

2:01 p.m.

Wednesday, October 24, 1990

[Chairman: Mr. Ady]

MR. CHAIRMAN: We'd like to call our meeting to order and welcome the Hon. Rick Orman, Minister of Energy, and his associates that are with him today. We customarily ask the minister to introduce his associates or department officials, whichever they might be, and then if he has some brief overview remarks he'd like to make, we would allow him to do that. Then we will recognize questions from the members of the committee. So, Mr. Minister, if you would introduce your people who are with you today.

MR. ORMAN: Thank you, Mr. Chairman. On my left is Mr. Luigi Di Marzo. Mr. Di Marzo is the senior co-ordinator in the office of the deputy minister, Department of Energy. On my right is Bill Yurko, who is the chairman and chief executive officer of the Alberta Oil Sands Technology and Research Authority.

Mr. Chairman, I'd like to thank the committee for the opportunity to present our thoughts on energy-related matters to the standing committee on the Alberta Heritage Savings Trust Fund. To begin with, I have a few remarks that will pertain to the expenditures on energy-related matters from the heritage fund. Let me begin by saying that in keeping with our government's policy of restraint and the recognition of the best use of heritage fund dollars, I'd like to indicate that our commitment on energy projects is relatively modest. During this past fiscal year a total of \$5.651 million was approved for energy projects for 1989-90. Of this, \$5.1 million was for AOSTRA and \$500,000 was for the southwest renewable energy initiative. I will speak to the committee, Mr. Chairman, on some general terms of our use of investment dollars and then have some specific comments related to two areas and then be pleased to take any questions.

To begin with, the money allocated for AOSTRA was in fact the last installment to come from the heritage fund for this agency. It was combined with a commitment from the General Revenue Fund of \$29.3 million, and the money was spent on a variety of activities including research on in situ oil sands, mining and extraction, institutional research, enhanced oil recovery, bitumen upgrading, technology handling, heavy oil research, and training and international activities. Mr. Chairman, since 1976 there's been in excess of \$430 million from the heritage fund spent by AOSTRA in its desire to promote and assist pure and applied research into economic and environmentally acceptable methods for recovery and processing of oil sands, heavy oil, and for enhancing the volumes of oil through the enhanced oil recovery mechanisms that can be produced from the conventional oil reserves. Since its inception about \$519 million has been spent from the fund on the Syncrude project, \$70.6 million on the Lloydminster biprovincial upgrader, and \$6 million to date on the OSLO project. It's quite evident, Mr. Chairman, that the Alberta Oil Sands Technology and Research Authority is world renowned and is a world leader in these techniques that I've spoken of to you.

The research, coupled with the government's participation in oil sands projects, has facilitated commercialization of oil sands production so that today over 300,000 barrels per day, or 20 percent of Alberta's oil production, comes from oil sands. That is particularly relevant, Mr. Chairman, when we recognize that on our conventional production side we've lost about 100,000 barrels a day out of our production over the last two years. So

that underlines the importance of our commitment to commercializing our oil sands projects and bringing forward a quality grade of synthetic crude oil.

Our commitment to the southwest renewable energy initiative is \$500,000, as indicated in the annual report of the heritage fund, and this is the first installment of a three-year, \$3 million commitment to this initiative in southwest Alberta. This initiative is both a continuation by the government of its commitment to renewable energy and conservation and, in fact, is a departure from traditional ways of government's committing to these types of initiative. It is a continuation in the sense that the government since the middle-'70s has funded wind and solar research and generated information and delivered educational programs.

It's a departure, Mr. Chairman, in the way the initiative is structured and delivered. Essentially the fund will be used to assist private developers in the construction and operation of renewable energy facilities. We have chosen the Pincher Creek region for a couple of reasons: one is because of the high wind activities in that area and, second, because it is an economic generator to that part of the province. It will develop initiatives that support infrastructure and servicing requirements for this initiative, and will be supported and is supported and of benefit to the surrounding community in the Pincher Creek area.

The initiative will be supported by the office of renewable energy technology, and this will have an executive management committee comprised of members from the private sector, from government, and from the Pincher Creek community at large. Mr. Chairman, I'm pleased with the development of this initiative, and we have made some substantial progress in this area.

Mr. Chairman, I am asked on a regular basis: is it not a conflict that the Minister of Energy from a province that is so heavily endowed with nonrenewable resources is promoting the development of renewable resource initiatives? As a matter of fact, that question was asked of me at the recent energy ministers' meeting in Ottawa by an official from the Department of Energy, Mines and Resources. As I said in my speech on Monday this week in Banff to the Canadian Wind Energy Association, we are in the business of producing energy, not just conventional oil, not just conventional gas, but oil sands development and also alternative energy sources, and we want to be sure we can use the resources that have been generated in the Heritage Savings Trust Fund, to a large extent from the royalties from our conventional side, and hope we can use it to be first and foremost in Canada and elsewhere in our renewable energy initiatives. So that's basically our philosophy.

Back to the southwest Alberta initiative, Mr. Chairman, the office of renewable energy technology was established there in May of 1990. A local resident, Dr. John Rottger, was appointed chairman, and I will have the pleasure, along with the MLA for Pincher Creek-Crowsnest, of opening the information office associated with this initiative on Friday, October 26. Additionally, approval was given to the Lethbridge wind research test site. It's funded to the extent of \$50,000 for 1990-91, and sometime in the near future we expect its first development, likely a 10-megawatt, wind-powered generator, will be supported.

2:11

In summary, the expenditures during the past year were modest in comparison to some of the other expenditures in the heritage fund. They've nevertheless contributed to furthering oil sands research, and substantial progress was made on furthering renewable energy research and technology development.

Mr. Chairman, I just want to touch briefly on some of the specific activities the Alberta Oil Sands Technology and Research Authority has been involved in. I would refer members of the committee to the report by the chairman and chief executive officer of Alberta Oil Sands Technology and Research Authority. The first thing I wanted to point out is that the organization has some organizational changes in it, and this is the creation of some new positions to deal with technology transfer. Obviously, the organization has been substantially involved in pilot projects and test projects and now feels the next step would be to bring to commercialization some of those projects. In its selection of projects for funding, AOSTRA will continue to emphasize the reduction of production costs, improvement in yields and efficiency, and minimization of the environmental impact of nonconventional oil production.

A couple of examples are the horizontal well, steam-assisted gravity drainage process pioneered by AOSTRA, the Underground Test Facility near Fort McMurray. We have high hopes for the success of that project. The Taciuk process is probably the pride and joy of AOSTRA, Mr. Chairman. They have moved from the pilot project to commercialization. A 240-ton per day commercial unit has been built and sold by AOSTRA's industrial partner for a hydrocarbon waste treatment application in the U.S. Engineering work is being carried out for a 6,000-ton per day processor for oil shale application in Queensland, Australia. An agreement has also been reached to carry out a small-scale test in Saskatchewan oil shales. There are other negotiations that are ongoing with regard to commercialization of Taciuk.

In other areas, Mr. Chairman, negotiations are near completion that could lead to an R and D phase in a major demonstration program using dredge mining and a cold-water extraction process for bitumen recovery. Cold-water extraction, obviously, is hopefully the way of the future because it lessens the environmental impact of tailings ponds. Other promising activities are a modified hot-water process and a borehole mining process that is being conducted by the organization. They have an anti-water coning technology that they're joint venturing with Alberta Energy in the Suffield heavy oil area. The VIKOR Joffe miscible carbon dioxide enhanced oil recovery project is occurring. That is the use of CO₂ for enhanced oil recovery.

In conclusion on AOSTRA, Mr. Chairman, obviously, because of the heavy emphasis today on environmental aspects of production and upgrading of oil sands bitumen, the organization has always deemed important the development of projects that mitigate environmental impact. Certainly one of these is the issue of global warming. The other areas that are always first and foremost in the mind of the organization are atmospheric emissions, increased water reuse, production of tailings, reclamation and minimization of disturbance of surface and vegetation, and, of course, minimizing carbon dioxide emissions. AOSTRA has established a global warming data base in collaboration with the Alberta Department of Energy, Alberta Environment, and Alberta Research Council. So you can see that they are contemporary in many of the directions they are taking.

My closing comments will just deal with some specific points on the southwest Alberta renewable energy initiative. Following the announcement of that initiative, preliminary administrative procedures were proposed and subsequently finalized and approved for the establishment of the Office of Renewable Energy Technology and the appointment of its board of directors. I've alluded to the composition of the board earlier, Mr. Chairman. Significant decisions were adopted by the board. They've approved their operating budget. They've approved of

their information centre, which I've alluded to also: a maximum funding contribution of \$200,000 for the fiscal year 1990-91 and the selection of the project manager, who became the secretary of the board of directors.

I've also alluded to the approval of the Lethbridge wind research test site with a funding contribution of up to \$50,000 for the fiscal year 1990-91. Mr. Chairman, the wind research test site is really a fantastic opportunity for entrepreneurs who want to test their wind technology to go to the Lethbridge site and see it in operation and determine whether or not it has the potential for becoming viable and commercial. They've also approved of the guidelines and timetable for the solicitation of expressions of interest and proposals. The first-year priorities will be to develop a 10-megawatt wind farm, and other wind applications as well as active/passive and a photovoltaic solar application are among those priorities.

The best part of this organization, Mr. Chairman, is that it is a board made up of businessmen, people from the community and government departments, who will on their own mandate review the expressions of interest for funding. Nineteen projects were recommended for the detailed proposal out of 32 expressions of interest, and nine were considered not appropriate at this time. A change in scope was suggested for another four, and I am sure they will be back before the committee for further review. Proposals have now been received which include wind farm, solar, and wind powered water pumping, and a decision by the board is expected sometime towards the end of November.

Those are my comments, Mr. Chairman. I've been very pleased with many of these initiatives, and I'm hopeful that they meet with the approval of this committee.

Thank you.

MR. CHAIRMAN: Thank you, Mr. Minister.

The Chair neglected to recognize a member who wished to bring forward a recommendation and have it read into the report. The Member for Clover Bar.

MR. GESELL: Thank you, Mr. Chairman. I would recommend that the Alberta Heritage Savings Trust Fund capital projects division consider investment of research funds to determine the best possible environmental and technical parameters for individual sanitary disposal systems.
Thank you, Mr. Chairman.

2:21

MR. CHAIRMAN: Thank you.

One other comment to the minister. This year the committee had an emphasis on visiting projects that were directly under the responsibility of the Department of Energy. We visited the Syncrude plant and also the AOSTRA Underground Test Facility. I believe that on behalf of the committee I can say that all of us were very impressed with what we saw there, in view of the production that is contributed by Syncrude but even more so the potential that is just almost proven by AOSTRA for the production of the heavy oil fields in northern Alberta. All of us were enthused and really impressed with what we saw there and were treated very well and given a very good overview of both the facilities.

I'd like to move to the questions now and recognize the Member for West Yellowhead, followed by the Member for Lloydminster.

MR. DOYLE: Thank you, Mr. Chairman. I certainly want to welcome the minister to the Legislature to answer all the good

questions that are going to come, and hopefully we can find the right answers.

Mr. Chairman, it was my pleasure, as you just mentioned, to tour the AOSTRA site and Syncrude in Fort McMurray. AOSTRA, of course, was very impressive. Having been a nickel miner in the past, I felt right at home down in that mine, and I'm sure with the amount of time Mr. Yurko has spent there lately, he probably feels at home every time he goes there.

Mr. Chairman, my questions on AOSTRA of course are due to the fact that there has been quite a major investment out of the heritage trust fund. Is there a day coming when the minister looks at a return on the investment from those other companies that are partners in such a positive project?

MR. ORMAN: Mr. Chairman, as I indicated in my opening remarks, when you embark on such a monumental task as was embarked on the establishment of the Alberta Oil Sands Technology and Research Authority - and I recall it, Mr. Chairman, because I was an executive assistant to the Minister of Mines and Minerals at the time of its establishment, in the early '70s. The task at that time seemed quite overwhelming, to be able to establish a body that could come up with alternative ways, improvements, on how to extract oil from oil sands.

At that particular time the Suncor project was really the only commercial oil sands project in the province of Alberta, and we were moving into negotiations for the Syncrude project. I am not sure that at that time the possibility of commercialization was really a viable consideration. It seemed to be very much confined to the research side, doing whatever we could to support industry in their research to improve the techniques. I relate that experience because it was a personal experience for me. The chairman of AOSTRA was then the Minister of the Environment, as I recall. I'm sure his thoughts are much the same as mine were at that particular time.

Having said that, we are now moving into this area of commercialization. We talked about the Taciuk project. I'm sure there were many doubters when Mr. Taciuk came forward with his process. It was supported by AOSTRA, and now, as I've indicated, there is the sale of one commercial unit, potential for another major sale of a commercial unit, and testing is continuing. I think you find in the area of science, Mr. Chairman, that what you set out to look for with some kind of new technology is not always applicable to what you thought it was when you started. You end up finding that it may be applicable to another area. The Taciuk project was more designed to deal with the tailings side, the waste side, and now is dealing with both waste and extraction. I would ask the chairman to support that opinion.

So we have moved into commercialization. We have reorganized AOSTRA, as I indicated in my opening remarks, to facilitate the infrastructure within the organization to promote commercialization. I should point out to the hon. member, Mr. Chairman, that our investment in projects is really for the most part equity investments when it's joint venture. One of the mandates of AOSTRA is to be sure that if they are supporting many of these projects, they have an equity position so that when it becomes commercial, we get a return on our investment; that we're not stopping at the research side, that we are involved down the road on the equity side. It's the same philosophy that we've had in our investment in oil sands development. So we are moving in the area of commercialization.

There may be some other areas that we are close to commercialization on, and maybe I could ask Mr. Yurko, at your concurrence, Mr. Chairman, to speak further to that issue.

MR. YURKO: Thank you, Mr. Minister. In the last year we reorganized AOSTRA slightly and created a new director, and he's the director of commercialization. We're moving forth in a number of areas in this area for a number of reasons: because we have invested quite a bit of money in our technology, and the world is interested in our technology. Whether it's the Soviet Union or Australia or China, it's just amazing what's happened in regards to the interest in our technology. But let me just dwell a bit on the use of our technology here. By the way, I can detail for you the Heritage Savings Trust Fund investments in our technology and what year you allocated how much money and so forth.

What I want to say is that one of our first pilot plants was in Peace River with Shell, and we now have a production facility, which you know we've had for some time, producing 10,000 barrels-plus a day. It is expected that that plant will expand shortly. In the Vikor project in Red Deer with our enhanced oil recovery processes we have revitalized a field that was closed down. We will be producing the millionth barrel in two weeks at Joffre. We have produced the millionth barrel in our pilot facility in the Kearn Lake project with Husky and Esso Resources, for example.

I want to say to you that only 5 percent of the total oil sands resources, which are on the order of almost 2 trillion barrels, are amenable to surface mining, and even that's questionable now. The rest of it can only be recovered by underground mining, huff and puff underground, and all the new technologies that we've developed. Right now we think that with all these new technologies, we can recover at reasonable prices, \$20 a barrel, on the order of 600 billion barrels in our oil sands. If the price is right, you'll see expansion in a substantive way in a number of areas, because we've developed the process.

The Underground Test Facility is very exciting. We're moving it into phase B and then into a commercial facility. In that particular instance, AOSTRA was assigned the lease so we could give each of the partners a piece of the lease and also have them come in as investors in the project. By the way, our recovery underground there has been as high as 50, 60 percent. We're just amazed at the ability to recover oil in the reserves. It's much higher than the 20, 25, 30 percent that we can recover with other processes.

On top of that we find that our costs as we analyze them, the production costs and even the capital costs, are very reasonable for an underground mining facility. I don't even believe them: they give them to me at \$10 to \$12 a barrel, which is just unbelievable. You've gone underground and seen the facility. In fact, right now we're doing a study with Syncrude on Syncrude expansion. As they move into other parts of their leases, the overburden is higher and higher, and it goes to 100 feet, 200 feet. They're now going to study the use of an underground mining facility rather than surface mining. Fifty percent of their costs in Syncrude are surface mining costs. I'll say that again: 50 percent of their costs are surface mining costs. So this is one area where our new technologies have gone forth in a rather dramatic way, and though we have some production facilities where the royalties pay for themselves, we're selling technology. We're bringing back almost a million dollars a year in the sale of technology.

By the way, we've spent \$500 million on research; industry has matched us literally dollar for dollar. We've actually put in about \$1.1 billion on the research, 50-50 with industry and us. In all of our contracts there is a way of recovery of the money we've invested if they produce. In the Shell pilot facility, for example, beginning in '92, on the basis of them making a profit,

we have a recovery of \$24 million of our investment. Then if we sell their technology, we get back 50 percent and Shell will get 50 percent of the sale of the technology.

2:31

So the future looks very bright in terms of commercialization and in terms of AOSTRA starting to recover some of its money. But I do want to say again, I think as the minister touched on, that from the Heritage Savings Trust Fund we allocated initially \$100 million when you first set it up in 1974; then in '76, \$46 million; then in '78, \$32 million; then in '79, \$75 million; then in '80, \$165.7 million: a total of some \$418.7 million. The money allocated by the Heritage Savings Trust Fund to AOSTRA was remarkable because it gave us flexibility. We didn't lose it after each year. If we didn't go ahead as fast as we thought, the money was still there; it was put in the bank from the Heritage Savings Trust Fund. So we had flexibility. We do not have that same flexibility with GRF money, because if you don't spend it in the course of a year, it's gone. It's different from the Heritage Savings Trust Fund. So we've lost some of the flexibility in the last year. We don't have any money from the Heritage Savings Trust Fund. The \$5.1 million, Mr. Minister, I guess was in '90 rather than this year. So we don't have the same flexibility, but we think we are really at the stage where we're moving forth in a rather dramatic way, in fact, of commercializing this very vast resource that Alberta has, which, as I indicated, is literally almost 2 trillion barrels of oil in place there that we're going to recover at some point.

MR. CHAIRMAN: Thank you, Mr. Yurko.

Your supplementary, and hopefully we can move along a little quicker so that everyone can get their questions in. I have a long list . . .

MR. DOYLE: Mr. Yurko was longer than . . .

MR. CHAIRMAN: I understand that. Your question was not long. I'm just encouraging perhaps the minister and Mr. Yurko to be a little more concise, and then we can move along quicker. They've given a good overview, and things should move along and everyone get their questions in.

Your supplementary.

MR. DOYLE: Thank you, Mr. Chairman. My first supplementary would also be in regards to AOSTRA and the minister's statement that they are about to look at viable ways of perhaps commercializing spin-offs, I understood, from that particular project. It seems to me that the discovery has been great as far as producing oil at a small cost, but every time we convert to profit we seem to consistently lose many jobs. As we toured that facility, I saw that the only jobs there were actually in the drilling, except for perhaps one engineer that was looking after the oil coming out.

I was wondering if AOSTRA was looking at surface investments; i.e., using the heat that's in the tar sands to run through a heat exchanger to use for another viable operation such as greenhousing for vegetables or for fish rearing or something on the surface there. There appear to be not that many trees that would be disrupted, or the environment wouldn't be disrupted.

MR. YURKO: Very briefly, our primary purpose is technology for developing our oil sands. The secondary purposes were the technology for developing oil from shales, other processes, and thirdly, for cleaning up wastes.

The environmental aspects of our Act are very specific: everything we develop has to be very environmentally acceptable. So in areas of waste heat we do look at that seriously in regards to the possibility of recovery.

MR. DOYLE: Mr. Chairman, my final supplementary would be in regards to the renewable energy project in southern Alberta. Of course, many of us understand that wind energy and solar power have been studied since time, and it's pleasing that at least some money has gone into it in Alberta in the most windy part of the province. It would be my question as to whether some of this funding would be allotted to the geothermal energy that exists especially in the west and northwestern part of the province.

MR. ORMAN: The answer specifically is no, Mr. Chairman. This project is confined to the southwest portion of the province, and they actually have geographic boundaries that confine the ability to access the program. However, this is almost, I guess, in many ways a pilot project on renewable energy, and I might say that if it's successful in that area, we will look to other areas of the province where we can implement the same type of economic initiative. Certainly, as the member knows, the small power producers' program is something that is beneficial to other forms of energy generation in terms of being able to provide incentive for them to produce power into the electrical grid. As I indicated, we're quite modest in our investment, but we are progressive. I continue to hear that we are more progressive than any other province, any other jurisdiction in Canada in this particular area. I might indicate that I had a federal official just last week ask me if there was some way that the federal government could get in on the good thing that's happening in the Pincher Creek area. So there is interest in promoting this across the country, and there are a number of eyes that are on this initiative from other areas of the province, seeing it as imaginative and forward thinking.

MR. CHAIRMAN: Thank you.

The Member for Lloydminster, followed by the Member for Edmonton-Centre.

MR. CHERRY: Thank you, Mr. Chairman, minister, and your staff. I guess my questions are going to be on the upgrader in Lloydminster. But before I do that, I just want to say that, you know, in all areas of our province we have great operations going: I look down into the south there, with the irrigation, and also in our area with the upgrader. I guess it's one of the things that I believe in that took about 14 kick-starts, but finally it went. If there's anything that this government has done, it is a positive looking towards the future of energy supplies, and we can certainly see that today with the Iraqi blowup there.

The upgrader itself, by the projections they give us, is going to be ready November of '92. I know that last year you were asked about the breakdown of the payback of the upgrader, but I'm not quite sure just how that would work. I know that Husky is the operator and that consequently they will receive a large amount of the revenue as it comes back in. Have you any stats on what their other partners would get out of this? Are there any figures available at this time, or is it too early to ask?

MR. ORMAN: Mr. Chairman, the Lloydminster biprovincial upgrader will hopefully deliver about 46,000 barrels of synthetic crude oil a day. Right now the engineering is about 75 percent complete. At present \$95 million worth of work is in progress.

As of August 1990 about 8 percent of the project is complete. The Member for Lloydminster correctly pointed out that the target date for end of construction is November 1992, and the forecast total expenditure will be \$1.267 billion. It is a substantial employer. At the end of August there were 2,000 people employed, and there will be a significant number of jobs in the operations phase. The Heritage Savings Trust Fund investment was \$29.8 million at the end of March 1989 and is \$70.6 million as of today.

2-41

The benefits of this project are manifold. There are a number of layers of provincial participation in the project in terms of our obligations for costs, our equity position. But where the big benefit comes from is first, from the job creation, and second, from the royalties on the crude oil that will be coming out at the other end of the pipe, the plant gate at Lloydminster, basically royalties that would not come to the province and citizens of Alberta without that upgrading facility. Of course, the third point – and it's a point I've recently made publicly, given our concern about supply/demand balance for crude oil in Canada – is that currently much of our oil sands and heavy oil production is sent to the United States for refining. That is simply because Canadian refining capacity is conducive only to a lighter grade crude oil. This is why the Lloydminster upgrader is important: it will upgrade further our heavy oil production, synthetic crude oil production, and make it conducive for the Canadian stream of production and, at the same time, will mitigate some of our conventional declines that we're seeing. As I've indicated earlier, we're losing production on our conventional side, and we really see the future. That's why OSLO is important too, Mr. Chairman, because OSLO will also produce a grade of crude oil that is conducive to Canadian refining.

I don't have before me the specific details of the investment among the partners in the two provinces. It is public, and I'd be pleased to provide it for the member if he so requires.

MR. CHAIRMAN: A supplementary.

MR. CHERRY: Thanks, Mr. Chairman. With the upgrader on stream and, as you know, asphalt playing a big part there right now with Husky and with the contracts they have into the U.S., I guess the supplementary question I would ask is: do you foresee in '91 great drilling, ongoing well operation in that area to try and focus on the heavy oil plus the asphalt situation there also?

MR. ORMAN: Well, certainly the closer in proximity heavy oil reserves are to Lloydminster, the more viable it is, the less the overhead costs in delivering it to the plant will be. As you have to come further afield, your transportation costs are going to be more. So really the economic activity in terms of conventional drilling in the Lloydminster area I think will be enhanced. I do believe that it will have a domino effect throughout the industry. I think as you create activity in that area, you will create activity elsewhere in the province of Alberta.

So as I indicated, the benefits of this project are manifold. We've only touched on two or three: the economics, the job creation, and the royalties. But there are other economic stimuli associated with it. I don't think we need to reiterate them here at this committee, Mr. Chairman; I'm sure the members are well aware of them.

MR. CHAIRMAN: Thank you.

Final supplementary, or is that the end of your questions?

MR. CHERRY: Thank you, Mr. Chairman.

MR. CHAIRMAN: The Member for Edmonton-Centre, followed by the Member for Lacombe.

REV. ROBERTS: Thank you, Mr. Chairman. I was pleased to hear the minister in a speech earlier this week describe himself as being a minister with a mandate to develop energy in the province and not just hydrocarbons and the oil fields. I'd like him, though, to have an opportunity today to demonstrate that that's more than just rhetoric.

In the sense of the renewable energy research program, I'd just like to get a clarification of the total dollar figures gone in there to date. It doesn't look like that much, particularly in contrast to the amount of decreasing dollars flowing from the department's own coffers. Over the last four or five years there has been over \$2 million devoted to renewable energy research from the department; that's now down to zero. There was \$1.65 million for energy conservation through the department, and that's now down to \$1.3 million. That's even in '87 dollars. So we've got a great decrease from the department's own coffers and not much represented by what we have in renewable energy research through the trust fund. With that net loss of dollars in this area, I'm wondering how he can claim to be a champion or have a mandate of renewable energy, alternative energy, and energy conservation in this province.

MR. ORMAN: Mr. Chairman, with regard to the level of commitment to the renewable energy area, let me say that traditionally the funding came through the Alberta/Canada energy research fund, which was a joint fund established by the federal government and the province of Alberta. In that we have expended all of the funds in there, it then becomes incumbent upon us to look elsewhere in government funding for support of these projects.

My comments to the Wind Energy Association I believe were well received. When I was asked if there was more funding coming forward, I told them that my big challenge will be building a fence around the existing funding in the budget process let alone finding significant new dollars for them, and I believe they were satisfied with the answer. However, I did indicate to them that although our investment is modest, it is one of the first in Canada that has taken this initiative, this direction, this support for the renewable energy area, and really we have to crawl before we can walk, particularly when government dollars are scarce. The days are gone when we can throw big dollars at projects and hope that that will create instant commercialization for some of these projects. Now the industry is going to have to demonstrate that they are viable, that it is the proper use of dollars, and if in fact they can become commercial or come very close to becoming commercial and if there is government support required to push them over the edge on it, then that would be given full consideration.

My sense now is that the industry leaders in the renewable energy area are quite satisfied with the level of our commitment. We have given them a three-year funding commitment of \$3 million together with a 10-year commitment to support initiatives in this area. I indicated to them at the time of the announcement that it is impossible for me to commit funding for 10 years, but certainly we are lined up over the next decade to support further development in this area.

The dollar figure that the Member for Edmonton-Centre pointed out is dollars that are relative to the energy conservation branch. However, there are other areas of my department where conservation is promoted, and certainly we'll have a full discussion in that area during my department estimates before the Legislature.

MR. CHAIRMAN: A supplementary.

REV. ROBERTS: Mr. Chairman, we checked the budget books ourselves, and those other areas of energy conservation seem to have decreased each year as well, so I don't see any net gain in there. I just want to be clear, then, about the renewable energy research program. As I understand it now, there's this \$3 million commitment over three years, the only project of which is the wind project in southern Alberta. Did I understand the minister correctly to say that there are, in fact, 19 other projects which have applied for these moneys? Is this one in southern Alberta only one of those 19 and, of the others, nine weren't ready and four weren't appropriate? In the last part of his remarks, he talked about these. I'm just not clear. Are they not falling within the mandate of this \$3 million? Do more moneys need to be allocated for them? How can we get those 19 projects which have some interest in this area up and supported?

MR. ORMAN: Mr. Chairman, first let me say that with regard to our commitment to alternative energy, the hon. member knows that in this Legislature we voted a higher level of incentive under the small power producers' program to encourage the production of energy into the electrical grid in the province of Alberta, and that in itself is a significant initiative to support renewable energy. So you cannot pick one vote out of one department and extrapolate a reflection of the government's support in this area. That is unfair, may I say.

2:51

With regard to the projects that I alluded to in my remarks, as I've indicated, there is a board of directors that is made up of industry, government, and residents of the Pincher Creek area that basically reviews the projects and determines whether or not they are appropriate at their particular stage of development for funding under this program. Of 32 expressions of interest, 19 were recommended for detailed proposals. So, obviously, of those 32, 19 were asked to come in with a detailed proposal, something they did not have at the time they came forward – and fair enough. Nine were not considered appropriate at this time, I would assume because they are not anywhere near the technological advancement or have the potential of viability as they relate to the 32 overall expressions of interest. So it's just a priority exercise that the board must go in because of the dollars. They only have so many resources to deal with, so they prioritize those projects, and many of them may be back in a revamped or retooled way, Mr. Chairman. It doesn't mean to say that they were rejected out of hand; they were just deemed not suitable given the list of priorities that the board themselves set for the disbursement of dollars.

MR. CHAIRMAN: Final supplementary.

REV. ROBERTS: Well, I'm wondering, then, where the status of what I think – and what our caucus has argued, as the minister knows – to be a key area of renewable energy source, which is fuel ethanol, fits into this whole picture. Certainly dollars could be used to develop a fuel ethanol industry in

Alberta. We've talked several times how this is a very viable but struggling industry in other parts of Canada, and clearly, with grain prices falling and oil prices rising, this much cleaner, more efficient . . .

MR. MOORE: On a point of order.

MR. CHAIRMAN: Hon. member, you're really on the fringe here of that being an appropriate question, because there's nothing in the report or the expenditures from the heritage fund that relates to the type of energy that you're now moving into. We really can hold the minister accountable for his expenditures from the fund, and I really believe you should refocus back onto that issue.

REV. ROBERTS: Yeah. The area was renewable energy research, and I understand there's going to be \$3 million over three years and that several projects have come forward. I'm just wondering if one of the 19 . . . I mean, is it all related to wind in southern Alberta? Can't some of this \$3 million over three years be devoted to developing a very critical area such as fuel ethanol, as I say, particularly when oil prices are skyrocketing and our farmers have falling grain prices?

MR. CHAIRMAN: Well, the minister did respond to that in part, but perhaps he would just reclarify his position on exactly what is included in the renewable energy research project.

MR. ORMAN: I guess, Mr. Chairman, if the member is willing to move a motion to vote us more dollars to explore the uses of ethanol and it's supported by the committee, I'd be pleased to take it under my wing.

Just let me say that we do not view ethanol as our number one priority in the areas of alternative energy – alternative to, say, gasoline. Our priority in that area has been with compressed natural gas and our pilot project with the city of Medicine Hat to fuel all of their city vehicles on natural gas. We view that as a more commercial alternative to gasoline at this particular time but would not rule out the use of any alternative fuels; it's just what happens to be deemed the priority. I can't indicate to the member whether or not there has been consideration given to this particular alternative energy under the southwest energy initiative, but I can say that their list of priorities includes wind, solar, and photovoltaics. Those are the ones they have deemed should be given first consideration.

MR. CHAIRMAN: Thank you.

The Member for Lacombe, followed by the Member for Clover Bar.

MR. MOORE: Thanks, Mr. Chairman. I'd like to just find out a few points about the OSLO project. When it was first undertaken, the federal government was involved. We know all the history of that, how they reneged and so on. But to keep the project going, it's my understanding we started with a process of detailed engineering studies which were to be completed by the end of 1991 and a decision made for construction by July 1992. That was our timetable. Then we had the federal government leave the situation. We've proceeded, and I'd like the minister to confirm: are we on target with this timetable at the moment or is it envisioned that we're just moving along, hoping that we'll get investors and it may go someday?

MR. ORMAN: Mr. Chairman, the present time schedule is relatively consistent with the time schedule that was contemplated previously. One thing I can point out is that the OSLO partners have come in with a revision of their previous plans that has done a number of very significant things to improve the process. One, of course, is to move the upgrading capacity to Redwater. The second is to build a somewhat smaller facility than originally anticipated. This will facilitate a faster start-up date, so the start-up date now is anticipated to be advanced by one year; that is, 1996 as opposed to 1997. This will allow for a quicker ramp-up of production. It has resulted in a lower overall cost. This project at one time came in at just under \$5 billion and now is estimated to be in at about \$4.3 billion. There will be quicker cash flow. Sales of diluted bitumen during the upgrader shutdowns are anticipated. They also are designed to handle Syncrude production, which will be able to increase the productive capacity of Syncrude because there will be additional upgrading capacity, and there are some very nice synergies with regard to the Edmonton industrial complex: the fact that the upgrader will be located in this area.

One of the biggest benefits is, in my view, obviously, higher oil prices. We are now beginning negotiations. We have had an offer from the Syncrude consortium in terms of the appropriation stage for the major project: what they would like to see the level of the province's participation in the construction phase. I will be going back to them with a counterproposal, and I can tell you that that counterproposal is substantially less than we had anticipated two years ago because we are now using a significantly higher pricing regime. Because it has enhanced the economics on the upside, there is a lesser probability that the government will need to support it on the downside – that is, during the lower pricing regime. So where there were anticipated pricing regimes in the area of \$14 or \$15 U.S. at one time as one of the ranges – \$15 to \$21 – that range has increased up to the \$18, \$19, \$20 range as the low. Because of that, the offer that the province of Alberta is putting on the table is substantially less.

3:01

So there seems to be good news all around, Mr. Chairman: lower costs, quicker start-up, and less necessity, apparently, for government support to the project. I guess it almost became too good a thing for the federal government to invest in. We certainly are cautious; we know that this project cannot be built as a stand-alone project in today's environment. There's just not that much capital around in the private sector to build it. But having said that, the nature of the structure of the deal with the OSLO partners is such that if it is a higher pricing regime that occurs over the next five or six years, there will be very little requirement for government dollars to be invested. So the structuring of the deal is, I believe, a very good one for those reasons.

MR. MOORE: Supplementary on that particular area. We have \$4 million now from the heritage trust fund in on these studies, and you say it's looking a little different in today's economic climate as to the requirements for funding. Do you feel that there will be any other requirements of the heritage trust fund in that area for funding?

MR. ORMAN: It's hard to say at this particular point. Certainly I don't anticipate any unforeseen requirement of funds. You know, the nature of the negotiations now is such that we're just not sure where we're going to end up in terms of require-

ment for dollars, where they will come from, and whether it's the general revenue side or the heritage fund. It's not my decision, it's our government's decision, and so I can't prejudge whether or not there will be additional requirements. But I can point out to the hon. member that the investment that this committee has voted to the OSLO project has been extremely beneficial, and certainly my earlier comments underlined the importance of the OSLO project. Syncrude and Suncor do not have the upgrading capability that makes their synthetic crude oil conducive to Canadian refining. OSLO does, and for that reason it's very important to not only Alberta but the country of Canada, because it speaks volumes to the issue of supply/demand balance.

Let's not forget the substantial role that AOSTRA is playing in breaking through those technologies. Each new generation of plant brings a new technology, reduces the cost on a per barrel basis, mitigates the environmental impact, and just promotes overall efficiencies.

So, specifically, I cannot answer that question at this particular time, Mr. Chairman.

MR. MOORE: In my final supplementary, Mr. Chairman, I'd like to switch just to another area, to the AOSTRA area. I realize and fully appreciate the need for government to get involved in and initiate these things, as the AOSTRA project, and there came a time when government took up the slack that the industry wasn't doing and initiated it and brought it along. But you must remember that one of the main beneficiaries is the industry, and this is a joint venture in most cases, as I fully understand the arrangement, as various projects come in. There comes a time when government should be out of that and they should stand on their own two feet as a research branch of industry, a consortium of that. I feel that on a lot of our projects, we initiate it. We shouldn't initiate it with the idea of it becoming a permanent government thing, because we know that ongoing technology studies are required because today's technology is out of date tomorrow; you've got to keep going. That is where industry should take over, and we should back out and get that money that's there back into the heritage trust fund and go on and start other areas such as that that are requiring seed money to get going and come on so it will stand on its own two feet. Is that the goal of AOSTRA, that we are looking down the road to where this will go back to the industry entirely?

MR. ORMAN: Mr. Chairman, a couple of points; one is with regard to AOSTRA. It is not unlike the attitude surrounding the oil sands project side, and that is that there are substantial capital dollars required to advance technologies, to bring projects on stream to develop our energy resources. Without the support of AOSTRA in the past, many of these new technologies would not have occurred. It was the fact that we could jointly fund them. I wouldn't want to leave the impression with the hon. member that by withdrawing our 50 percent that we have dedicated to research, our 50-50 relationship with the industry, the industry would pick up that other 50 percent and all of these research projects would have gone ahead. I would daresay that we would not have the Underground Test Facility in the province of Alberta if it was up to the private sector to fund it totally.

The member, however, brings forward a good caution, and that is that we have to be absolutely certain that when we are spending the public's money, we are spending it in the best way and in the best interests of the people of Alberta. That brings

to mind our investment in the Syncrude project. Mr. Chairman, many people questioned the wisdom of investing taxpayers' dollars, the public's money, in the Syncrude project. It is my belief that without public dollars in the Syncrude project, that project might be there today but it certainly wouldn't be in the position that it is today of producing close to 200,000 barrels a day of synthetic crude oil. It was the support of the Heritage Savings Trust Fund and the support of the government of Alberta that allowed that project to come to commercialization, and in fact it has delivered to the province of Alberta in excess of \$1 billion in royalties alone. So I would take somewhat of an exception to the hon. member saying that the industry is the one that benefits. That \$1 billion has played a big role in the quality of life that we have here in the province of Alberta. Now, let's not forget that at the same time, Mr. Chairman, we have a 16.74 percent equity interest in the Syncrude project, and this year they are going to have one of the finest quarterly reports they have ever had in the history of that plant.

Now, the point the member brings out that I do support is that there comes a time when government just shouldn't be in the area that the private sector should be involved in, and that's why I support the sale of our interest in Syncrude. We can realize a nice, tidy profit, we continue to receive our royalty revenue, and we can return to the stewards of the heritage trust fund – this committee, Mr. Chairman – the equity investment that they so wisely made back in 1974.

Obviously, and it's one of the challenges I'm facing today in the estimates of my department, in times of fiscal restraint one of the first areas that comes under the axe is research. All departments look at that as something that can wait because we have other pressing issues before us. However, we must be very cautious, because we are in a fiscal restraint mode as a government, but at the same time let's not forget the revenue side. We have to continue to do what we can to enhance the revenue side, and oil sands are clearly going to be the way of the future, along with natural gas, to complement, for that matter, our resource revenues, Mr. Chairman.

MR. CHAIRMAN: Thank you.
Athabasca-Lac La Biche.

MR. CARDINAL: Thank you very much. Although this question has been asked today, but in a number of different forms, I'd like to go through it again. Under the southwest renewable energy initiatives funding, you received, I believe, \$500,000 in the 1989-90 fiscal year. Only \$77,000 was used to perform a feasibility study; I believe for a 10 megawatt wind farm. You mentioned that of course you are expanding in that area. I support fully those initiatives, but I would hope that we don't stop there. Although I know there are restraints now, in the future we should be looking at other renewable options, and I'll give you reasons why I am suggesting this.

3:11

Some of the options I think we should look at are the use of topsoil from muskeg, for an example, and sawmill and pulp mill waste and municipal garbage to fuel the electrical generating plants in Alberta. The reason I bring this forward is that I have a proposal from my riding right now for a plant that would set up in the region, a 30 megawatt plant, and also along with that creation of feedstock for 8,000 head of cattle and the development of ethanol from poplar. Now, in the disclosure documents of this company, one of the things forestry is asking for is a feasibility study of the use of topsoil from muskeg and waste

from the sawmill. I would hope that rather than waiting for a company to make this proposal, we would do a feasibility study maybe somewhere down the road to determine if this process is economically viable. Because what this could do if it is viable in the area where farms are marginal and a lot of this waste is available, is diversify the economy for farmers, and in this particular case about 80 farmers could participate if it does move forward. My question, I guess, is: is it possible somewhere down the road to look at moving forward with some experiments in this, rather than waiting until a company comes forward and then we ask them to give us a feasibility study? I think it should possibly be the other way; we should be the promoters. Environmentally I think it would be a good move also. That's my question basically.

MR. ORMAN: Mr. Chairman, the hon. Member for Athabasca-Lac La Biche did not mention the name of the company or the organizations that he was referring to. Nonetheless, I am familiar with one proposal that comes out of his area that has been before the department – actually under the small power producers' program – and we have asked that company for some additional information prior to making any judgments on its viability. So that's an ongoing process in that connection.

I did indicate earlier to the Member for West Yellowhead with regard to this southwest energy initiative that I can't predict the outcome or the success of it, but if it is a resounding success, as many anticipate, then that will give us the ability to extrapolate the experience there and put this initiative in other areas of the province – who knows? – possibly provincewide at some time. But it's a little hard to say at this particular time what the outcome of this pilot project – I say pilot project: small "p." In essence, it's not a pilot project; it's a very – we're very optimistic about its success, but time will tell. That's all I can really say to the hon. member, Mr. Chairman.

MR. CARDINAL: I don't have a supplemental. Thank you; that's good.

MR. CHAIRMAN: The Member for Three Hills.

MRS. OSTERMAN: Thank you, Mr. Chairman. Mr. Minister, gentlemen, it's a very interesting area, looking at the heavy oil area, and as somebody who comes from a part of Alberta where there has been a fair amount of conventional light crude and knowing that that is depleting, it obviously brings to bear the impetus that is there for the development of heavy oil.

Several questions, Mr. Chairman. I believe the minister mentioned a figure in his opening remarks, that not \$4 million but \$6 million had thus far gone into the studies with respect to the OSLO project. Am I right there? Just for clarification.

MR. ORMAN: It's \$4 million to date with regard to last fiscal year, but it's \$6 million as of today.

MRS. OSTERMAN: Okay; I wanted to be clear on that. Mr. Chairman, I guess it's sort of a philosophic question at this point in time, because obviously . . . The minister has mentioned fiscal restraint. There should be, I hope, a concern in this committee in watching the capital of the heritage fund deplete, because obviously the return to general revenues is going to be a lesser amount. I wondered, in conjunction with that investment, if in fact the other companies had put at least as many dollars in. With that in mind, why wouldn't it have been done under the umbrella of AOSTRA?

MR. ORMAN: I'm sorry. What particular project?

MRS. OSTERMAN: I'm wondering if the same philosophy applies as to some degree with AOSTRA. Why wouldn't AOSTRA have funded whatever work has been done up to this point in time? I don't understand the difference of why this should have been separated out and not handled by AOSTRA and with the company's participation. Why deplete the capital of the heritage fund further when it would appear as if we have a rather well-funded vehicle to be doing this?

MR. CHAIRMAN: I'm not sure the minister is sure of what you refer to when you speak of "this."

MRS. OSTERMAN: The OSLO expenditure has been separated out – it's not under AOSTRA – and I do not understand the rationale for that.

MR. ORMAN: I don't know. I don't have a specific answer. I guess it could have been. It was just part of the package that was negotiated with the OSLO partners. Whether or not the money is voted to AOSTRA and then . . . AOSTRA is more involved, Mr. Chairman, with regard to the research side. The \$4 million that was used out of the Heritage Savings Trust Fund for the commercial project and the engineering is not so much related to scientific research or improved ways of extracting oil from the sands. I guess it could have. Whether or not that consideration was given, I can't say. In fact, it all comes from the same pot.

MRS. OSTERMAN: The minister didn't mention the company's participation.

MR. ORMAN: I think Mr. Di Marzo may be able to answer the question.

MR. DI MARZO: Yeah, I've got an answer to that question. That is that there was an agreement concluded by the OSLO owners, our government, and the Canadian government to provide financial assistance during the engineering phase of the study. The agreement basically stated that up to \$46.8 million, or 36 percent, of the total \$130 million would be paid by the government of Alberta. The federal government would contribute about \$45.5 million, or 35 percent of the total, and the OSLO partners would contribute the rest. So the \$6 million that we're talking about is our share of that total. We've spent \$6 million out of a total possible commitment of about \$47 million.

MRS. OSTERMAN: Okay, thank you. Mr. Chairman, a supplementary then. With all the discussion about supposed windfall profits because of the price of energy now, I think I have heard the minister make public comments that with the decline of conventional crude, in fact the same revenue or the same royalty does not accrue to the province with heavy oil production or the oil sands production. Could the minister give us a brief outline, then, of what, in terms of further investment in the OSLO project, the companies and the province would be looking at that gives us, the taxpayers of Alberta, a reasonable return on that investment? In other words, what's going to make it economically viable if you look at the royalty regime in particular?

MR. ORMAN: Are you talking about the OSLO project?

MRS. OSTERMAN: Yes.

3:21

MR. ORMAN: Okay. First let me say that there is a variety of grades of crude oil, and when we talk about the world price, we talk about the west Texas intermediate price, and that's the intermediate grade of crude oil. There are different grades. There's light, medium, heavy, and the heavier the grade of crude oil, the more upgrading is required, the more refining ability is required, and therefore there's a differential in price. So the differential between the west Texas intermediate price – let's say that today it's \$30. For a heavier grade crude oil from, say, oil sands or a heavy oil project, if it's a heavier end oil, it would probably be around the area of \$24 to \$25. So there's a significant differential in the value of that crude. It all has to do with quality. It's the difference between a Mercedes Benz and a Volkswagen. There's the difference in quality and a difference in its attractiveness to refiners.

So that's why we cannot totally mitigate the loss on the conventional side, because it has traditionally been a light gravity crude oil which commands the highest dollar. We are replacing that with a heavier grade of crude oil from our heavy oil and oil sands. Therefore, we are going to lose that differential. But if we can increase the upgrading capability – and that's where Lloydminster comes in and that's where the Veba process comes in, which is the upgrading process for OSLO, in which AOSTRA has participated in the development and technology – we then can decrease the difference between the two values.

MRS. OSTERMAN: A final supplementary, then, Mr. Chairman. The Member for West Yellowhead just made me think about the jobs and the concerns about jobs as we were looking at the Underground Test Facility. It occurs to me that the jobs we are looking at are really those that flow from the oil which will flow from such a process, and that is what is critical. If this operation proves commercially viable, and I know the chairman is very optimistic about that, what kind of jobs would we be looking at in the downstream area flowing from that? I don't know whether you would have an idea of what an average sized plant is, but I would hope that we would get some understanding of what that means for the province.

MR. ORMAN: Well, first, Mr. Chairman, let me say that there may be significantly fewer jobs relating to the Underground Test Facility, but at the same time there is a significant improvement in the environmental friendliness of oil sands development. It's not our view that we continue to promote an oil sands technology that has more serious environmental implications and at the same time creates more jobs; that's not the case. If there are fewer jobs in any area, where there are fewer jobs and improved environmental impact, I think everybody would support that. I know that a recent survey of Canadians has indicated that they're willing to give up their jobs if it means improving the environment. I guess that can be subjective; they haven't been asked to give their jobs up, but it gives an indication of where people stand on that issue.

Now, Mr. Yurko may want to speak specifically about job creation in the UTF area.

MR. YURKO: I just want to say that there have been several analyses done in terms of the number of jobs created for every barrel of heavy oil that you produce. The figures vary, but they vary somewhere between five and eight jobs on the side in relationship to every barrel you produce, because you have to

upgrade it, you have to ship it, you have to store it, you have to account for it, you have to bank money, and so forth. So for every barrel we produce, you will have somewhere between five to eight outside jobs within Alberta, and all of them will pay income tax in one form or another to the province. So there is a substantive expansion from a single barrel of oil.

Now, the thing is, of course, as the minister indicated, that this Underground Test Facility is so remarkable that the environmental consequences, where you have to pay to correct something, are literally not there. You know, we can fish right next to it, as you saw, so it's an attractive process. But the jobs will be created. If we produce that barrel of oil, the jobs are going to be created, and there are going to be lots in Alberta; I assure you of that.

MR. CHAIRMAN: Thank you.

I'll recognize the Member for Calgary-Fish Creek and ask the committee members and the department if we could move just a little quicker so that those that are on the list would have an opportunity to ask their questions.

MR. PAYNE: Mr. Chairman, in the minister's response to recommendation 1 of this committee last year – that was the recommendation that I had submitted with respect to the liquidation of our Syncrude equity – the minister said that:

if the Heritage Fund's investment in Syncrude were sold, the principal of the Fund would not increase. Any capital gains realized on the sale . . . would flow to the General Revenue Fund. I'm wondering if the minister could explain or clarify for the committee the rationale behind this government policy with respect to the capital gains that would result from our Syncrude liquidation.

MR. ORMAN: Mr. Chairman, the member is asking why moneys would not flow to the Heritage Savings Trust Fund as opposed to general revenue?

MR. CHAIRMAN: The response was that if there was a capital gain involved, the capital gain would go to general revenue as opposed to coming back to the fund. The fund would only get back its capital investment.

MR. ORMAN: I guess, Mr. Chairman, that is true. However, my feeling is that what we're trying to do and what I'm trying to say is that if we can increase the revenues to the province of Alberta and thereby create a revenue stream that could then flow into the Alberta Heritage Savings Trust Fund as it did in the past, then that has a strong economic impact on the balance sheet for this committee. That underlines all of the things I was saying about oil sands development, heavy oil development, that really the dollars that started this Heritage Savings Trust Fund came from the production of energy resources.

MR. CHAIRMAN: Supplementary?

MR. PAYNE: Yes. For my first supplementary, Mr. Chairman, I'd like to shift to the minister's opening remarks today wherein he made reference to a revolutionary method of extraction. I believe he characterized it as cold-water extraction, and he described it as hopefully the way of the future. I'm wondering if the minister could indicate which features or characteristics of the cold-water extraction process prompted him to regard it as the way of the future.

MR. ORMAN: Mr. Chairman, it would be appropriate for Mr. Yurko to respond and bring the committee up to date on the cold-water extraction process.

MR. YURKO: One of the very difficult aspects of the hot-water process is the fact that we have tailings ponds with exceptionally fine fines distributed in the liquid phase that never settle. In fact, it's been suggested that it would take hundreds of years for the solids to separate so that we could in fact clean up those tailings ponds. We've tried an experiment with several processes for cleaning up those tailings ponds. None of them has been successful thus far. A real environmental problem of the whole oil sands question is the tailings ponds, and if we expanded dramatically and you had more tailings ponds, this would in fact be not only a national problem but an international problem.

The cold-water extraction process overcomes basically this difficulty, and that is the fundamental reason why we are moving and have agreed to fund the demonstration facility in the cold-water demonstration plant, which is scheduled to cost approximately – initially it was going to be about \$44 million; now it's up to \$60 million. AOSTRA has agreed to fund some \$22 million of that project provided we can get the funds from here. But we hope to be involved, because in regards to bitumen produced from surface mining techniques, the cold-water process is going to really remove the environmental problem we have with the Clark hot-water process. That's the basic reason. The costs are going to be somewhat less, but basically it's going to remove the massive environmental problem.

3:31

MR. PAYNE: I wonder, Mr. Chairman, if I could ask the minister to refer to schedule 3 of the heritage fund annual report, specifically note (g) on page 43. Now, I share the optimism expressed about OSLO by the Premier and the Energy minister and a number of other members of the government. I share that optimism. However, in the unlikely event that OSLO does not proceed, according to note (g), I guess the penultimate sentence: "In the event that a decision is made not to proceed, the project costs incurred to that date would then be written off." I'm wondering if the minister could clarify whether in the process of writing off those project costs they could not be reduced by any revenues or proceeds that might result from the sale of technology or the sale of experiences gained in the process of conducting those engineering studies. Would they not be a mitigative influence on the write-off of those project costs?

MR. ORMAN: Mr. Chairman, the answer to his question is yes. I believe for accounting purposes you write down the cost of the investment, as you would if you were doing it yourself in your own pocketbook for tax purposes, and then if you sold something which you've written down, you pay a capital gain. So that is quite possible.

As the hon. member knows from his days involved with the Syncrude board, there is an \$85 million expansion design project on the shelf at Syncrude. I don't know how the Provincial Treasurer has handled that investment, but I would venture a guess that he has written that down. However, if that project is revitalized, it then becomes a very good investment. So I can't speak to the accounting procedures, but to what the member is asking: yes, it can be mitigated in the event there is a sale or in the event there is a revitalization of either one of the two engineering studies.

MR. PAYNE: Obviously, Mr. Chairman, this has been an academic conversation.

MR. JONSON: Mr. Chairman, just a couple of very specific questions with respect to our tour of the Syncrude site, which, as you indicated, was a very excellent tour. In the process of going about the site, we took note of the rather large area that was under the mining operation, and there seemed to be no evidence of any reclamation of that site going on. In response to one of the questions, the answer was, "We do recognize that we are somewhat behind in this reclamation process." I wonder, Mr. Chairman, if the minister or one of this officials could outline for us just what the reclamation agreement is with respect to the Syncrude company.

[Mr. Payne in the Chair]

MR. ORMAN: Mr. Chairman, the hon. member should know that the Syncrude project has a responsibility and a contractual obligation to reclaim the site mined for extraction of bitumen from the oil sands. Although the particular site the member is referring to may not be under reclamation right now, they do pay into a reclamation fund that will be used in the long term to reclaim the land used for mining purposes. So it will occur. Although it may not be occurring at this particular time, it will occur. It is part of the contractual obligations, and that's why we have them pay into a fund on an ongoing basis, so that we know the dollars are there when required.

MR. JONSON: Well, supplementary, Mr. Chairman. All right. Fine. But if there is an agreement whereby they are paying into a reclamation fund, there must be some basis for that payment being made. In other words, there must be a plan for reclaiming the site. Therefore, it would seem to me that since large areas of that lateral shaft – or horizontal shaft, if you want to call it that – have been completely mined, some activity should be going on by now given that Syncrude's been operating for several years.

MR. ORMAN: Mr. Chairman, I don't know specifically what area the member is talking about. What I'd prefer to do is take that specific question under advisement and I'll get back to the hon. member.

MR. ACTING DEPUTY CHAIRMAN: I assume that's agreeable to the member.

MR. JONSON: Certainly. Could I just make two comments by way of clarification?

First of all, there are many environmental aspects of the Syncrude project that certainly impressed me and impressed other members of the tour, such as their handling of the overall water situation and so forth. But if you were to ask me what site, I would say the whole site. Because the question was asked, "Where are you reclaiming the land?" and evidently they haven't started anything. So perhaps I could get the answer later on, Mr. Chairman.

MR. ACTING DEPUTY CHAIRMAN: Did you want to respond to that postscript?

MR. DI MARZO: We can provide detailed information about how the fund works because we have it not just for Syncrude but for any major project in the province, coal mines and so on.

Each of them has to pay into a reclamation fund, and we can provide that information.

The second point is that the reclamation plan has to be approved jointly by the Department of the Environment and the Energy Resources Conservation Board, and this is ongoing. So the part you would have seen hasn't yet been reclaimed in the sense of what Syncrude is doing, taking the sand that already has been mined from one part and dumping it into the part that has already been mined. Now, there are parts of that project where the mine has been filled in and they're starting to reclaim it. But they're doing this on a rotating basis so that you won't see the big pit they've started to reclaim already.

I think the point I would make is two things: one, the fund exists and they have an obligation to reclaim it; and two, it's being done under the supervision of the Energy Resources Conservation Board and the Department of the Environment.

MR. ACTING DEPUTY CHAIRMAN: The Member for Wainwright, followed by the Member for Calgary-Mountain View.

MR. FISCHER: Thank you, Mr. Chairman. I'd like to say good afternoon to our minister and Mr. Yurko and Mr. Di Marzo. I would also like to ask a question or two about Syncrude. I have a reasonably keen interest as I have been the representative on Alberta Oil Sands Equity which manages the 16.74 percent interest in Syncrude, and I do have an opportunity to work with the board and to get an excellent firsthand look at a very impressive, massive project. In fact, each time I go around there or have much to do with it, I have to feel very proud to be part of a government that had the foresight to get in there a few years ago and put some dollars into it.

[Mr. Ady in the Chair]

I would like to go to our investment where we have \$518.8 million invested in Syncrude. We have 7 million new dollars in this year – and that's including the \$518 million – and we also have \$435 million of net profit that has come out of Syncrude, \$22 million this past year, and we . . .

MR. CHAIRMAN: Hon. member, the Chair is really anxious that those who are on the list get an opportunity to speak at least once today. So if you could just move a little quicker.

3:41

MR. FISCHER: Mr. Chairman, I did wait my turn.

MR. CHAIRMAN: I understand that, but I'm just asking you to move as quickly as you can.

MR. FISCHER: We have a very impressive first showing on the first six months, and due to inflation we have our heritage fund eroding a little bit. I would like to see some of the net profits go back into the heritage fund or go back into AOSTRA or some of our new developments. Could the minister elaborate on this a little bit? I know we have said that we would sell it when the timing is right. Would it be proper to think that we could put that money back towards the heritage fund until the timing is there?

MR. ORMAN: Mr. Chairman, really that is a policy issue of the government, and I have no control over it. I have personal views, as I know the hon. member does, but it would be

somewhat of an academic argument or discussion we'd have here because he and I are only one voice each on the government side. It's a difficult thing to respond to.

MR. FISCHER: My supplementary question, and you did get around to it a little bit: the difference between the OSLO project and the Syncrude expansion. The Syncrude expansion would increase by 30 million barrels per year, half again as big as it already is. Are we abandoning that expansion, then, in favour of OSLO?

MR. ORMAN: Mr. Chairman, it's not us, being the government, although we do have an equity interest in both projects. It just comes down to the fact that there are only so many capital dollars available on the face of this planet, particularly within the oil industry in Canada, to support a project that's \$4.3 billion, never mind an additional \$1 billion for an expansion of an existing facility.

The partners in OSLO are virtually the same as the partners in Syncrude. They looked at the economics and made a decision, that they should proceed first with OSLO and then, second, give full consideration to the Syncrude expansion. That decision is not yours or mine; it is the decision of the people that are putting up the risked dollars. I personally believe that they will make the decision in fairly short order to also proceed with the expansion of Syncrude. Of course, that decision will be dictated by the stability of higher oil prices, but certainly I'd like to see it proceed.

MR. CHAIRMAN: Thank you. Supplementary.

MR. FISCHER: I'll pass, then, just to speed it along for you.

MR. CHAIRMAN: Thank you for the accommodation.
We'll recognize the Member for Calgary-Mountain View.

MR. HAWKESWORTH: Thank you, Mr. Chairman. I've been curious for the last couple of months, and this seems to be maybe the only chance I get to ask this question. AOSTRA this year produced a very expensive looking coffee-table book. I'm sure you've seen it - blue cover. I'm just curious, Mr. Chairman, if Mr. Yurko could tell us how much it cost to produce that book and how many copies were made.

MR. YURKO: I have the information here somewhere. I have to look it up. I think it was about . . .

MR. HAWKESWORTH: You knew somebody was going to ask that.

MR. YURKO: Yes, and I brought the information with me. The book cost us approximately \$20 apiece, and we produced 12,000 copies. The demand for the book is awesome. We're being asked for it from companies throughout America, from companies throughout the world, as a matter of fact. If my belief is right, I think about 8,000 copies have already been released, and we have about 4,000 left. It is really a summarization of 15 years of effort, a summarization of this massive resource, the technology that's available in connection with its development, so it is a very popular book. It was written in such a way that it's easy to understand.

MR. ORMAN: Mr. Chairman, let me say that my recent experience in Europe, looking to drum up support for oil sands

development, really underlined the importance of developing a book such as this, because in Europe and particularly in very sophisticated investment communities there is knowledge of oil sands development but very limited knowledge about the advancements that have occurred, advancements that have occurred as a result of investments made by this committee in oil sands development. This book is really a sales tool, in my view, and has become a very effective tool for bringing people worldwide up to date with the advancements we've made. It's not a publication to pat anybody on the back, but it's to put more information in the minds of people who may be considering investments in oil sands development and commercialization or development of new technologies.

MR. CHAIRMAN: Thank you.
Supplementary.

MR. HAWKESWORTH: Mr. Chairman, the government isn't investing any more, as I see it, in AOSTRA. There hasn't been any money budgeted. I'm just wondering: is this it for AOSTRA? Is this sort of the swan song or the final benediction on 15 years? Is that really what the book represents? Or is AOSTRA going to be financed by government in the years to come and carry on? I'm just getting all kinds of mixed messages here.

MR. ORMAN: Well, the member should not get mixed messages, Mr. Chairman. I think it's pretty straightforward. As the hon. member knows, and as I recall, he was in attendance last year when we were before this committee and pointed out that the General Revenue Fund is substantially funding the Alberta Oil Sands Technology and Research Authority. It just so happens that the funding is not from this particular vote.

UNIDENTIFIED SPEAKER: We'd very much like to have more money from . . .

MR. ORMAN: Yes. And we're anticipating your motion, Member for Calgary-Mountain View.

MR. HAWKESWORTH: I can't help but be a salesman here.

MR. CHAIRMAN: Final supplementary, hon. member.

MR. HAWKESWORTH: I'm just intrigued by the answer earlier to the Member for Calgary Fish Creek, who asked about capital gains that accrue to the General Revenue Fund, Mr. Chairman. I'm still puzzled about this policy, and I think I could use this opportunity to have the minister clarify it for me. There are write-downs in the heritage trust fund in terms of disposition of assets. When a loss is taken, it's written off the trust fund. If we write off the losses, why don't we get to keep the capital gains? Why the double standard or what appears at least to be a double standard? I'd like the minister to clarify why there is this apparent contradiction in policy.

MR. ORMAN: Mr. Chairman, again, if the hon. member was paying close attention to my comments to the Member for Calgary-Fish Creek, he would have heard me say that I was speculating on the manner in which the accounting practice occurred to deal with that particular item. He would have heard me speculating on the fact that if it was being handled the same way it would be handled if the hon. Member from Calgary-Fish Creek and I were handling our year-end taxation, this may be

the way it was done. I cannot speak for the Provincial Treasurer and the manner in which he handles this issue. Let me say, however, that we strongly view our expansion project for Syncrude, shelved at this particular time, as an asset. I cannot tell the hon. member how it was handled in terms of accounting practice. I can tell the hon. member, though, that of the \$46.8 million that was expended for the engineering phase of the OSLO project, if the OSLO consortium passes certain tests – that is, a 5 percent social return on their investment – and the costs of the project come in under \$4.5 billion and the OSLO consortium decides not to go ahead with the project, then they must pay back to the province of Alberta the \$46.8 million invested in the engineering project.

MR. PAYNE: Mr. Chairman, I might add that year-end taxation is far more of a challenge for the Minister of Energy than it is for the Member for Calgary-Fish Creek.

3:57

MR. CHAIRMAN: I'm not sure you can add that, but thank you.

I recognize the member for Edmonton-Meadowlark.

MR. MITCHELL: Thank you, Mr. Chairman. I was very interested in a report written several years ago, co-authored in fact by Mr. Yurko, on carbon dioxide and the potential for global warming, the greenhouse effect. I wonder whether the minister or Mr. Yurko could give us an update on AOSTRA's thinking about this important issue and what they're doing to anticipate its resolution.

MR. CHAIRMAN: Hon. member, I'm not sure that's an appropriate question.

MR. MITCHELL: They wrote it. I mean, if I can't ask this one, Mr. Chairman, I am totally puzzled as to what I can ask.

MR. CHAIRMAN: Is the minister comfortable that that's within his mandate and expenditure from the heritage fund and part of AOSTRA's mandate?

MR. ORMAN: Mr. Chairman, I'm a little concerned that the Member for Edmonton-Meadowlark might have bugged my office this morning. I asked the chairman the very same question: can he give me an update on The Greenhouse Effect and the Alberta Fossil Fuels Industry discussion paper. Let me simply say that the report, done by Dr. Wiggins and Mr. Yurko, is as relevant now as it was when it was released on July 31, 1989, and that information continues to stream in on the relativity of fossil fuels to greenhouse gases and global warming.

Let me conclude by saying that I recognize the hon. member's interest in this area. I have a like interest in it, and AOSTRA is continuing to catalogue all the reports done on global warming. What count are we up to now?

MR. YURKO: I can't remember, Mr. Minister. But we are doing several other studies on CO₂ within Alberta with companies to determine how much they're releasing, what can be done with it, and so forth. One of our studies is a \$50,000 study to determine the technical and economic feasibility for reducing the rate of growth of CO₂ emissions by collecting CO₂ from major sources and disposing of the collected gases into hydrocarbon-bearing reservoirs. We've got several projects going as a result of that study. One, indeed, has got more than just a

couple of companies but many companies involved. There's a lot of interest in the area.

MR. MITCHELL: And I'm not bugging the minister's office.

MR. CHAIRMAN: May I say to the member that apparently your question was appropriate and the Chair accepts that.

MR. MITCHELL: It was, as I believe all my questions to be.

MR. CHAIRMAN: I'm not sure we can agree. Your supplementary question.

MR. MITCHELL: I've been told that the technology proposed for the OSLO project may be particularly carbon dioxide producing, and I wonder whether the minister could comment on that. One, is it in particular a problem with respect to carbon dioxide, and two, have they considered what could be done about it?

MR. ORMAN: The answer, Mr. Chairman, is yes, the OSLO project, if that's the question, has relatively the same impact on carbon dioxide emissions as, say, the Syncrude project. It is part of the challenge that oil sands development has ahead of it in terms of trying to reduce environmental impact. We've indicated we're on the verge of major breakthroughs on cold water extraction that will reduce the negative impact tailings ponds have, and we know there are initiatives in the works that are dealing with, as Mr. Yurko would put it, moving it further down to the hydrogen end of the molecules. It's just one of the things right now, that there is not any technological capacity to be able to deal with it at this particular time. But as I indicated, it's one of the areas AOSTRA is researching and doing that with industry. Hopefully, at some time we'll be able to come up with a technology that can be applied to all three oil sands plants.

MR. MITCHELL: This is merely a statement. I assume that if you use cold water you don't have to produce CO₂ heating it up.

MR. Di MARZO: No. We, as part of our participation in this energy and environment task force, put together an inventory of CO₂ emissions in the province that I think you might have seen. When it comes to the oil sands, the major source of the CO₂ emissions is actually in the burning of fuels in order to produce and refine. So you're talking about the CO₂ emissions because you're having to use natural gas and then, also, fuels just to produce it. But it isn't necessarily in the refining process itself; those are about normal for any refinery. It's just that it takes a lot of fuel just to produce that crude oil.

MR. MITCHELL: Thank you.

My third question, then, concerns the clear predisposition of this government, the minister, the heritage trust fund, in the past to promote megaprojects in the development of energy sources – Syncrude, OSLO – but we have never considered conservation as a megaproject. Were we to place as much of an investment in conservation initiatives in this province, say, as we have in Syncrude or as we will in OSLO or in Lloydminster, it's very conceivable that we would free up 20 or 25 percent of the energy that's currently being used in this province, some of which would therefore be available for export, some of which would have the implications of reducing industrial costs in Alberta, and all of which would have the effect of reducing pollution in this

province and providing leadership in that regard in the world. Is there a place for the Heritage Savings Trust Fund to invest in a mega conservation project, a megaproject of a different kind but nevertheless with the end of producing energy?

MR. ORMAN: Mr. Chairman, he has identified the enemy, and he is he. If the Heritage Savings Trust Fund feels that there is a megaproject that should be invested in from the environmental side, he might ask the members of his committee. But let me say that I've certainly come to recognize and acknowledge that the business of the environment is a growth industry. That's appropriate. Hopefully, that industry will be developed here and our technologies will be exportable. If he's got a suggestion, I'm sure the members of his committee would be more than pleased to hear him out.

MR. CHAIRMAN: Thank you. That concludes our list of those on the committee to have spoken at least once. Our time is spent.

We'll conclude our meeting this afternoon and, on behalf of the committee, express appreciation to the minister and his associates today for appearing before the committee and for the information they have given us on some very exciting things that are going on in the Department of Energy, specifically in the heavy oil sands area.

Prior to accepting a motion for adjournment, I have two announcements. Would the members please give our legislative secretary – a handwritten copy will be fine – their recommendations. Even though you've read them into *Hansard*, it's helpful if you could give them to her handwritten for her records.

Our next formal meeting will be October 29 at 2 p.m. when the Hon. Ken Kowalski, Minister of Public Works, Supply and Services, will appear before the committee.

I will now accept a motion for adjournment from the Member for Lloydminster. All those in favour? Opposed? The meeting stands adjourned.

[The committee adjourned at 4 p.m.]