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Official Report of Debates (Hansard)

Monday 27 August 2001

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alternative fuel sources**

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Chair: Doug Galt
Clerk: Tonia Grannum

Président : Doug Galt
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LEGISLATIVE ASSEMBLY OF ONTARIO

**SELECT COMMITTEE ON
ALTERNATIVE FUEL SOURCES**

Monday 27 August 2001

ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

**COMITÉ SPÉCIAL DES SOURCES
DE CARBURANTS DE REMPLACEMENT**

Lundi 27 août 2001

The committee met at 0937 in the Superior Room, Macdonald Block.

COMMITTEE BUSINESS

The Chair (Mr Doug Galt): We'll call our second meeting—we've already had an organizational meeting—on the select committee on alternative fuel sources. Welcome to the first day of hearings, and particularly welcome to the Honourable Brad Clark for joining us and coming out to present. Welcome to the committee. Most of the committee is now present.

The first order of business that we have is to receive and adopt the report of the subcommittee. Would somebody like to so move?

Mr Steve Gilchrist (Scarborough East): I move the adoption of the subcommittee report on committee business from the meetings on Thursday, August 2, and Thursday, August 16.

The Chair: That includes the budget?

Mr Gilchrist: Including the budget.

The Chair: I trust this has been circulated and everybody is familiar with the subcommittee report?

Mr John Hastings (Etobicoke North): I have a question. Under what item is provision made for a Web site and Web site development? Under advertising? That was one of the specific things that we discussed back in early July, mid-July.

The Chair: We could add an item, item 7.

Mr Hastings: I would amend the report.

The Chair: Would you like to have a friendly amendment to that?

Mr Hastings: I would amend the report of the subcommittee to investigate essential expenditures for the development of a Web site for the select committee on alternative fuel sources.

The Chair: Mr Hastings, we have been looking into it even though it's not here, just for your information. But certainly it can be added to the motion, or would you prefer a separate amendment?

Mr Hastings: As long as we see it in there; I think it's important.

The Chair: Mr Gilchrist, it would be a friendly amendment just added to the motion.

Mr Gilchrist: Given that we've already discussed costs as well at the previous discussion, I'm happy to consider that friendly amendment.

The Chair: Further discussion? Those in favour of the subcommittee's report with that added item? Those opposed? Motion carried.

I'd now entertain a budget motion for the select committee.

Mr Gilchrist: Mr Chair, I move that a budget of \$382,200 for the select committee on alternative fuel sources be approved and that the Chair be authorized to present it to the Board of Internal Economy.

The Chair: Discussion?

Mr Hastings: Does that include the Web site in the \$382,000?

The Chair: This specific amount would not necessarily include the Web site; it would be in addition. I'm told we have enough to do the standard Web site, but if we go ahead with town hall meetings and video streaming, extra dollars will be required. This is something that's under discussion currently. But the present budget would cover a standard Web site. Further discussion? Those in favour? Those opposed? I declare that motion carried.

We have an opportunity, as I understand, at 10:30 this morning to take an adjournment for a coffee break and meet with some owners and representatives of cars with alternative fuel usages over in front of the Legislature. Is it the wish of this committee that the committee so adjourn for 20 minutes, maybe 30 minutes, at 10:30? Maybe we could have a motion to that effect?

Mrs Marie Bountrogianni (Hamilton Mountain): I move that we adjourn at 10:30.

The Chair: Thank you very much. Discussion?

Mr Gilchrist: Mr Chair, I think we should recess, as opposed to adjourn.

The Chair: Let's get the right terminology. Adjourn forever; that's not the intent. That we recess for approximately 30 minutes.

Mrs Bountrogianni: Yes.

The Chair: Thank you. Further discussion? Those in favour? Those opposed? The motion is carried.

The other item that maybe should be covered at this point in time is the order of presentations by ministries. You have one suggestion before you circulated by the clerk. I've been handed another, alternate suggestion in a slightly different order that would start with Minister Clark, move to energy—I'll just shorten these—then to environment, to transportation, to natural resources, to agriculture, to health and, finally, to finance. Does

anyone have any preference one way or the other? Maybe we could have a motion to adopt the agenda one way or the other.

Mr John O'Toole (Durham): I move that we modify the agenda to suit the presenters.

The Chair: The one that's circulated?

Mr O'Toole: Yes.

The Chair: Or the alternate one, the one I read?

Mr O'Toole: The alternate one.

The Chair: Thank you, and then continue the next few days the same way, as listed on the second through the last page. Further discussion? Those in favour? Those opposed? I declare the motion carried.

MINISTRY OF TRANSPORTATION

The Chair: We then move to presentations. The Honourable Brad Clark, Minister of Transportation, would you like to lead off, along with your staff?

Hon Brad Clark (Minister of Transportation): Thank you, Chair. Good morning everyone. I'm pleased to be here today at this meeting of the select committee on alternative fuel sources. As most of you may know, in my past life I was a bit of an environmental activist in my community. I continue to feel strongly about issues such as those being discussed here this morning and wanted to demonstrate my support for your efforts by addressing you in person.

We all want cleaner air; we're all concerned about climate change. Your investigation into alternative fuels for home heating, electricity generation, transportation and industrial and commercial use is extremely important.

I know you'll be hearing from several ministries today, including the ministries of energy, science and technology and environment. Staff from my ministry will also be making a presentation later focusing on alternative transportation fuels as requested by the committee.

I'd like to take a moment to speak in broader terms about the importance of Ontario's transportation system and MTO's efforts to make this system more efficient and cleaner. More than nine million vehicles are registered in Ontario. About 94% of all Ontarians use the province's highway system regularly. Just about everything that we buy, sell and make—\$1.2 trillion worth of goods—is transported on provincial highways every year. As you can see, we're extremely dependent on vehicles and on our highways. This dependence has presented us with a major challenge: how to deal with the critical issues of air pollution and climate change. This is not new territory for the Ministry of Transportation. The ministry has made progress over the years through policies and programs that helped address pollution by managing congestion and improving the efficiency of our transportation system.

Ontario has long promoted alternative fuels. Alternative fuels are largely exempt from provincial retail sales tax, and purchasers of alternative fuel powered automobiles and light trucks have enjoyed a sales tax rebate

of up to \$1,000. In addition, about 13,000 natural gas powered vehicles are now in use in Ontario, mainly transit buses and light trucks.

The MTO has also been involved in research exploring the use of alternative fuels such as propane. About 45,000 propane vehicles are now being used in the province of Ontario.

The ministry helped develop the province's Drive Clean program, and we've teamed up with the MOE to conduct emission tests on heavy vehicles during some of our safety blitzes. We're constantly searching for new and better ways to apply the latest technology, intelligent transportation systems to maximize the efficiency of our highway network.

Future transportation planning will be extremely important. The made-in-Ontario Smart Growth strategy will help provide transportation alternatives to maintain a strong economy and a healthy environment.

As you can see, the Ministry of Transportation is working on many fronts toward cleaner air. However, Ontario's actions would be much more effective if the federal government showed some leadership in this area. Ottawa has jurisdiction over fuel additives and vehicle standards. The Globe and Mail reported last week that the federal government is considering reductions in sulphur levels in gasoline and diesel. This is something Ontario has been demanding for some time. If this report is accurate, we will be taking a huge step forward.

In my view, a combination of three approaches is needed: reduce vehicle emissions by improving energy efficiency or fuel consumption, maximize the efficiency of our transportation system and influence the demand for transportation.

Let me close by expressing my appreciation for being able to be here this morning. I encourage the members of this committee to be diligent, perhaps even relentless, in your work. The benefits will be long-lasting for all Ontarians.

The Chair: Thank you very much for coming forward and expressing your interest and concern, relating back to your previous activities with the environment.

Just a brief comment to the staff who are here this morning. You received a request from the committee to come and stay for the day. The concern the committee had was that we often hear a report or presentation, and when a question is asked: "Well, that's in another ministry." The intent is not necessarily to embarrass anyone but rather to appreciate and understand what happens between the so-called silos. Regardless of how hard we work, those silos seem to remain there. I want to stress that we want to help bridge that for ourselves as well as for you. We appreciate your being here and in particular for being here for the full day. It's going to be very, very helpful for the committee and hopefully helpful to yourselves as you look at this.

0950

MINISTRY OF ENERGY, SCIENCE AND
TECHNOLOGY

The Chair: The first ministry to make a presentation is the Ministry of Energy, Science and Technology. For the record, please state your name and those of anyone who is presenting so they're properly recorded in Hansard.

Mr Rick Jennings: I'm Rick Jennings, director of the energy policy branch. With me is Perry Cecchini, manager, energy efficiency and renewables. We also have, from the science and technology division, Tony Vander Voet, acting director, research technology and innovation branch, and Nick Marketos, manager, science and technology awareness and innovation.

We have a hard copy of a presentation that we're planning to go through. It's a bit long, so I don't know if we'll devote much time to all the slides. To go over what we're covering, we're going to cover the Ontario power situation; the alternative electricity generation fuels; current programs; future activity that's underway now; alternative transportation fuels, which will also be covered by some of the other ministries—transportation and OMAFRA; and then the science and technology programs and how those fit in with the alternative fuels.

Briefly, to start off in the context of Ontario today, renewable energy is a significant source of hydroelectric power, about 10% of Ontario's energy use and 25% of electricity generation. In terms of the other fuels, the alternative renewable fuels, non-hydro ones today account for about 2.5% of Ontario's energy production. Most of that is wood, wood waste, spent pulp reused in the pulp and paper industry. In the residential sector about 6% is alternative renewable fuels, 10% industrial, and only about 1% of electricity generation comes from those sources.

Page 4 of our presentation gives an outline of the expected demand growth for electricity in Ontario over the next 10 years. This is under the Electricity Act, setting up the electricity market. The Independent Electricity Market Operator is charged with regularly presenting forecasts on the outlook for electricity demand. This sets out the peak demand in both summer and winter. Historically, Ontario has been a winter-peaking utility. This forecast assumes that, given the very hot summer we've had this year, we've actually achieved an all-time peak in the summer. The forecast itself is based on a normal weather pattern, and some of that peaking is because of the extremely hot weather we've had.

The base outlook of the Independent Electricity Market Operator is for electricity demand to grow 1.2% a year on average over the next 10 years. They have also developed a low case and a high case. The low case would be less than 1% and the high case 1.7% per annum. For comparison, over the last 15 years the average growth has been 1.6% per annum, so it's in line with recent historical experience.

Page 5 sets out the current generation capacity in the province. We have a total in use of about 28,000 megawatts. Of that, a significant amount of nuclear capacity is currently laid up, and some of that is expected to come back. At the Pickering A station, which has four 500-plus megawatt units, the first unit is returning to service in the spring of 2002, and additional units at six-month intervals. Bruce Power, which has leased the Bruce nuclear station, has announced plans to bring two of the units of Bruce A back into service.

To say what these are: a significant amount, about 17 megawatts, is non-utility generators that have been contracted. Initially these are signed, long-term power purchase agreements with Ontario Hydro. As part of the restructuring, those contracts are now managed by the Ontario Electricity Financial Corp. Those are mostly natural gas fired, but if you see the breakdown, some is hydro and some of it is small hydro, some of it is gas combined with other fuels such as wood waste or other biomass, and then there's a small amount that includes landfill gas and some other sources and municipal solid waste. The other component is some self-generation. Most of that is old industrial generation that has been around for many years, including ones that Inco, Abitibi and Dow Chemical have.

We have a breakdown of some of the hydroelectric, most of which of course is with Ontario Power Generation, which has all the generation assets of Ontario Hydro; some non-utility generation; some self-generation; some owned by other utilities, the biggest amount of which is Great Lakes Power.

In terms of the next couple of slides, 7, 8 and 9 talk about how the electricity system works and how the generation works. Basically, there's a need for baseload plants which operate, to the extent they can, all-out throughout the year. Nuclear and some of the large-scale hydroelectric run on that basis.

The other category we've shown here is peaking plants, which run to meet peaking loads. There is also—and sometimes they are combined or talked about together—intermediate-type plants, which will cycle to less of an extent. Most of the coal-fired plants previously operated in that capacity. With the reduced nuclear output, some of them have been operating more as baseload plants.

The next, slide 8, just illustrates why you'd have to have this plant, because the demand is variable throughout the day. So we have a slide illustrating on the typical winter day the pattern of demand use, which is obviously low in the early morning hours, starts to increase as people get up to get ready to go to work, there's sort of a peak around noon that kind of levels off, and there's another daily peak when people come home from work to cook their dinner and that type of thing.

So you can see the pattern you have. The nuclear, which is attempted to run all-out; the power purchase contracts and other purchases are running all-out; the hydroelectric, some of which is going to be baseload and some of which will cycle to meet the demand, similar to

coal; then at the top peaks, the highest-cost power, the oil and gas plants are operated, and that's principally the Lennox plant in Kingston. So the context for this is similar to the summer, which has a bit of a different peak pattern because it peaks as the day gets hotter in the middle of the day. So new generation has to fit into one of those modes to operate on the basis that will supply a variable demand.

Page 10: just some background to the system. In Ontario there are 3.5 million residential customers, and the average residential customer consumption is about 12,000 kilowatt hours a year. There are 100 large industrial customers. Those are ones that are over five megawatts at peak demand, and we've got them at an average of about 175 million kilowatt hours a year; 100,000 farms, and they have about twice the consumption of an average residential customer; and 440,000 commercial-industrial customers. Altogether there are about 4.1 million electricity customers in Ontario, and that's customers of the municipal utilities, Hydro One and some of the other utilities.

Next, Perry is going to go through some of the discussion about the alternative generation sources.

Mr Perry Cecchini: As Rick mentioned before, if you look at Ontario, if you include all of hydro, alternative renewable power equals somewhere around 25% to 28%, depending on the year of electricity usage in Ontario. If you try to segment hydro and look at it in the sense of small—not small, but what we call low-impact hydro, which are these smaller ones, no damming, low impact on the environment, similar to the way some of the environmental groups look at it, then you're looking at renewable energy use or alternative energy use being about 2% of Ontario's total energy mix. Most of that is small hydro.

You have in Ontario right now wind; installed generation capacity to the grid is 2.4 megawatts. There are essentially two Ontario Power Generation facilities, a 660-kilowatt facility in Tiverton near the Bruce plant, and there's a new one that just went up this week, probably the largest windmill in North America, a 1.8-megawatt facility. That will be opening up on Wednesday.

Other facilities: we have 88, probably, just under 100 megawatts, of biomass. That's biomass on its own. There are another over 500 megawatts of coal-fired biomass which operates with other fuels, and landfill gas, and again, between them we have here 64 megawatts.

1000

Walking through on page 12, that's essentially giving a description of what we call low-impact hydro and saying that we estimate there is probably around 400 megawatts of low-impact hydro operational in the province right now. Of this, 125 megawatts is owned by OPG and has been EcoLogo certified.

With regard to the potential, page 13, we've been talking to the Ontario Waterpower Association. They estimate that right now, looking out toward the next 10 years, with the proper conditions—and I think you'll have representatives from the Ontario Waterpower Asso-

ciation here on Wednesday and they can talk to you about what the proper conditions are—there's 2,000 megawatts of annual generation available for development in the province. This is all water, not just what we call small- or low-impact water. They're talking about 200 to 300 megawatts of new development, 700 to 1,300 of redevelopment and 200 megawatts to 400 megawatts of upgrades.

The estimates that we're providing generally exclude small facilities that are isolated from existing transmission or distribution networks, so these are estimates that are essentially those that can be developed. So isolated types aren't in their estimates.

With regard to wind, as we mentioned before, there is 2.4 megawatts of installed generation capacity in the province. There are some facilities in planning right now. Toronto Hydro and the Toronto Renewable Energy Cooperative are planning two to three 750-kilowatt turbines on the Toronto waterfront, and Huron Wind, a partnership between British Energy and OPG, are planning a 10-megawatt farm in Kincardine.

There is also some other activity going on with regard to other potential generators who are in the process of investigating sites, generally in the Lake Huron area; also in eastern Ontario in Frontenac and Prince Edward counties.

With regard to wind, I guess the estimates that have come out—what we've provided on page 16 is a demonstration that wind is gradually becoming more and more cost-competitive, to the point now that in higher-cost jurisdictions, such as those in Europe and some states in the United States, it is competitive with what you call marginal grid facilities.

Right now in Ontario, the estimate we've been given, which came out at a wind task force that Ministry of Energy staff and representatives from other ministries had been participating in, is about eight to 10 cents a kilowatt hour. That is what wind can be generated at in Ontario at this moment in wind farms, not just single facilities as the one that is going up in Pickering.

On page 17, the purpose of this slide is essentially to bring out the point that with regard to the competitiveness of wind energy, wind speed counts and the wind patterns count, and there is an exponential relationship between the wind speed and the revenues you can generate from a wind turbine. There is an example provided, and if you look at a facility with a 6.4-metre-a-second wind resource, that capacity factor of 24% would result—these are American figures—in a cost of eight cents a kilowatt hour, and if you went up to 7.5 metres a second, a capacity factor of 34%, you can see the price is drastically less.

The other point we wanted to bring out here is that wind is intermittent—it runs at certain times of the day; it's not a constant pattern—so that a reasonable output range for a wind turbine is somewhere between 25% and 30% of the total annual capacity of the turbine.

I think the industry representative of the wind task force will talk to you about some of the patterns they

have detected, and one of the things you'll note is that the capacity factors in Ontario are much higher in winter than they are in summer. For instance, there will be a kind of match with the peaking situations in winter in that on cold, windy days the wind turbines will be running. In summer it's the opposite in that on those hot, humid, muggy days where there isn't much wind you won't have the wind turbines running to the same capacity. But there is some kind of natural correlation in winter.

The slide on page 18 is a rough slide based on Environment Canada data that's some years old, but it's useful for illustrative purposes in the sense that it indicates where the best wind is in the province. You'll notice it's best in northern Ontario near James Bay and Hudson Bay and on the leeward side of the Great Lakes. Most of the development activity that is going on in the investigation or wind prospecting that's going on is around the Great Lakes. Page 19 is a summary slide.

On page 20, the one point we want to bring across is that if you're talking about wind development, you're really talking about wind farms, so that it's not one windmill in a location you're talking about; to get extensive generation capacity, you need to have some large wind farms. While these farms will need a lot of land, the one advantage is that they're compatible with other land uses, so they can be used on farms in agricultural sites where they don't take up much space.

With regard to solar, we just have a couple of slides. We are finding very basically that we're a long way off from grid-competitive photovoltaic, or solar, energy right now. It's currently five to 10 times more expensive than existing grid power. The research of the US DOE says it's 10 to 20 years off on photovoltaic grid power. Where you have uses is more in the solar water pool heaters. Those kinds of things are useful now, but at the grid power source it's a long way off.

Right now—page 24—excluding water, biomass is the second most used alternative source in the province, and the demand for biomass increased substantially in the early 1990s as a result of the power purchase agreements between the old Ontario Hydro and existing independent power producers. The growth of biomass, though, is going to be limited to the resource, so while there is potential for more generation capacity, it is limited to what's available in wood residues currently.

We have some slides here on fuel cells. This is potentially one of the more attractive options out there. Fuel cells, however, are right now in the development stage, so there are a number of demonstration units going up in transportation on the electricity generation side, and it's likely to grow rapidly as the technology develops in the next four to 10 years.

Another area where Ontario has some generation capacity that's not fully used is landfill gas. We have about 64 megawatts of existing landfill gas and that, from our facilities, probably could be doubled or tripled in the next 10 years.

What I want to do now is walk you through some of the existing activities to support alternative power sources from the Ministry of Energy and also talk to you briefly about some of the future activities that we're planning. With regard to slide 30, our most important initiative is open access and opening the electricity market to competition. When the market opens by May 2002, basically all electricity generators will have access to Ontario's electricity grid in accordance with the rules established by the Independent Electricity Market Operator. The market rules provide that generators that produce electricity power intermittently, which essentially are wind power or generators smaller than five megawatts, can be self-scheduling. Essentially that means that they don't need to bid on to the market to send power on to the grid. Basically they control themselves and how much power they can sell. Essentially they run when they can and they get the hourly price that's going at that point.

1010

The Ministry of Finance will speak to slide 31. There have been some tax incentives and special tax treatment for the water industry, which I'm sure they'll address.

One of our main initiatives is what we call environmental product labelling. In March 2000 what we call the first phase of our environmental labelling program was implemented. The program provides consumers with information to assist them in evaluating and comparing competitive retail offers. The way the program works at this time is that customers are provided with a label; basically all electricity customers are provided with a label which shows them Ontario's current power mix. It's more of a public information step so that the people of Ontario have an idea of what the electricity system is comprised of in the province.

The other part of the program is if a retailer intends to offer what we call a differential product, which is a product where environmental claims are made, they must provide at the time of offering a label which compares Ontario's current mix with the offer that they propose to sell. This program has been in place since March 1, 2000, which is the date that electricity marketing commenced to consumers. An example of the label is provided on page 33.

We've also included some slides here with regard to our activities under the Energy Efficiency Act. This is one of the more important programs we have in the ministry. Right now we regulate over 51 residential, commercial and industrial products under the act. The act references standards set by the Canadian Standards Association with regard to minimum energy efficiency requirements. We've just completed EBR consultation on a new regulation and hopefully by the end of the fall we'll be up to 54 products under the act.

On page 36 we have some of what we call the results of the program, which generally says that since 1988 the estimate is that the savings in energy costs attributable to standard setting is about a quarter of a billion dollars. It

results in a net reduction in CO₂ emissions equivalent to the annual emissions of over 400,000 cars.

On page 38, we're currently involved with Canadian Energy Efficiency Alliance with regard to an on-line energy efficiency centre which we're helping to fund, and that essentially is to provide design and energy professionals with information on energy efficiency. It's also intended to be a kind of a link and almost an energy efficiency portal for energy efficiency for the general public.

With the slide on page 40, we're moving here into existing processes and activities. The Ontario Energy Board—and Mr Laughren can speak to this in more detail on Wednesday—will be beginning a proceeding on the appropriate role of electricity utilities in delivering energy efficiency programs. They have recently hired a consultant to start doing work on the DSM. They will be engaging in public consultations from September of this year and through next spring.

We are also, along with six other ministry representatives, providing support to an industry task force on wind energy. Our primary role to date has been as an information resource. Currently the task force is developing the recommendations that they will provide to our respective ministers sometime this fall.

With regard to page 42, one of the other things we're developing, to go back to environmental product labelling, is what we call a second phase of the label. That consists of two parts. One part will be a label that will provide customers with historic data on their electricity power purchases with regard to the generation source of the power they produce; it will also provide information regarding environmental emissions that are related to those power purchases.

The other important component of the program is that, with the Independent Electricity Market Operator, we're trying to build a verification system. One of the things we can do at the ministry with regard to supporting marketing of alternative fuels is to develop some kind of confidence within customers that the power they are purchasing in effect got on to the grid. What we're trying to develop is a verification system which will acknowledge alternative power purchases, ensure those power purchases are withdrawn from the system mix that other people who aren't buying alternative products will see on their label. So it's essentially to ensure customers that alternative power isn't being sold twice.

Finally, one thing that we're also working on is we're currently engaged with a number of stakeholders on an environmental certification initiative. This differs from environmental labelling in the sense that environmental labelling essentially provides a fact-based label; it just provides you the statistical data related to environmental electricity purchases and it doesn't make any value judgments regard that. Environmental certification assists consumers in identifying and evaluating environmentally preferable products, so it's similar to the Good Housekeeping seal. So it would be a program that would define certain criteria and products that match those criteria

would get a label. That's a geo initiative that's underway. The group includes Ontario Power Generation, Trans-Canada Energy and Canadian Renewable Energy Corp.

I'm going to pass this right on to Rick Jennings.

Mr Jennings: The next few slides deal with alternative transportation fuels. Both the Ministry of Transportation and OMAFRA will be discussing them at some length as well. Just to touch on it briefly, Ontario supports alternative fuels through fuel tax incentives, or basically exemptions, retail sales tax rebates, and support for specific ethanol plant construction.

All alternative transportation fuels require special tax treatment, at least currently, to be competitive in the marketplace.

I guess another challenge they'll have is that there will be increasingly requirements for gasoline and diesel to be cleaner, lower sulphur, so their environmental advantage will perhaps be reduced.

Of the next few slides, some of the specific ones: propane, which is used in fleet applications such as taxicabs. The principal thing to bear in mind there is that propane is really a by-product of natural gas production. It's stripped from natural gas when it's produced, principally out west, so it's availability is dependent on natural gas economics.

Natural gas is increasingly widely used, again in principally fleet applications. The challenge there is lack of fuelling stations and lack of vehicles, so there is both an infrastructure and a vehicle barrier at the moment.

In terms of battery electric vehicles, the main problem there for wider-spread use is power density so that to supply enough power, batteries have to weigh so much that it reduces the weight of your vehicle. So the principal operating problems there are high cost, the limited range between refuelling and long recharging times, as well as things such as lower acceleration than people are used to from internal combustion engines. Increasingly, I guess, the focus there is on hybrid electric vehicles, which is that the gasoline vehicle basically is charging electricity which is used in operation.

1020

Fuel cells are a very promising technology. One of the challenges in transportation is that they're competing against internal combustion engines, which are a fairly low capital cost. The challenge there is being able to manufacture them at low cost in terms of commercialization. That isn't expected until about 2010 in terms of mass production, although there will be some vehicles in the next few years.

Ethanol is the primary alcohol fuel used in North America. Ontario has a couple of operating plants and one which has been proposed: the 150-million-litre-a-year plant in Chatham, a 23-million-litre-a-year plant in Tiverton, which is near the Bruce nuclear plant, and then the proposed Seaway Valley Farmers' Energy Co-operative in Cornwall.

Then there's a brief one on solar. The main problem there is the electric battery, except more so. You can

build one that will move, but it has to be so extremely light that you can't really move very much with it.

In the next part, Tony Vander Voet is going to go through our science and technology programs.

Mr Tony Vander Voet: Good morning. We have a number of programs in the ministry that support research and development in the province. The primary program we have, which has been in existence since 1997, is the Ontario research and development challenge fund. This fund supports the building of research capacity in Ontario universities, hospitals, colleges and other research institutions, in partnership with the private sector. For challenge fund projects the private sector provides a minimum of one third of the funding for the project.

Of the \$500 million that was allocated to the fund in 1997, we have in fact committed \$375 million and have leveraged over \$700 million in private sector and institutional funding. The focus on this fund is for people, for researchers and the tools they need to do the job in research.

The government also has the Ontario Innovation Trust, which operates at arm's length and provides grants for infrastructure for the bricks and mortar for research, again for colleges, universities, hospitals etc. A lot of this is matched funding from the Canada Foundation for Innovation. The OIT provides 40% of funding as a maximum. To date, of the \$750-million endowment, just over \$400 million has been committed, and this has leveraged an additional \$600 million in federal and other funding.

In addition to these two programs, we have the Ontario Centres of Excellence, which since 1988 have served to bridge the gap between university research and industry, focusing on research projects and especially the development of students and high-skilled workers. They are currently in their third-year mandate. There are four such centres. They focus on research, commercialization and training and have projects especially in new material and manufacturing methods which can have impact.

Other programs include the Premier's Research Excellence Awards. This is an \$85-million program designed to reward excellence in Ontario's younger researchers, generally those faculty members and researchers who are in their positions for less than eight years. This allows them to hire graduate students and research associates. Each award is \$100,000 from the province, matched with an additional \$50,000 from other universities or the business community.

The ministry also operates small international science and technology agreement programs. We have programs currently in Singapore and Baden-Württemberg. These involve Ontario university researchers with the international researchers, both with private sector partners to ensure that research becomes commercialized.

Part of our ministry's mandate is biotechnology. We have a goal set out by our minister to make Ontario the third-largest home of the biotechnology industry in North America. We announced last year funding of \$20 million for three biotechnology commercialization centres.

Those are the primary programs that we have.

The Chair: Thank you very much for a very thorough presentation. We originally talked about 20 minutes per ministry, but there was so much coming from your ministry that I didn't rein you in. It would seem logical to me, rather than getting into questions, that we recess at this point. When we return, I would suggest maybe three minutes per caucus for questions and then move on to the next ministry, if that's in order.

Mr Gilchrist: I thought the questions were to come this afternoon.

The Chair: Would you like them all at the end?

Mr Jerry J. Ouellette (Oshawa): Yes. Three minutes isn't enough time.

The Chair: OK. I was sitting here searching as to that discussion from the subcommittee, so we'll save all the questions until the end. Hopefully everyone here has made their notes. I'm very pleased to find that the major winds are not particularly around Queen's Park but are more in northern Ontario.

Unless there are objections from the committee, we'll recess now for 30 minutes and hopefully be back here by five to 11.

The committee recessed from 1026 to 1112.

MINISTRY OF THE ENVIRONMENT

The Chair: We'll get going again. I think maybe we should get a solar clock for some of our committee members, or maybe we can teach them to tell time, whatever. Maybe we can call on the Ministry of the Environment as the next presenter. The floor is yours.

Mr Tony Rockingham: Thank you very much, Mr Chair. My name is Tony Rockingham. I'm the director of air policy and climate change at the Ministry of the Environment. I'm joined in the audience by Robyn Tsallis, also with the ministry.

We have a short slide presentation, which I hope members have copies of. We have focused on the questions that were put to the ministry, although we are certainly available to answer other questions and provide other information.

On slide 2, I guess the message we'd like to convey is that we believe that alternative fuels can provide significant environmental and health impacts. We believe that alternative fuels that can displace some of the traditional fossil fuels can reduce some of the major pollutants that are affecting air quality in Ontario. However, we also note that there are issues associated with various alternative fuels and those issues have to be managed as policies and programs develop.

Looking at the non-carbon alternative fuels, renewable fuels, I guess, if you can call wind and sun a fuel, and I believe the committee's mandate is wide enough to allow that, typically, if they are used for electricity production, they can reduce the use of fossil fuels such as coal and oil and as a result, there can be significant reductions in pollutants such as hydrogen oxides, sulphur dioxides and other toxics that contribute to smog. As well, they can

reduce the amount of carbon dioxide, which is a greenhouse gas and contributes to climate change.

However, renewable energy is not without its environmental issues. There are land use issues, as the Ministry of Science, Energy and Technology noted, and there can also be noise and visual impacts and ecosystem impacts. As I say, on any alternative fuel there are likely to be issues and these have to be managed as policies and programs develop.

In terms of the low-carbon fuels—and here we're thinking of natural gas, which has a very much lower carbon content than traditional fuels such as coal—there can be significant reductions in greenhouse gas emissions. Therefore, the increased use of natural gas, if it's displacing coal, can lead to some of the solutions for the future in terms of climate change. However, again there are issues. Natural gas is methane, which is a very powerful greenhouse gas, so any leakages in transportation or any releases of methane as natural gas deposits are developed have to be handled because of the impact on greenhouse gas emissions.

Another classification here is oxygenated gasoline blends. This is essentially where one is talking about adding ethanol to the gas stream as a blend. Again, one can have significant environmental and health benefits, but there can be costs as well. Depending on the source of ethanol, there will be major or smaller reductions in greenhouse gases. Depending on where the ethanol blend is used, there can be significant contributions to smog and the release of toxins which could be important in terms of local impacts.

The fourth category we talked about is alternatively produced fuels: biomass, biodiesel, alcohol and non-alcohol petroleum oils. Again, they can reduce greenhouse gas emissions, especially when one is recycling, so you are reducing the overall use of fossil fuels. But depending on how they are burned and depending on the exact chemical nature, you can have increased nitrogen oxide emissions which contribute to smog. As I said, local issues must be addressed as you deal with alternative fuels.

Turning to slide 3, we just want to give you a bit of a snapshot in terms of current policies to promote alternative fuel and energy sources. Many of the ministries that are here will be able to provide more details on those. In terms of the policies that are under the direct control of the Ministry of Environment, we would point to three initiatives:

The environmental assessment requirements for the electricity sector have recently been amended to ensure that those energy sources which have minimal environmental impact can proceed through a streamlined environmental assessment process so they can be developed more quickly and help displace traditional fossil fuels. Right now we have no Environmental Assessment Act requirements for benign energy sources, and where there are potentially manageable environmental impacts, then there's a streamlined process called a screening curve. We have developed policies to encourage clean energy

sources to be introduced into the electricity system rapidly so they can help to be part of the solution and help to displace more environmentally significant electrical energy sources.

We would also point to the landfill gas regulation, which requires the capture of landfill gas from large landfills—new or modified landfills. It provides an opportunity for the utilization of landfill gas, which is largely methane. As I said, methane is a powerful greenhouse gas, and reducing it can be part of the solution to the climate change issues. I can share with you that the major reason for moving so quickly on landfill gas was because it also provides the vector that transports some other pollutants off-site, so it makes sense both from a global perspective and a local perspective to ensure that landfill gas is captured.

1120

The third regulation we would point out to the committee is the monitoring and reporting regulation. This is part of the government's efforts to ensure that consumers have the appropriate information to ensure that they can make environmentally appropriate consumer purchasing decisions. This is a regulation which initially was focused on the electricity sector but more recently has been expanded to all major sources of air pollution in the province, and requires the monitoring and reporting of a wide variety of pollutants. The regulation requires that the reports from the emitting sources enter the public domain, so that anyone with an interest in sources of air pollution can check the emissions from a wide variety of sources.

Turning to slide 4, I can also share with you some of the proposed programs and policies to encourage alternative fuels or energy sources. Number one would be the cap on NO_x and SO₂ emissions. NO_x and SO₂ both contribute to smog. SO₂ is the major emission causing acid rain.

The government has proposed a cap for the electricity sector on both NO_x and SO₂ emissions. We feel this will be an important element in encouraging greater use of cleaner energy sources, because it now provides a limit to the amount of emissions that can come from the electricity sector, so there is now more opportunity for cleaner energy sources and greater costs that are faced by more traditional energy sources such as coal. They will have to either install the technology to remove NO_x and SO₂, improve their efficiency or move to cleaner fuels.

We have had that proposal on the Environmental Bill of Rights registry for comment. We have posted specific limits for the electricity sector and the specifics of the regulation. The government has also proposed that the caps on NO_x and SO₂ will be extended to other sectors in the coming years.

As part of the emission caps, the government has an additional proposal which we believe will support alternative fuel or energy sources, and that is emissions reduction trading. Specifically in the regulation that is posted on the Environmental Bill of Rights for comments, we have proposed that there be what's called a

renewable energy set-aside, and that includes both renewable energy and conservation. The idea is that where a project results in a renewable energy source producing electricity or a project that results in energy conservation and savings in electricity, those projects will be able to qualify for a NO_x and SO₂ allowance because they have displaced some NO_x and SO₂ emissions. Once they qualify for that, they would be able to sell those allowances into the market and therefore get a financial reward for doing that.

The third initiative we would point out is a proposal to require refineries to report the sulphur levels in the gasoline they are producing. Again, this is part of the government's initiative to ensure that consumers have the information they need to make environmentally appropriate decisions.

Turning to page 5, you specifically asked some questions around landfill gas collection and use as a fuel. The regulation I referred to earlier is Ontario regulation 232/98. It requires the capture of methane emissions from large landfill sites. "Large" is defined as approximately 250 million tonnes of waste capacity.

There are a number of projects that collect landfill gas. I could point to the Keele Valley landfill, where they collect it and then also burn that gas to produce electricity. The landfill gas capture system at Keele Valley produces some 30 megawatts of electricity, and that would typically displace some fossil fuels, both coal and oil. That's enough to meet the electrical power demand of some 22,000 households, so it's a significant project.

By capturing landfill and either flaring it, which converts the methane, a very potent greenhouse gas, into carbon dioxide, a less potent greenhouse gas, you are meeting greenhouse gas reductions. Where you actually produce electricity rather than flare, then you have the added benefit of displacing fuels such as coal, oil and natural gas, which have significant CO₂ emissions.

My last slide—you asked specifically about the studies the ministry has undertaken to look at policy in other jurisdictions and other countries. I believe some of the other ministries will assist you in reviewing results of some of those studies. We have not commissioned an assessment of energy from waste or alternative fuel energy programs in other jurisdictions.

With that, Mr Chair, I'm available for questions or, as you've indicated, we'll be here this afternoon to answer any questions.

The Chair: Thank you very much for the presentation. It is my understanding from the committee that they would like to ask questions of all ministries at the end. We'll move on to the Ministry of Transportation.

MINISTRY OF TRANSPORTATION

Mr Bruce McCuaig: My name is Bruce McCuaig, director of the transportation planning branch of the Ministry of Transportation. I'm joined by Mr Toros Topaloglu, an environmental specialist with the ministry.

He'll be making the bulk of the presentation this morning.

There is a slide deck in front of you, entitled Alternative Transportation Fuels: Utilization Issues, and we'll be focusing our comments this morning on those utilization issues.

On the second slide of that presentation is an outline. Toros will be giving you a bit of background in terms of the use of alternative fuels in Ontario, talk a bit about fuel consumption and the emissions and greenhouse gases that result from that. Secondly, he'll be covering the alternative transportation fuels sector: what are some of the near-term alternatives that are available now as well as some of the longer-term alternatives for the future, and talk about some of the costs and benefits associated with those alternatives. Finally, he'll give a bit of an overview of experiences in other jurisdictions, experiences in Ontario, as well as talk about some potential future applications in the policies and programs that could lead to those applications.

With that, I'll turn it over to Toros.

Mr Toros Topaloglu: Good morning. I'll start with slide number 4, where we talk about transportation fuel and energy consumption in Ontario. Transportation is responsible for approximately 25% of Ontario's energy consumption. Petroleum products, which include things like gasoline, diesel fuel, jet fuel etc, supply almost all this transportation energy. Alternative transportation fuels, or ATFs for short, account for approximately 3% of total provincial transportation energy consumption.

The breakdown is listed below. Gasoline accounts for approximately 73%; diesel fuel, 24%; propane, 1.5%; ethanol, 1.3%; natural gas, 0.3%; and electricity, about 0.2% of the energy consumed in transportation.

Slide number 5: road transportation emissions in Ontario can be broken out as criteria pollutants and greenhouse gas emissions. Criteria pollutants are those that are regulated. Currently, road transportation contributes 38% of oxides of nitrogen, 21% of volatile organic compounds, 11% of particulate matter and 50% of carbon monoxide emitted, generated within Ontario's borders. Of course, we get some pollution from across the border as well. That is not part of this slide.

Off-road transportation, such as vehicles used in agriculture, lawn mowers etc, all kinds of things that don't hit the road, contributes an additional 25% to the NO_x, 9% to the VOCs, 6% to PM and 17% to the CO emitted in Ontario.

Despite rising transportation activity—approximately by a factor of two—the amount of NO_x emitted by road vehicles in 2000 is comparable to that emitted in 1970, which was roughly the beginning of the emissions control era, and is significantly less for CO, VOCs and particulate matter. So if you compare those two end points, transportation has made such progress.

The proposed 2000-10 federal road vehicle emission and fuel quality standards, which is a more important point perhaps, are expected to reduce the amount of transportation emissions further, particularly in the case

of NO_x and PM. If you wish, we can discuss later on what those standards are.

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The next is slide number 6, where we talk about greenhouse gas emissions. Transportation contributes approximately 30% of Ontario's greenhouse gas emissions, which includes carbon dioxide, methane and nitrous oxide emissions. Transportation GHG emissions have been rising. Unlike criteria pollutants, GHG emissions cannot be reduced by add-on pollution control measures such as catalysts or particulate traps. In this sense, GHG emissions present a larger challenge to society.

Transportation GHG emissions may be reduced by three broad approaches: (1) reduce the GHG emissions of individual vehicles by improving their energy efficiency and/or fuel composition; (2) improve transportation system efficiency; and (3) influence the demand for transportation.

The last slide on background is slide number 7, which follows on these discussions. Vehicle manufacturers have developed promising new technologies to improve fuel efficiency and hence greenhouse gas emissions. These include hybrid electric-gasoline drivetrains which reduce GHG emissions in the range of 35% to 48%—there is a range because there are different types of hybrid vehicles out there—and direct gasoline injected engines which would reduce emissions by 12% to 15%. The applicability of these depends on how low the sulphur content of gasoline is, by the way.

These technologies are expected to become widely available by 2010 and provide significant GHG reductions. They will compete with alternative fuel vehicles—I call those AFVs for short—for manufacturers' and users' resources. However, by being combined in the same vehicle, they can become complementary to each other, providing even greater environmental benefits.

Next I will have a brief overview of the near-term, what I call the longer-term, alternative fuels. Slide number 9: in principle, there are a significant number of credible alternatives to gasoline and diesel fuel. These can be classified as near-term or long-term, based on availability and cost considerations. The main near-term alternatives are electricity, grain ethanol, propane, and natural gas. The long-term alternatives include cellulosic ethanol, biodiesel, methanol and hydrogen.

A comparison of fuels should include assessment of the following: (1) all emissions generated during production, distribution and consumption should be compared, not just during utilization; (2) cost of the fuel and all associated utilization equipment and processes needed should provide the level of safety, performance, reliability and durability provided by petroleum products. They have to be considered as well.

On slide 10 we are looking at two alternatives: electricity and grain ethanol. Electricity provides negligible emissions at the point of use; however, there are production and distribution emissions, depending on where electricity comes from, the source of the electricity. It is most suited to guided transit vehicles such as streetcars and

subways. The utility for cars and trucks is limited by the performance and cost of the batteries. Hence, to date, only 3,000 to 4,000 electric cars and light trucks have been sold in North America.

Grain ethanol: grain ethanol has a small effect on criteria pollutants but a significant reduction for GHG emissions. These are provided in numerical or quantitative form later on. It can be readily blended into gasoline and used with minor modifications and cost to the vehicle and the infrastructure. It can also be blended into diesel fuel with some additives.

The low-level ethanol gasoline blends, which comprise blends up to 10% ethanol, which is called E10, require no modifications to the vehicle. On the other hand, high-level blends, which are up to 85% ethanol and are designated as E85, require minor modifications.

Ethanol's cost has been typically double that of gasoline at equal tax treatment. Current transportation consumption is approximately 250 million litres per year in Ontario.

Next we will look at propane. Propane promises significant reductions of criteria in GHG emissions in factory-built, mono-fuel vehicles. It is a mature utilization technology. The cost of vehicle increment is modest and there's an adequate refuelling infrastructure in place. Propane is stored and used under moderate pressure, typically 160 to 250 psi. The propane cost has been comparable to that of gasoline at identical tax treatment. It's available to replace approximately 10% of Canada's gasoline consumption; that is, if we were not to export propane, we could use it to displace up to 10% of gasoline and even perhaps a little more. There are, however, perceived and real safety concerns with indoor operations of propane vehicles and dispensing equipment. Today, approximately 45,000 propane vehicles are operating in Ontario.

The next slide, number 12, deals with natural gas. Natural gas provides significant reductions for criteria and greenhouse gas emissions in factory-built, mono-fuel vehicles. It is a mature utilization technology, with moderate vehicle costs and limited refuelling infrastructure. Natural gas is either stored and used under high pressure or it is stored and used as a cryogenic liquid. Natural gas costs have been comparable to that of gasoline at identical tax treatment. It is available to replace all of Canada's gasoline and diesel fuel consumption, which makes it the only alternative fuel which can do this as it is available in such large quantities. There are, however, some perceived and real safety concerns with indoor operations. Today, approximately 13,000 natural-gas-powered vehicles are operating in Ontario.

The long-term alternatives include cellulosic ethanol, which is covered on page 13. Cellulosic ethanol provides greater GHG emission reductions than grain ethanol; otherwise, it has very similar utilization characteristics to grain ethanol. Production technologies are still in the demonstration stage in Canada. The cost of the fuel is not established but it is expected to be competitive with grain ethanol.

Biodiesel is next. It is the comparable fuel for replacing diesel fuel, rather than gasoline. It would have a minor impact on criteria pollutants but a significant impact on greenhouse gas emissions. The production technologies are not fully established in Canada and one would be concerned about fuel quality, consistency, and compatibility. It can be blended into diesel fuel or used as a neat fuel in diesel engines, ie, it can be 100% biodiesel. The cost is not established at this point in time but it is expected to be in the two to four times range for diesel fuel at current prices. We do not have adequate experience with this fuel in Canada under Canadian conditions at this point in time.

The next alternative is methanol, which is on slide 14. Methanol, otherwise called wood alcohol, would provide significant reductions in criteria pollutants and greenhouse gas emissions, depending on the primary source it is made from. The utilization characteristics are similar to those of ethanol. It can be blended into gasoline up to 85%. It has seen significant transportation use in California and Germany, especially in those two jurisdictions. It is one of the better candidates for use in fuel-cell-powered vehicles. However, it is typically more expensive than gasoline, by 50% to 100%. It is currently not being used to any significant degree in transportation in Canada.

The last long-term alternative is hydrogen. In our presentation it's on slide number 15. It promises major reductions in criteria pollutants and GHG emissions, depending on where it is produced. It can be most readily generated from natural gas and from water by hydrolysis with electricity. It is stored and used either under high pressure or under cryogenic conditions, and while it can reduce the pressure somewhat by using methyl hydrates, it is somewhat different that the high pressure indication here.

1140

The utilization technologies are not fully developed. In principle, it is the best fuel for fuel cells, but can also be used in modified internal combustion engines. It will require, however, a new production and distribution infrastructure. The cost is expected to be significantly higher than that of conventional fuels when we look at the current fuel pricing structure. There are, however, perceived and/or real safety concerns; we don't have sufficient experience with it in fleet use.

Slides 16 and 17 provide some quantitative assessments on the costs and emissions aspects of all the fuels we have considered to this point. The information here is derived from two sources. These are reports done for the Transportation Issue Table of the National Climate Change Process in which we participated. We participated in these studies as well. Very briefly, on slide 16 there are two columns. The first column provides an estimate of the fuel costs of the alternatives relative to gasoline. Gasoline is the reference point, and the rest is compared to that. There are a number of things one might look into. The electricity here is assumed to be derived

from the current mix of electricity in Canada. It is not one source or the other, but the current mix.

One might be surprised at the number indicated for fuel cell, which uses hydrogen from methanol; it's 1.22, only 22% more expensive than gasoline. There are two reasons for this: one is that this assumes that methanol is used on board the vehicle and there's an on-board reformer to convert methanol into hydrogen. This number also benefits from the higher fuel efficiency of the fuel cell relative to the internal combustion engine. Hence this number, 1.22, is lower than the number for methanol, which is 1.56. The primary reason for that is that 1.56 is an internal combustion engine number, whereas 1.22 is a fuel cell number, a more efficient power plant. These numbers account for every aspect of utilization.

The estimated vehicle price is listed in the next column. I guess it would be self-explanatory, but the numbers are for 2010. There are assumptions as to what sorts of technologies will prevail at that time, and there is an assumption that these will be made in quantities.

The last slide which has quantitative information is slide 17. While again these are estimates, they represent the full-cycle—some call it the fuel cycle, but I would call it the full-cycle—emission for the fuels that we considered. These emissions include emissions generated under operation, in the production and distribution of the fuel and in the production of the vehicle; and the production of the vehicle includes all aspects of it, starting from the processing of metals etc, namely to generate the raw materials and then to process them to make what is needed to manufacture the vehicle. So it's a full-cycle emissions accounting, and the numbers are, again, from this very source, which is the report to the transportation table.

The first column is GHG emissions in grams per kilometre. The next one is NO_x emissions, followed by VOC, CO and particulate matter. I will not take up your time explaining these numbers etc, but if there are any questions, we can get back to it.

I'll then go to slide number 19, which says a few things about the current ATF policies in Ontario. MEST has already said a lot of this and Finance will revisit it, so I won't take up your time.

The next one is Ontario's experience with ATFs. Since the late 1970s, Ontario has supported the introduction of ATFs and achieved significant successes with propane, natural gas and ethanol-gasoline blends. Ethanol, propane and natural gas are now established as practical alternatives in sizable fleets and there is a sizable refuelling network in place. Also, Ontario houses the North American alternative fuel vehicle technology centres of GM, Ford and DaimlerChrysler.

Ontario's natural gas bus program was the first to develop and demonstrate the technology in the world; namely, we were the first to produce factory-built buses that run on natural gas and are competitive with diesel. Propane and natural gas have proven particularly successful in high mileage fleets that can best benefit

from fuel savings, such as taxicabs. Most propane and natural gas product vehicles introduced are after-market conversions. However, manufacturers today are offering a good selection of factory-built vehicles, some of which have been displayed to you.

On slide 21, we're making a small point, which is that Ontario's experience in transit bus demonstrations with natural gas, propane and methanol suggest the need for the following. There ought to be a long-term commitment by users, equipment manufacturers and fuel suppliers. One needs a comprehensive approach that encompasses vehicles, fuels and all infrastructure elements, not just vehicles. Also, one needs research and development to establish standards and best practices and to anticipate and resolve potential user issues before they become problems.

On slide number 22 are the policies and experiences of other jurisdictions. This is very, very sketchy. I don't pretend that we have covered the subject. First, the US federal government has a patchwork of ATF policies—a very great number of policies. Just to mention a few, they have weak mandates for alternative fuel vehicles. The Clean Air Act mandates oxygenated fuels in certain areas where air quality criteria are not met. These oxygenated fuels can be ethanol and have become ethanol. There are now tax credits up to US\$8,000 per fuel-cell-powered vehicle; this is a very recent development. There are subsidies for ethanol. The congestion mitigation and air quality program provides funding for things such as alternative fuels. The Department of Energy's clean cities program has been very instrumental in establishing a rather large alternative fuels fleet and fuelling infrastructure. Also, Americans have put a lot of R&D funding into innovative vehicles and fuel technologies.

Some US states have also supported alternative fuels rather vigorously. Arizona comes to mind as one of those. They have provided large tax credits and grants, sales tax exemptions and HOV lane access. This has been deemed by some to be the richest program in North America, but it is under a moratorium right now. California has regulated, subsidized and otherwise actively supported the use of alternative fuels, particularly zero-emission vehicles.

Looking to other countries, one would see Brazil and New Zealand as being two examples where alternative fuels have captured a large segment of the vehicle market. There is a lot to be said about this; I'm certainly not going to do that right now but we can revisit it if necessary. Argentina, in more recent history, has been rather successful in demonstrating the utility of natural gas vehicles. They have a rather large natural gas vehicle fleet, and that has been accomplished with relatively small support by the government.

On the last slide, we are going to say a few things about potential future ATF policies. Before doing that, one has to understand why alternative fuels have not succeeded at a level higher than what is seen out there. Here I'm listing the results of a survey which was done for the transportation table. It's one of the references

listed at the end of this presentation. There are three references there; this is the third reference. What people have told us is, one, there is a higher upfront cost for alternative-fuel-powered vehicles, the user incentives are inadequate, and there is a perceived and a real reduction in vehicle resale value.

The second major point that has been made is that the infrastructure is pretty limited and the choice of factory-built vehicles also remains relatively limited. The next point is that there is a perceived and a real inconvenience with alternative fuels. That could be range, weight, space, performance, reliability, etc, depending on which fuel we are looking at and what type of equalization technology we are considering. Last but not least, there is a perceived or real uncertainty in the cost, supply and quality of the fuels and vehicles that comprise the alternative fuel business.

So potential future policies may need to be tailored to the unique needs and characteristics of individual fuels, vehicle classes, manufacturer and user groups. A comprehensive strategy may better address both short-term and long-term prospects of ATFs and competing and complementary technical means to address environmental issues.

Thank you for your attention.

The Chair: Thank you very much for the presentation.

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MINISTRY OF NATURAL RESOURCES

The Chair: We'll move on now to the Ministry of Natural Resources. I would suggest, if the committee members are in agreement, we will let this one complete, even if it goes over the 12 o'clock adjournment point. Rather than adjourn right at 12 o'clock, we'll let you complete the presentation and then we'll take the hour break.

I see no objections, so go ahead.

Mr David de Launay: My name is David de Launay and I am the director of lands and waters for the Ministry of Natural Resources. With me today I have Ron Kervin, who is our manager of land management. As you'll see from our presentation, crown land management is a critical part of why we're here today, and that is that many of the future energy resources in the alternative field, whether it's water or wind, will be found on crown resources.

If you turn to the presentation that we have distributed to the committee, you'll see that on the opening slide, in the background, we have a picture of Niagara Falls. I think Niagara Falls gets to the nub of one of the issues that the committee needs to grapple with around alternative energy supply, and that is the magnitude of hydro-electric development that is actually an alternative supply. There has been lots of debate about this over the years and for a while, people considered small hydro to be the alternative while large hydro wasn't, generally speaking because there would be large dams put in rivers, with subsequent flooding and other conditions.

Those who have seen Niagara Falls, of course, realize that thanks to a gift of nature, we have a huge energy source that is one of the most benign environmentally produced hydroelectric supplies in the world. So I think it really challenges us to think through what it means when we're looking at hydro power and trying to come up with exactly what is or isn't in that mix for alternative fuels.

If I go into my presentation, then, on the next slide, as I mentioned, as manager of crown lands in Ontario, that's where a lot of the future wind and water resources are to be found. Through the Public Lands Act and the Lakes and Rivers Improvement Act we have the legislative authority to manage those resources. I want to point out that includes the beds of lakes and rivers, and that's where a lot of those hydroelectric facilities are to be found.

The challenge for the Ministry of Natural Resources in this field, as in any other, can be found on the next slide. We have a vision of sustainable development. There is much debate about exactly what that term means, but I think since the Brundtland commission in 1987, we see the need to have resources there for future generations. At the same time, there is a lot of community and industry development that is based on natural resources. So we're continually balancing, as you see in this slide, that security and sustainability of natural resources with the socio-economic benefits that those resources provide. It's no different in this situation.

Within that, we're looking at economic development on the socio-economic benefits, and also that there is a fair return to the crown for the resources. One of the challenges will be what our tenure policies are and what our rental or royalty rates may be for wind or water resources.

The third box here, which is not immediately relevant to this committee, is our protection of life and property. In there, we include fire, flood and low-water management, a subject that Dr Galt is very familiar with from last year.

Briefly, water power in Ontario—not to repeat all the points, but there are 203 water-powered generating stations on 43 watersheds, an installed capacity of 8,000 megawatts. It's about a quarter of the installed capacity within the province. There are over 275 water-power-related dams, 68 owners, of which OPG is obviously the biggest, Great Lakes Power is the next-largest, as was already referred to, and there are lots of small owners, 1,600 direct jobs. That market situation will change as OPG divests control of its operating assets. So there will be a shifting in the industry in terms of ownership.

I'm going to focus in these next slides on what MNR is doing in relation to water power and then conclude with just two slides on wind power. In the past, before electricity restructuring, the public monopoly of Ontario Hydro generally addressed provincial interests. We didn't particularly have a regulatory regime, as they do in the States, for instance, of the federal energy review committee or anything like that. This was a time-honored practice of different governments working with the

crown corporation. But the competitive market requires a different approach, and we need now to balance social, environmental and economic needs, address new site development pressures and ensure compliance with whatever standards we develop.

A number of years ago, three years ago, as there was a lot of discussion about deregulation of the market, we sat down with the industry and looked at what some of the issues on the water power side would be from deregulation. This is a short list on slide 6: water resource management planning; protection of the resource, compliance and enforcement; allocation of those resources; new site development; secure tenure; fair return to the crown—we get about \$130 million annually right now from water power; and that there be information and science support.

From that, we've then gone on to develop a number of approaches in consultation with stakeholders, First Nations and further dialogue with the industry. We've now made amendments to the Lakes and Rivers Improvement Act. It gives the ministry powers that we didn't have before for regulating the industry: we've looked at industry monitoring and reporting, MNR playing an auditing role, increased penalties under the Lakes and Rivers Improvement Act and profit- and revenue-based penalties. A model that we often use in resource management is our Crown Forest Sustainability Act. For instance, the penalties in there are progressive. You can liken it to progressive discipline, and that's the same thing we're developing with this industry.

We have an information and science support which I can speak to at length in questions, if you want. There's a lot of activity going on in information across land resource clusters, which are MOE, MNR, ag and food and northern development.

The next slide, in terms of looking at water power tenure: one of the challenges for the industry in this new competitive market is that water power is a highly capital-intensive industry and they need to go to the lenders with some kind of collateral. In the past a private developer, a non-utility generator, would go to a bank with a contract from Ontario Hydro and Ontario Hydro's commitment to buy its energy over a period of time, and that's what they would use. It's not the nature of what the market will look like. Any developer, any producer will be just selling energy into the market. So now what is the equivalent that they go to the banks with? Essentially this has become a big discussion with MNR, because the tenure they get on the crown land for their facilities has now become their key piece of collateral. So we've been discussing with them longer-term leases that enable them then to get the financing.

1200

The new site allocation: we've had a policy. In the late 1980s there was crown land as a development tool, fondly remembered as CLADT. We tend to remember everything by their acronyms. At that time we had a first-come, first-served approach to water power development. I liken it a bit to a gold rush, where people then just rushed out, put their stake down on any nice waterfall

you could find, particularly in northern Ontario, and came into the MNR office and said, "That is ours," and that was that. We're looking at that system and we're also looking, as it points out here, at possibilities of shifting more to a request for proposal, where you can get the best economics and the best market approach to who may in fact develop those assets into the future.

Tony Rockingham already spoke about Environmental Assessment Act requirements, and we've worked very closely with MOE on that. One question that has come up is, will there be development in parks? Our minister has been absolutely clear that there won't be.

Critical to our part of the water power relationship with the industry is the water management planning. Essentially that comes down to regulating the levels and flows, as we do with other resources, ensuring that there's public input into that, whether it's cottagers where levels of flows have a huge impact on them, whether it's kayakers, other recreationists who may use the waterways, whether it's fishers; and then fundamentally, of course, we have issues to look at the ecosystem, and one measure of that is fish habitat, the ways the industry may be impacting on fish habitat and streams. So we've been working that through with the industry and developing the monitoring, compliance and enforcement.

The next slide, on page 12, looks at the kind of approach we're taking. It repeats some of the points I've already made, so I won't go through it. To get a little more specific on the aquatic ecosystem side of it: mimicking natural flow regime—native biota, variability—these are key approaches that we're trying to take. Of course, as everybody who goes out into the lakes and rivers of Ontario quickly finds out, we are in a very regulated—I don't mean government-regulated; I mean dams and water control infrastructures. There are over 2,000 water control infrastructures in the province. Again I refer to cottagers, but many people have gotten used to the level of water at their property, and it does not fluctuate in a natural way whatsoever. If it did, we'd have very high water in the spring and very low water throughout most of the summer and into the fall. That's just not the case on most of our waterways any more. So there's a real challenge of balancing the different needs and requirements with some very fundamental ecosystem principles.

Wind power: the Ministry of Energy, Science and Technology has already made a number of points that we would basically concur with. It's now a mature technology. You can look in other jurisdictions—Germany, the United States—and there are thousands of megawatts now of wind power. It's on the verge of having commercial potential. It's now getting within an economic horizon where you can imagine that it would be in a competitive market. We reinforce that the greatest potential for wind resources are along the shorelines and offshore areas of the Great Lakes. So again, crown land issues would come up and other planning issues. For instance, under Ontario's Living Legacy we have a Great Lakes heritage coastline designation, which looks at a

balance of approaches within that area, which includes recreation and other aesthetic experiences. We need to balance that with wind farms along the Great Lakes, which are a great alternative source but may conflict with people's values, what they think that particular piece of coastline should look like.

We too are ongoing participants in the industry task force on wind power, providing information. I list here just quickly what the challenges for MNR will be for wind power on crown land. As you can see from this list, they're very similar to what we've gone through with the water power industry. So one of the very practical matters: we would have to sit down with the industry and look at potential sites. Once we've determined that there's a potential site that would be good for the generation of wind power, then there will be other land use planning issues and the other values in that area: does it conflict or not? Can we get a balance? Once we get there, it's what are our tenure arrangements on those sites on crown land going to be and what kind of royalty or rental will be paid to the crown for that? It's a range of issues that would be quite similar to water power.

We were also asked to comment briefly on the forest industry. We can get into that more during questions. Generally, the economics within the industry have pushed it to cogeneration across the north, and there are any number of examples of cogen where they use a lot of waste wood products, but we can follow up on that more during questions and answers.

The Chair: Thanks very much for the presentation.

That completes the presentations from four ministries. We have three more to go. Looking at the clock, it's about five after 12. Why don't we recess until 1:15? That will give you just a few minutes extra. I don't think the next three ministries will be too awfully long, and then we'll have more than adequate time for question period. Any objections?

Ms Marilyn Churley (Toronto-Danforth): No, that's fine. May I ask a question—I came in a little bit late this morning—and get just a clarification on the agenda. We have a lot of paper here, and I just want to sort it out.

The Chair: There was a change in the order.

Ms Churley: OK. I missed that. That's why I'm confused.

The Chair: Yes. There was a slight change in order.

Ms Churley: What have we had presented and what's left then?

The Chair: The ones left are OMAFRA, health and finance.

Ms Churley: Thank you.

The Chair: There was an adjustment at the beginning. Any other questions?

The meeting is recessed until 1:15.

The committee recessed from 1207 to 1318.

The Chair: We will call the committee to order. I'd like for the purpose of Hansard to state a correction to the presentation made by the Ministry of the Environment. They just brought to my attention that when they were

referring to slide 5, "Ontario Regulation 232/98 requires the capture of methane emissions from large landfill sites (greater than 2.5 million tonnes)," that's changed from 250 million; it should be 2.5 million tonnes of waste capacity.

MINISTRY OF AGRICULTURE, FOOD AND RURAL AFFAIRS

The Chair: Our first presentation this afternoon is by the Ministry of Agriculture, Food and Rural Affairs.

Mr Philip Malcolmson: My name is Phil Malcolmson. I'm here with Ken Linington. We're both with the policy and programs branch of OMAFRA in Guelph. We're very pleased to make this presentation before the committee, especially in the much-coveted after-lunch time slot. We'll be referring to the presentation entitled *Alternative Fuels: A Ministry of Agriculture, Food and Rural Affairs Perspective*.

OMAFRA has been and continues to be supportive of utilizing agriculture-based commodities and by-products for alternative fuels. We believe there is opportunity for economic development, diversification, and there are market opportunities for farm commodities with environmental benefits. I am also very pleased to see that the committee will have an opportunity to receive presentations from both the Ontario corn producers' marketing board and the Ontario Soya-Bean Growers' Marketing Board, and Biox, which is a company that is developing some emerging technology in the area of biodiesel, and Iogen, an Ottawa-based company.

In terms of the focus of this particular presentation, I think we were asked by the committee to look at the use of alternative fuels by this sector, the ability of the sector to produce alternative fuels, and policies in place both in Ontario and elsewhere.

In terms of use of fuels by this sector, I have some brief statistics in terms of general overall energy use by Ontario farmers. It's a 1996 statistic from Agriculture and Agri-Food Canada, and the total gross dollar amount in terms of dollars spent on energy was \$375 million. We're in the process of getting some more up-to-date statistics through Statistics Canada and I'll make that available to the committee clerk.

The second portion of the presentation is the ability of the sector to produce alternative fuels. I'd like to start by reading a quotation from Rudolf Diesel, who was a German inventor at the turn of the century. He said, "The use of vegetable oil as fuel might seem of no importance in our time. However, such products can gain importance in the course of time and reach an equal status compared with today's petroleum and these coal-tar products." I think that's important to keep in mind when we're thinking about alternative uses. We believe that in some of these instances, for some of these technologies their time has come.

I would like first to speak about ethanol. What is ethanol? Ethanol is a fuel which is generally derived from corn and grain. It's an alcohol. It is little known that

Henry Ford's first Model T Ford was actually powered by ethanol-based fuel. In terms of more recent history, the fuel shortages seen in the 1970s did spawn the re-emergence of the ethanol industry, particularly in North America. The US government introduced legislation in 1979, the Clean Air Act, and in terms of contributing to ethanol demand, it was enabling legislation which allowed cities to force air standards. This provided for gas oxygen content; for example, ethanol in corn belt states. So it did spawn tremendous demand.

There has been a plant in Canada, in Manitoba, for about 20 years. As was alluded to in one of the previous presentations, there are economies in societies where ethanol is a considerable portion of the fuel used in their automobiles. I guess Brazil is the best case in point.

In terms of other emerging uses or potential uses for ag-based commodities to contribute to alternative fuel sources, it's not only ethanol derived from corn, which is a very proven technology; it can also be derived from plant material. Here we're talking about cellulose-based ethanol. There is an enzyme manufacturer from the Ottawa area which is a world leader in this technology, from whom I understand you're going to receive a presentation, that offers tremendous potential. They've developed an enzyme technology to convert cellulose to simple sugars, and that's used for producing ethanol. I guess the relevance for the agricultural industry is that cellulose is derived from such biological sources as straw and corn stover. There is a prototype plant being constructed in Ottawa, through a partnership between NRCan and Petro-Canada.

We understand that this company is also interested in receiving a marketing agreement. For example, right now the ethanol industry receives a reduction in the retail sales tax or the gasoline tax at the pump of 14.7 cents per litre. There is also an ethanol manufacturers' agreement in place, and that provides some guarantee to those manufacturers. Should there be some change to this tax structure, those agreements provide for basically cash in lieu. I guess what this industry is looking for is some parity, and that would give them some assurance of what the marketplace would look like to attract investment.

In terms of statistics for ethanol, the global demand is estimated at about 27 billion litres. The US currently has about 60 plants producing about 1.8 billion US gallons. There are six manufacturing plants in Canada currently producing ethanol. Two of those plants are located in Ontario. They are in Tiverton and Chatham. In terms of the importance of Ontario's production, it is the vast majority of ethanol production in Canada, accounting for 173 million litres of the national total of 238 million litres. I would also like to state that there is additional production coming on line—it's supposed to be coming on very shortly—through the Seaway plant in Cornwall. I guess the expectation is that the construction on that plant would start at some time this fall.

I would also like to note, and I'm sure it's no news to this committee, that federal Minister of the Environment

Anderson announced recently a goal of significantly increasing ethanol production in Canada.

In terms of some of the economic backdrop for ethanol, the USDA has certainly done a considerable amount of work. One of their studies reveals that a plant producing 100 million gallons of ethanol creates about 2,500 direct and indirect jobs, potentially leading to upwards of a 50 cents US per bushel increase in corn price. In some of the other studies that we have and will make available to the clerk of the committee, in terms of the relative economics of ethanol to petroleum-based products, it's also true that subsidies to the oil and gas industry are about US\$54 billion, while US\$8 billion to the ethanol over the last 20 years.

Potential alternative fuel sources from the agricultural industry are not restricted to ethanol. Biodiesel is another opportunity whose time may have come, as envisioned by Rudolf Diesel in 1912. What is biodiesel? Biodiesel is animal fat and plant oil combined with ethanol. Biodiesel can be derived from plant oils such as canola, soybean and corn, which are considerable crops in this province, and animal fat.

Examples of Ontario oil/fat production: there are currently two soybean crushing plants in Ontario located in Hamilton and Windsor. They create 316,000 tonnes of oil, and there is a yellow grease facility or rendering plant in Ontario which produces about 1,500 tonnes per week.

What is the market potential? We think it's significant. For example, if all of the yellow grease and soybean oil were used in a biodiesel or diesel blend, that would only constitute 2% of the entire diesel market in North America, and we believe that has tremendous economic potential for both economic diversification in rural Ontario and alternative crops for our commodities.

While Ontario has production capacity from soybean oil and yellow grease that can become potential sources to produce biodiesel, there are currently no biodiesel production facilities in Ontario. There are some plants in the United States right now. Currently, an Ontario biodiesel demonstration unit has been constructed in Oakville, and that's the BIOX company, which I understand will make a presentation to this committee.

I guess we've seen one of our roles as a ministry to facilitate relationships. Our staff was instrumental in facilitating a strategic alliance between the BIOX Corp, which is seeking to commercialize the technology from the University of Toronto, and the Ontario Soybean Growers' Marketing Board, which is seeking alternative uses for their commodity product.

One of the next steps for the biodiesel industry, if it is to emerge on a commercial scale, is to set industry standards. We understand that the American Society for Testing and Materials is developing standards currently. Canada's National Research Council is in the process of conducting a life cycle cost analysis for biodiesel.

While we have principally discussed alternative fuel sources from grain crops, livestock by-products may also pose a significant new opportunity for new alternative renewable fuel sources. I'm specifically relating to the

production of biogas from animal waste. What is biogas? It's methane-based gas from manure. It's estimated that Ontario farmers produce about 30 billion litres of manure annually. It's also estimated that has a potential electric power of about 500 megawatts if converted to methane. That's about one eighth of the power of the Pickering nuclear generating station and could potentially provide energy to up to 160,000 homes. The economics of this is that there should be some critical mass to produce enough methane to make it economically efficient.

In terms of the policy component that the committee has asked us to speak on, in terms of ethanol there is an exemption from the federal excise tax of 10 cents a litre at the pump. There is also an exemption from the Ontario gasoline tax of 14.7 cents per litre of gasoline. There is currently no exemption for diesel or other fuels such as biodiesel. As I mentioned earlier, we have some ethanol manufacturing agreements in place. Should these tax structures change, the industry or the plants in Ontario have been guaranteed equivalent funding, should that happen prior to 2010.

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The ministry's involvement in terms of our programming is that we have provided \$8 million in direct transfers for the construction of the Commercial Alcohols plant in Chatham and we plan to make a similar grant to the Seaway Valley plant in Cornwall once that facility is up and running. Another component of our involvement is, of that money, \$1.6 million was to be available over the next 10 years for research and development for ethanol.

In terms of what's happening in other jurisdictions, I'm going to turn that over to my colleague Ken Linton. Just a few weeks ago Ken had the opportunity to visit Minnesota, which is a state that has a tremendous ethanol production capacity.

Mr Ken Linton: I'll start talking about Minnesota as a particular state because of circumstances that they find themselves in and then speak more generally about the US.

Minnesota is a state that is very rich in corn and very poor in energy. During the 1970s and early 1980s they saw the price of corn plummet and they also saw the shortage of fuel, and they really ended up with two focuses. One was to assist the farm community in developing some value-added products on one of their largest farm crops—corn. The second was to focus on sovereignty over their fuel supply. So with that, in 1980, they developed a four-cent-a-gallon tax credit which enticed retailers to carry ethanol. They also looked at what they referred to as new generation co-operatives, and they provided 20 cents per gallon of ethanol produced to producers that participated in a co-operative. So farmers would join the co-operative, and with that joining had to put up some cash to purchase a share and also a commitment to deliver a certain volume of corn for the manufacturing of ethanol.

Along with those two incentives there was also, under the US Clean Air Act, a requirement to put oxygen in the

fuel, primarily for Minneapolis and St Paul, but the state applied it against the entire state, not uniquely those two cities. So with that it became legislated that ethanol or oxygen must be in the fuel, and the choice was ethanol.

Along with that was a fairly strong promotional program to the consumer. There was a lot of hesitation at the beginning as to whether it was a reliable fuel and whether it would impact on existing and older motors. By and large, I think the promotional program provided the comfort that was required. Today, 10% of the gasoline in Minnesota is ethanol or replaced with ethanol and that represents 80 million bushels of corn.

If you look at the broader jurisdictions of the United States, rather than refer to the notes that are on the slides, I think it's important to talk about some fairly recent activities. The state of California has been one of the areas that was identified that required reformulated gasoline, which said they must have oxygen in their gasoline. They have used a petroleum-based oxygenate and that oxygenate had been found to be soluble in water and found in water tables or water sources. With that, through the Environmental Protection Agency, they asked for a waiver and that waiver was not granted. The significance of that waiver not being granted is really threefold.

One is the choice of oxygenate will likely be ethanol, so there will be a huge demand on ethanol. If you look at the state of California, that means 150 million gallons of ethanol in the upcoming year and over a phase-in period that will reach up to 580 million US gallons, which is a tremendous consumption. One person suggested to us that if you look at jurisdictions that consume gasoline, you're probably looking the Europe first, all of the United States second and the state of California third. So California is a huge consumer of gasoline.

The second impact that will likely occur with that is that when you add ethanol to gasoline, it does change the vapour pressure. They are likely to put a waiver on the vapour pressure standards.

The third item that comes along with that is if that ruling holds and ethanol production gears up to service that market, we are likely to see the eastern seaboard also adopt those kinds of structures.

I think one of the significant points one would want to bring into this discussion is that whenever the US talks about alternate fuels, one of the driving forces behind that is the sovereignty of their energy supplies, so it is not uniquely a cost basis, not uniquely an environment base. Just having control over their own energy sources tends to be a driving force for them.

With that, Phil will talk about biodiesel.

Mr Malcolmson: Thank you. I'd like to make a few remarks about biodiesel in other jurisdictions.

In November 2000, the United States Department of Agriculture announced the bioenergy program. The objective is to expand industrial consumption of agricultural commodities by promoting their use in bioenergy. This includes both ethanol and biodiesel. The program will be administered through the USDA Commodity Credit Corp and will make \$300 million in cash available over the

next two years to bioenergy producers who increase their consumption of agricultural commodities.

In terms of biodiesel fleet demonstrations, these have taken place in several US cities, and I believe they're proposed in the province of Quebec. On August 7, 2001, the US Department of Agriculture announced that USDA agencies will use biodiesel, and ethanol fuels in their fleet vehicles where most practical and reasonable in cost.

Those are just some of the ways being used to promote the use of these technologies.

Finally, we'd like to say we believe that with some of these technologies, such as ethanol, which have been in place for some time, there is certainly a tremendous capacity in terms of future demand. We believe there are many technologies, such as biodiesel and potentially biogas, which offer significant potential because they are renewable, they have some redeeming environmental qualities, and they offer alternate markets for our Ontario farmers.

The Chair: Thanks very much for your presentation.

MINISTRY OF HEALTH AND LONG-TERM CARE

The Chair: We'll move on now to the Ministry of Health and Long-Term Care.

Mr Bill Hunter: Good afternoon. Dr D'Cunha sends his apologies. He had intended to be here today but some issues arose this morning that prevented his attending.

My name is Bill Hunter. I'm senior consultant, environmental health and toxicology, with the public health branch of the Ministry of Health and Long-Term Care.

We did not have specific questions or issues to address in your invitation to appear before this committee. We are therefore providing a short overview on the public health significance of the pollutants which are released from the use of fossil fuels and the role of the Ministry of Health and Long-Term Care in providing advice to the public. I hope everyone has a copy of our slides.

Just as an introduction, as you've heard already, air pollutants emanate from several sources: primarily transboundary, industry and transportation. The percentages vary according to the municipalities and the activities taking place there, whether they have large industry, their proximity to high-use highways and so on. Conventional fuel sources used in transportation certainly contribute to air pollution issues in Ontario.

The goal of public health is to protect and promote the health of the population. That includes a variety of programs and initiatives which are delivered mainly by the 37 public health units that we fund in Ontario. We also encourage them to promote reduction of exposures to potentially harmful air contaminants. In relation to that, any decrease in reliance on fossil fuels is important in achieving the source reduction of such pollutants.

Our approach has been that citizens, industries and governments all have important roles to play in achieving those reductions. Citizens may alter their behaviours to

reduce their personal use of vehicles and use other means of transport, including alternative fuel vehicles, but we feel that alternative fuel initiatives need to include studies which will encourage the public both to accept and to use those alternatives. Industries and governments also need to develop and make available such technology and encourage its use.

From a public health perspective, the immediate components of air pollution which result in health impacts are: nitrogen dioxide; carbon monoxide; ground-level ozone; particulates, both inhalable and respirable; sulphates; and sulphur dioxide.

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Nitrogen dioxide is the air pollutant with the greatest adverse impact on human health in most Ontario urban centres. Studies suggest that it accounts for almost 40% of air-related premature mortality and 60% of cardio-respiratory hospital admissions in urban centres. These percentages are of course estimates which are reached by taking existing emission data and applying the findings of accepted research, which has been conducted mainly in Canada and the USA.

Carbon monoxide is estimated to be responsible for approximately 30% of all the premature deaths which can be attributable to the six criteria air pollutants in the urban areas.

Ground-level ozone: even very low levels of ozone in smog cause inflammation of the airways. For persons who are already challenged by asthma, emphysema or bronchitis, smog can have serious repercussions. We know that ozone makes asthmatics more responsive to the allergens which trigger their asthma attacks, and we know that asthma attacks increase, as do visits to the emergency rooms and hospital admissions, when ozone levels increase.

For inhalable and respirable particulate matter, there is evidence to suggest that these are responsible for a substantial burden of illness in southern and eastern Ontario. The full impact of inhalable and respirable particulates is not completely understood, but they are of significant concern. We know that PM_{2.5} can penetrate the body's natural defences and lodge deep in the lungs.

Ozone and particulates may also indirectly cause disorders through the immune system.

Sulphates and sulphur dioxide: sulphates are a significant component of particulate matter in the air, both inhalable and respirable. Sulphur dioxide is a precursor of sulphates. The transportation sector and the heating industry are important contributors to SO₂ emissions.

The role of the Ministry of Health and Long-Term Care: through the public health branch, we participate in Ontario's anti-smog action plan along with the Ministry of the Environment and other stakeholders, and we promote the development of local smog action plans by the 37 local health units in Ontario. We provide templates to the health units, encouraging them to work with their local municipalities to develop those smog action plans, and we provide examples where such plans have been implemented successfully. The local smog action plans

are designed to promote actions that can be taken at the municipal level, both to reduce their own contribution to the concentrations of pollutants which combine to form smog and also to encourage their citizens and their staff to avoid their own personal intake.

Further, we also participate on federal-provincial committees on environmental and occupational health with links to national working groups that evaluate the health impacts of ambient air quality.

One of our current initiatives is working with the Ministry of the Environment, the Ontario Lung Association and the Ontario Medical Association to develop examples of up-to-date information which can be disseminated to the public during smog episodes, using the media and other areas where health units have regular discourse with the public. The information that is provided to the citizens has two approaches: firstly, there are actions that individuals can take to minimize exposure for themselves and for their family during smog episodes; and secondly, actions that they can take as individuals to reduce their own personal contribution to the production of smog.

Thank you.

The Chair: Thank you very much. Just one question on clarification: under "particulates," PM₁₀ and PM_{2.5} being microns?

Mr Hunter: That's correct.

The Chair: Thank you.

Thanks very much for the presentation. We have one more, from the Ministry of Finance, and then we'll get into questions.

MINISTRY OF FINANCE

Mr Patrick Deutscher: Thank you, Mr Chairman. My name is Pat Deutscher. I'm the director of the macro-economic analysis and policy branch at the Ministry of Finance. I'm joined, in the audience, by Len Koskitalo of the industrial and financial sector policy branch and Ann Langleben, who is director of the corporate and commodity tax branch. We've given a little slide show that I hope everybody has.

The first slide reviews the questions that the committee asked us to consider. These were, basically: the impact of energy price or supply changes on the economy; economic opportunities associated with greater alternative energy use in Ontario; and tax and other economic policies that are used in other jurisdictions to encourage the use of alternative fuel and energy sources.

We've tried to address each of these topics in our presentation. As you know, our comparative advantage as a ministry is in economic and fiscal matters, so compared to the other presentations that were made today, this one is going to contain rather less technical detail about alternative energy.

Just one quick comment, sort of an apology, is that our survey of policies in other jurisdictions was restricted, given the time available, to just the United States.

Turning to slide 3, Ontario is an energy importing jurisdiction. The absolute availability of supply to our economy has rarely been an issue, but wide fluctuations in world prices of oil and natural gas have, at times, played a very large part in the performance of our economy. The recent oil price volatility has been really the worst since the 1980s.

Energy prices fell to very low levels in 1998 as economic weakness followed the Asian financial crisis and reduced world demand. The price of oil fell to about US\$10 per barrel, leading to a reduction in exploration and development. However, world demand recovered quickly in 1999 and OPEC reduced its production slightly. This relatively small change in the balance between supply and demand led to a sharp jump in oil prices.

For consumers and business, energy is a necessity. In the short term, they reduce its consumption only very slightly, even when the price jumps a lot. Consequently, the price of energy can change greatly in response to relatively small fluctuations in demand or supply. In the longer term, consumers respond to high prices by reducing demand and producers increase output. Market forces cause the price then to return to a central trend.

The price of crude oil—I'm now on slide 4—peaked at US\$37 per barrel in the year 2000 and it's been around US\$26 per barrel recently. OPEC has established a target range of \$22 to \$28 per barrel. They don't want to see the price rise too far above that because they're concerned that it would lead to more rapid development of alternative energy sources.

In the past several months OPEC has maintained considerable discipline and oil prices have been stable. OPEC is unlikely to take actions that would raise the oil price significantly, but if their discipline breaks down in the face of falling demand, prices could drop quickly. Slowing economic growth in the United States will limit growth in energy demand. Exploration and development already have risen sharply in response to the higher prices we saw a year ago, and still relatively high prices today. That indicates that energy supply is going to be growing this year. Large short-term fluctuations in energy prices can occur in either direction but the medium-term trend is quite likely to be downward from the very high levels that were reached in 2000.

Turning to natural gas, as we heard, natural gas is increasingly favoured as a fuel for environmental reasons, and steady increases in demand are expected to keep its price rising. Since the advent of the new pipeline capacity to export natural gas to the United States, the price Ontarians pay is largely determined in the US market. Conventional reserves in the southern part of the continent are declining, and costly pipeline projects to bring gas from the Arctic will add significantly to its transportation costs.

The price of natural gas peaked at almost US\$10 per MCF due to concerns about low inventories at the beginning of last winter's heating season. It has recently fallen back down to around \$3 per MCF in response to increased production and reduced industrial demand.

That \$3 compares to a price of about \$2 per MCF that prevailed through most of the 1995-99 period.

In the short-term, the supply of natural gas in close proximity to markets is very inelastic; therefore, sudden shifts in demand—due to extremely cold weather, for example—could cause price spikes, so further volatility this winter cannot be ruled out. However, extremely high prices aren't likely to persist, since they prompt industrial users to change their use of gas.

1350

Turning to the impact on the economy, obviously oil and natural gas are among Ontario's leading imports. Given the volume of oil that we import, each US\$1 per barrel change in the world price of oil adds or subtracts about \$250 million from the Ontario economy. Ontario currently buys about half a billion MCF of natural gas per year. This means the roughly US\$1 increase in the price of natural gas relative to 1998, a few years back, leaves business and residential consumers with about \$750 million less per year to spend on other goods and services. That's a significant amount, but relatively small compared to Ontario's gross domestic product of about \$450 billion.

Higher energy prices do not pose the risk today that they did in the past, because the Ontario economy is much more energy-efficient than it was at the time of the oil shocks of the 1970s. Furthermore, a larger share of our output now consists of services and high-technology activities that are not energy-intensive. In 1980, Ontario was consuming 217 million barrels of oil a year. By 1999, with a much larger economy, that had declined to 164 million barrels. Even with the high prices experienced last year, we estimate that the total cost of oil and natural gas imports to Ontario was under 3% of GDP in 2000 and, given the recent trend in prices, will be even lower in 2001.

Turning to the slide marked number 7, the committee asked us to address the topic of economic opportunities associated with alternative fuel and energy. I'm only going to be able to do this in a very general way. Some of the other ministries have already talked to the issue.

In a large and diversified economy with a deep pool of human capital and a wealth of natural resources like the Ontario economy, there is an enormous capacity for business and communities to seize economic opportunities. Deregulation is creating opportunities for new forms of generation to develop that will supply electricity to the power grid. This means opportunities for investment and job creation through projects such as cogeneration and wind power. Deregulation should also facilitate the development of environmentally friendly, small-scale hydro-generating capacity. The opportunity for this is dispersed throughout the province, and there are significant potential benefits for northern and eastern Ontario. As the Ministry of Agriculture has indicated, the agricultural sector can also benefit from further development of biofuels such as ethanol.

The next slides really provide, from the Ministry of Finance perspective, some of the context for economic

policy-making. The basic thrust of Ontario's economic policy is to foster a strong business climate through policies such as lowering the general level of taxation to ensure that we have a competitive tax environment, ensuring that our workforce has the knowledge and skills needed in the modern economy, and removing barriers to growth in the form of unnecessary red tape.

I think this is important to the committee for a number of different reasons. First of all, a healthy and growing economy is much better able to cope with developments such as fluctuations in energy prices and to generate the resources required for research and development and investment in alternative energy sources. Second, and more specifically, a lower general level of taxation may mean there is less scope to use tax policy to encourage some activities and to discourage others. Third, new regulations need to undergo a business impact test, and this should be taken into account to the extent that regulatory approaches to encouraging alternative fuel use are considered.

There are a variety of measures in place that support small business and support research and development. Much of the innovative work in the development of alternative energy and fuel sources is conducted by relatively small businesses. Recognizing the important role they play, Ontario encourages small businesses by cutting the small-business tax rate from 9.5% currently to 4% by 2005. That will be half the rate that applies to larger corporations. More firms will also benefit from the lower rate, because the threshold levels at which it begins to be phased out and at which it no longer applies will also be increased. Ontario has introduced a 10% refundable tax credit for research and development of small and medium-sized firms and a new technology tax incentive which helps business acquire new intellectual property to use in Ontario. These aren't policies that are aimed exclusively at alternative fuel and energy, but they are aimed at the kinds of firms and the kinds of innovative behaviour that will take the lead in developing alternative forms of energy.

You heard reference earlier today about small-scale hydro as one of the areas of economic opportunity. The government and the ministry, working in close cooperation with community and business, have introduced changes that are encouraging the development of small but potentially efficient water-powered generating capacity. Existing property tax calculations and crown water rental rates are being replaced with a new graduated or progressive charge on gross revenues. Basically this applies a much lower tax rate to the smaller scale of hydro development. There are also 10-year tax holidays available for investment in water power capacity.

Turning to slide 11, sales and commodity tax support for alternative fuels, Ontario currently exempts most alternative fuels from the 8% retail sales tax and from the Gasoline Tax Act. Propane, as we've heard already, is taxed at a lower rate per litre than gasoline and is also exempt from the retail sales tax. This isn't unique to

Ontario. It's really almost standard practice in most parts of North America.

There are also, from the last budget, proposed refunds of retail sales tax that are available for the purchase of vehicles that run on alternative energy sources. These rebates are designed to encourage the use and development of alternative-fuel and hybrid electric cars that would reduce our reliance on conventional fuels and reduce emissions to the environment.

Slide 13 turns to corporate tax policies that encourage alternative fuel and energy use. Both federally and provincially we apply an accelerated depreciation rate for energy-efficient equipment. This class of assets is eligible for an accelerated capital cost allowance rate of 30% rather than the rate of 8% that's provided on most electrical generating equipment. The eligible machinery includes cogeneration and waste-fuelled electrical generation systems, active solar systems, heat recovery systems, wind energy conversion systems and geothermal electrical generation systems.

The other existing corporate tax policy designed to encourage alternative energy is a class of recognized expenditures called Canadian renewable and conservation expenses. These are expenditures associated with the development of renewable energy such as the test wind turbines. The expenses are fully deductible and can be flowed through to shareholders. This supports the renewable energy sector by providing improved access to financing in the early stages of operations when there is typically little or no income against which to utilize conventional income tax deductions.

In this context, I should also point out an announcement in this year's Ontario budget of a review of tax incentives. This was one of the recommendations of the business tax review panel. The panel noted that special provisions—tax expenditures, if you will—such as this can make the tax system more complicated and costly for taxpayers. They recommended that the government review existing tax measures to ensure that they remain effective and are still achieving the goals for which they were originally designed.

Turning, in slide 14, to what's going on in other jurisdictions, beginning with corporate tax, a number of US states have corporate tax incentives designed to encourage alternative fuel use. In general these take the form of tax credits, income deductions and accelerated depreciation allowances on particular classes of property and equipment. One thing I should note is that there really is not a lot of information systematically available about how effective these various measures are.

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The slide goes on to list some specific examples, state by state. Arkansas, for example, has a 30% tax credit for the cost of capital needed to produce fuel such as ethanol. Connecticut has provided a 50% tax credit for the cost of building filling stations or improving existing stations so they will be able to provide alternative fuels and also to convert vehicles to run exclusively on alternative fuels or electricity. Massachusetts allows corporations to deduct

solar or wind system expenditures for space or water heating from their taxable income. Texas allows corporations to reduce the cost of a solar energy device by deducting the total cost of the system from a firm's taxable capital. Those are a few examples of a patchwork of measures that are in place through the States.

Turning to commodity tax support in the US, again there's a variety of measures to support alternative fuel use. These measures include tax refunds, exemptions, grants, loan supports. For example, there are some states that provide credits against state income tax for part of the cost of solar or wind energy investments. Others provide exemption from property tax for calculation of the value of a property or from the state sales tax for particular classes of investment designed to conserve non-renewable energy. Obviously these measures are designed to be compatible with the US tax system, so they might not be easily applicable to Canada.

This is a very cursory discussion of the types of measures that are in use. The slide cites a Web site that provides a thorough list of measures that the various states use to encourage alternative fuel use.

Finally, the last slide, 16: personal income tax doesn't have a big part to play, although because the US has a different system from ours—no federal sales tax—it is slightly different and more important there. Part of the Bush administration's 2001 energy initiative is a proposal to introduce tax credits that would rebate part of the cost of buying an electric hybrid vehicle, and it would do that through the US federal income tax system. The slide goes on to cite 13 states that we've been able to identify as offering various incentives against state income tax for alternative fuel use.

That concludes what I have to say.

The Chair: Thank you. It's much appreciated.

That concludes the seven ministries' presentations. With the committee's indulgence, I suggest that maybe the questioning might be five minutes per caucus and just keep rotating until we run out of questions or we reach 4 o'clock, whichever comes first. Would five minutes be in order, or would you like a larger block of time per caucus as we move around? Is five minutes in order?

Mr Gilchrist: Ten.

The Chair: I hear 10. Would 10 be more satisfactory? OK. If there are no objections to 10, then we'll go that way.

Traditionally we start with the official opposition. Who would like to start?

Mr Ernie Parsons (Prince Edward-Hastings): My first question is to the Ministry of Transportation. Although we're on alternative fuels, which means we want to find an alternative to the carbon-based, very clearly part of our interest—and I don't think it's off topic—is a reduction in the use of carbon-based fuels, just through sheer savings. Having driven into Toronto over the past years, I can't help but note the difference in the number of cars that are on my road when I come in each morning. This province is the only jurisdiction at the provincial or state level that does not fund mass transit. Have there

been any studies done to determine what the effect on the number of vehicles on the road has been by the lack of support for mass transit?

Mr McCuaig: I know there have not been any studies of that nature.

Mr Parsons: I realize the role you're in. I'm disappointed. So the stopping of funding was done without any determination of the impact?

Mr McCuaig: Sorry, I don't think I indicated that. What I indicated was that the particular kind of study you identified has not been done. But I believe that the trade of financial responsibilities between the province and the municipalities was part of a larger exchange and the concept, the principle, was that they were to be revenue-neutral, and municipalities were taking on responsibilities in exchange for the province taking on other responsibilities. I believe that's the fundamental principle that applied through that exchange of responsibilities in the 1995-98 era. The Ministry of Finance or others may want to add to that, but I think that would be the basic response: that municipalities have capacity, in principle, to move into the areas the province moved out of at the time.

Mr Parsons: That's a good political answer; I was looking for an engineering answer as to the effect, because we have seen subway construction stopped. Very clearly, the lack of a subway has put vehicles on the road.

Mr McCuaig: I believe the Sheppard subway is still under construction at this point in time and will be going through to conclusion. The government fulfilled its commitment to fund the Sheppard subway.

Mr Parsons: We read different documents.

Mrs Bountrogianni: I have two questions, one for Mr Topaloglu. You mentioned that in Arizona they had the richest program with respect to supporting ATFs, but it's under a moratorium. Can you tell me when that occurred and why, to your knowledge?

Mr Topaloglu: The moratorium is really recent. It applies to 2001. It has been put in because there have been abuses of the program. The program said that if you purchased an alternative fuel vehicle, you would enjoy certain tax reductions, and they were very substantial. However, it did not specify how long or to what extent you should be running on that alternative fuel. So people would buy a vehicle like an ethanol-powered vehicle, let's say, which could happily also run on gasoline, never run it on ethanol and yet enjoy the tax benefits that come with that vehicle. Therefore, they have been putting a lot of money into something that did not produce the corresponding benefits, and hence the moratorium.

Mrs Bountrogianni: I have a question for someone from the Ministry of Energy, Science and Technology. You mentioned the Ontario centres of excellence and other research programs that could be used toward alternative fuel sources. To your knowledge, are there any studies yet through these areas, Ontario centres of excellence or the Premier's Research Excellence Award, that are looking at alternative fuel sources?

Mr Vander Voet: There are no direct projects involving alternative fuels at this time. Most of the research is academic and is based a lot on materials which would support those industries and those technologies. But there's nothing directly.

Mr James J. Bradley (St Catharines): My question will be to the Ministry of Energy and it's related to the price of natural gas, which is considered to be cleaner, of course, than coal or oil, and the concerns you see with the free trade agreement, NAFTA, and the specific case of Mexico and the United States as it relates to having to sell, whether we want to or not, apparently—the Prime Minister wants to do it, and the Premier of Alberta. My concern would be in terms of supply of natural gas, and of course with the competition south of the border wanting that natural gas, driving the price up. What do you see as the effect of the free trade agreement and the NAFTA on that price and that availability?

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Mr Jennings: I guess the North American energy markets, particularly natural gas, have been integrated at least since the early 1990s. There is discussion about further integration but basically they are almost fully integrated now. I think the price will be set in North America, whatever we're doing now. There was a recent barge price increase partly because prices had been low, so there was a reduction in drilling activity. So while there was a large run-up in price, that has already softened as more supply has come on. I think we will be dependent on the North American price, but I think there has been a price response. I'm not sure whether the specifics of the agreement will make us less dependent on the US market for setting the price or not. That's sort of the reality of how the market price will get set.

Mr Bradley: Certainly my remarks would not be popular in Alberta, but the national energy program, which no one seems to embrace any more, in theory was to provide Ontario, largely, but eastern Canada also, with in that case oil, but now also natural gas, at prices which were below the world market prices, and an availability as supply-first demand. What you are saying is that the NAFTA now requires that whether there's a greater demand here or not, the demand across North America shall be met relatively equally. Is that correct?

Mr Jennings: Based on pipeline capacity, and pipeline capacity has been added to make us more integrated into the US market.

There are obviously different ways of looking at what happened with regulation and deregulation, but in terms of natural gas markets since they were deregulated in the mid-1980s, prices have been substantially lower, until just the very recent couple of years, than they were before. So consumers in Ontario have actually benefited from the deregulation in the period from the mid-1980s on.

Mr Bradley: In the longer run, would it not be to Ontario's advantage—and it's difficult to turn back the clock on the free trade agreement, I recognize that, unless you're going to get into a major renegotiation—and of

benefit to our country and to our province, which is the largest consumer of natural gas probably in the country, looking at how much industry we have and so on, to have a Canadian-first policy, that is, a policy which requires that Canadians be supplied first and be supplied at a reasonable price, as opposed to a policy that puts us at the mercy of an ever-increasing market in the United States, as I say, with the Prime Minister of Canada and the Premier of Alberta in cahoots trying to peddle energy south of the border? Meanwhile, we're paying higher prices here and aren't necessarily going to have it available to us if there's a major crunch.

Mr Jennings: I guess the position that Alberta has taken in discussions they've had with both the federal government and in the North American context is that under the Canadian Constitution the provinces have management and ownership of their resources.

As you've noted in your first remarks, in Alberta there is a fair bit of resistance to that idea, and certainly that would be the position they would take, that they have the principal responsibility for managing their resources. So this is one reason, I guess, that they would have looked at a made-in-Canada energy policy differently than we did in Ontario.

The Chair: We really should move on to the third party. We'll be back to you.

Ms Churley: I have a question specifically to the—sorry I don't have all your names—Ministry of Finance. There's a letter we received, and this may involve a political answer as opposed to an answer from you, but it's of some concern because I had a deputation in my office about this as well. It's a letter from the Toronto Renewable Energy Co-operative about small-scale exemption proposals for renewable energy and conservation and environmental protection. They point out in this letter that the Ontario government's commitment, as you know, in Bill 35 said that they would bring in opportunities for that small-scale greener power to come into being in Ontario. They did write a letter—I don't know if you have this letter in front of you—to the then Minister of Finance, Minister Eves, who advised them that there was a possibility of that happening. But to their disappointment that did not happen. They point out in their letter that in order for them to survive and grow and do as promised in that bill, this small-scale exemption needs to be put in place. I should clarify that's the small-scale exemption from the DRC, the debt retirement charge. That's the specific exemption they were asking for. While recognizing that there is a huge debt from, perhaps one could say, misguided nuclear policies—we all recognize that has to be dealt with—I think they make a very good case that unless they get that exemption, they're not going to be able to achieve, as the government promised under the bill, the ends we're all hoping to see as a result of that bill.

I wonder if you have any comment on that. Are there any discussions going on that this might happen for the small-scale producers?

Mr Deutscher: Ann, can you answer that?

The Chair: Could you come to the microphone and state your name? Thank you.

Ms Ann Langleben: Ann Langleben, from the corporate and commodity tax branch.

I'll try to answer your question as best I can. The debt retirement charge: there was a release very recently asking for comments on a proposed set of parameters that had been issued. We are reviewing all the submissions right now and will be bringing forward a summary of all the comments to the Minister of Finance. The bulletin that was issued regarding further details on the debt retirement charge was consistent with the June 2000 release of Minister Wilson on the design of the debt retirement charge. But as I said, we are accepting submissions, and they will all be reviewed.

Ms Churley: Do you have any idea of when, after accepting submissions, decisions will be made?

Ms Langleben: We hope to have a regulation ready as soon as possible, but of course that will depend on the government's schedule and the decisions that the Minister of Finance and Minister Wilson make.

Ms Churley: Right. So in other words, I'm correct in that to a large extent it is a political question as to how quickly this will be—

Ms Langleben: Yes.

Ms Churley: —the desire to move this ahead. Because this letter says very clearly that, sadly, there has been little action which demonstrates the Ontario government's commitment as stated in Bill 35, but they do offer a good suggestion here as to how that can be kick-started. I'm sure we can take that up in the committee later. Perhaps we as a committee can, in one voice, urge the Minister of Finance to move on that, because it's clear that it would make a big difference to these small-scale producers.

I wanted to ask a general question, and I'm not sure who can answer it. There have been so many good presentations, and it's been good to get an overview of what's going on within different ministries. One of the questions I have—and perhaps the ministry I need to answer it isn't here—is around retrofitting. I believe that in the process of our discussions of moving forward with looking at green energy, alternative energy, alternative fuels and all those things, there is a real need not to forget about energy conservation and efficiency, which of course involves retrofitting buildings. I think we need to start moving forward on that rather urgently. I don't know if there's anybody here who has any knowledge of existing programs and what more can be done around that, or do I need somebody from housing for that?

Mr Cecchini: With respect to buildings, you probably do need somebody from housing. I can just reiterate the programs the Ministry of Energy has to encourage energy efficiency. Those lie mainly in the area of developing standards for energy-using products and minimum energy efficiency standards that we continually ratchet up over time—

The Chair: Excuse me. I think you're going to have to mention your name. There are so many people answer-

ing here that Hansard is going to go nuts trying to come up with the right name for recording purposes.

Mr Cecchini: My name is Perry Cecchini. I'm from the Ministry of Energy, Science and Technology.

As I was saying, I think our activities generally lie within the area of developing standards. We will also be observing the Ontario Energy Board's proceedings closely, their consultations on the appropriate role of electricity utilities and promoting DSM. That's one consultation we're going to be looking toward this fall.

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Ms Churley: If I could follow up on that, perhaps you could supply to the committee any information your ministry has on the amount of energy that can be saved from completely—I presume that studies have been done to show the impact of retrofitting buildings, particularly older buildings. Do you have that kind of data?

Mr Cecchini: I'd have to check with staff. I'm not aware of any current data that we have on that.

Ms Churley: That's one of the areas where we've got all kinds of good submissions and deputations, but I see a bit of a gap, although it's been mentioned. You're right; you did mention it earlier. I think it's an important component of this and it would be useful for us to have any kind of data and information that's available so we can also, while we look at alternative fuels, look at the impact of more retrofitting and conservation.

I think those are the questions for now.

The Chair: Thank you very much. We'll now go to the government side.

Mr Ouellette: Thank you, Mr Chair. I'll start off with the ministries as I saw the presentations.

Science and technology: earlier on you mentioned the wind power and that the best locations were along the James Bay and Hudson Bay coasts. What would it cost to hook up to the grid, as there is no hookup from those locations? Any estimates of what it would cost to hook anything up from those locations?

Mr Jennings: I don't think we have specific—because it would all be site-specific. The transmission grid goes up as far as Moosonee, which is on James Bay. There is a planned extension that goes up a bit further than that, up to Attawapiskat, so it would bring—

Mr Ouellette: What's the cost of going to Attawapiskat?

Mr Jennings: It's obviously much more expensive than lines here. There certainly had to be special arrangements made to make it financeable, but Hydro One is putting it in. We can get those numbers to the committee. That would bring in more of that area.

The other thing with some of these sites is that, depending on how big they are, you'd have to make modifications to actually hook them up to the grid, because the grid in this case is fairly high voltage.

Mr Ouellette: On slide 23 you talked about use of forestry and agricultural residues. Currently in Hearst there is a manufacturer that uses wood waste by-products and natural gas for generation.

Mr Jennings: Yes.

Mr Ouellette: Do we have much detail on that? There are a lot of other locations throughout Ontario that currently take their wood waste by-products to the dump as opposed to utilizing them in the same fashion they do in Hearst.

Mr Jennings: The Hearst plant, which will be in some of these numbers we have on the totals, is a line, I think, with the TransCanada PipeLines compressor station that is nearby. The wood waste is actually trucked to there and they are able to use the heat. I guess, in terms of how unique that is, there are numerous TCPL compressor stations, so that particular thing where there is a lot of wood waste—Hearst, of course, also has the sawmill.

Mr Ouellette: But there are no other further plans for utilization in the same fashion that we know of?

Mr Jennings: I think people are looking at that and some of these investments may go forward when the market opens. Of the proposals that are out there, several of them are in wood waste, so I think people are probably looking at varieties of those. That particular thing may be unique because it's the compressor station and the sawmills. They've had an incentive to try to move that waste, to use it, for some years.

Mr Ouellette: Being that electricity pricing is based on peak load, have you talked with or had discussions with any manufacturers in order to try and reduce peak load operations? For example, one idea would be putting timers on dishwashers or dryers or washers so that peak load could be reduced by having them go on at 4 o'clock in the morning as opposed to the normal time. Has there been any discussion or any looking at those sorts of aspects?

Mr Jennings: Those types of things have been studied and there have been experiments with them. In terms of how people will respond to prices, there are meters that respond. They are, of course, more expensive than what people normally have, so that has been a barrier to their adoption. In terms of how people themselves will respond to that, unless there's a big difference in price, people may not respond very much.

Large industrial customers, the way the market works, can be what's called dispatchable loads, which means they can be interrupted when the price reaches a certain amount. Because those are all sort of a large load at once, it has a fairly big impact on the system, so that is going to be part of the electricity market.

Mr Ouellette: You mentioned the \$375 million spent in the Ontario challenge fund. What do we have to show for that in this field so far?

Mr Vander Voet: In the field of alternative fuels, we don't really have anything. The challenge fund and the Ontario Innovation Trust are both application-based. The applications come from the research institutions themselves with their private sector or other partners. The government funds do not go out by any specific sector. We have worked with various groups to apply for funding, with companies. The problem in the past has been that these are largely research-based. We are looking at changes to those procedures to try to get into more

development-type projects, but up until now it has been research-based.

Mr Ouellette: Ministry of the Environment: on slide 3 you mentioned the landfill gas regulations. Does this take into account all the old sites? Do we have listings of the old sites throughout Ontario, or is there any way to identify any of the old, potential problem sites? Are they being currently looked at?

Mr Rockingham: The slide that you are referring to just notes that there is a regulation that says that large sites that are new or modified must have landfill gas capture. I take it your question is, have there been studies associated with requiring landfill gas capture at existing smaller sites?

Mr Ouellette: Yes.

Mr Rockingham: I believe there was some analysis of that, but of course the costs would increase because you're not able to take advantage of the economies of scale.

Mr Ouellette: OK. There were also some discussions about the sulphur in gasoline. I know the industry, being the automotive industry, when dealing with diesel fuel, trades off fuels for sweet crude coming in, and a lot of the high-sulphur-content gas goes to home heating fuel. Has anything been looked at in dealing with sulphur content in home heating fuel? Essentially what the industry is doing is trading off Peter to pay Paul, so we're still getting those high-sulphur-content fuels but it's being dealt with in home heating fuel as opposed to diesel.

Mr Rockingham: There are regulations right now that limit the sulphur content in some of the fuels used in the Toronto area, and we are looking at a whole range of opportunities in terms of limiting the sulphur content for just the sorts of fuels you are talking about.

Mr Ouellette: I'm going to bounce back over to the MNR just because of time. In regard to the dams, I know British Columbia has low-flow hydro generation. Recently, in August and September 1999, the Onaping Falls dam was reconstructed. My research indicates that it has all the components of low-flow hydro generation, yet nobody looked at utilizing these low-flow dams in Ontario for hydro production. What can the MNR do through its conservation authorities, who regulate a lot of these low-flow dams, to encourage the use of these waterways to produce electricity?

Mr de Launay: I'm not familiar, actually, with the Onaping Falls dam.

Mr Ouellette: That's just one location. There are hundreds of them in Ontario.

Mr de Launay: Our approach at this point has not been to be proactive with any of the dam owners or developers around potential hydro power, but to wait for the market opening to create the economics that would mean it would become more viable to make these developments. So as we move into the future of the deregulated market, if any proponent came to us asking for approvals for developments or whatever, we would look

at it then on a site-by-site basis. That's been our approach up to now.

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Mr Ouellette: I personally believe that a lot of these dams are underutilized and could be used for generation, and we could add to the grid substantially, currently using water-producing facilities.

You also mentioned the gold rush claims for northern Ontario or somebody finding falls and then putting a stake on them. Are there problems whereby people will protect your industry and go out, in a lot of the same fashion as I've found in mining, and put claims on with no intention of developing them? What happens in these non-utilized, claimed locations after what period of time?

Mr de Launay: At this point nothing has happened. All this occurred in the late 1980s. Then there were discussions with Ontario Hydro before their restructuring and a small number of sites were developed. Since then, nothing has happened to any of those sites. So that's part of the considerations of looking at the allocation of these sites into the future.

Mr Ouellette: I know my time is short, so I'll go to the Ministry of Finance. You had mentioned a number of jurisdictions that have a large number of tax incentives. I personally know of corporations that are selling environmentally friendly fuel around the world and are having a lot of problems with the Ministry of Finance in determining the taxation rate for non-recognized fuel. We talk about ethanol here, which is established. However, there are others out there that are being sold. Ontario is the jurisdiction of choice for these individuals, yet we seem to be putting up roadblocks and not bringing them into the province. What policies are going on to change that so we can bring new companies in to look at Ontario for basic distribution in North America rather than just utilizing methanol or ethanol?

Mr Deutscher: I'm looking back to see if I can once again turn to my colleague for this, if she's familiar with this issue, because I'm not.

The Chair: Would you state your name, please.

Ms Langleben: It's Ann Langleben from the corporate and commodity tax branch of the Ministry of Finance. I'm not aware of the roadblocks you're referring to. I'm not sure whether it's—

Mr Ouellette: What it appears to be is that the ministry does not know how to tax a new environmentally friendly fuel. Is it taxed the same as natural gas? Is it tax-exempt for five years, as is fairly much the unwritten policy within the ministry, or what do they do? Right now, as of February, there was almost a decision made, and then we had a change in ministers at that time whereby now these individuals are being referred to get approvals from I think five different ministries before finance will even look at it. So it has caused a huge delay. In the meantime, we have all these other jurisdictions that are offering tax incentives and they're looking elsewhere. We could use a large base industry for North America.

The Chair: Maybe this is something you can get back to us about.

Ms Langleben: Yes. I'll consult with my administrative colleagues.

The Chair: We should move on to the official opposition again.

Mr Bradley: My first question is to the Ministry of the Environment and it's in regard to volatile organic compounds and what the present Reid vapour pressure requirements are at the Ministry of the Environment. Can you tell me what they are today, dealing with low-level ozone, and how those would compare with other jurisdictions?

Mr Rockingham: I'm sorry, I'm not able to quote you what the Reid vapour pressure is. We do have volatility restrictions which require reductions in the RVP.

The Chair: It's different in the summertime versus wintertime.

Mr Rockingham: That's correct.

The Chair: I believe it's 62 kilopascals for the summertime. It was reduced from 72 to 62 back in about 1997.

Mr Bradley: How would that compare to, say, the Reid vapour pressure now required in the New England states? Would you have that information?

Mr Rockingham: I'm sorry, I don't.

Mr Bradley: You'll be able to get that information for me?

Mr Rockingham: We could get back to you.

Mr Bradley: Thank you very much. If I may, there is a worry out there that coal-fired plants are going to be stoked up for the purposes of exporting electricity. Is the Ministry of the Environment expressing a concern? I understand, as the Minister of Energy said, that in the past coal-fired plants were for peaking purposes. So we saw them stoked up in the summer, in the great heat, when there was a great demand for electricity, and in the winter when there was a great demand for electricity, but they were considered to be peaking. I thought I heard a comment that they're no longer entirely peaking. In fact, they use more for the regular production of power. Does the Ministry of the Environment have a concern, if there is considerable energy to be exported in the form of electricity to the US, that it will cause greater environmental problems for Ontario if we stay with coal?

Mr Rockingham: I think the policy on that is that we have a proposal right now to cap the NO_x and SO₂ emissions, which are two of the major pollutants associated with coal-fired stations. Those caps will decrease over time so that the amount of pollution that can come from the electricity sector will decrease.

It's also a recognition that we live in an air shed. Whether electricity is produced in Sarnia or just across the border in Michigan or Ohio, there's a strong likelihood that we will receive the pollution from those plants. So I think the recognition is that there is an air shed, and what we are trying to do is encourage reductions right across the air shed. That's part of the logic in the emissions trading proposals that have been put out for

public comment, whereby we are allowing emitters in Ontario to search out ways of reducing pollution in Ontario but also in states in the air shed, recognizing that in terms of the air quality in Ontario, it doesn't much matter whether the pollution is produced on this side of the border or just on the other side of the border.

Mr Bradley: This is a little off topic, so I won't pursue it, but I don't think the people who live directly downwind from the Lakeview generating station, Nanticoke, Lambton or the two in northern Ontario would be as optimistic about that as you have been today.

If my colleagues have a question, fine, otherwise I'll pursue one.

Mr Parsons: I do.

The Chair: We'll keep coming around.

Mr Bradley: My colleague does.

Mr Parsons: To the Ministry of Finance: I leave home at about 4:30 on Monday mornings to drive here, and at that time on the 401, coming from the east, I'm the only car. There are about 18 billion trucks, but I'm the only car. I can't help but notice, as I drive in, these railway tracks on each side of me in places, and very rarely do I see a train on them. Sometimes the government can do things by regulation and sometimes they can do them by policy. The policy will cause things to happen without it being regulated. Railways by and large pay for everything. They pay taxes on their right of way; they assume full costs; there is no rail track provided for them. Taking trucks off the highway and putting them on trailers behind a locomotive obviously fantastically reduces fuel consumption. What is the Ministry of Finance's policy, or is there anything being looked at that would encourage freight to move on to the rails and thus save the consumption of diesel fuel?

Mr Deutscher: Once again, I'm afraid I don't have specific information about policies. I'm not aware of anything that is specifically at present designed to encourage cargo to move from trucking to rail. I will go back to my ministry to see if there is further information we can provide the committee with.

Mr Parsons: Safety and traffic congestion aside, there has to be a tremendous incentive to reduce fuels by simply moving to railways.

Do we have time?

The Chair: We certainly do. You have another three minutes, roughly.

Mr Parsons: I have a question, and I'm not sure to whom, because no one mentioned it, but I'll try the Ministry of Energy, Science and Technology. There has been no reference, unless I missed it, to geothermal energy. Has that been investigated as feasible anywhere in Ontario for the production of electricity?

Mr Cecchini: The reason we left it out is that we didn't see it as a viable option in Ontario, in the sense that there really isn't a lot of resource there for us to exploit.

Mr Parsons: It has been looked at?

Mr Cecchini: It has been looked at.

Mr Parsons: And it's not viable. OK. Thank you.

Mr Jennings: As you say, Ontario's potential is much lower than places like California or Iceland or even western Canada where it is viable. Ontario has a much lower potential.

Mr Parsons: Is there a break-even point on the cost of crude that would at some stage make it viable in the near future?

Mr Jennings: In theory there would be, but I guess in Ontario it would be viable long after anywhere else. We don't have any readily identified geothermal resources in the sense that California has. They clearly do. Alberta has some.

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Mr Parsons: We don't have any because we haven't looked for them or they're not there?

Mr Jennings: They're certainly not readily there. No one has identified where Ontario would have a really good advantage in terms of developing geothermal.

The Chair: There's still time if you'd like to take a little more.

Mr Bradley: Yes, I would. To the Ministry of Energy: one water operation that has a lot of potential would be what is referred to as Beck III in Niagara Falls. At the present time we have a lot of generation of hydroelectric power, genuinely hydroelectric power, in Niagara Falls. There was a proposal a number of years ago to proceed with what was called Beck III, being yet another operation that could produce hydroelectric power. Where is that at the present time? Why is that not being pursued? What are the roadblocks to it? I don't think there were significant roadblocks environmentally, initially at least. So I'm wondering whether it's environmental roadblocks or it's money or what the reason would be for not proceeding with that when it is relatively benign electricity.

Mr Cecchini: From what I understand, for the full development of Beck III there are some cost implications to the corporation. But I think it would probably be a question that would most appropriately be directed at the OPG representative when they're here on Wednesday morning.

Mr Bradley: You're not aware of any reasons, or you simply prefer to have them state them?

Mr Cecchini: I'm aware of some, but I think they can deal with the question in much more depth, which the appropriate answer probably requires.

Mr Bradley: Are there any incentives that your ministry would provide to them to proceed with that project, or would you consider that to be inappropriate to have an incentive to proceed with a project of that kind in the context of deregulation, in the context of an open market?

Mr Cecchini: I think we can talk about what we have in place in the sense that essentially what we have in place is that we're opening the market. The price will be driven by the market. What we are doing right now is to support so-called environmentally preferable energy. It's essentially going to be a premium product in this electricity market, so what we're trying to do is develop an

environmental labelling program which would help those people who wish to market that product get the value that that product properly deserves in the marketplace.

Essentially, to describe that, let's say the price of generation of electricity is right now, on average, four and a half cents to five cents a kilowatt hour. From what we've seen on environmentally preferable projects, or what we call alternative projects, be it wind, new hydro development, some biomass, the price is probably going to be in the range of four to five to eight cents, and in some places, 10 cents a kilowatt hour. The market will take of the five, essentially, through the IMO market. What we're trying to do is develop a program, to have a program in place which will allow in the marketing of what you call the green attributes to customers, both industrial and residential customers, to provide some kind of verification that in the transaction that's taking place between the marketer of the electricity and the customer there will be appropriate verification that the product they're buying in fact got on the grid and was sold to that person or company. That's the kind of program we have in place to support the marketing of environmental products right now.

The Chair: We'll move on. Ms Churley, do you have some questions all ready to go?

Ms Churley: Yes, thank you. Coming back to the Ministry of Finance, I want to come back to page 13 of your presentation. I should have taken notes, but I believe you said that you'd be happy to or you could elaborate on this.

On page 13, you mentioned, "Business tax review panel: businesses prefer lower tax rates to tax incentives." I didn't catch what you said about what decision was made around that, because of course on the next page, although it's federal in the US, you talk about some of the corporate tax incentives. I come back to my thesis again, that unless we find ways to get these renewables in some way cost-competitive so that people will actually buy the power from them, then we've got a problem. There's a lot of stuff we all know that's already out there. You outlined some of them today—the windmill, the huge one that's going up. We don't want to be reinventing the wheel in some cases here. What I'm really concerned about is making sure we have the kind of tax structure—and I know it's partly federal and partly provincial—that's so important if we're going to be able to get this stuff off the ground. Can you comment on that?

Mr Deutscher: Yes. That was a request from a business tax review panel that was established prior to the 2000 budget and then reconstituted before the 2001 budget. The idea is that businesses sometimes find the tax system more complicated than is worthwhile if there are a lot of different complications and special incentives, and that should be systematically re-examined. They weren't saying that each and every one of these special measures is not worthwhile. They just said, "Go back and check. Make sure you are achieving the end that you desired." In particular, when policies have been established in the past, they should be re-examined periodical-

ly to see if they're still meeting the goals that were originally set out. It was not intended to be a categorical objection to tax incentives.

Ms Churley: So in this case, the fact that this is here and that businesses say they prefer lower tax rates—of course they do—to the tax incentives, that doesn't mean—that's what I'm trying to clarify—that the government has not made the decision to move in that direction, so looking at various tax incentives in this particular case is not off the table. It doesn't say that.

Mr Deutscher: Absolutely not. It doesn't say that.

Ms Churley: But it's one of the things that will be looked at in the whole mix of taxation policies?

Mr Deutscher: Certainly it's bringing a Ministry of Finance kind of perspective to it but, yes, it's basically intended to be a statement of something that should be borne in mind: is this extra complication going to be worthwhile in terms of achieving the result?

Ms Churley: Did you find, again in your short presentation, that the little we know, or what's been presented here, about the incentives in the US in terms of kick-starting the green energy, alternative energy, has made a difference? What information do we have about that and about what states and what the federal government do? I think we also need to take a look at the role and responsibility of both levels of government, in terms of tax incentives and other means, to help alternative energy get off the ground.

Mr Deutscher: Yes. In general, I think that some of the commodity tax incentives appear to have been clearly effective when they're large enough to encourage consumption of alternative fuels. That has clearly made a difference in the United States. I think that the size of the jurisdiction has mattered a good deal as well. We referred earlier to how large the California market is in terms of people driving, and so measures that are taken there probably have had a significant impact on the evolution of the auto industry. In general, though, in the short period of time that we spent looking at the literature, we didn't find a systematic assessment of the effectiveness of at least the corporation and the income tax side of the incentives.

Ms Churley: Does anybody in the Ministry of Energy have any comment on the various taxation and other financial measures and tools that can be used to encourage the industry?

Mr Cecchini: I think the kind of research we've done has shown that the federal production tax credit in the United States, which I think is about 1.7 cents US, has been a driver for getting new development.

Ms Churley: I'm having trouble hearing you.

Mr Cecchini: The federal 1.7-cent production tax credit in the US has been somewhat of a driver for getting new renewable development in the United States, especially with regard to wind projects. You'll see the projections there. They kind of go up through to the end of 2001, when the production tax credit is supposed to phase out, though there has been some indication that it may in fact be extended.

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Ms Churley: And you've seen a difference, I presume; that there are some state incentives and then there are overriding federal incentives as well?

Mr Cecchini: What you'll see is that the states operate differently. The federal one is the production tax credit. The state incentives will be mainly towards things such as renewable portfolio standards where they will essentially create a little ring fence market of things and 1% or 2% of the market will be allocated to certain types of alternative energy. Basically you create a market there where they basically grow to a certain percentage. So it may grow over time.

Ms Churley: What examples do we have in Canada where some of these things are happening? Who is ahead of us?

Mr Cecchini: I think when you talk about who's ahead of us, you also have to look at where we're at right now. For example, when you're talking about the United States, you're really talking about jurisdictions that are almost solely, or close to 80% to 90%, fossil-based. The reality is that in Ontario right now 25% to 30% of our electricity generation is renewable in one form or another, depending on whether it's made with hydro or it's a biomass or something like that. But since we have a large hydro component, we have more renewable electricity than the comparable jurisdictions in the United States.

I guess what I'm trying to say is that when you're looking at the United States jurisdictions, you have to look at where they're starting from compared to where we're at at the present time.

Mr Jennings: If you want to look at wind, Quebec and Alberta both have a bit more development than us, but I think it's partly that they have more desirable wind locations. That's one of the reasons why they've got more developed than we have.

Ms Churley: Do you have evidence of that?

Mr Jennings: That their winds are better?

Ms Churley: That they have more desirable winds.

Mr Jennings: The ones they've developed in Quebec on the Magdalen Islands, which are in the St Lawrence—those are supposed to be one of the best wind regimes in the country. Similarly, in Alberta, if you have a wind chart of Canada, most of that wind development which Alberta has is all in an area that's particularly attractive. Similarly, in the US, it's areas just south of there that are very attractive wind regimes.

Ms Churley: But if you look at the map that you provided us with today, it appears that parts of Ontario have extremely good—so I'm not so sure that I can assume that—

Mr Cecchini: The map we provided today just shows Ontario in isolation; it doesn't show Ontario in comparison with other jurisdictions in North America. In fact, probably the best winds in North America are those offshore of the ocean, for instance the Quebec development in the Magdalen Islands, or in the prairies close to the mountains.

We received a presentation from CERA and they mentioned that the Niagara Falls of winds are located generally in the areas of South and North Dakota. You see that the best winds on that map are along the Great Lakes. If you note the text, it says Ontario has marginally good winds. We never say anywhere that they are the best winds in North America.

Ms Churley: But does that then mean—

The Chair: We're going to have to move on to the government side. We'll be back.

Mr Ouellette, do you want to continue?

Mr Ouellette: No, I think I'm—

The Chair: Mr Hastings?

Mr Hastings: I guess my first question would go to the finance ministry people regarding your submission about tax incentives versus retail tax exemptions or what have you and all that stuff. Would it be possible for you people to produce for us a cost-benefit study of the advantages or the results thus far from other jurisdictions of all these things that are going on, whether they be tax credits versus a direct subsidy or grant, and I guess an overarching philosophy of whether a direct subsidy or grant for a particular alternative fuel is the way to go in terms of producing the results that the program in the jurisdiction was looking for?

In other words, I'd be interested in knowing where the comparators are of a market-based approach to this stuff versus a more traditional grant-subsidy approach, which seems to be including our own government—much less, I think, but it seems to be the tendency across North America at least, and probably in Europe as well, that you give some sort of subsidy or grant—"tax credit" gets pretty close to it—in all these activities. Would it be possible in the next few months for your group to create and look at what we're up against in terms of trying to help alternative fuels get more thrust and get into the economy?

Mr Deutscher: I shouldn't try to speak for, to commit, the ministry, but it would be a complicated and data-intensive task to do properly.

One time I would think grants and direct expenditures might be more appropriate than tax-based policies would be when there really isn't a market already in existence for a new technology. There have to be buyers out there to respond to the tax incentives before a general reduction for a particular benign type of energy, say, is feasible. In cases where you're trying to focus on very specific types of innovation, sometimes it may be that expenditures or grants would be appropriate.

Mr Hastings: OK. Correct me if I'm wrong: do we not have an exploration expense related to mineral developments in Ontario, similarly structured to the Canadian carbon exploration expense for oil and natural gas?

Ms Langleben: We parallel the federal system for a large part of our corporation tax. On the specific question—your question was whether in Ontario we parallel the Canadian renewable and conservation expense—I can't give you a definitive answer. I'm sure we do. Could

I just check on that and get back to you? But I'm sure we do.

Mr Hastings: OK. A follow-up question that doesn't really need an answer but could be part of the study: companies that are already in this field, whether they be hydrogen or wind or methanol-ethanol, tell me that some sort of market-based approach is required to give them a real liftoff. In conversations, the flow-through share arrangement, although not specifically recommended, is one that appeared to have some kind of favourable response from many of these players. I wonder if we should look at that in terms of how successful it's been in the fossil-fuel-based energy economy.

Ms Langleben: We can certainly take that back for consideration.

Mr Hastings: OK. My next question, I guess, would be to anybody making a presentation today. We're all saying Ontario is a vulnerable province in terms of most of our energy coming from carbon, whether natural gas or oil, and that alternative energies are about 1% or 2% or less right now, when you look at any of the graphs in any of your presentations. To what extent do any of you think we should be creating some sort of specific alternative fuel usage to make us less vulnerable: 5%, 4%, 10% over a certain number of years? Has any thought been given to that kind of target?

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Mr Jennings: In terms of your comment, the percentages were dependent on non-carbon sources. If you actually add hydroelectric, which is sort of traditional but obviously non-carbon, and nuclear, together with the small amount of the renewable that's non-hydro, that's about 30%. In terms of Ontario's vulnerability compared to some other jurisdictions, it probably would be a bit less dependent overall in terms of our amount we're dependent on carbon sources.

In terms of the setting of a specific target, I guess there will be environmental groups that may speak to that which will appear here in the next week or so. I guess one of the questions if one were to choose to do that would be to say, "What target would you set and how would you go about setting that and who would have to bear the burden of meeting that target?" Those would all be things that you would have to consider.

Mr Hastings: There would have to be an obvious linkage to tax policy of alternative fuels, whatever combination you would use, I would think.

I have another question of energy, science and tech. One of the gentlemen said that geothermal is not a viable option, and probably in terms of Iceland it isn't, but would it not be an appropriate one to look at in terms of localized geothermal, particularly the traditional heat pump, which was a major thing about 10 years ago, 20 years ago certainly, with the old energy prices? Should we look at it in that context?

Mr Jennings: A ground source heat pump—again, there was a lot of work done when there was more concern about fossil fuel prices than there has been until recently, so maybe that's something that could be looked

at again. Certainly it's a viable technology. You just have to go down to a certain level under the ground and you can make use of the constant temperature there. It is, depending on the relative energy prices, commercially a viable technology. When electricity was being more promoted as a heating source there was a lot of work in that area, but I think that hasn't been done as much lately. That's something that could be a very efficient way of using energy.

Mr Hastings: To what extent in all of these alternative energies should we be looking at what the consequences are when you take an industry or residence or whatever the facility is off grid and you make it more reliant on that alternative fuel, whether it be solar or wind or what have you? Do we not have a problem we have to look at in terms of the negative credits with the major utility suppliers and we're not doing that yet?

Mr Jennings: With a distributed generation, particularly when it first starts out, what it does is it displaces the need to build new versus transmission capacity. It would displace the need to retrofit or extend the distribution system. So in fact it would potentially initially defer costs. I guess over time you could say it could lead to more stranded costs if you have a distribution system which is built to handle a certain amount of electricity and it's using less, so obviously the costs of distribution would go up. That is a potential issue. You would obviously have to change how you're pricing distribution. Now, in the open, competitive market, the distributor will be able to recover their costs and it won't be just dependent on through-put. So each cost per kilowatt hour of distribution will go up if you have more distributed generation, but I think that would be a longer-term issue. In the near term what it does is it defers the need for investment in distribution and transmission.

Mr Hastings: I think it's getting pretty close to it right now as you take people off grid for alternative energy.

The Vice-Chair (Mrs Marie Bountrogianni): If we could wind down this question because it's the official opposition's turn. Do you want to respond to that last comment?

Mr Jennings: Just that there will be both. There will be some cases where you're stranding assets and some cases where you defer large investments you would otherwise have to make.

The Vice-Chair: It's now the turn of the official opposition. Mr Parsons or Mr Bradley, do you have a question?

Mr Bradley: I think Mr Parsons was next.

Mr Parsons: I'm just curious. Back to energy, science and technology, you've gone through the various sources of electricity generation and you've noted there is still potential in hydro. The reaction I get out of the general public is that hydro-generated electricity is viewed by them as the most favourable. I've even been approached by groups that are opposed to wind generation. But for some reason hydro seems to be viewed as fairly innocuous, and yet there's still some potential. Why was that potential not exploited before you went to coal or

you went to nuclear? I'm curious why we didn't fully develop all of the water we could.

Mr Jennings: Again it's economics, so the smaller scale—particularly up to the early 1950s, when we first introduced coal, all the large-scale hydroelectric, such as the Niagara River and the St Lawrence, the Mattagami, those large ones, were all dealt with and then it was a question of whether you could develop your smaller resources. The economics of a hydro project depend on how much water you're flowing and how big a draw. Depending on what the price of energy is, some of those are economical developments and some of them aren't. They can change if the price of power goes up. I think the first move to coal was that there was a need seen for large-scale projects, and certainly the view then was that there are big economies of scale. So they were developed, and then later on nuclear.

One of the things in terms of moving to a restructured market is the view that now those economies of scale aren't as important any more, so that smaller-scale generation such as cogeneration or smaller-scale hydro is more viable based on fuel and other conditions. It's really a matter of relative economics. Those are now more viable than they were then.

Mr Parsons: Where you've noted that there are 200 to 300—is it megawatts, MW?

Mr Jennings: Megawatts.

Mr Parsons: —200 to 300 megawatts still feasible, is that feasible at this time or does the price of electricity need to rise to make that feasible?

Mr Jennings: I think those are estimates by the Waterpower Association of what is viable right now.

Mr Cecchini: Actually, what they say is viable under certain conditions; they will be able to speak to those estimates on Wednesday. What I think they will tell you is that depending on the price at the particular moment in time, access to transmission is also a really important factor in what gets developed and what doesn't get developed.

Mr Parsons: Back to the Ministry of Finance. Talking in your presentation about corporate tax policies to encourage alternative fuel energy, has consideration been given to a similar sort of approach to non-corporate, for people to purchase a more energy-efficient automobile than their 10-year-old one, to insulate their house, to change to natural gas? Has there been any consideration to extending the tax policies to everyone to reduce fuel consumption?

Mr Deutscher: I'm not aware of specific proposals that have been on the table in at least the recent past. Certainly in days gone by during different episodes of high energy prices there have been considerations for different measures through the personal income tax system. Typically Ontario, I think it's safe to say, has used its retail sales tax as a vehicle when it wants to encourage particular types of consumption.

Mr Parsons: But there have been no initiatives in that area for quite some time now?

Mr Deutscher: I'll have Ann again come to the table. We have had the one in the retail sales tax for the electric hybrid vehicles.

Ms Langleben: Yes, that's the only one.

Mr Deutscher: Not in the personal income tax stream.

Mr Parsons: I've seen some jurisdictions in the US actually give incentives to trade up from a 15-year-old vehicle to a newer one.

Mr Deutscher: That's right.

Mr Bradley: To the Ministry of Energy, again. In terms of energy conservation—because I have a feeling we're going to end up dealing in this committee with a lot of alternative fuels and not putting the emphasis on energy conservation, which is necessary, though I stand to be surprised at the end of the exercise—what pressure is the Ontario Ministry of Energy applying to automobile manufacturers to ensure two things: (1) that the SUVs and small trucks they produce are more energy efficient, and (2), and I guess this goes to the Ministry of Environment, although Energy may answer it, to put the same emission equipment on small trucks and SUVs that we find on other automobiles? What is the stance and how much pressure are you putting on, or are you on the sidelines on this one?

1510

Mr Jennings: With respect to vehicle efficiency, of course the automobile market is integrated in North America. So the US, which had corporate average fuel efficiency standards that they put in place in the 1970s, is looking at expanding those to include SUVs and minivans, and I think the federal government here has announced they would go along with that. Certainly we would be supportive of moves along those lines in the US in terms of improving efficiency. Those contributed greatly to a big reduction in the use of gasoline in fleets in the US in the 1970s. In terms of the ability of Ontario on its own, I think that is seen as being under the federal jurisdiction, if the federal government did match the US ones. But I think the key to progress in that area is for the US to be doing it and for us to harmonize with the US and perhaps for Canada to engage the US in doing that.

Mr Bradley: It's always interesting to see that. However, there's one state in the US—and I recognize the size of that state is as large as Canada in terms of its population—and I could never figure out, outside of perhaps climatic conditions, why in California they could pass a law saying, "You're going to produce vehicles with these emissions standards or you're not selling them in California." Yet in Canada, which is as large, or Ontario, which probably has 11.7 million people now, why, if the manufacturers can produce vehicles with those stipulations both in terms of energy efficiency and emission standards for the state of California, can't they produce them for Canada or for Ontario?

Mr Jennings: As you noted, California itself is a market bigger than Canada, and they have had, particularly in terms of local air quality issues, an incentive for proceeding down that line. I know they have put in

requirements in terms of zero-emission vehicles. While they have been very successful in driving the industry, they've had to move those back. Initially they were going to bring that in in 1998. They've moved that to 2001, and I think they've moved that forward. So in terms of actually implementing it, there have been some delays. In terms of the CAFE standards, the efficiency standards, I think they have stayed the same as the federal one. I don't think they have adopted their own. The CAFE one, of course, is the whole fleet mix. The fleet you sell has to be a certain standard. I don't think they've gone beyond what the federal government did in that. That's issue is revisited from time to time in the US, and certainly the auto industry has been resistant to them moving down. But it's an example of a regulation that clearly was very successful in achieving what it did in the 1970s and early 1980s. They have chosen not to go further with it, but right now there is a view to adding SUVs and minivans, which I think is very important, given they're now about half the vehicle sales.

The Vice-Chair: It's now the turn of the third party.

Ms Churley: Madam Chair, forgive me if I'm asking a question that maybe we have an answer to somewhere in these papers. I feel this has been a very interesting conversation today, having so many people from different ministries here. It's the first time I've been in a room with people from so many different ministries talking about energy.

Mr Bradley: Weren't you in the cabinet?

Ms Churley: We used to talk about the environment a lot, but in fact the connections that are being made now between energy and energy conservation and consumption and our health have become even more—we're much more aware of it today, which leads me to my question. If it is here, then just tell me where to find it.

I'm just wondering what the coordination is between all the ministries, especially now that we have this committee. I'm hoping we're going to come out with big, bold recommendations we can move forward quickly on and that it isn't a report that takes forever to start implementing. I know there are some really good people in so many of the ministries. I know that Jill Pritchard-Scott is here, who is just excellent. She's with the electricity restructuring office at energy, science and technology. I've spoken to her before. I know there are others in other ministries who have particular expertise in certain areas who couldn't all come to the table today.

Before I get to the question, I wouldn't mind if there was a way that maybe the subcommittee could work somebody in from the Ministry of Municipal Affairs and Housing to come and talk to us about retrofitting and the building code. You will notice that a major part of what I will be talking about is tax incentives and other instruments. Conservation and efficiency are my two main areas of interest, and I feel we need more work and more information in those two areas. First of all, I would like the opportunity to have somebody from municipal affairs and housing come and talk about that. I don't know if there can be a list provided or something to let us know

about the experts in different fields in different ministries around some of these issues, and if there's going to be some kind of committee from the ministries working at the same time the committee is, so we don't end up coming up with a bunch of recommendations and then the work beginning, but that some work is happening in the meantime. That's a statement and a question.

The Vice-Chair: I just consulted briefly with the clerk, and we will refer that to the subcommittee. Do you have a question?

Ms Churley: No, unless anybody wants to comment on that.

The Vice-Chair: Are you giving up your time, then?

Ms Churley: Yes.

The Vice-Chair: The government side?

Mr Gilchrist: Thank you, lady and gentlemen, for the presentation. I think we've learned an awful lot today. It's been a good starting point for us. I think there are a few gaps in some of the presentations which, with your indulgence, perhaps you could get back to the committee on if you don't have the answers today.

First, in the Ministry of Energy, Science and Technology presentation, you note, in one of your slides, alternative fuels used to serve homes, but the terminology is kind of loose. Do you mean "fully meet the needs of that number of homes" or "are equipped and the shortfall is made up elsewhere"? Perhaps you've got a quick answer to that one.

Mr Cecchini: What we are showing there—I think you're referring to page—

Mr Gilchrist: Are you referring to equivalency, or are you talking about people actually, physically hooked up to—

Mr Cecchini: No, that's equivalency. That's essentially to give you an example of how many homes would be heated by alternative power.

Mr Gilchrist: Like Mr Bradley, I too have a lot of questions about Beck III. Perhaps while we wait for OPG's presentation later this week, you'd be kind enough to supply us with any studies in the hands of the ministry showing the status of the Beck III application, which was pursued at one point, and the ministry's considered opinion. We'll deal with OPG as to the financial justification, but I'd like to know the ministry's scientific perception of that.

I wonder if you could get back to us with an expectation, in tangible terms, of the impact of the 10th and 11th regulations you've outlined; a list of the innovation trust projects that may have any bearing on alternative fuels; are there any international science and tech agreements with alternative fuel connections of any kind; the funding for biotech centres, again, is there any applicability to alternative fuels so far and, if so, the status of any projects?

1520

One other specific question: I was approached by a gentlemen with an additive for diesel fuel that would allow the use of ethanol to be mixed with it. He has discovered that apparently no one in Ontario has a

facility to test diesel fuel additives. I wonder if the ministry or any other ministry—MTO refers at one point to diesel additives—has knowledge of any of the oil companies or anyone in perhaps one of the universities who has the ability to do actual bench testing for diesel fuel additives. Apparently there are lots for gasoline but none for diesel. I would be grateful for that feedback.

A couple of policy issues: first, why would we not require—not allow, but require—peak/non-peak pricing for all customers after the market is deregulated? Secondly, understanding the extraordinary losses that occur when you try and move electricity through wires over long distances, and when we talk about possible wind or any other projects in the northern parts of the province in particular, why, as a matter of policy, would we not expect them to be for local needs only, and not get into any kind of con job that there is going to be a realistic payback? As per Mr Ouellete's question, if you go putting something on the other side of Moosonee, you're not going to get enough energy back down to Timmins to turn on your Christmas lights.

To the Ministry of the Environment: you note that EA requirements were waived for small wind farms. Can you tell me how small? What's the cut-off?

Mr Rockingham: There are three classes in the environmental assessment regulation changes. For wind power under two megawatts—let me check my numbers on that. Yes, if you're under two megawatts, then you do not need to submit either a screening report or an environmental assessment. If you're greater than two megawatts, then you have to undergo a screening process.

Mr Gilchrist: I wonder if you could supply the technical justification for regulation 232/98 being applied with a cut-off of landfill sites greater than 250-million-tonnes capacity. I'm sure you've got some science somewhere that tells you that there is a certain amount of methane being produced and—

Mr Rockingham: There was a correction. There was a typo in that slide. I'm sorry, sir, it's 2.5 million.

Mr Gilchrist: I beg your pardon. It struck me as extraordinarily high. I missed that in your presentation.

Your slide 6 says that you have no studies on incineration of waste for energy. I find that quite remarkable. Is that accurate? The Ministry of the Environment has never looked at the issue of burning municipal waste or corporate waste for the recovery of energy?

Mr Rockingham: I think the slide is more specific than that, or at least we were trying to be. We thought your question was about the potential for energy from waste in terms of the overall potential across Ontario. Certainly there have been a variety of studies submitted to us for particular energy-from-waste facilities. For example, there are energy-from-waste facilities in operation right now, so we know the operation of those and could provide some information to the committee, if that's helpful, about those sites.

Mr Gilchrist: That would be very useful. I am told the city of Toronto throws out enough garbage to create enough electricity to run Guelph.

I am concerned about the report we've heard this week that the ministry has apparently moved away from posting sulphur level contents at the pump. Obviously, the work of the committee, operating at a very high level, isn't going to mean anything if individual consumers are not educated as to the merits of making alternative purchasing decisions. I wonder if you would be kind enough, if not today, to get back to the committee with the very specific rationale for why we would do anything less than making sure the purchaser, at the point of purchase, understands the product he or she is about to buy. We do it on a myriad of other products for far less significant reasons. I would think the packaging, in this sense, of gasoline, and the import in terms of health consequences is something that every single consumer should know. That's a personal opinion, but I would like to know why the ministry is not leaning in that direction.

Also, I wonder if the Ministry of the Environment could supply any information they have on the Beck III project, whether it has gone through, and what would be expected in terms of environmental assessment? If not, what steps are remaining?

Finally, to the folks at finance, along the lines of what—I think it was John who asked the question of analysis of tax policy; not so much a comparison elsewhere but recognizing that in many cases we're talking tax revenue on industries that don't exist, if we were comparing the status quo today with potential developments in the future. I'm going to ask you to supply the specific dollar amounts that the province would lose if it waived all taxes on all aspects of the production, manufacture, distribution and sale of all forms of alternative fuels that have been discussed here today. For example, what would we lose if we waived the 4.3 cents on propane, if we waived that reduced charge? Recognizing that there aren't enough photovoltaic cells sold to matter, my guess is that you're going to come back with a pretty small number. So you might anticipate, looking down the road, that there would be forgone income, but I'd like to know what the actual lost dollars would be today if we had no tax on anybody making, distributing or selling a wind turbine or photovoltaic cells or propane or any of the other technologies referred to here today.

Mr Chair, might I ask you if at the end you could allow a couple of minutes for us to pose questions to research as well?

The Chair: Sure. No problem. Your 10 minutes are just about up now, so we'll move along.

I would just make a comment on Ms Churley's question or statement earlier. The subcommittee did ask that each ministry—and it was in the letter to them—designate a person in their ministry as more of a contact person, and that might be used as a bureaucracy or staff committee and it might be something that could go into an interim report. I think your point was well taken. I know there was no response from the staff who are here, but I just didn't want that one to drop. The subcommittee was looking for these point people so there is a contact. Maybe there is another ministry or two that should be

involved. This was the number that the subcommittee felt at the time would be in order to be invited to this meeting.

Ms Churley: Could I ask, though, in particular housing and municipal affairs, if the committee would agree. I don't even know if we need to take that to the subcommittee. Because of the energy retrofit, I think we do need to hear from them.

The Chair: I think your point was well taken. To the official opposition, any further questions? You'll pass? Ms Churley, do you have anything further? I wonder if the Chair might be allowed to ask a couple of questions.

Mr Hastings: Go ahead.

The Chair: The biomass being used, like cellulose, to create alcohol versus creating methane: which would be the more efficient in energy production for the use, decomposing it to create methane gas or fermenting it to create alcohol? That's a technical type of—

Mr Malcolmson: I'm going to introduce Bill Baxter.

Mr Bill Baxter: Bill Baxter from agriculture, food and rural affairs. In terms of dollars, I don't think we have those numbers. In terms of environmental impact, the evidence would seem to be that the utilization of corn stalks and straw to make ethanol has a far greater environmental impact. The economics of conversion of methane gas or biogas into electricity certainly have not been clarified at this point.

The Chair: The other one is to transportation. I know it's not exactly Ontario's role, but we talk about the percentage in transportation and we seem to leave out air travel. What percentage of greenhouse gases or other pollutants compared to other transportation comes from air travel or use of aircraft?

1530

Mr Topaloglu: These are documented. We have numbers for that. It depends on whether you talk about local or domestic air travel versus international air transport. Domestic air travel is significantly lower in its emissions than international. It's a small percentage. I dare not—

The Chair: Maybe it's something you could submit to the committee.

Mr Topaloglu: It's a few percentage points of the total but it is increasing. Especially the greenhouse gas emissions from air travel are increasing.

The Chair: And most would be at time of takeoff.

Mr Topaloglu: Certainly it is more intensive during the time of takeoff. The energy consumption is higher at that point in time.

The Chair: Thanks, committee, for the opportunity. Mr Hastings, did you have your hand up, or Mr Ouellette?

Mr Hastings: There are a couple of things I think we should look at in terms of the whole approach of this committee, and one of them would involve getting Management Board Secretariat here. In many state governments, in Washington and Ottawa and British Columbia, we have demonstration projects going on in a number of areas, but particularly related to hydrogen applications. I'm wondering if we could add to your list

and get a person from Management Board who is responsible for the development of RFPs and all that kind of stuff in the delivery of vehicles for the fleet. I can think of a whole number of other applications, but I think we need to hear from somebody from that particular area as to the potential for inserting alternative fuels in RFPs.

The other thing I'd like to know is, how would ag and food, in their study of ethanol, methanol and the whole distribution, go about creating a sufficient critical mass—and you don't need to give me an answer today—that could be effective in the blending of fuels in this province, given what is happening in California, where they buy their product offshore—their corn and other related grains—rather than in the United States?

Finally, I would like to know what environment—or across all the ministries—thinks about what are the benefits and disincentives of a mandate. Again, in California you have a hydrogen fuel partnership, where they're going to require by 2005, I believe, that 30% of their manufactured vehicles—cars, essentially—have a hydrogen component or a fuel cell, some combination thereof. Is there a significant economic disadvantage in having a mandate when you go that route? There's a sort of tax implication as well, I would think, for tax policy in that area.

Mr Ouellette: To the Ministry of Transportation: California is currently considering a ban on all two-stroke engines. Have you looked at or thought of what the economic impact would be of banning all two-stroke engines in Ontario for manufacturers, or anybody, for that matter, and possible substitutes for them?

Mr Topaloglu: We have not looked at banning two-stroke engines, but two-stroke engines are primarily used in off-road applications. They have more or less disappeared from the road application. There are a significant number of off-roads engines, but they are in—

Mr Ouellette: Another question would be that recently one of the European car manufacturers announced a vehicle that had, while it was mobile, converted ground-level ozone. Do you have any knowledge or information about it that can be passed on?

Mr Topaloglu: No. I don't have any direct knowledge of that.

Mr Rockingham: Perhaps I can just comment on that. I saw the ads myself. Volvo had an ad which indicated that it actually absorbed ozone. We looked into that. As far as we could tell, there were no specific chemicals or anything added to the engine. It is true, however, that any moving object that comes in contact with ozone will take some of that ozone out of the atmosphere. I'm afraid we didn't do the in-depth research, but certainly at first blush it looks as though they are just observing what a lot of cars will do.

Mr Ouellette: For the Ministry of Ag and Food: you mention about the ethanol. I'm not sure whether it was there or I just missed it, but what percentage does Ontario produce? Do we produce everything that we use here? Do we export? Do we have to import to fulfill our demands? Do we know those figures?

Mr Linington: We import a little bit. I'm not sure of the figures right off the top of my head, but we produce somewhere around 150 out in Chatham and about 23 out of Tiverton, so that gets us up to 175. And we're somewhere over 250 in mean consumption, so we import.

Mr Ouellette: When using ethanol, are there other additives required for proper combustion? I can't remember the exact—MMTH, is that the correct—

Mr Linington: MTBE.

Mr Ouellette: MTBE, yes. So when you're using ethanol, do you have to have another additive like that in order to get proper combustion?

Mr Linington: You probably need somebody with a science background, not in gas but probably in diesel.

Mr Topaloglu: You don't need any additives added to ethanol for its proper combustion. With methanol you would need some additives to allow it not to separate from water and to improve the startability etc of the engine, but with ethanol, especially in those lower percentages, you would not need any other additives.

Mr Ouellette: Energy, science and technology: at the deep mines in Timmins, one of the problems they're having right now is cooling the lower shafts. Has anything been looked at in utilizing that energy? Because they're so deep or close to the earth's core or the mantle, I believe the temperatures—and I can't quote the exact figures—are over 125 degrees Fahrenheit. Has anybody looked at utilizing that energy in any way, shape or form at all?

Mr Jennings: I'm not aware of anyone having done a study on the use of that energy. Again, we talked about ground source heat pumps. That would be a way of doing it. You'd have to look at depth and the cost of doing that and what the actual return would be.

Mr Ouellette: Two other questions. It was mentioned that some of the US jurisdictions had tax incentives for infrastructure to supply fuel for vehicles. When I met with Maureen Kempston Darkes from General Motors, her position was that the major car companies can produce environmentally friendly vehicles within a very short period of time, being a year or two years to convert the plants over. The difficulty was the infrastructure and training in order to service all these vehicles and to recharge. Is there any movement out there, any incentives within any of the ministries to encourage the infrastructure development necessary to bring these new vehicles on line? I guess not.

One other thing to MNR: can we get a listing of all the water retention dams, whether they're MNR-controlled or conservation-authority-controlled, that can be submitted to the committee, just so we can get the number of them found throughout the province of Ontario?

Mr de Launay: Sure.

Mr Gilchrist: To our folks in transportation, a couple of things. Again, looking at your slide 10, could you share with us at your earliest convenience what you know about the issue of diesel fuel being blended with ethanol and the range of options that are out there right now in

terms of additive packages that would allow that to happen?

Also, I'm really struck by something in slide number 5. Despite the dramatic increase in transportation activity, in terms of non-greenhouse gases, there's actually less pollution out there today than there was in 1970. I'm sure anybody who's ever followed a 1970 Dodge Dart would probably agree with you implicitly that this is the case when compared with a car on the road today. Would you be kind enough to supply whatever study substantiates that comment?

Speaking of studies, this really cuts to the heart of what I think we're going to be struggling with over the next couple of months, and that's going to be competing claims and almost a need to become an instant expert on a wide range of different technologies. We're going to have difficulty coming to grips with any one or two, never mind eight or 10, in the time frame.

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Today we've received your presentation from transportation. Also, the clerk has distributed a letter from Enbridge. In that package—I'm not going to put you on the spot by asking you to interpret or decide the veracity—they claim it was Natural Resources Canada that has done modelling of full life-cycle pollutant emissions for fleet average 2001 model year vehicles. When I look at their chart, there is a staggering difference in some categories, by a factor of 100%, in the claimed output: VOCs, particulates and in particular carbon monoxide. You quote the Report to the Transportation Issue Table of the National Climate Change Process (1999).

I guess my question to you is, who's right, and how do we get our heads around the definitive answer, comparing apples to apples—same model year, same consideration of the full life-cycle costs? Who has the best, most up-to-date science that's presented in a way that is unbiased and that we can accept at face value when coming to whatever conclusions we arrive at in terms of comparing different technologies?

Mr Topaloglu: I would have to see the report you're referring to. I can only tell you that this study was managed by a committee of industry and government as well as non-government organizations. It had the representation of all parties who overlooked the work, and these are the numbers. I should tell you, however, that these numbers apply to the year 2010. They do not apply to today's vehicles. It's a bit of an estimation that we have gone through. We would not be able to tell that this applies to a specific model or a specific vehicle. These are, if you wish, estimates that would apply to the entire fleet of vehicles manufactured around that time frame.

Mr Gilchrist: But presumably that consideration embodied known announcements of product improvements, particularly sulphur reduction that's been mandated. In many cases in that chart it's still showing higher amounts than the chart showing 2001. I guess my question to you, phrased a different way, is, if you're comfortable that that group cobbled together the definitive study of where we will be in terms of pollution from a variety of fuel

sources, then that's fine. That's your position, and we'll respect that. On the other hand, if there are American studies, if there are international studies, if there is any other source to which we should be referring to at least try to develop our own synopsis of the various opinions out there, I would appreciate any leads you could give us.

Mr Topaloglu: Certainly. There's no claim that this is a definitive study of any kind. There are many studies out there. This is one of those studies. I can only tell you how it was conducted. All these studies invariably involve estimates, especially when you're trying to guess what might happen in 2010.

Mr Gilchrist: Then let me, as my final point, say that if you or we have to wrestle with inconsistencies because this is a forecast as opposed to an assessment of today's reality, I would be grateful if you could find whatever other up-to-date reports there are judging the current quality of gasoline and propane and natural gas operated in the current cars on the market. From that, hopefully, we will be able to develop a realistic model showing where there are potential benefits to alter consumer behaviour.

The Chair: I see Mr Hastings waving his hand. I think he has another question.

Mr Hastings: I think Mr Ouellette brought up a very good point when he was talking with the CEO of GM—I found it similarly with a solar energy company this summer—and that is, we don't have anybody here from universities, colleges and training. We need a contact person, I think, for the planning and development of the skills required for what the CEO from GM was talking about. In the solar there certainly isn't a group of people looking at the training you require when you go off peak or off the main utility grid for another alternative fuel, certainly in the case of solar, and it could probably apply to others. So we're missing that essential link. I think that's one group, that somebody from that ministry had better get involved in this exercise at some point.

The Chair: Thank you very much, Mr Hastings. Good point. I'm beginning to think it might be easier to name

the ministries we don't need to have involved than to name the ministries to have involved. But it's interesting how it's evolving and how it seems to reach into almost every ministry, at least a large number of the ministries that we have with the provincial government.

I believe a spokesperson from the Ministry of Finance has a comment she would like to make. I think she was checking some details and would like to respond with some information before we wind up.

Ms Langleben: I just wanted to confirm that Ontario does parallel the Canadian renewable and conservation expenses measure.

The Chair: Thank you very much. I think it's amazing. We sort of looked at 4 o'clock, and working toward that point, we're going to get out slightly early; coincidentally, it has come out that way. Thanks ever so much for your presentations today. Stand by for a possible recall. I'm sure that down the road the committee will look for more information from some of the ministries, but you've certainly provided an excellent base for us to start from. It was imperative that we as a committee have an understanding of what's being done in the various ministries in the provincial government. I think we've received that today, particularly with the slide presentation that's going to be great to have in each of our files.

Circulated to the committee was an invitation to be out at Pickering on Wednesday when they cut the ribbon for this very large wind turbine, but I take it for granted we'll have to send our regrets, as we've already scheduled activities for this particular committee.

So unless the committee has any other comments at this point in time, just for the committee, don't forget to be at the legislative steps at 5:30 sharp. At that time we'll be taking taxis to the Toronto Island Airport for our flight to Ottawa.

The committee now stands adjourned. We'll reconvene tomorrow at 8:30 am at the Ottawa Marriott.

The committee adjourned at 1549.

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