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 [Ms. Haley in the Chair]

Subcommittee D- Science, Research, and Information Technology

Gordon, Judy, Chairman
 Haley, Carol, Deputy Chairman
 Amery, Moe
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 Wickman, Percy
 Zwodzesky, Gene

THE DEPUTY CHAIRMAN: Good evening. We're in subcommittee D to deal with the estimates of science, research, and information technology.

Mr. Minister, would you care to make your opening comments.

DR. TAYLOR: Yes. Thank you, Madam Chairman. It gives me great pleasure to be here this evening to present our 1999 . . .

AN HON. MEMBER: Stand up.

DR. TAYLOR: Oh, I assumed it was like upstairs where people didn't have to stand up. [interjections] Well, I can see we're off to a fine start.

MR. PHAM: Question.

DR. TAYLOR: Good idea. We have the question being called.

I am happy actually to be here tonight to be involved with the estimates. This year is exciting for us because we believe this budget to be visionary and forward thinking. Most importantly, it is a budget that addresses the needs of Albertans today with an eye to building an impressive future. This future is a future where Albertans will remain at the top of the game. We'll be the top of the league; we'll be number one. We won't be like the Flames and the Oilers fighting for last place. We're going to have a future where Albertans will be even prouder of their government than they are today and where today's young Albertans have high-paying, high-quality jobs in a global knowledge-based economy.

You know, Madam Chairman, every year we pass budgets in this Assembly, but this year is different. We are planting the seeds for tremendous economic growth, and the beneficiaries of the crop when we harvest the crop will be our young people. It's the young people that Budget '99 is dedicated to, and in particular it's my ministry's budget that is dedicated to the young people of Alberta. [interjections]

THE DEPUTY CHAIRMAN: My apologies, Mr. Minister.

Just keep it down, please.

DR. TAYLOR: Thank you.

As I was saying, it's the young people that will benefit. You know, Madam Chairman . . . Chairperson? What should I call you?

THE DEPUTY CHAIRMAN: Madam Chairman works.

DR. TAYLOR: You're not unhappy with Madam Chairman?

THE DEPUTY CHAIRMAN: No. I'll be happy with that.

DR. TAYLOR: Even though it's a bit of a contradiction and paradox: Madam and Chairman.

THE DEPUTY CHAIRMAN: My understanding is that chairman is the name of the position.

DR. TAYLOR: Okay. I'll go with that, Madam Chairman.

It is the young people that will benefit. You know, Madam Chairman, I have four grandchildren. Well, three and the fourth one due in July. [interjection] That's quite a few actually, yes.

MR. AMERY: Are you that old?

DR. TAYLOR: I am that old. I know I don't look that old, hon. member, but I am that old. I'll actually have been married 35 years to the same woman this summer. That is an accomplishment to be proud of, I believe.

MR. SAPERS: That's too much information.

DR. TAYLOR: Oh, they're suggesting that's too much information. [interjection] Oh, through the chair.

THE DEPUTY CHAIRMAN: Yes.

DR. TAYLOR: Well, Madam Chairman, if you perhaps would keep the members down, then I could speak through the chair.

THE DEPUTY CHAIRMAN: I'm working on it. I'm new at this job, Mr. Minister, but I am working on it.

DR. TAYLOR: You do such an excellent job in SPC, Madam Chairman, in keeping the members quiet.

THE DEPUTY CHAIRMAN: I can be ruder there.

DR. TAYLOR: As I was saying, it's my grandchildren that will benefit from high-paying, high-quality, knowledge-based jobs in this province. If we don't do it, you know, if we don't progress with the knowledge-based economy, then we will in fact force my grandchildren to work in other areas of the country or other areas of the world. We need that kind of economy here to keep our young people in Alberta. In fact, if I look at my own community of Medicine Hat, many of our young people who leave Medicine Hat go to university or NAIT or SAIT. They oftentimes do not come back to Medicine Hat, because Medicine Hat is not largely a knowledge-based economy. We need to create that economy in Alberta and create the right environment for that economy in Alberta.

The ministry of science, research and information technology, as

you are well aware, is committed to growing our science and research system or science and research infrastructure, and from there what you see in our budget and business plan is a reflection by this government that science and research and technology will play a critical part in the role of future prosperity for this province. What you see today before you is a business plan which will see benefits accrue to Albertans over the next year certainly, but, as I've said, more importantly this is a business plan which will see benefits accrue broadly to all Albertans in the years to come.

Before we get into the details, Madam Chairman, I'd like to acknowledge some individuals who are in the gallery who make this ministry work. We have Dr. Robert Fessenden. He's the president of the Alberta Science and Research Authority, and he's de facto my deputy minister. We have John McDougall, who's the CEO of the Alberta Research Council, and his lovely wife, who's come along tonight to see what exciting things happen in the Legislature, and I'm sure she will be thrilled and stimulated by what she sees happening here tonight. We have Gerry Waisman here as well, who is sitting up there. He's with Advanced Education, and he takes care of our finances for us and says, you know, that we're spending our money in the right or the wrong way. Then we have my executive assistant, Ken Faulkner, as well up there.

One other person that makes things go tickety-boo in a major way, Madam Chairman, is the hon. Member for Red Deer-South, Vic Doerksen. Can I say his name? I can't? Okay. The hon. Member for Red Deer-South is chairman of the Alberta Research Council, and he really keeps things going over there and keeps things focused in the right direction. He's guaranteed me that he has at least 40 or 50 minutes of good comments to make about the Alberta Research Council. So I would assume that once I've done my 20 minutes, Mr. Red Deer-South will be able to get up and have his 20 minutes after mine. Is that correct?

THE DEPUTY CHAIRMAN: There's 20 minutes for both of you combined.

DR. TAYLOR: Oh, 20 minutes for both of us. Oh, my, my.

THE DEPUTY CHAIRMAN: Nice try though.

DR. TAYLOR: So we will continue, and Mr. Doerksen will have his chance, I'm sure, at some stage this evening.

I thought I would start my discussion tonight with a quick overview of the ministry and the ministerial components and essentially the mandate and then move on to some greater detail so members of the Assembly can better understand what we're trying to do in science and research.

We have several components to the ministry. We have of course the Alberta Research Council, which I've mentioned already, and that's the province's main operating research arm. We have the Alberta Science and Research Authority, and that is the private-sector board that advises me, Madam Chairman. This private-sector board is, from my perspective, made up of some of the best minds in science and business in this province. The chair of that board is Dr. Bob Church, whom many of you will know. We have other people on that board. I don't have the list of names in front of me but just some highlights. We have Glen Rainbird, who is the CEO of TRILabs. We have Bill Cochrane, who is in the area of biotechnology, and many of you will recognize his name. We have Ruth Collins-Nakai from the University of Alberta. We have David Kitchen from the University of Alberta. [interjection] It's just been pointed out to me that Ruth Collins-Nakai is one of the leading pediatric cardiologists in the world.

Those are the kind of people that make up our board, and I'm very proud of that board. They are a busy board. They meet every six weeks regularly as a total board, and each board member sits on at least one and perhaps two committees, and those committees may meet as often as once a week. So these people are highly committed to improving the culture and the environment for science in Alberta.

ASRA is also supported by a small secretariat, which works with the board and helps the board function smoothly. As well, the secretariat works as a de facto department in some senses. It spends about 50 percent of its time on board work and about 50 percent of its time on ministry work.

8:12

Another component of the ministry, Madam Chairman, is the Alberta Oil Sands Technology and Research Authority, known as AOSTRA. This was recently transferred to my ministry, and we're just in the very process of bringing AOSTRA into the ministry. We're working through this, and we have appointed a group to do that for us. It's chaired by Len Bolger, who is the former vice-president of Shell, and it also has on it Mr. Doug Baldwin, who just retired as the CEO of Esso or perhaps Exxon Canada; I'm not sure what they call it. Very high-quality people. We have Mr. Murray Todd on it as well, who is a producer involved in oil production.

We're in the process of absorbing AOSTRA into the ministry, and the Minister of Energy needs to be complimented for his foresight in bringing AOSTRA and energy research dollars under one roof. Already since AOSTRA has come in here we've seen places in ARC where it merges very nicely, where they can work and take over some of the stuff that was happening in AOSTRA and just keep it flowing through. So there are some really good opportunities for synergies, and the Minister of Energy needs to be congratulated for his foresight.

We also have as part of the ministry the Alberta Heritage Foundation for Medical Research. Some of you will be familiar with that. It really just reports through the ministry. In other words, they hand me an annual report, and I present the annual report in the House. They have been a very, very effective organization in generating dollars for medical research. They were originally started, I believe, in 1982 with a \$300 million fund. That fund is now almost a billion dollars, and they support research from the interest they gain off the billion dollar fund. As well, last year they invested I believe somewhere around \$35 million in research. We're working with them to increase their expenditures on research, so hopefully this year they will be up towards a \$50 million expenditure on medical research in the province.

Because of them we are seen as one of the leading areas in the world for medical research. In fact, I was told today by a researcher that getting a research fellowship from AHFMR is at the same level in North America as getting an MRC fellowship. So it's seen as very high quality, very high priority for medical researchers, and because we have created this fund, we can attract some of the best researchers in the world. An example I might give you is Dr. Lorne Tyrell, University of Alberta, who has discovered a cure for hepatitis B. This is a huge accomplishment. In fact, he's been working with Glaxo Wellcome, a major world drug company, and they actually will be taking this vaccine to market, this vaccine for hepatitis B, which affects millions of people around the world. This is the type of person that we can attract because of the fact that we have the AHFMR.

Of course, the final component of the ministry is the minister's office, and that consists of myself, my executive assistant, and two secretarial persons: Brenda Harris and Brenda Mathews, so Brenda and her other sister Brenda.

I believe that the work of this ministry is critical to Alberta's prosperity and the future because we're looking at the nature of the emerging economy. That emerging economy is based on knowledge, and it's knowledge that drives the emerging economy. In fact, if you walk into my office . . . [interjection] Yeah, I believe this stuff, members; I actually do believe it. It's our future. If you walk into my office, you will see a sign that says: knowledge is our most important renewable resource. I'm absolutely committed to that, that knowledge is our most important renewable resource. In fact, I've said it many times over in the last year. Ken, my executive assistant, has pointed out that we did 57 major different speeches last year. So that's the message we've been putting out there in public, that knowledge is our most important renewable resource, and it can't be understated. Knowledge is the key to the future. Without it we will have a weak economy. We will make poor decisions, and we will have a lesser quality of life.

We can't predict the future, but what we've got to allow ourselves to do is to make good decisions in the future. I can't and most people can't predict what the future will be. I'm just reading an excellent book that I would recommend to members. It's called *The Art of the Long View*. What Peter Schwartz is talking about in his book is this whole issue of where we will go in the future. What he says is that we have to train people, educate people on how to make good decisions into the future, not predict the future but make some good decisions. As I've said, knowledge is the key to the future. That's why it's so important to have the art of the long view. If we make the right decisions for the future and know how to make decisions in the future, then we will have a strong economy.

Now, I won't deny that our province has been blessed with an abundance of natural resources. In fact, our present prosperity is due to the abundant natural resources that we have. We have, of course, the oil patch: oil and natural gas. We have forests, and we have agriculture. They have all served our province very well, Madam Chairman. We know that these commodity-based businesses are cyclical in nature. They go up, and they go down. In fact, we saw oil just recently down as low as under \$11 a barrel. I haven't checked today, but it's my understanding that it's close to \$16 a barrel.

MR. AMERY: I spoke to my cousins, and they raised the price.

DR. TAYLOR: We have a member that says he spoke to his cousins, and they raised the price. I congratulate you on that, hon. member, and I'll ask you to keep talking to your cousins and keep the price high, because certainly it benefits our economy.

I sit on Treasury Board, and when we did our budget this year, we based oil at \$13.50 a barrel because we know it's very cyclical. Myself, I'm involved in the cattle business, and I can tell you that the cattle business is very cyclical. For anybody that fed cattle last year, as we did, you lost anywhere from \$50 to \$100 a head last year feeding cattle to fat. This year people are making \$20, \$30, \$50 a head. So it's very cyclical, you know, the agricultural business. Right now with number 1 red spring wheat you're not even getting your cost of production back.

We can look at forestry and pulp as well. I was talking to a member of the ASRA board not long ago, Wayne Thorpe by name, who is involved in the pulp business. He told me that his pulp company had not made a profit since the company opened. In fact, he's had to resign from our board to deal with issues around this area and try to resolve some of these issues.

I often talk about our economy as being a three-legged chair. The three legs are agriculture, forestry, and the oil patch. It's not a very stable chair, but if we can make the fourth leg of that chair

knowledge-based industries, business based on knowledge, we will have a very, very stable chair. That's the goal of this ministry: to raise the awareness of this whole area of knowledge-based businesses, to raise the awareness of the importance of science and research in this whole area, Madam Chairman.

In Alberta we have had, I must say, some significant barriers to the development of our natural resources. We have done very well, but when we look at how we've overcome those barriers, we've overcome those barriers because of knowledge. I can look once again at the agricultural industry. For instance, in southern Alberta we have a lot of irrigation. Basically, unfortunately we can't expand our irrigation land any farther because we don't have any more water. What we really need is another dam at the Saskatchewan/Alberta border to back up the South Saskatchewan River. Perhaps I'll talk to the minister of the environment about that and get him to see the necessity of it.

Because of the knowledge we have of water and because of the knowledge we have of agriculture, we can grow some very creative crops in southern Alberta. Thirty to 40 percent of Wrigley's mint, spearmint, comes from one group of farms in southern Alberta. They have their own crusher. They crush it down into an oil, and Wrigley's just comes in and hauls it out by the barrelful. Knowledge again. Knowledge has allowed this group to do this. I can give you other examples in terms of beans, lentils. In terms of the way we produce cattle, knowledge has allowed us to develop appropriate growth hormones that cause the cattle to grow a little faster so we can put more pounds on them on the grass over summer.

Knowledge has allowed us to figure out ways to extract oil from the oil sands in a much more effective way. Once again, the prohibition to developing the oil sands has always been the cost of getting the oil out. Well, through science, research, and the development of knowledge around that area we have been able to get the cost down and develop the oil sands. You see the multibillion dollar investments going on there, Madam Chairman, because of the investment in knowledge. You know, we have to realize that we have this high quality of living from our traditional industries because of an investment in knowledge, and we need to really recognize that.

8:22

As I said, knowledge is important, and knowledge equals jobs. Science and research equals jobs, Madam Chairman. It means high-paying, clean jobs for Albertans. That means a level of growth in Canada and around the world that we won't see anywhere else if we can specialize on this in Alberta. We will be the leader. Our economy is already the leader in Canada, but we can be even more of a leader.

In fact, if we look at the history of the new jobs that are created in Alberta by businesses, not by government- it's important to note that the government does not create jobs. We create the right environment and the businesses come in, industry comes in, companies come in and create the jobs. Over half of the new jobs in our province, over half of the growth results directly from technological innovation. I mean, that's quite a statistic to be made aware of. So we have to recognize that this must be a focus for Alberta, and that's where our mandate comes in as a ministry. [Dr. Taylor's speaking time expired] Perhaps I could have unanimous consent to continue.

SOME HON. MEMBERS: Agreed.

THE DEPUTY CHAIRMAN: I would suggest, Mr. Minister, that following one of the other people with their questions . . .

DR. TAYLOR: But they might give me unanimous consent.

THE DEPUTY CHAIRMAN: Would you like to give him unanimous consent?

AN HON. MEMBER: But they might not.

DR. TAYLOR: Gee, that's too bad.

THE DEPUTY CHAIRMAN: Unfortunate but true.
Edmonton-Glenora.

MR. SAPERS: Thanks, Mr. Minister. Thanks, Madam Chairman. Mr. Minister, the major reason I refused unanimous consent is not because I wasn't captivated by your remarks or in fact not that I'm not interested in learning more about your department. As you know, we have precious little time, and I do have some questions. Perhaps you would have anticipated them in your continuing remarks but perhaps not.

So I want an opportunity, first of all, to thank you and your staff for your continuing co-operation and courtesy that you extend to me in my role as critic for the Official Opposition shadowing your ministry and also to go on record stating how impressed I am with much of the work that's being done. Whether it be through the ARC or the foundation for medical research, I find that there's a high quality of work, a good level of information exchange. Certainly queries that I put to staff in those operational departments and agencies are always met with a prompt reply. I hope that that will continue.

A couple of general comments about your budget. I notice that the total operating expense to be voted on this year in your department is \$62,546,000, which is about a 15 or 16 percent increase over last year. While I am aware of some new initiatives, I hope that you will take an opportunity to tell us about how the additional 8 and a half million dollars is going to be spent, particularly the money that's going to be spent in an administrative capacity.

Your business plan and budget presentation is a little bit different than it was in the past, and I'm assuming that's because of the regulatory and legislative change regarding ARC and ASRA, but perhaps you could take a minute just telling us about any operational issues which may have been discovered which are going to be addressed in the priorities in the upcoming fiscal year. I know that there are going to be some questions from my colleagues on the Alberta Oil Sands Technology and Research Authority, so I'll leave that area for the moment.

One thing that I didn't find when I went through your business plan, Mr. Minister, is a thorough discussion of the current status of the discussion paper entitled Sustaining the Alberta Advantage. Now that it's at least a year since there's been a good, thorough discussion of that paper, I'm wondering if you can tell me what the current status is on the investment strategies, the tax strategies, and whether or not you've updated those statistics. As you know, there was a rather compelling argument in that document about what Alberta should be doing to regain its position in terms of investment in R and D, et cetera. I'm wondering if you've updated those statistics and if you've got some other projections for the future based on activities you've taken that have flowed from the discussions around that document. In particular, I'm hoping you'll draw our attention to some of the budget impacts from the feedback you had on that document.

Now, I know that the new Science, Research and Technology Authority has been providing some grants. In fact, Mr. Minister, you sent over for my attention a listing of the grants that were made

available in Calgary and Edmonton and how they were leveraged or matched by private-sector money. It's an impressive list, notable because I think it actually shows more investment in northern Alberta than southern Alberta, and that never escapes my attention. Of course, I think we've got a tremendous base here in Edmonton to leverage from, that being the location of the Alberta Research Council and of course the presence of the University of Alberta. Not in any way am I disregarding the contributions that the other centres of higher education make, but I think the U of A has an outstanding record in that regard.

I know that the authority has been giving some grants, but I'm wondering whether or not you're satisfied that there's enough certainty in the research and development community, in the scientific community regarding the guidelines for those grants. It seems that there is some misunderstanding or lack of awareness regarding the pure research and development projects and the guidelines that will be applied in terms of vetting the proposals for eventual funding. I've had it reported back to me that there doesn't appear to be consistency. I understand that it's a relatively new initiative, but perhaps you could talk about the impression that I've been given, in any case, that the guidelines aren't as firm or as fully developed as they should be.

Also, I'm wondering about the authority and its own internal budget. I've made note of some newspaper advertisements, some postings for positions in the authority over the last number of months, but I can't tell whether these positions are being advertised simply for the exercise of constructing an eligibility list of potential candidates or whether there are actually new hires taking place. If there are, maybe you can tell us about the report I've received that some of the positions that were recently advertised have in fact been eliminated because of some restructuring. As I'm told, there were positions advertised, interviews conducted, and then the positions eliminated subsequent to the interviews. So if that's just a myth, maybe you can set me straight, but if that in fact happened, maybe you can explain that to me a little bit better.

There was also a question that came to me just earlier today regarding the management of the information technology portfolio within your department. I wasn't quite clear whether or not a new assistant deputy minister's position has been created or some other senior management position within your ministry dealing specifically with information technology. So I'd be interested in your comments on that. I was looking for a clue in the line item in your budget in terms of the minister's office or some of the other administrative budget items, and I couldn't really see anything that would indicate that a brand-new senior position had been created. In any case, that's the report that I've had.

I did want to ask you a specific question when I was mentioning before the grants and guidelines for the authority. The specific question had to do with how aggressive your department is planning on being in the coming fiscal year to help emerging technology companies, companies that have already gone through the research and development stage, have found something that is commercially viable, and are at the point where what they need is the access to enough capital and enough market exposure to make their initiative commercially viable.

8:32

You and I have talked before about the absence of venture capital and capital pools for small research companies and for small commercialization projects. A particular example that would indicate the frustration that's out there would be Canzyme in Calgary, a recent ASTech award-winning company, which, as I understand it, has closed up its doors because it couldn't get the

money it needed to convert the old brewery site in Calgary to a manufacturing facility for its product. I'm wondering where companies like Canzyme will be able to go in the future so that once they apply science and research to create value-added products, they can take that development to the next level. This is not a new problem and probably not one that government alone can solve, but I think the scientific community that is interested in commercializing science is looking for just a little bit more direction from government and a little bit more assistance. Maybe you could talk about that in your responses.

Mr. Minister, I'm also curious about what's going on these days with TRILabs. I note that in the last fiscal year TRILabs received \$1.5 million. TRILabs is something that I think is doing a good job in terms of leveraging that money or duplicating the investment. I'd be interested to know if you could flesh out the scant mention of it in your business plan.

While we're talking about scant mention, the Alberta Laser Institute, I guess, has fallen off the face of the earth in terms of it being a public asset. I'd be interested to know what kind of budget impact that's had and whether or not an analysis was done before the institute was privatized in terms of return on the public moneys that had already been invested over the years. It's been considerable public investment over the years.

There's a couple of questions I have about the performance indicators in your business plan. I'm looking at page 300 in the big budget book; I'm not sure what page it is in just your own ministry's business plan. There's a table at the top of the page. Maybe before I ask the specific question, I have to say that I found the organization of this business plan a little more confusing than many of the others contained in the document. One of the things that I think I've mentioned before certainly in estimates and I think specifically in this committee dealing with your ministry is that we need to have some governmentwide consistency in the presentation of these business plans and performance measures. Mr. Minister, your department can take the lead in that. You're the science, research, and information technology ministry, and if we can't look to your department to make these the model for the rest of the government, then I wonder whose department we would look to.

That being said, under strategy 1.1, which is an investment strategy, I note that under Expected Outcomes there is a measure of "employee satisfaction." The employee satisfaction benchmark- and I'm going to say benchmark because it's listed as the actual measure for the last fiscal year- is an employee satisfaction rating of 66.9 percent. Now, it doesn't tell us whether that's totally satisfied, a little bit satisfied, not at all satisfied. I don't know what that measure really relates to, but I'll take it at face value that 67 percent of employees were at least satisfied when they were asked a question. We don't know what question they were asked, but when they were asked a question, about two-thirds responded that they were satisfied.

What's more troubling than the lack of detail around what that measure is really measuring is the projected increase, which is to somehow miraculously raise that from 66.9 percent to 90 percent plus. Here again is another really good example of the inconsistency in business plans. This is a three-year business plan, and almost all of the other performance measures in the business plan go as far as the fiscal year 2001-2002, yet this one we see projected to the end of fiscal year 2005. I'm wondering why. First of all, we don't have the detail about what the measurement is really talking about. Then we don't know how it's going to grow by nearly 50 percent over a defined period, and then we don't know why you're projecting this one out over three more years than all of the other performance measures in the business plan. So not really a helpful presentation.

In the performance measure under "invest in strategic science and research initiatives," which is strategy 1.2, there's another couple of performance measures which I have similar concerns about. Under the heading Development of Highly Qualified Personnel, I notice that the actual number of graduates is indicated as 28. I'd be interested to know: graduates of what? Are they graduate students in university programs or other postsecondary? Maybe you could tell us that. The projected for the end of this current fiscal year, '98-99, is for that to go up by two persons, from 28 to 30, but then for the next number of fiscal years, 1999-2000, 2000-2001, 2001-2002, there are dramatic increases. It goes from 30 to 40, so it goes up by a third. Then it goes up from 40 to 60, so you're expecting a 50 percent increase. Then it goes from 60 to 80, expecting, again, a one-third increase. I guess the numbers look good, going from 30 to 40 to 60 to 80, and there's some symmetry there, but how did you base that?

The same with the "commercialization/application of technology" performance measure. Under the line item "patents filed," I notice that you're actually projecting a 50 percent decrease by the end of this fiscal year over last fiscal year. Then after that 50 percent decrease, you're expecting it to double. Then after you expect it to double, you expect it to go up by 50 percent. Then in the final year of your business plan you expect it to grow again by two-thirds. That's on page 301 of the budget book. As I say, the tables aren't numbered. Do you see it? So you can see how those numbers sort of dance around. You know, after expecting it to go down, then you expect it to double, and then you expect it to go up by 50 percent and then by two-thirds. It's a little hard to understand how these numbers were developed.

Mr. Minister, the other one that I wanted to talk to you about in particular is on page 307. Now, this is the single performance measure that's listed under Core Business 3. You know, in your business plan you list a number of objectives and strategies, but this is the only performance measure. Core Business 3 is "providing strategic leadership for science and research in Alberta." I would guess that of the three core businesses this is the one that's really at the heart of your department. After all, this is really the business that in your opening comments, without identifying it, you certainly spoke most directly to. [interjection] Madam Chairman, I'll just wait for the Minister of Energy to finish.

8:42

THE DEPUTY CHAIRMAN: I think that he has finished.

MR. SAPERS: Has he finished? Okay. Good.

So, Mr. Minister, on page 307 of the business plan, that performance measurement is one that just indicates simply that your department will issue three annual reports. Now, that's not much of a performance measure. I mean, it certainly is a goal that needs to be accomplished. It's a task that has to be done. You have to issue a report, and I'm glad that you're going to issue a report on an Alberta government R and D plan, for example. That's a good thing, and I understand that hasn't always been the case. But I think you can agree with me that for any Albertan, for any taxpayer who's looking to see how these tens of millions of dollars are being spent and who went to Core Business 3, which is "providing strategic leadership for science and research in Alberta," they would expect more than simply a checklist of reports that you'll commit to table somewhere.

Without sounding too harsh, if you read the actual language at the top of that page under Performance, it says:

SRIT's role in Core Business 3 is as a facilitator, influencer, and catalyst within Alberta's science and research system. In this role, SRIT neither delivers programs nor directly produces outcomes

within the innovation system. The performance measurement framework for evaluating SRIT's effectiveness in achieving its mission involves an assessment of the impacts over time of outcomes that result from the outputs of SRIT's activities.

Now, maybe if you read that fast enough, it makes more sense. I'm being a little facetious. I understand what's being said, but it doesn't help me truly understand what measurement you're looking for to gauge success. [Mr. Sapers' speaking time expired]

Mr. Minister, I won't even ask for unanimous consent to continue, but I do have some other questions for you. I hope we'll have time to come back to them. Thank you.

DR. TAYLOR: I just have a question on process. I've got some questions I'm going to respond to, and then I'm going to turn over some questions that the chairman of ARC can respond to. Then can I get up after him again if we haven't used our 20 minutes?

THE DEPUTY CHAIRMAN: No. It's going to go back and forth, so if you'd like to address some questions at this point, then the next time one of the opposition have finished, then your assistant can help.

DR. TAYLOR: Some of the questions that were addressed to me actually can be better addressed by the chairman of the Alberta Research Council, and that goes to the table on page 300, that the member was asking about. Now, he's asked a lot of questions that I would like to respond to, but I'll particularly let the chairman of ARC respond to the questions relating to that chart.

MR. WICKMAN: They don't go twice in a row.

THE DEPUTY CHAIRMAN: Excuse me, Edmonton-Rutherford. They have 20 minutes right now. If the minister chooses to utilize that full 20 minutes, then he can. He explained what he was trying to do, that he wanted the chairman of ARC to answer some questions, and I'm going to allow it.

MR. WICKMAN: Being the nice guy that I am, I'm not going to object, but it's not proper.

THE DEPUTY CHAIRMAN: Well, it is actually.
Red Deer-South.

MR. DOERKSEN: Thank you, Madam Chairman. I assure you, I will not be long. I will tailor my remarks so that you're not left forlorn in the Assembly.

Just briefly on the Alberta Research Council. There is a difference in the reporting or in the business plan as you see it today and as the Member for Edmonton-Glenora has rightly pointed out. Alberta Research Council now really becomes a strategy of science, research, and information technology, so as the implications of Bill 14 are fully realized, the goals of ASRA- that's the buzzword for the authority that's out there now- will be closely aligned with what the Alberta Research Council is doing or vice versa so that the strategy that the government sets forth in their business plan will be more closely aligned and better realized. That's the reason why you see it the way it is in the business plan.

On the chart, in particular, on page 300 which the member referred to, you will see on that top line that there is an investment from the government which goes from an actual in '97-98 of \$23.5 million and upwards to \$27.5 million at the end of the business plan. Then the following line shows the private-sector investment or involvement in the business of the Alberta Research Council.

Actually, that's what creates a dynamic tension within the Alberta Research Council. You have part of your money coming from government and part of your money coming from the private sector. It creates, for lack of a better term, a dynamic tension in terms of operating it to make sure that it's achieving the results that Alberta is trying to achieve with respect to science, research, and technology and also making sure that you're looking after your customers, promoting the commercialization of research in the province of Alberta.

The employee satisfaction is at 66.9 percent. Specifically to that question, that relates to the numbers that are satisfied or very satisfied. The other 33 percent, roughly, would have been neutral or dissatisfied. That's due to a number of reasons. One is that over the last number of years the Alberta Research Council has gone through structural change. It's absorbed the agriculture research out of Vegreville into its entity, and of course with Bill 14, as well, there are some changes that we have done over the past year to get the organization ready for the new structure. Also during that period of time we had an interim CEO who was there until we could find a good person to fill that spot, and I'm glad to say that John MacDougall, who was introduced earlier, has stepped in now and has filled that role for the last year and a half and will continue. He's doing a tremendous job in this whole area. So we're confident that those numbers will improve.

One of the reasons- and it's a good note- that we project the customer satisfaction and the employee satisfaction up to the year 2005 is that at the Alberta Research Council we kind of internally have a longer than a three-year business plan planning window, and to be consistent with the government business plans, we probably should only have put in there the year 2002. In all of our business planning at the Alberta Research Council we're looking out further than three years in terms of what we're trying to do with that particular organization. So that I think answers some of the specific questions with respect to that chart.

I'll make a couple of small points about the Alberta Research Council. I don't think I'm going to be able to get up again because the minister loves to talk and he won't give me this opportunity again. [interjection] I won't take my full 20 minutes, Mr. Minister. I promised the gentleman from Edmonton-Rutherford that I wouldn't do that.

An annual performance audit and customer satisfaction showed that Alberta Research customers and partners contributed \$134 million to Alberta's economy during '97-98 as a result of their collaborations with ARC through sales, new investments, export revenues, and cost savings. Frankly we want to grow that. It's very important for us to grow that part of our business.

Alberta Research Council also received over \$724,000 in royalties and licensing fees. Again, that's a part of our business that we want to grow. If we're in the commercialization of technology and research, as we take an ownership in some of those, in the licensing and royalties we get back from that, we want to grow that part of our business too. That's one of our objectives. We worked with more than 750 customers and partners in Vegreville, Edmonton, Devon, and Calgary. As a matter of fact, we've moved into a new facility in Calgary at the Calgary Research Park, which actually brings us in closer proximity to the University of Calgary. Again, we're trying to work more closely with the universities to make . . .

8:52

DR. TAYLOR: When are you going to invite me down to see it?

MR. DOERKSEN: Mr. Minister, you are welcome to come see any facility at the Alberta Research Council anytime you like and find

out that it's run much better than it was when you were the chairman.

With those brief comments, Madam Chairman, I will take my seat and let the debate continue.

THE DEPUTY CHAIRMAN: Thank you.

Edmonton-Rutherford.

MR. WICKMAN: Thank you, Madam Chairman. I should extend my apologies to the good member from Red Deer-South. I forgot that he was the chairman of the Alberta Research Council, and I was afraid for a minute it was maybe a private member trying to use up some of our valuable time here. So I appreciate the significance now of his presentation.

As I get into this particular area- and I'm going to speak very, very briefly too, because it's not one of the areas that I have the most knowledge of. I have to be quite frank about that. There are some areas of interest to me in it, however.

Right off the bat I sort of look at the department, and I really don't know if the minister is in a position to even comment on this, but I look at the overall budget being- what?- \$95 million, and roughly \$62 million of that is sort of farmed out to authorities. It's actually a very, very small ministry, and I'm sure the minister does a very capable job of handling it, but it's almost one of those instances where it could be combined with some other minister and reduce possibly the size of cabinet or split cabinet in such a way to utilize things just a bit better. Like I said, the minister may have a difficult time commenting on that aspect of it, but it surprises me when I look at the figures and how little of it the minister actually has direct control of. It's sort of like the old days when we had a minister of the Workers' Compensation Board, which really didn't make sense to me, to see one person responsible for a body that was relatively independent.

Anyhow, getting to the budget and just a few of the questions. The Member for Edmonton-Glenora has covered a good portion of it. The medical research that the minister referred to in the Alberta heritage trust fund: in my opinion that's extremely valuable, and that's an area, if there is time this evening- if not, possibly the minister could in written detail give us a bit more detail as to some of the projects that are on the board at the present time in terms of research. When we look at the Alberta heritage trust fund and how it relates to areas like science, research, and information technology, there can be aspects of it that are very, very positive, and that's one of the aspects that I think is very, very positive.

However, when I go to another side- and unless I read my documentation wrong, there's something here that almost doesn't make sense to me. This is one that I would like the minister to clear up tonight. I've raised these kinds of matters before with the minister responsible for energy, who was, quite frankly, quite blunt in agreeing with the point that I raised. When I look at the figures here under revenue, I see a contribution from the lottery fund of \$32,250,000, but I qualify that by saying that I may be reading figures wrong. But if I am reading them correctly- and I look at the \$95 million in the overall budget, and I look at the \$62 million that is kind of farmed out to authorities and such, it appears like the entire department is being funded by lottery dollars. Again that doesn't make sense to me.

You know, lottery dollars, according to the Premier of the province, were not to be used for normal programming. That was the result of the Medicine Hat gambling summit that made it very, very clear to fund special projects that would not be funded from normal government revenue in terms of taxation and such. [interjection] I see now that the Minister of Energy is back. The Minister of

Energy may be particularly interested in this matter; on the other hand possibly not. It shows a 4,200 percent increase in lottery funding over the previous year.

Unfortunately, Madam Chairman, the minister for lotteries may not have the opportunity to respond to this point, but that to me goes totally against the grain of what I felt all that gambling summit stuff- I would bet that those delegates, if they were to hear what I was saying and if I am reading these figures correctly, would be horrified. They would be horrified, I believe. Anyhow, I'm sure the minister will have the opportunity to elaborate on that point. If not, then of course we do have two days when we can kick around the lottery budget as it is. So at that time we'll have a second opportunity to ask questions directly of the minister responsible for lotteries as well.

Now, I don't want to just read off a whole bunch of questions that have been prepared ahead of time, but there are four questions in here that are of particular interest to me. One talks about the percentage of Alberta schools, businesses, and residences that are currently connected to the Internet. I don't know if the minister has those kinds of stats, but it would be particularly interesting, and it would be interesting as to how we relate to other provinces, particularly when it comes to the schools. The businesses, of course, are in a position to sort of cover that kind of stuff themselves. But, still, it would be interesting to know just what types of percentages we have if those figures are available.

The Internet, of course, is the modern day information highway, and more and more we become dependent on it. Most of us, I would say, in our homes have a computer now, one in our constituency office. Some of us have some in our offices here, and maybe some of the cabinet ministers manage to have them even in their cars, little portables. In fact, I believe some of our members, too, have portable computers that they can take on an airplane with them, whatever. No question about it. It's a way of life.

A second question deals with the Alberta Research Council planning to increase industry investment in research and development to \$2 billion by 2010 from the current \$400 million level. Now, that's a tremendous projected increase, a fivefold projected increase. There have to be plans in place over the five-year period to achieve that goal, and there have to be some types of budget figures on an annual basis leading up to that target. It is an interesting target. It's a very optimistic target, and maybe it's a realistic target. I don't know. But that's an area that the minister could also maybe give us some detail on.

My third question is dealing with stats. Now, the minister makes claims that there is a return of \$5 back into the Alberta economy for every dollar that the government invests in the Alberta Research Council. Possibly the chairman of the Alberta Research Council may want to get in on this one too. How are these dollars measured? What do they consist of, and how is the Alberta Research Council planning on increasing this ratio?

My last question deals with the Alberta Research Council's work on a system to enable physicians to access patient records, send prescriptions, and act upon laboratory findings via the Internet. How will the Alberta Research Council ensure confidentiality and security of this information? More and more I believe that the public become concerned about breach of information that they consider private, and more and more as government tends to reach out with the aid of modern technology into people's lives, of course it becomes doubly important for government to ensure that plans are in place to ensure the confidentiality and security of information that many members of the public consider extremely private.

Now, I've raised a number of questions, and I've intentionally kept my questions limited in the hopes that the minister and the chairman of the Alberta Research Council as well would be able to

respond to them, Madam Chairman. I understand that the minister may not be able to respond to them all this evening, but what I've seen so far is that a number of the ministers have been very, very good and very prompt about coming back with written responses to many of the questions that have been asked in different departments. So I'm confident that this minister will make the same attempt to ensure that questions that this opposition requests are replied to by that particular minister.

So on that note I'm going to conclude because I know my colleague from the Lethbridge area is most anxious to speak as well.

9:02

THE DEPUTY CHAIRMAN: Thank you.

Mr. Minister.

DR. TAYLOR: Thank you. I'll respond to some of the questions as I've got them written down, and then I'll turn it over to Lethbridge-East.

A comment first of all. Edmonton-Glenora asked some very sophisticated questions. I thought there were very good questions in there.

To Edmonton-Rutherford, many of the questions you asked were about the Alberta Research Council, so we will have the ARC respond and reply to your questions in writing. I noticed John MacDougall up there was busily writing all these questions down. Of course they will be in *Hansard* as well, so we will get your responses back to them. I'll comment generally on a couple of your comments after I try to answer some of the questions from Edmonton-Glenora.

The first question that I made a note of may seem a bit disjointed, but this is the way I managed to copy them down. Regarding the additional 8 and a half million dollars, in fact it's not really an additional \$8.5 million; it's an additional \$15 million. It shows up as 8 and a half million dollars in the budget because if you look at AOSTRA, which we've just absorbed, AOSTRA's budget is actually declining. All right? Now, we never had that budget before. Although it shows up as decline in our budget, we never had that budget before because AOSTRA was not part of our budget. So in fact we have basically an extra \$15 million, and that is basically in our science and research initiative fund. If you look at what we had this year, we had a \$5 million continuing fund, and then we had a onetime \$10 million addition to that fund. It was one time only, and that was for the budget year '98-99.

Now, the government has seen and Treasury Board has seen fit to increase that, actually, to \$31.5 million per year for the next three years. So that essentially gives us 94 and a half million dollars over the next three years to invest in our strategic initiatives.

I should note that you did ask about TRILabs as well. Of that \$31.5 million, \$1.5 million is committed to TRILabs on a five-year contractual basis. TRILabs has continuous funding for five years, so in reality we're looking at \$30 million as opposed to \$31.5 million.

The question then is: how will the extra \$15 million be spent? Well, the extra money and the original \$15 million, a total of \$30 million, we will spend on strategic initiatives for this province. This year we had requests for I believe about \$40 million in projects. Requests came to our funding committee. We actually had \$15 million to expend. We expect we will get requests for funding for projects for anywhere from \$60 million to \$70 million next year, and of course we will be able to fund only \$30 million of those. So we will spend it on strategic initiatives.

I might give you one example of something we're going to do. As you know, the ministry of advanced education, because of the document that we have put out called Information and Communica-

tions Technology: A Strategy for Alberta . . . [interjection] You have a copy of that, hon. member. The number one initiative in there is to increase the opportunities for education. This was released last fall, as you know.

The ministry of advanced education announced- and I was very pleased to stand by the minister when he announced it- \$51 million invested in our institutions of advanced learning for basically creating positions, 1,500 new positions this year and up to 3,000 or 3,500 positions over the next two or three years for this particular area, this whole area of information and communications technology, because we know that today in Alberta there are 2,000 vacant jobs in this area. I know today that at Nortel they've advertised for 30 new computer or electrical engineers, and they're not getting responses to their ads because there simply aren't enough people. That is holding up the development of our industry in Alberta in this whole area.

Information and communications technology is one of the fastest growing areas in the world. Annually it grows across the world at about 9 percent a year. Right now in Alberta it's growing at 12 percent a year. So the question is: what can we do as a government to increase that growth to between 12 and 15 percent or maybe even a little higher? Well, that first issue was education, to create an educational environment so we can train and educate the right types of people so they will be available to take these jobs once they are created. That's easy to do and that's easy to say, but the hard part, you see, is that you can create 1,500 or 3,000 new positions at universities, but who's going to teach them? That means you have to attract professors in this very highly competitive area. So what we intend to do is create what we're going to call- I'm not sure of the official name, but it will be an information and communications technology centre of excellence between the two universities for sure, and probably Lethbridge will be part of this as well.

We intend to do that through investments of some of these dollars. I expect that this centre of excellence will need somewhere between \$15 million and \$20 million a year if we're going to create something on the world map so that we can attract the type of researchers we need here. Of course as part of their role, as the Member for Lethbridge-East knows as a professor, not only do you do research, but you do some teaching as well. The only way we can attract the people to teach these positions is to create some opportunity to support their research.

We're just in the process of getting some proposals in from the universities. We don't actually have them yet, but we're looking at perhaps a commitment of \$3 million to \$5 million a year from the science and research strategic initiative fund, and the rest of those dollars will come from the private sector. I believe we can have a major hit from Nortel. Nortel has already committed, for instance in the project we have at SAIT that we funded from my department called the Global Communications Centre. We funded from my department 3 and a half million dollars this year, Nortel is putting in over \$4 million, and SAIT is putting in another pot of money. This is the first building block of a \$100 million communications network at SAIT. That's what I believe can happen here. If the government steps up to the plate, I believe the private sector will step up to the plate as well.

I think a good example of that is the investment that we have, based on our fund, this year. In the latest figures we have, we invested \$14.8 million, and we had a \$75 million total expenditure. So the private sector will step up. That's one of the things we intend to do; we'll create that ICT centre of excellence in the province, and we're going to get the rest of the money from the private sector. In fact, I'm flying down to meet with the president of Nortel, with the two university presidents- I'm not sure of the exact date- sometime

in late April or early May, flying in to see John Roth and saying: "The government has stepped up to the plate, Mr. Roth. What are you prepared to do?" I believe we'll get a substantial contribution. So that's how we're going to spend some of the extra \$15 million.

We also intend to do something fairly major in the area of climate change. I mean, that's a very important issue for Alberta. We have a climate change committee that's looking at where we're going to do this and how we're going to do it.

We're also going to spend some money in the area of biotechnology. Biotechnology can be a huge growth area for Alberta, so we intend to spend some money there. For example, we have agreed to partially fund the biotechnology association so that there's a one-window opportunity so when the major drug companies come- and I met with 10 major drug companies this month in Montreal. One of the things they asked was: what kind of biotechnology companies do you have in Alberta, and where can we find out about them? We've already started the process of creating a one-window opportunity so that when they ask, we can say: here's the biotechnology association; talk to them; they'll be able to tell you. Tony Noujaim, whom you might know, has agreed to voluntarily chair that biotechnology association for at least a year to three years while he gets this up and going.

So those are just some of the examples, answering your first question, of how the additional money is to be spent. Now, I could go on a little further and perhaps I will later, but I'll go on from there.

You made some comment about uncertainty of both where we were going with the research fund and uncertainty of understanding the guidelines. Well, let me first of all comment that this year perhaps there was some uncertainty- '97-98 or '98-99 I'm talking about- because the \$10 million was only a onetime issue, but now we have the commitment of, as I say, almost \$95 million over three years. It's a rolling business plan, so I expect that commitment will continue on into the future. So there is, I think, a good deal of certainty for the future in terms of the amount of money that will be available, and I'm even hoping that perhaps that pot might grow.

9:12

MR. WICKMAN: Don't forget the lottery dollars.

DR. TAYLOR: Don't worry; I'll talk about lottery dollars. You're much more expert, hon. member, than I am on lotteries and so on, but I'll talk about them in a bit.

The understanding of the guidelines. We've encouraged, as we work through this, that we do not want to be seen as a granting agency. We want to be seen as a strategic partner. In the past year we've had to work with some people to get them to understand that we're not simply a granting agency. We're a strategic partner that is working and directing for the good of all of Alberta. So some of the mistakes and some of the misunderstandings you may have heard about or that people may have thought they had was because they simply saw us as a granting agency.

We try to work with all the people who are handing in applications so that they can see us as a partner, and we in fact met with the vice-president of research from the U of C today talking about this direction. So I think as we work through this, the people who typically apply to us from universities will be able to see us as partners, as strategic, and I think the misunderstandings that you talk about will simply disappear over the next several years. There will still be some. There are always going to be people who are annoyed when they don't get their project funded, and they'd say: we didn't understand the guidelines; we didn't understand that. It's simply a fact of life.

As I indicated, we don't have enough money to fund everything, so we're looking for things that are high quality, things that are peer reviewed. That's a very important issue, things that are peer reviewed. In many cases- for instance, if they're applying to us, they're also applying to the Canada Foundation for Innovation or the NRC or NSERC or any one of these other agencies as well or national institutes of health in the U.S. So there is a very good peer review process out there.

As I said, we wish to be strategic in the direction that we're taking in the province. The whole province is less than 3 million people. Greater Toronto, I'm told, has over 4 million people, and we can't be everything to everybody. We've got to focus on what we do in Alberta, and we've got to do it well. We've got to be the best in the world. Quite frankly, if projects do not fit into the strategic direction that we're going, we will not be partners, and we need to be very, very clear on that.

In regards to hiring positions and withdrawing positions, no. We did advertise one position, as an assistant to Barbara Nyland, who's our life sciences research officer. We were not totally satisfied with the candidates or the résumés that were received, and we are going to readvertise. So that position is still there. We will readvertise it. The only other position that we've advertised for is a director of communications, and we will hire a director of communications. That position has been advertised, and we do need a director of communications. So those are the only two positions that have been advertised, and the one that probably you were referring to was the assistant to our life sciences research officer. We needed different types of candidates, so we're going to readvertise that position.

There was also the question of this new position in ICT, the senior person who was appointed. Dan Bader, as I assume you were referring to, is a deputy minister. You referred to him as an ADM. He actually right now reports to two ministers. He reports to the Ministry of Health, and he reports to the Ministry of Public Works, Supply and Services. He does that because the position that he's looking at is to a large extent dealing with telehealth, and obviously that's the Ministry of Health. We have a network inside the government called AGNPAC, which is a network of 73 high-speed switches across the province, and then they are connected with hard fibre that we lease from AGT. We own the switches. We lease the connections between the switches from AGT, and that is controlled inside Public Works. So that's why he reports to Public Works and the Ministry of Health. That's who he reports to and who he responds to.

You asked some questions about commercialization. There are a number of issues in commercialization. I think ARC particularly deals with commercialization and is working to try to bring in more investment partners, trying to get more people at the table. One thing once again that we have to recognize is that in Alberta we have a number of organizations doing commercialization. We have UTI in Calgary. We have the ILO or the combination of ILO and whatever they're calling themselves now at the U of A. We have Olds College, for instance, that does commercialization. We have ARC, that does commercialization. We have some private groups that do some commercialization. Unfortunately, those people don't talk to each other very much. So one of the things we're working on and dealing with as we speak is trying to bring all the different groups together that do this. Let's, you know, at least visit with each other and know what each other is doing, so it becomes more apparent and we can avoid some overlap.

MR. WICKMAN: Do you have some time for lotteries?

DR. TAYLOR: Oh, how much time do I have left?

THE DEPUTY CHAIRMAN: Three minutes.

DR. TAYLOR: Three minutes. I've still got a lot of answers to your questions, but let me just quickly jump over to Edmonton-Rutherford's questions on lotteries and generally his comments.

I would point out to him, as I tried to in my initial comments, member, that knowledge is our future. Science and research is our future. Our government commitment to science and research is indicated by a ministry of science and research. Quebec has a ministry of science and research. British Columbia has the same type of ministry. You need that commitment. It shows a strong commitment on behalf of the government. So I obviously would not like to see this ministry merged into any other ministry, because it will weaken the commitment and certainly lose the public visibility that we have in this area. I can tell you that the major companies, the many drug companies that I've visited, the Nortels are extremely impressed that we have a ministry like this.

Let me comment briefly on lottery dollars. This quite frankly is the Treasurer's area to comment on, but I'm going to make a comment on that that the Treasurer may or may not agree with. You know, we had lottery dollars going into the GRF, but those people opposite, particularly that one person opposite, raised such a hue and cry about the fact that they didn't know where lottery dollars were going. They're going into GRF. He raised such a hue and cry: "Well, where are those lottery dollars going? We want to know." Then as soon as we identify where they're going, then the same member raises the hue and cry: oh, they shouldn't be going there. Well, how can you win, Madam Chairman? You know, it's impossible to win. So I would encourage this member to look at his past arguments and be consistent in his arguments in terms of what's happening with lottery dollars. I mean, we know Liberals tend to be a little wishy-washy on a lot of issues, but at least be consistent, member, in your arguments when it comes to lottery dollars.

I would ask the minister in charge of lotteries to respond, but I don't suppose that's appropriate.

THE DEPUTY CHAIRMAN: No.

DR. TAYLOR: Perhaps not appropriate.

MR. WICKMAN: We'll spend time.

DR. TAYLOR: As the hon. member pointed out, he will have other opportunities to get really good answers from either the Treasurer or the minister that's in charge of lotteries and gaming. I would encourage him to ask her those questions, because I can assure you that she will certainly respond to those questions.

There was a comment from the hon. member as well, a question about Internet access. We have in Alberta the highest percentage of homes connected to the Internet of any other province. I believe that figure is 17 percent. Oh, 27 percent. Thanks to my expert advice from up top. Twenty-seven percent of the homes in Alberta are connected to the Internet, the highest of any province in Canada. The other thing I would point out is that over 53 percent of homes have personal computers, the highest of any province in Canada as well.

THE DEPUTY CHAIRMAN: Lethbridge-East, please.

9:22

DR. NICOL: Thank you, Madam Chairman. Mr. Minister, I'd like to start with a couple of comments, first of all looking at your overall budget, and then I have some other questions that I'd like to deal with out of your business plan.

As we look through the growth in the budget of science, research, and information technology, it's been quite impressive. You've been constantly taking in new research initiatives. You're now also working with the oil sands research. How are you dealing with some of the other ones that are in there as well like the Agricultural Research Institute under the ministry of agriculture and the medical research institute? Are these the next targets? Is that how we see it?

More specifically, Mr. Minister, I would like to ask a couple of questions about the budget. You break down your total expenditure into about \$62,546,000 that is voted out of GRF, and then you have another \$29,588,000 that is statutory research operation. It's very interesting. On page 369 of the consolidated, fat budget book, you talk about the statutory program. I'd like to quote. It says: "appropriation not voted by the Legislative Assembly pursuant to the Alberta Science, Research and Technology Authority Act (unproclaimed)."

How is it that an unproclaimed act can actually be used to justify and allocate and put in place expenditure dollars when in so many other cases we find ourselves with unproclaimed acts being stipulated that are not yet in effect because they are unproclaimed, and the focus of that act is not able to be used until the act is actually proclaimed? Are you telling us that you are actually spending \$27,068,000 on research operations and \$2,520,000 on capital investment for research operations illegally? When it's an unproclaimed act that you're operating under, a person begins to wonder what authority you're actually working with. It's kind of the footnote on page 369, right at the top under the Statutory Program designation. There's essentially a footnote under the definition of that program.

A lot of the other specific items in terms of the dollar allocations for research and that have been discussed or been talked about or alluded to. What I'd like to do is spend a little time, Mr. Minister, if I might, talking about your business plan. First of all, I want to thank you very much for the number of occasions on which you have invited me to your office when you were discussing options and keeping us informed. I've been very fortunate to have our critic allow me to sit in on a lot of those meetings, because as you are aware, this is an area of interest to me.

I was very pleased at your comments a few minutes ago, when you talked about the partnering aspect of your initiatives. Yet when you read the mission statement, there's nothing about partnering. Wouldn't it be important to stipulate that? This might be how we could clear up some of the questions that come about, with people thinking of you as a granting agency. Could you put it explicitly into your mission statement that you are going to do this, undertake this enhancement of "the contribution of science, research, and information technology to the sustainable prosperity and quality of life of all Albertans" through the process of partnering or something like that?

You know, this makes it very plain that you're not out just to give away money. You want to be supporting and helping to develop science and research technology in the areas where business, the academia, and other research institutions are willing to cofund and cosponsor, partner with you. That big "partner" word; right? It's so important that I think it should be profiled, part of that, in the mission statement.

As I start, objective 1 deals with the development of "world-class science and research infrastructure and human capital capacity." I'd like the minister to kind of outline a little bit for us, because we didn't get it when we talked with Advanced Education: what is the relationship between you and Advanced Education in developing this human capital capacity? So much of our human capital capacity development comes through our academic institutions, our universities, especially at the level you're talking about here, where we need

to have people at the frontier of the science and technology research knowledge expansion. That comes through our graduate programs at the universities, not necessarily the undergraduate programs or the colleges. It's the graduate programs at the universities.

I was listening with great interest to your explanation of some of the processes you have in place to expand the qualified students, personnel in response to the Member for Edmonton-Glenora. This is a good program, but it's under Advanced Ed. A little explanation of the working relationship that's there in terms of how much suggestion you can have. I was very excited about your comments about the as-yet-unnamed but possibly to be called the centre of excellence in communications technology. This is going to be a real innovative idea and something that will bring us both the exposure and the- what do you want to call it?- critical mass that's necessary to get that developed.

Under objective 1, down at the description part of it you say it "enhances the competitiveness of Alberta's agriculture, energy, forestry and emerging information and biotechnology industries." When you're talking about that competitiveness, what performance indicators are you going to be using? When I look through your business plan, the performance indicators are more just a matter of the relationship of matching dollars, the whole partnership idea that we were just talking about. But we don't have any measure there that very clearly defines how you're going to talk about how our competitiveness is enhanced. Is it going to be done by cost of production studies in different sectors? I hope it's not going to be done by just measuring our export expansion, because so much of that is contingent upon factors that are not necessarily science and technology.

DR. TAYLOR: Dollars.

DR. NICOL: Right. I didn't want to say it, but thank you for saying it, Mr. Minister.

This is something that we need to look at. Might I suggest something to the effect of our relationship to other provinces; you know, the growth in the number of industries, the settlement by a number of industries. Go back to the concept of the Alberta advantage. Are we attracting more industries that are building off our science and research technology investment, that kind of thing, than other provinces in Canada or other states, other countries so we can see the kind of response and reward we're getting back from the public-sector investment?

If I might, then, move to page 300, under strategy 1.2 you talk about investing in "strategic science and research initiatives." One of the recommendations is to "maintain and enhance research infrastructure and initiatives including both theoretical and applied research." Do you have any perspective on what mix you'd like to see there? The applied research leads much more to the commercialization in a short-run context, where the theoretical leads to the concept building and the credential building of our advanced education graduate programs, the postdoctorate, the facilitated research at our academic institutions. What kind of mix do you see there as being appropriate for a good balance in the expansion of this area of Alberta's initiatives in the science, research, and technology area? We have to make sure that we do have a certain core level, core component, of the theoretical to provide the seed for our applied research, the new ideas for our applied research. I guess another thing is: how much of that theoretical research do you see going on within the academic institutions and how much of it in terms of a proportion within, if you want to call it that, the commercial research institutions, which are not associated with the academic component?

9:32

You are probably aware that I'm a strong supporter of the idea of that theoretical research going on within the context and associated with academic institutions because it facilitates the learning and the inquisitiveness even at the undergraduate level, when we can have undergraduates exposed to the excitement of a professor who is using examples of his frontier-type theoretical research. So I would just like to see what your initiatives are, what your objectives are there, and also what kind of performance indicator you would be putting with that to measure its outcome and its effectiveness.

Moving to page 301 of that business plan, where you're talking about growing "a critical mass of world-class researchers." This is again back to what I was just talking about: the mix, where it's going to be situated, how you're going to get the funding for it. Is it going to be done in terms of partnering? That's the kind of thing we need to look at. It's a lot harder to deal with the conceptual research in those areas than it is in the applied engineering or the agriculture areas, where businesses see a much quicker and a much more immediate payback.

When you're talking about linking university researchers and businesses, what about federal or other research institute initiatives as well? This is point 2 there at the top of page 301. This is something we need to look at or need to develop some kind of performance indicator on.

The other thing that I want to just question a little bit. I don't know where it really fits in, but I happened to be sitting on that page when I jotted a note down with respect to something you said in your comments. That was when you were talking about the relationship you're dealing with in terms of generating funds through either licensing or equity positions in patents or whatever. How do you deal with those? How do you decide what the licence fee is? How open and competitive are you, dealing with establishing those licence fees? How do you go about deciding what share of a patent or a royalty that you get from a patent accrues back to the appropriate division of your ministry, whether it's ASRA, ARI, whatever the partnering agency might be?

The other thing I was just wanting to ask about a little bit under the Alberta Oil Sands Technology and Research Authority: do you see any change in its mandate now that it's under your ministry? Is it going to be focusing differently, or is it going to be allowed to continue to work under the initiatives and the direction and the board that it was previously? I think it was quite well respected by the oil sands business community, if I can be that broad in a definition. I just wondered if you were going to be changing its focus, moving it away from the support of the current business community in the oil sands, trying to look at some of the other options that are available through the oil sands development and exploration.

The next thing I'd like to discuss briefly is Core Business 3. Okay. There I've got down kind of the same notes I had just a minute ago in terms of how you were developing your returns on the investments in science and research through licensing and royalties. I guess I've already covered that.

If we look over at strategy 5.2 on page 305, you're talking there about promoting "a 'science culture' in Alberta." This is something that, you know, needs to be co-ordinated and worked with both in terms of your suggestions here about dealing with the public and private organizations and even the school system. I was wondering if you're doing anything in conjunction with Alberta Education. I notice there have been some very, very positive results coming out of some of the science-based schools that we're getting now under our public school system, where the schools are trying to promote themselves as a centre of excellence in science learning for the

public school system. This is basically the junior and senior high schools. So I was wondering if you have any mechanism or any options there for feedback, you know, making sure they're aware of what you're doing, helping Alberta Education develop their curriculum. This is something that needs to be done.

The next one: "R&D investment by all sectors of the Alberta economy." I think we need to have some really good measures of performance with respect to your particular dollar investment outcomes, because so much of what we see in the R and D investment in the commercialization area is done by initiative through the private sector, and a lot of it would go on whether we had a ministry or not. How much are you increasing? Are you shortening the time between the innovation cycle and the adoption cycle in, you know, commercialization processes? Is that working? Just some indication of how you plan on measuring the performance and the effectiveness of the dollars you're putting in there.

I was glad to hear the minister talk about the importance of the biotechnology sector. This is something that as you expand, it provides a lot of options for Alberta businesses. This again brings up the relationship between your efforts and the efforts that are going on within Alberta Agriculture under the Agricultural Research Institute, how they're co-ordinating and overlapping because so much of the base experimental and theoretical research especially is applicable in either area.

When we were talking earlier this evening about tonight's budget debates, the Member for Spruce Grove-Sturgeon-St. Albert wanted to know if within your biotechnology and your medical aspects you were dealing with anything in the context of cryogenics relative to tissue transplant, tissue preservation, you know, the use of that in the context of prolonging the transferability and that of transplant organs. So that's something else.

At the bottom of page 305 you also have: "Invest in education of knowledge workers to double the number of ICT graduates." This, I think, is working mostly through Alberta Advanced Ed. So if you're going to have this as one of your objectives and measures, again, how do you share that performance and that activity in the Alberta science and technology area with Alberta Advanced Ed? As I understand, Alberta Advanced Ed has just undertaken a really strong initiative to increase the number of spots in both the university and college areas in the information and communication technology focus.

The final couple of comments I want to make deal with your objectives of research: "Promote research excellence in Alberta's advanced education sector through consultation and cooperation." What we need are some real programs there that deal with the initiatives to recognize the centres of excellence, the programs that are really especially good in the province.

9:42

THE DEPUTY CHAIRMAN: Sorry, Lethbridge-East, but your time has expired.

DR. NICOL: Yes, Madam Chairman. With that, thank you very much. I just wanted to finish with a really good thought.

THE DEPUTY CHAIRMAN: Edmonton-Glenora.

MR. SAPERS: Thanks, and thanks to the minister. I'll make my supplementary questions very brief because we're unfortunately working to a deadline here. Mr. Minister, I take it that, as in the past, any questions you don't get to, we'll get it in writing.

I wanted to just pick up on the discussion of the Internet and the penetration rate, I guess, of home-based computing in Alberta. It is

high. I had heard slightly different figures, but we won't quibble about the figures. It is high, and we can be proud of that. One of the difficulties is that, as you know, there's a technology curve involved and then a learning curve for the new technology, and there's a gap between when you access a technology, when you get it, and when it's the most productive, and then by that time usually there's another generation of technology available. One of the things I have heard is that while Alberta has a high utilization rate of home computers, it's not very high when you begin to stream it out for the latest generation. The same can be said for the Internet. While there's a high rate of Internet access in Alberta, there is still some difficulty in high-speed access, which is particularly important for e-commerce. An example of this. It was very good news that your department was involved in the Connecting Canadians Conference that was recently held in Grande Prairie. I wish I could have been there. Grande Prairie is a good example. There's a city that took the initiative in working with the private sector to get high-speed Internet access to the seat of government. As I understand, in Grande Prairie right now city hall is wired. Mayor Graydon may not like that statement being put that way, but city hall is wired. But it stops there more or less.

So the businesses, the research community- and there is some very exciting communications research based on global positioning technology that's going on right in Grande Prairie- the postsecondary education, organizations in the Peace country, they're desperate to get access to that high-speed line. As I understand it, what we're talking about here is maybe \$500,000 or \$600,000 that would allow the hardware, the switch, that you would need then to put the cable outside of city hall, and they can't get it.

I believe the expression you used was: when government steps up to the plate. Using the money strategically, I'm wondering whether or not with your colleague perhaps in Economic Development or other colleagues you've put together some plans you can share with us about how you're going to step up to the plate in this regard, making sure we don't just use the simple measure of how many computers there are in people's homes or how many homes have Internet access but take a more sophisticated measure of the level of the technology, how it's being utilized and how we can leverage government initiatives to make sure that people can stay at the top of that curve to the best ability possible.

I'm still waiting for a governmentwide co-ordinated Internet strategy, Mr. Minister, and I know that you are too. If there's anything I can do in that regard, you know, let me know. Maybe we'll just try to ask some embarrassing questions in question period or something. It's a job we have to get on with. I think there's a real need to do that.

At the same time that you're developing that policy, I hope you will be keeping in mind some issues to do with computer literacy and also privacy concerns. When it comes to computer literacy, privacy protection, and the access in education issues we were talking about before, perhaps, Mr. Minister, you could consider constructing some performance measures that would give us a picture of how we're doing in this province in those areas. I think those kinds of performance measures would be very helpful.

Anyway, that about takes up my five minutes. Thanks. I do have more questions for you, so if we can go, like, until midnight, that would be okay with me.

DR. TAYLOR: It actually would be okay with me, because I'm really excited about what we're doing. I think both you gentleman have asked some excellent questions, and I don't have time to answer them all. I'm just going to pick back and forth on some highlights between the last sets of questions I've got.

Lethbridge-East, you pointed out a particular area that I'm interested in, and that's promoting the science culture. I recognize that we need to start doing that in elementary school. We have a number of organizations that are trying to do it in the province right now: the Alberta Science Foundation, science and technology hot lines, the science centres. Out of my department we fund two of those. We fund the science and technology hot lines and the Science Alberta Foundation. [interjection] And this minister does as well.

But you know what? They weren't even talking to each other. I mean, it's just incredible the silos that people build. So we sat them down this year just within the last month, because they both want almost half a million bucks total out of our science fund, and we said: if you want money, then we want to see a joint initiative from both groups. And we're going to get that. In fact, I believe they've worked on that, and we already have some kind of joint initiative.

What we want to do as part of my budget- and I'm not sure what the percentage of that budget will be- is create a certain percentage of that budget every year that will go into science promotion. Hopefully it hasn't been advertised yet, but it's my goal to hire a science promotion person inside . . . [interjection] Well, certainly we would consider you if you would like to apply for the job, because then we could have a by-election. But we would very much like to have you. We want to hire somebody that can pull all these different organizations together and get them working and speaking with one mind and one program.

I'll tell you where a particular area of weakness is. When I go out and speak to these many groups that I've spoken to, about 10 to 15 percent of the population is female. We are missing out on a huge talent pool, you know, because 10 to 15 percent of the population working in science and technology is female. I have four daughters and, as I indicated earlier, have been married for 35 years, and I've learned over that period of time through some hard lessons that women are a lot smarter than men. So what we've got is this smart talent pool out there that is not being utilized or is not taking up careers in science and technology. Apparently we lose these young females in particular between grade 7 and grade 9, because when they go into grades 10, 11, and 12, they're not taking physics 10, 20, 30 and math 10, 20, 30 and so on, the things they need to carry on at university. If they do take those, then they fall away and don't go into university in these areas. I have four daughters. Three of them have BSc's; my kids have been a little different.

So this is a huge area that we want to develop. It's an area that I recognize, I would say, as a weakness right now. We're not doing a good enough job, but we do recognize it as a weakness, and we will continue to do that.

You asked that about two-thirds of the way through your questions, but because of the time frame I wanted to make sure I responded. I'm really excited about that. [interjection] I'm very excited actually.

Just this past week in one of the schools in Medicine Hat, Ross Glen elementary school, we partnered a science awareness program with Nortel. Nortel kicked in 250 grand. We kicked in 75 grand. Science Alberta Foundation wrote the teachers' guide for the material, and we piloted in 28 schools across Alberta this year. We hope we will be able to put that kit in most schools in Alberta. It's extremely successful. The kids are excited about it. It deals only with one small area, and that is communications technology, but the kids are excited about it. The teachers are excited. It's a kit that can be used from grade 4 to grade 9 in sequence. That's one example of what's happening as we speak. We need to do much more of that. As I say, it's a pretty exciting area. I'll leave that.

9:52

I'll just comment on some of the other issues briefly. The

Minister of Agriculture and I are certainly having discussions to make sure that AARI continues to be an effective organization and a strategic organization.

You identified \$29 million, I believe, of ARC. That's the money they get in external dollars, external contracts. In terms of licensing agreements and so on, I would have to ask people from ARC how they sign agreements, what percentages they get, and what they do in terms of licences, whether they take cash, shares, or options of buying shares. I would have to ask ARC to respond to that.

I can tell you that in at least one case that I'm familiar with, they took some options. The company was spun off. Obviously many of these young companies don't have any cash so ARC's very flexible in what it does. With this one company- it's a biotech company- they took several hundreds of thousands of share options in this biotech company, a dollar a share. I know they sold some of those shares when the shares were up at the \$9 or \$10 mark. That's the type of thing they can do. It made it good for the new company, because, as I say, the company had no money to pay ARC. ARC is very creative in the ways they do business. ARC will respond to that.

Comments on the mission statement. I think it's an excellent idea, adding in some way through partnerships. My staff up there is making a note of that, and I think next year you'll see that we will include that as part of our mission statement, because that's exactly what we do. The only way we can really grow this area is if we have partnerships between education, universities largely, and the private sector. If we can have those three partnerships working, you're going to see- and I perhaps should have given you a copy of this chart. I gave it to Edmonton-Glenora. This is the most recent one; I just got it today. It's up to date to the end of the year. It's slightly different than the one you got because we approved some projects since I passed you that chart.

ASRA invested \$14,811,500. Their total investment in research was over \$79 million. Government stepped up to the plate with almost \$15 million, and the total investment in research was over \$79 million. That's a ratio of 4.35 to 1. So for every \$1 that the government invested, there were 4.35 other dollars that came in through the projects.

That is not to say that we caused those projects to happen. I'm not saying that. I want to be very clear about that. What I am saying, though, is that many of these projects would not have occurred without the ASRA money.

Let me give you one example. It's the NMR 800 at the University of Alberta. The University of Alberta was about \$2 million short in that project. Brian Sykes and his whole department were being recruited to go to the U.S. They came to us and said: help us. The project was well under way. We didn't cause the project to happen by our investment of just over \$2 million, but without it the project would not have happened. Brian Sykes would be gone to the U.S.

To show you how important that is, one of the issues I dealt with when I was with the drug companies- there are only two NMR 800s in the whole country. One's in Quebec, and one will be in Alberta. They're just building it right now. Drug companies use this to speed up drug development. Don't ask me the science and technology of it. That's what they do. The private sector cannot get at the one in Quebec very easily. So when we did this deal with the university, we allotted a certain percentage of time that was going to be open on this machine for the private sector.

I just happened to mention to a drug company in passing that we were doing this and that there was going to be some time available on it for the private sector. That was on Tuesday. I can't remember what week. It was at the end of February. I mentioned that and mentioned Brian Sykes' name as the researcher. I got back into

Edmonton late Wednesday night. By Thursday one of the largest major drug companies in the world had contacted Brian Sykes already and was flying him down and sending their researchers out to develop some kind of research proposal and be able to work with him. So that's why I say that you can facilitate these by the government stepping up to the plate.

I won't go over all of these, but many of these in fact would not have happened without the research dollars that we've put in.

A quick comment on AOSTRA. Yes, as we move through AOSTRA being internalized into what we do, we can see a much broader mandate. There is no longer an Energy Research Council, so I don't know if we'll have to change the act or exactly what we will have to do. If we have to change the act, we'll change the act.

We see it as a whole area of energy research. It may be wind energy. It may be traditional oil. It may be natural gas research. It may be oil sands research. As this flows through, we will broaden the mandate of AOSTRA. Obviously it won't be called AOSTRA anymore; it will have to change names and so on. As I say, we are just in the very process of absorbing that entity. The group is working on it, and I mentioned some of the names earlier.

MR. PHAM: Question.

DR. TAYLOR: I think I've still got two minutes.

So we will do that.

MR. SAPERS: You can take all the time you want if you get unanimous consent.

DR. TAYLOR: I won't get unanimous consent from my own colleagues.

MR. WICKMAN: You never did answer my question.

DR. TAYLOR: Well, the hon. member wants to talk about lotteries again. I would encourage him to talk to the minister in charge of lotteries.

Edmonton-Glenora raised a really important issue in terms of keeping up with this technology and how we keep up in Alberta. I met with the vice-president of Microsoft. Right now a computer chip's life span is 18 months, so you essentially have new computers every 18 months. He told me that within three to five years that's

going to be down to 12 months. How do educational institutions and businesses keep up with that rapid change? You just can't throw out all the computers you've got. So it raises a very interesting question that quite frankly nobody, including me, has an easy answer for.

I'm not sure how that will happen. I think we can make it happen through what you talked about earlier. I'm talking about some high-speed connectors and using Grande Prairie as an example. I'm just starting to vision on this right now. In fact, I just met with some people to talk about some of my ideas. In Alberta we've got, as I mentioned, the 73 high-speed switches. We've got them connected with hard line leased from AGT, and they are being used anywhere up to 20 percent capacity. So we've got an 80 percent capacity that's not being utilized right there.

As well, we have all kinds of fibre all through this province. Everywhere there's a pipeline, there's fibre. Everywhere there's a utility, there's fibre. I believe there's a real opportunity there to do some kind of private-sector/public partnership with all that private fibre. We've got the high-speed switches, and all that private fibre is running through rural Alberta where we need the connectors.

As I say, I'm just starting to think about this, just starting to vision this, and just starting to talk about this, but I have a vision where we have some kind of private/public partnership where the high-speed fibre in the private sector is hooked up into our connectors. If we can do that over a period of the next two to three years, we will be a unique place in North America. We will be the most wired province, more than any other state, more than any other province. I'm getting wired just talking about this, because it's really exciting. That's one area we need to go to. So that's one of my visions, as I say, and it's just starting to rumble around in here. We'll deal with it.

I can see people gesturing and I hear them talking to me, so I'll say goodnight and move that the committee rise and report.

THE DEPUTY CHAIRMAN: We have a motion to rise and report. All those in agreement?

HON. MEMBERS: Agreed.

THE DEPUTY CHAIRMAN: Opposed? The motion is carried.

[The subcommittee adjourned at 10:01 p.m.]