well. But the focus currently is on a joint venture, governments being involved in a debt and equity way along with the private sector being involved in a debt and equity way.

MR. CHAIRMAN: The Member for Edmonton-Kingsway, followed by the Member for Little Bow.

MR. McEACHERN: Thank you, Mr. Chairman. Welcome to both the minister and the chairman. I'd like to just say to start with that our party is in general agreement with the importance of the development of oil sands technology and oil sands projects. They, in fact, will be the key to our future prosperity in this province because conventional oil is in the process of running out -- I gather in about eight or nine years. Also, of course, the upgrading of heavy oil is fundamental and very important.

I just want to take the minister up briefly on a comment he made right at the start that the money that might be needed for some of these projects -- well, he mentioned AOSTRA and said, in fact, that the funding was shifting to some extent from the heritage trust fund to the general revenue account because of the 20 percent ceiling on capital projects. It shows, I think, that that's rather an artificial distinction that we make between the

heritage trust fund and our general revenue accounts. I can't help wondering if it wouldn't be better to put the capital projects part of the heritage trust fund back into the departments where they belong, along with some of the losing Crown corporations, so that the part that was in the heritage trust fund really was a money-earning part. But that's sort of an aside and something the minister can react to if he'd like to, or not.

One of the reasons the oil and gas industry has been so key to Alberta is the amount of royalties we've been able to garner. I guess that's why we have a heritage trust fund. Of course, recently there's been quite a number of both write-offs and lowering of royalties in the gas and oil fields. But a question I have for the minister is: to what extent are we having a problem collecting the gas royalties that are due even according to the new terms and agreements? My understanding is that a number of companies, because of their freedom to make their own deals, are able to claim that the price was such and such, when in fact in some way behind the scenes it was really something a little higher; and that therefore they're paying royalties on a lower price than what they're actually getting; and that somehow the province is being cheated of some of its royalties. Is that true, and to what extent is it true?

DR. WEBBER: Well, royalty collection, Mr. Chairman, has taken on a different perspective for gas, having moved from natural gas regulation to deregulation, from the Alberta border price to individual prices between producers and consumers. Calculating our royalties at an Alberta border price, we had one price to determine the royalty rates. Royalties had been collected up until January 1 solely on the basis of individual sale prices and contracts between buyers and sellers. The number of contracts out there is in the thousands. Our department has been inundated with information related to these contracts. There are in the area of 20,000 to 25,000 pieces of information that need to be processed to determine what our royalty share should be.

In anticipation of this natural gas deregulation, considerable work was done within the department to see what direction we might move to simplify our whole gas royalty system. In fact, over a year ago we began looking at ways in which we could make some significant changes in the way in which royalties would be calculated. We issued a press release in December which indicated that beginning January 1, 1988, we would be publishing an average market price for natural gas. That average market price would determine our royalty rate or the volume of gas that would belong to the Crown, and then that royalty rate would be applied to each individual sale. Now, that has simplified the system somewhat, because we have one royalty rate that's determined on the basis of the average market price -- one royalty rate for old gas, one royalty rate for new gas, and so on.

We are looking at the establishment of the concept of a corporate average price, so that rather than have a particular corporation report to the government all the individual sale prices associated, from which we would then calculate the individual royalty amounts that we would have owing to us, have an average corporate price where they would report one single price to the Crown, which would make it very easy. We would have one price, the average market price, for determining the royalty rate and one price for each corporation to determine the amount we would receive from that corporation. That concept has resulted in the industry saying that it's much more difficult to administer and introduce than had originally been thought, and we postponed bringing in that concept until July 1, until we worked

with industry and IPAC and CPA to see if we can work out how we can make that system work. There is an audit system in place that we use to see whether or not the companies are reporting accurately. We also put in place a year ago a small group that was involved in dealing with theft in the industry.

The Auditor General has indicated for several years running now that the information the department receives from the ERCB is not accurate enough for royalty calculation purposes. I believe it's considered to have a magnitude of about 94 percent degree of accuracy. We would like to see 100 percent accuracy in terms of calculating our royalties. That accuracy is adequate according to the Auditor General and the ERCB for the mandate of the ERCB, for their information collecting purposes, but that information comes from the ERCB to the Department of Energy for royalty calculation. So we put together a task force to see how we can improve the degree of that accuracy, and they made recommendations to us -- a task force consisting of the ERCB, the Alberta Petroleum Marketing Commission, our department, and, I believe, the Auditor General's office. As a result of those recommendations, we will be taking steps immediately to see that an improved degree of accuracy comes about. This would mean some additional manpower for the ERCB, but we think it's important that we improve that accuracy and make sure the Crown is getting its proper share.

Now, that problem really was unassociated with deregulation; that problem has been around for a while. Certainly natural gas deregulation has changed the way in which we have had to deal with royalty calculations. That was only phase 1 of our look at how to deal with natural gas royalties. Our natural gas royalty system is one of the more complex ones in the world, the result of time and what's happened over time. There's no consensus in the industry on how we can have a system which would work. CPA -- the Canadian Petroleum Association -- and larger corporations want us to do away with the Alberta royalty tax credit and have a flat royalty rate right across the board like we had back in 1974, which was, I believe, around 16 percent. With the Alberta royalty tax credit program in place today the Crown's return is now around 12 percent, even though the royalty rates are higher than that when it comes to calculating the royalties on production. But that royalty tax credit, which is up to \$3 million dollars or 95 percent of a company's royalties, up to a maximum of 95 percent, was reduced to 75 percent at the first of January this year. I expect it would be reduced further in January 1989 to 50 percent and a maximum of \$2 million.

But the smaller companies want to keep the royalty tax credit program in place; the larger companies don't. We intend to keep it but not at the rich level that it was at, 95 percent and \$3 million. The reason it was at that high level -- rich level is not an appropriate term -- was simply because of the difficulties the industry was in when world oil prices collapsed a year ago, the government's response to help the smaller companies survive.

There is a formula that's used in determining royalties where the gas cost allowance is involved, and I don't pretend to know the details of that formula. But we are working with industry to see if we can't determine a method of calculating royalties in improving that gas cost allowance, part of it, to the satisfaction of industry and government. That's the second phase of development or second phase of discussions that will take place over the course of this summer and into the fall towards the end of this year.

The third phase relates to one component I've already mentioned, and that is what changes we might make in the royalty

tax credit program. But I think the direction will be as I've indicated. Thirdly, are the royalty rates for sulphur and pentanes appropriate in today's market situation? Looking at those things would be beyond January 1, 1989.

MR. McEACHERN: Thank you, Mr. Minister. It would seem then that you have been trying to do something about the problem, but I don't understand why you said it was not related to price, because you're now faced with a multitude of prices where you only had one before. That should have surely been simpler. The method you're suggesting of correcting it seems to be going back to a common price. So it seems to me that if you're not talking about a common floor price for the gas, you're at least talking about a common floor price for the royalties on the gas.

Anyway, I would move on to another question if I might.

DR. WEBBER: Could I, Mr. Chairman, go on to that, in that the hon. member I don't think is quite clear that the data accuracy problem was not related to the accuracy of price. It was related to the accuracy of volume production from the wells that are out in the batteries. So it's that data that we get from the ERCB; we don't get price information from the ERCB. It's information about production. The price information . . .

MR. McEACHERN: I thought the royalties were set on the price.

DR. WEBBER: You're right; they are determined by price but also by volume.

MR. McEACHERN: Yes. If I could get on to my second question. Thank you.

The Alberta Energy Company -- and I don't have the updated report; it's the 1986 annual report, maybe the last one available, since the 1987 year-end has hardly ended -- indicates in the annual statements that there was a loss of some \$83.3 million in the 1986 fiscal year. I looked through the report -- I've got to say not in great detail, because I didn't have a lot of time, but fairly carefully -- and I could not find an adequate explanation. The only explanation I could find to those annual statements was on page 37, note 14, saying that:

extraordinary losses of \$83.3 million, net of \$4.1 million in income tax, reflected principally the loss on sale of British Columbia Forest Products Limited shares, a write-down of investment in IPSCO Inc. shares to market value and the write-down of certain experimental oil and gas projects.

I couldn't help thinking, given the incredible amount of detail in the report on a number of other things, much of which did not entail \$83 million, that somehow that \$83 million loss deserved a much fuller explanation than that one little footnote. Could you perhaps elaborate and tell us a little bit more about what happened to that loss of \$83 million in the Alberta Energy Company?

DR. WEBBER: Mr. Chairman, the only advice I might give the hon. member is that he possibly attend the next annual meeting of the Alberta Energy Company and ask those questions at that annual meeting or get the information from the Alberta Energy Company in the meantime. They have a board of directors that is responsible for their operations, and as Minister of Energy, I'm not.

MR. McEACHERN: But the heritage trust fund has money in

the Alberta Energy Company, some \$87 million. How can you say that you're not responsible? I mean, if you'd set it up as a Crown corporation, you'd have to reply to the Assembly. But here at least you're only replying to a committee, yet you don't know the answer to that. Mr. Minister, would you please find out?

AN HON. MEMBER: It's a public company, Mr. McEachern.

MR. McEACHERN: The minister is still the one that's reporting to the heritage trust fund about our investment in the . . .

MR. CHAIRMAN: Order please. If you want to address your questions through the Chair, the final question has been asked, and the question was: could the minister find out?

DR. WEBBER: Certainly I would be more than helpful to the hon. member. If he feels it's beyond his ability to get that information on his own, then I would help him get that information.

MR. CHAIRMAN: Thank you.
I recognize the Member for Little Bow.

MR. R. SPEAKER: Mr. Chairman, welcome to the minister and Mr. Yurko. I hope it's a case of just old face and hopefully a bit of youthful thought and mind yet for the members who are still here. But it's nice to see you.

I wanted to relate my questions to the November 12 meeting we had here, some 14 months ago. At that time, Mr. Minister, you indicated to us

that Alberta oil production is on the decline and that within two to three years we as a nation could very well be net importers of oil . . .

First of all, is that still the case? Are there that few years in terms of this transitional point? In your conversation earlier here, we were talking about eight to 10 years. Do the two to three years still stand?

DR. WEBBER: I think the comment made earlier about eight to 10 years was with respect to the reserves that are in place in the conventional oil supply. Of course, there are new reserves coming on stream all the time. One of the interesting aspects of 1986 was that given the world drop in oil prices and the significant decline in activity, there were reserves discovered in 1986 almost equivalent to what there had been in the year before, when there had been great activity in exploration and development, because of a few major finds. So we ended up in 1987 nationally in a position where we were better off than we had anticipated we would be the year before.

I don't know what the current situation -- I guess reasonably close to sort of the borderline between being and not being a net importer. I expect we still are a net exporter. Unless we have more and more production come on stream faster than what has been, it won't be too long before we will end up being a net importer. That's another reason why it's so important that we get our oil sands, heavy oil, and upgrading projects going, because we certainly will be net importers of oil by the time those come into operation.

MR. R. SPEAKER: Mr. Chairman, a second question. Following that meeting of last November, the minister was going to have meetings in January with the federal minister to begin discussions on the question of security of supply or self-

sufficiency. The other governments of Canada as well as the territorial government were to be involved in this process. Has the minister set out a strategy at this time to respond to that possible situation where we may be a net importer? Has something new been initiated during this year as a plan, outside of what we've talked about already? I guess that's part of it, but is there something even beyond that?

DR. WEBBER: I think it was 1986 when we had a provincial ministers of energy meeting in Banff where the Alberta government took to that group sort of the theme of security of supply. We wanted all provincial governments to agree with the idea that as a nation we had to increase our supplies of oil, both conventional and nonconventional, if we were going to have a secure supply into the future and not be reliant on imports. We got unanimous agreement from the provincial ministers that it was key. We then followed that meeting up with meetings with the federal government and stressed the importance for the federal government to adopt the policy of working to see that new projects would come on stream so that we would not be more and more dependent in the future on imports.

The federal government responded, particularly at our last meeting -- as I recall, in Newfoundland in late August, early September of this past year -- whereby they indicated that they would be prepared to work with individual provincial governments and industry to see that new projects could come on stream as quickly as possible.

But basically, those projects had to be economical. Now, we were saying that if they had to be basically economical -- you know, there's no point in discussing government's involvement if the private sector will do it if it's basically economical. We had clarified at that meeting that the federal government was prepared to participate and work with industry in the provinces if it had the potential for being economical. It may not be economical right now, but it had the potential to be economical with higher world oil prices, and it looked like that was the way it was going to be. With tax reform some of the negative impacts on the major oil sands and heavy oil upgrading projects -- those negatives of the tax reform would be replaced by some benefit outside the tax system by the federal government on a project-by-project basis.

The free trade agreement: I mention that again because I hear now more comments coming from the federal government about security of supply than I did before the free trade agreement. I think the combination of provincial governments' unanimously stressing to the federal government the importance of security of supply, and industry itself, although industry is more concerned about their own security of supply than they are with regard to a nation's or a provincial government's -- they look at it from a different perspective. They look at projects as to whether they're basically economical from their perspective. We have to look at projects on the basis of not only the economics of the project but for the job creation and the regional development and that sort of thing and from a trade deficit or not perspective as well.

So I've gone around a lot of areas here in response to the member's question, Mr. Chairman, but today we are at a point where I'm encouraged by what I'm hearing from the federal government in terms of their concern about future security of supply, and I think the free trade agreement will help us with respect to our future supplies for the reasons I mentioned a while ago.

MR. R. SPEAKER: To the minister. In terms of AOSTRA, the subject under discussion in those discussions of security of supply, was the federal government prepared to supplement research and development as one part of their participation in trying to achieve the goal?

DR. WEBBER: As the hon. member knows, Mr. Chairman, AOSTRA -- almost 100 percent of government funding has been provincial funding over the years. I would ask Bill to respond further. Petro-Canada is involved in some of the projects now -- the people's oil company. How will I put it? We're in a different era now than we were five or 10 years ago with respect to the federal/provincial problems on ownership of the resources. Some may have thought at that time that it may be desirable not to have federal government funding coming in; then they'll be clamouring even more for the ownership of these resources. How valid those arguments were, I don't know.

I think we're at a stage today where we should be looking at more federal government participation in research and development in the oil sands area. I know that both the chairman of AOSTRA and myself have had discussions along this line, together with some discussions with the federal government on it. Bill?

MR. YURKO: Mr. Chairman, through you. Petro-Canada is involved with AOSTRA in a number of pilot projects -- I have a series of them here -- both in the past and at present. It's involved with British Petroleum in the Wolf Lake project, which we hope is going commercial before very long. Petro-Canada is one of the five companies that has joined with AOSTRA in the underground test facility, and it's involved with us in a number of additional research projects. So Petro-Canada has been quite involved with AOSTRA in terms of the development of the hydrocarbon resources of Alberta.

The federal government joined with us on a reasonable basis directly in connection with the underground test facility. The federal Department of the Environment is also involved with AOSTRA in connection with an environmental project on recycling water in the Lindbergh area. So gradually the federal government is in fact moving in and becoming involved. But as the minister indicated, an approach was made to get the federal government to consider seriously funding AOSTRA to a certain percentage and putting a person on the board of directors. I gather, Mr. Minister, that you haven't heard yet one way or another in regard to that proposition you put forth.

MR. R. SPEAKER: Mr. Chairman, one item the minister or the chairman haven't commented on is with regard to whether, following these meetings, discussions, and the one presentation here, the strategy in terms of energy self-sufficiency is a strategy in total, or are we sort of in an ad hoc approach to the thing at present, in terms of the federal government, the provincial government, and I guess the government of Saskatchewan has a similar interest as well?

DR. WEBBER: We've been using the expression "security of supply" as opposed to "self-sufficiency." I guess one could provide their own definitions for each of those. We've had and thought of a rather loose definition with regard to security of supply in that we weren't thinking that we had to be one hundred percent dependent on our own production but that we had to bring on greater supplies than what would be brought on by leaving it to industry alone to have Canadians more secure than

they would be if this production didn't come about.

As a provincial government we are interested in this not only from the perspective of the national interest but in terms of economic development within our own province, which obviously adds to the national benefit as well, looking at the future and seeing the declining light and medium crude production and that there is a need to bring on the synthetic and upgraded production to replace the conventional. The Energy Resources Conservation Board, I believe, indicated in a publication entitled Alberta Oil Supply, 1985-2010, a forecast with regard to the production of different levels of weight of oil, with the total production maintaining a very steady level between 1985 and the year 2010 of approximately 220,000 cubic metres of oil per day, in the metric system. I don't have the equivalency in barrels, but I don't think it really matters. The important point is the decline on the light side. They're forecasting a significant increase on the synthetic and the upgraded side, so our total production should remain steady over the time period between now and about 2010.

MR. YURKO: It's 1.3 million to 1.4 million barrels a day.

DR. WEBBER: Yeah, 1.3 million to 1.4 million barrels a day. That's right; that's what our production is now.

MR. CHAIRMAN: The Member for Ponoka-Rimbey, followed by the Member for Lacombe. The Member for Lacombe?

MR. R. MOORE: Thanks, Mr. Chairman. Well, I note the heritage trust fund report on research and technology speaks about AOSTRA bringing together academics in industry and government activities. I wonder if the minister could let us know: what academic people are we bringing in? Are they Canadian or are they worldwide that we're drawing into Alberta in these joint projects? How far do we attract academics? Are we now becoming a world-class research setup like the medical foundation? It draws medical people here from all around the world. Are we drawing academics in on that?

MR. YURKO Mr. Chairman, through you. AOSTRA does sponsor some professorship programs to experts throughout the world to come to Alberta and give some talks. Also, it's now recognized that AOSTRA has accumulated technology to the extent that it's recognized as perhaps the primary body that's accumulated expertise in this area of heavy oil and oil sands recovery. We're now being asked to enter into agreements with agencies from many nations in terms of negotiating the use of our technology in different countries through different agencies. Recently we signed a memorandum of understanding in Russia. Mr. Heron is sitting back there. He led the delegation, and he effectively consummated that agreement. So there is a worldwide interest in terms of the technology that has been developed in Alberta over the last dozen years. To some degree our leadership in this area permits the government and Alberta industries to act as a catalyst to permit other organizations in Alberta to enter into agreements in other areas of commerce throughout the world. So there just isn't any doubt that Alberta is recognized as a world leader in terms of the technology it has developed in connection with enhanced recovery, heavy oil recovery and oil sands recovery, both in situ and surface mining.

MR. R. MOORE: Mr. Chairman, I may have missed this. I was out for a bit, and I apologize if I did miss it. This technology

that's developed through AOSTRA with partial funding from industry and from the heritage trust fund: do we sell that technology, and do we get a return on that in proportion to our investment?

MR. YURKO: Yes. I should indicate that the amount of technology thus far sold by AOSTRA through a series of programs is of the order of \$16 million to \$17 million in total. We sell between \$1.5 million and \$2 million a year of technology. However, in this last year we not only are marketing, we hope, technology to the extent of \$1.5 million to \$2 million a year, but we have had five companies join with us to purchase our technology on the underground test facility. Each of those companies has invested or is investing \$1 million to join us in terms of having access to our technology. So with respect to our underground test facility we suddenly have an input of \$5 million from five companies who have come to join with us to have access to that technology. In fact, they are buying our technology.

We have a number of companies standing in line to become partners beyond the five we now have. So the sale of technology by AOSTRA -- and I should indicate that when AOSTRA gets involved in any project, it gets involved on the basis that it owns the technology. It can make the technology available to all companies rather than just one or two, and it can make the technology available to different nations, to different organizations throughout the world. That's part of our legislation. So we've given this area of the sale of technology a new emphasis, new priorities. We've moved the offices from Edmonton to Calgary in terms of technology sales and commercialization because that's where most of the oil companies' headquarters are. We are giving this area more priority, and we expect to get a lot more money in the future in the area of the sale of our technology.

MR. R. MOORE: Well, Mr. Chairman, if I might. When Mr. Yurko mentions companies lining up, in underground testing you have a project you outlined in the brochure that was distributed. If my memory serves me right, Phoenix Oil came out and presented a proposition to the government before AOSTRA was in place to use controlled nuclear explosions in the oil sands. At that time they said it was premature. I remember they had quite a bit of headlines. I happen to know the president of Phoenix Oil, and he said he went away saying his project was premature. Have we advanced with technology where we would entertain such a concept of using controlled nuclear explosions in the oil sands?

MR. YURKO: Well, I remember that matter. I was a member of this House, I think, when that matter first came up in '69, I think it was, or '70. It was not accepted; it was simply not appropriate. But what has been studied is the use of a nuclear reactor to generate the steam for thermal recovery of heavy oil in oil sands. Atomic Energy of Canada did a major study in 1982-83 and compared it to the use of coal and natural gas and so forth, and the operating costs of nuclear energy for generating steam were considerably lower than any of the other sources of energy at the prices at that time. You recognize that this was '82-83, when the price structure on hydrocarbons was fairly high. But they didn't factor into the equation the capital write-off or the capital costs of a nuclear reactor, and if you do that, then you find that the price structure changes. But this area has been examined in relationship to the costs of using nuclear energy to generate the steam for recovery of heavy oil and oil

sands.

MR. CHAIRMAN: The Member for Athabasca-Lac La Biche.

MR. PIQUETTE: Thank you, Mr. Chairman. Last year you indicated the importance of national security of supply in regard to the oil sand development, that we have to convince the rest of Canada about that need. Now, how does that square off with the deregulation that will deplete our conventional resources quickly and retard oil sand development, as OPEC and other nations can produce conventional oil much more cheaply than using the tar sands approach?

DR. WEBBER: Well, Mr. Chairman, the quickest way in which a nation can become dependent upon others is to stop production and try to hold in reserve what they have. It would also be an economic disaster not only to this province, but it would have a severe economic impact on our nation as a whole if we decided that the answer to the future security of supply was to hold in reserve what we have now and use it ourselves in the future.

The thing that has made the energy industry in this province and this country thrive has been the fact that as markets develop, it increases exploration and development and investment and further finds. I don't think there's anybody I'm aware of that doesn't think -- and Bill Yurko mentioned awhile ago some of the reserves we have in this country. They're phenomenal; in the oil sands and heavy oil areas in this province, more reserves than what there are in the Middle East for potential in the future. So the reserves are there. It's a matter of developing those reserves and bringing them on stream. If the hon. member wants, in the next provincial election or at any other time, to stand and argue whether or not we should be holding in reserve and not selling our supplies as a national security of supply policy, I'd be happy to debate that point.

MR. PIQUETTE: Now, with the whole free trade question, you know, there's no guarantee that when our cheap energy source, which is conventional oil and gas, is exhausted, which is going to come much more quickly than a lot of people expect if we don't set aside some of the reserves for our own use here in Canada and Alberta -- what guarantee is there that the United States, instead of shifting to the higher priced heavy oil or tar sands development, will not simply turn to the Arabs and become much more dependent on that source of oil and gas? Because again, market is what really controls. Under this free trade agreement there's really very little in terms of an understanding, you know, that we are going to be looking at guaranteed access for our sales of oil and gas when it comes to the higher priced components. Would the minister please comment on that?

DR. WEBBER: Mr. Chairman, I'd be happy to comment on it, except I'm not sure I fully follow what the hon. member was getting at. Could I ask him to try to clarify what it is he just said, because I didn't fully follow it?

MR. PIQUETTE: Well, what I've been saying is: what guarantee is there under free trade that after our cheap sources of energy have been sold to the Americans -- and they're going to be a free market price, okay, with the lowest price possible they can negotiate for that sale of our product -- that when we come to the development of the more expensive parts of our energy, which is the development of our heavy oil and tar sands,

they will simply not invest here but go to other foreign sources of cheaper oil and gas as opposed to looking at our product here? Because under the free trade agreement there is no guaranteed sale access. All we have is an assured access to the American market, nothing in terms of guarantees that they will be buying our more expensive oil and gas in the future.

DR. WEBBER: Well, Mr. Chairman, I have difficulty with the word "guarantee." We're not given too many guarantees in this life for very many things. When we're moving into the free market area, it's based upon supply/demand concepts, and there are no guarantees in that kind of market. But the hon. member also used the words "assured access to market," and that's a term I would rather use. The free trade agreement is an agreement whereby we have a greater assurance of access to that market than we had previously, so there's an improvement in terms of assurance of that market.

I still don't completely follow the comments about the lower cost sources being sold to the Americans and developing the heavier ones later. In fact, today most of our exports into the United States are of the heavy oil nature. They have the refineries that are capable of handling that heavy oil and producing gasoline. It's our light production that is used by refineries in this country. Again, the way in which we see security of supply in the future is to have significant activity, where investment occurs and companies are out there exploring and developing. We know the reserves are there. The reserves are phenomenal with regard to oil and gas.

In fact, I would say that the future for natural gas as an economic benefit to this province is far beyond what a lot of people are thinking today. I think that natural gas will also be an area where we will have the greatest assurance of revenues as royalties to the Crown than possibly on the oil side in the future, because we have a different royalty regime in place for the heavy oil on the oil sands side than what we have on the conventional side. With the development of our natural gas reserves, that is an assured -- not a guaranteed, but an assured -- source of revenue into the future for this province.

MR. CHAIRMAN: Good. In light of the hour, Mr. Minister, I want to thank you on behalf of the committee for your attendance this afternoon. Thank you to Mr. Yurko as well. We ap-

preciated the candid and frank answers and information that you shared with us. I'm sure it was most helpful for all members.

DR. WEBBER: Thank you.

MR. CHAIRMAN: Just before we adjourn, if I can, a couple of housekeeping matters. Again, I would remind members that on the 19th we will be meeting in the afternoon only. On the 20th, having had an opportunity to go through the schedules re the 20th, 21st, and 22nd, we're not going to get a hundred percent attendance on any of those days or any of those meetings, but it does appear that it would be appropriate to proceed with the morning of the 20th, the morning and the afternoon of the 21st, and the morning of the 22nd. So I'll go over that one more time: the morning of the 20th, the morning and afternoon of the 21st, and the morning of the 22nd. We will be endeavouring right away to bring back the ministers, as was suggested. We still have the hon. Mr. Russell to hear from on Thursday. We'll be in touch right away with Agriculture, Environment, the Provincial Treasurer, and the Alberta heritage foundation to see if they are available on any of those dates.

The last comment that I would want to make is that I would encourage all members to start submitting their recommendations. I'm assuming we will be following the same procedure as last year in that members would read the recommendations into the minutes, would distribute copies to all members, and that no recommendations would be discussed on the same date as they have been submitted. So keeping that in mind, remember to get your recommendations in right away. It would be the hopes of the Chairman that we can conclude with our discussions with the ministers and with the submission and discussion of recommendations by the conclusion of the 22nd. Following that, we'll still have to reschedule one date to come back and vote on them.

The Member for Cypress-Redcliff.

MR. HYLAND: I was going to move we adjourn.

MR. CHAIRMAN: A motion to adjourn. We stand adjourned until tomorrow morning, then, at 10 o'clock.

[The committee adjourned at 4:04 p.m.]

