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Mercredi 29 août 2001

Select committee on alternative fuel sources

Comité spécial des sources de carburants de remplacement

Chair: Doug Galt
Clerk: Tonia Grannum

Président : Doug Galt
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LEGISLATIVE ASSEMBLY OF ONTARIO

ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

SELECT COMMITTEE ON ALTERNATIVE FUEL SOURCES

COMITÉ SPÉCIAL DES SOURCES DE CARBURANTS DE REMPLACEMENT

Wednesday 29 August 2001

Mercredi 29 août 2001

The committee met at 0930 in room 151.

ONTARIO ENERGY BOARD

The Chair (Mr Doug Galt): We'll call to order the select committee on alternative fuel sources. Our first delegation for this morning is the Ontario Energy Board; the chair is Floyd Laughren. We also have with us George Dominy, Michael Lyle and Kirsten Walli.

Welcome. We look forward to your presentation. Thank you very much for coming out. A half-hour has been set aside for presentation, questions, statements; also comments from various members of the three parties.

Welcome, Mr Laughren. We look forward to your comments.

Mr Floyd Laughren: Thank you very much, Mr Chair. We are pleased to be here. I should indicate who the people are that you named off from the energy board. To my immediate right is George Dominy, who is the vice-chair of the board; to my immediate left is Kirsten Walli, who is manager for strategic services at the board; and at the end to my left is Mike Lyle, who is the board's solicitor. Hopefully, with that combination, we'll be able to answer any questions that you might have.

It is good to be back here and I assume that today, given what I read in the press, most members will be in a good mood as we proceed forward.

Let me begin with an overview of the board I thought we would present and talk a bit about who we are, our role in alternative fuel and energy sources, and a word about energy efficiency as well. The reason I put on the slide "Who is the Ontario Energy Board?" is that we are not exactly a household name. We're not the LCBO, which everybody knows about, so I think it's fitting to make a few comments about who we are.

We are a regulatory agency with responsibility for oversight of both the gas and electricity sectors and we are an economic regulator regarding rates in both those sectors. We're independent and quasi-judicial. When I say "independent," we're independent in our decision-making. We obviously go through government to Management Board for budget approval and so forth, even though all of our money is collected from the people we regulate. We report to the Legislature through the Minister of Energy, Science and Technology and advise him or her on energy matters.

The legislation that gives us our mandate is fairly specific. It requires us—and it's important to notice the words in our objectives—to facilitate competition and supply of electricity; to ensure non-discriminatory access to transmission and distribution systems; to protect consumers with respect to prices and the reliability and quality of service; to promote economic efficiency in generation, distribution and transmission; to facilitate financial viability of the industry and, finally, and I highlighted this, to facilitate energy efficiency and use of cleaner, more environmentally benign energy sources consistent with government policy.

The reason I mentioned the choice of words is—you'll notice the word "facilitate" in there—because we don't drive government policy but we take government policy and work with it. I think it's important to make that distinction.

Also, I'd ask you to note that there can be, not necessarily contradictions, but a balancing act required. For example, the third bullet talks about protecting consumers with respect to prices, and the last bullet talks about facilitating energy efficiency and cleaner, more environmentally benign energy sources. Well, the consensus is that those are more expensive, so we protect consumers, but at the same time we're responsible for facilitating what certainly now are more expensive sources of energy as well. So there's a balancing act required by the board.

On the gas side, we facilitate competition in the sale of gas, maintain just and reasonable rates for transmission, distribution and storage, and of course those tend to be the monopoly components of the system, and virtually all jurisdictions regulate the monopoly components. We facilitate the rational expansion of systems so that people don't pay unduly for an expansion of a system, and the rational development and safe operation of gas storage. The final one is to facilitate opportunities for energy efficiency consistent with government policy. Again, there's that word "facilitate" and also the phrase "consistent with government policy."

What has changed in the electricity market? If you look at the centre of that chart, it used to be that there was Ontario Hydro, especially known far and wide as Mother Hydro, which did the generating, the transmission, some of the distribution and largely sold to local distributors. That is changing and it will change even more dramatically when the market opens.

Hydro has been broken up, so you'll have the generating side. The dominant player, of course, is Ontario Power Generation Inc, OPGI, and there will be other competitors coming into the fold as well. Then you'll have the transmission lines, known as Hydro One. They also do some distribution, of course, largely in the rural areas of the province. Then you have new players on the scene called retailers and some of them have been at your door. I know that MPPs have from time to time written me letters wondering what's going on with these retailers who are going door to door because we do license the retailers. But now a retailer can buy and sell electricity, even though it all obviously has to go through the distribution wires. So all of that is changing.

We are supposed to uphold the public interest by licensing all electricity market participants. That includes the distributors, such as Toronto Hydro or Mississauga Hydro; the retailers, the folks who go door to door; the generators, such as OPGI and private generators as well; the wholesalers, who could assemble contracts and assemble electricity; and transmitters, such as Hydro One and the IMO, the independent electricity market operators who operate the grid. We license them and approve their budget as well.

What is probably more familiar to MPPs is the licensing of the marketers and the retailers. We call them marketers on the gas side and retailers on the electricity side. We establish codes and standards of performance for them. If they misbehave, the board can either pull a licence on their employer or could impose fines on them for misbehaviour. Of course, we also approve rates for gas and electricity transmission, the big lines, and for distribution, the more local lines as well.

We approve mergers, acquisitions, amalgamations and divestitures involving the monopoly businesses. For example, all of the purchases by Hydro One of those small utilities across the province—I believe the last number that they had purchased was 87. We approve those and the reason we have to approve those—there are a number of reasons, but one is that you couldn't have a purchaser, not just Hydro One but anybody else, paying an outrageous price and saying, "I'll just get back in my rates what I paid for it." There has to be approval to make sure that merger or that purchase is in the public interest. We have now approved and virtually finished all of the mergers and acquisition approvals. There's one up in York that's having it's own peculiar set of problems and it isn't resolved yet but that's because a deal fell apart. We'll see what happens there.

When we're finished, when all of this is said and done, there'll be—how many?

Ms Kirsten Walli: There'll be approximately 98 utilities.

Mr Laughren: Sorry, 98 utilities at the end of the day. A couple of years ago there was over 300, so you can see there's been quite a rationalization of the municipal utilities.

We also monitor utility performance, compliance and efficiency to make sure that they're following the approvals that we've given them. And, we inform consumers through our Web site, through fact sheets that we will issue from time to time. We also have a customer service centre or a call centre; it's fairly small, but we have a call centre that people can phone in and get information. Also, when the market opens we will play a role in what we call market surveillance to make sure that people are following the rules and that there's competition being encouraged, particularly on the generation side where you have such a big, dominant player in OPGI.

0940

A word about our role in alternative fuel and energy sources: I'm not trying to avoid it, but the role we play isn't as central as some people might think. We take guidance from government directives and policy. I'll remind members of the guiding objective that was on the screen earlier: to facilitate energy efficiency and the use of cleaner, more environmentally benign energy sources in a manner consistent with the policies of the government of Ontario. So we do have a responsibility to facilitate that.

There's a 1999 board regulation that says retailers must disclose to consumers the sources used to generate power in Ontario. The board determines how and when disclosure is to be made to consumers. That means that somebody cannot just simply knock on your door and say, "I'm a green energy supplier. Sign up with me. It'll cost you more but it'll be green and you'll feel good." We can't just allow that, because it has to be real, and I'll show you how in a minute. When someone applies to generate electricity, they need a licence from us. They must identify the fuel type that they intend to use to generate power.

In a board directive of March 1, 2000, we said that retailers offering electricity from alternative sources must provide consumers with a label showing electricity sources used to generate the power and Ontario's electricity mix for comparison. I know that putting a label on electricity sometimes requires your mind to bend a little bit, but that's what we do. All suppliers of electricity, both distributors and retailers, must provide consumers with electricity facts labels showing what Ontario's electricity mix is, whether they're offering green power or not. The environmental disclosure obligation is included in their electricity retailer licence. So it's a condition of their licence. If they want to sell green power, God bless them, but they must disclose that. That's a condition of their licence.

This is what I meant by labelling; it's on the screen now. On the right-hand side you have basically what Ontario's mix is now, with water power about 27%, and you have alternative power sources about 2%. So you can see it's not a big factor today in the mix. Nuclear is about 39%, natural gas 6% and coal and oil 26%. On the left-hand side, whoever was selling green energy would have to put in there what their mix was, so that the consumer can see that they truly were a green energy provider.

The other point that should be made is that in the new world, power will be bid into the grid through the IMO

on a basis of price, lowest price first, so that if green power is more expensive, it would never get there unless you had a rule that said if there's a contract for power, that has to be let into the grid. So if someone comes to your door and sells you a green package, even though it might be more expensive—I'm not saying it would be—if it was and there's a contract when you sign up and there's a contract for that green power, then the IMO has to allow that into the system. You would then pick out whatever electricity you require and so forth. That's an important distinction; otherwise, green power wouldn't get into the grid, because it tends to be more expensive.

We have a role in energy efficiency. You can see that we don't have a large role in alternative energy sources. We do have a role in energy efficiency, which I know is not the same as alternative energy fuels, but at the same time, energy efficiency means you're not using as much of the traditional forms of energy. Once again, our objective, as laid out in the legislation, is to facilitate energy efficiency consistent with government policy.

In a board order dated July 23, way back in 1993, the board directed gas utilities to develop demand-side management—DSM—which means altering demand, either because of the time of the day or the quantity that's used, according to guidelines that were set out in that report. DSM encompasses actions taken by a utility or another agency to influence the timing or the amount of fuel that's consumed by consumers. A sample portfolio of DSM programs that utilities offer, talking about gas utilities: with residential, it could be hot water heating, water conservation, space heating, home retrofit, green communities and appliances; commercial, the energy-efficient design, space and water heating and water management; and on the industrial sites, audits and customer initiatives for those large industrial sites.

In electricity, at this point in time it's more problematic, if I could use that term, because the guidelines are not yet developed for demand-side management on electricity. It's being considered, and as we go down the road and the market opens and the distributors come in for renewal of their rates and so forth, we're working now on developing demand-side management for that, what we call the next generation of rate applications and approvals. We have, though, encouraged utilities to continue—they already have demand-side management programs—to use those and to offer new programs if they can be done cost-effectively. We can't just have them going out and doing them at exorbitant costs. We have encouraged them, however, to do that.

In conclusion, the board's role is to facilitate alternative energy sources, and on the electricity side, my view is that we'll do more of that down the road as we get a little more sophisticated about how to do that on the electricity side. We do have a balancing act in terms of protection of the consumer regarding rates. As I said right at the beginning, there is a balancing act for the board to protect consumers in terms of rates but at the same time facilitate the development of alternative energy sources and energy efficiency. So that's our role and I'd be happy, with my colleagues, to try and answer any questions you might have, Mr Chair.

The Chair: Thank you very much, Mr Laughren, for an excellent presentation. We have about two and a half minutes per caucus, and we'll start with the official opposition.

Mr Ernie Parsons (Prince Edward-Hastings): Good morning. You mentioned that the electricity is bid in and as the quantity required comes along, then there'll be higher bids in. Suppose the first price is seven cents a kilowatt hour and then the next bid is eight. Does the initial supplier remain at seven or does it move up to the current market rate, which would be eight, and then if you need more and it's 10, does everybody move up to 10?

Mr Laughren: I think they do. I think that's right.

Mr Michael Lyle: Yes, everyone would move up to the market clearing price and we could pay the market clearing price. So that would be the 10 cents in your example.

Mr Parsons: So it is possible, then, that the supplier of the dirty electricity at seven cents could in fact get the same price as the expensive green electricity. At various times during the day, if the demand is high, it moves up to the high price?

Mr Lyle: That's correct. The market clearing price is how the price for the entire market is set, so that's generally the marginal producer.

0950

Mr Parsons: I now understand it, but I have trouble with the theory that the dirty producer will get the same price as the clean producer.

Second question: the explanation that I've been given, and I know this is complex, is that Californians experienced their problems because they have not built new electricity generating stations for 10 years. I don't recall new stations being constructed in Ontario over the last 10 years. How will we be different from California? Why is it going to work here, compared to California, in 20 or 30 seconds?

Mr Laughren: Excuse me, Mr Parsons. Are you talking about alternative energy sources or just generation?

Mr Parsons: Just generation of electricity.

Mr Laughren: This might be a better question directed at government, but there have been announcements of new generation coming on stream. The theory is that as Ontario Power Generation is broken up in the next 10 years and sold off or leased out etc, that will encourage new competition into the field and you will get new sources of generation that way. Also, there are what we call the tie lines between neighbouring jurisdictions being enhanced by Hydro One, both with Quebec and other jurisdictions, which in terms of supply would make available to the province increased supply.

Ms Marilyn Churley (Toronto-Danforth): Good morning, Mr Laughren and others. I just want to follow up on the demand-side management or load management issue. We had a deputation yesterday from Collingwood

Utility Services, which I imagine you're familiar with, and they said that in their opinion, in the US, in California and other areas, after deregulation the private sector, in order to satisfy their stockholders and to make money, just stepped aside from demand-side management to make the money and that played a huge part in the energy crisis there. They said that it's essential, as we go down that road to deregulation, that it be brought in. Otherwise, the same thing could happen here. Could you comment on that?

Mr Laughren: I honestly don't know if they did walk away from demand-side management programs. I don't know that. I suppose it would put an increased demand on limited generation if that was the case. Right now—I think it's fair; I don't want to be unfair—I don't think there's a lot of demand-side management on the electricity side. There are some programs, but I don't think it's a major player in terms of how much electricity gets consumed in the province.

Ms Churley: I think what they were saying is that, because we're going down the road to deregulation, it was essential to bring it on stream now.

Mr Laughren: I understand that, and I don't want to get into a swamp here. There's a form of regulation called performance-based regulation. Our hope is that as we move forward, as we move into that for what we call our second generation, we will be able to build into that some DSM programs that will encourage the electricity sector to engage in those programs in that the performance-based regulation is incentive-based. They are somehow created so that it's an incentive for them to do that, because they are commercial entities and there needs to be an incentive for them to do that.

Mr John O'Toole (Durham): Good to see you again, Mr Laughren. It wasn't too many years ago you were sitting on the opposite side on the nuclear select committee. I'm sure some of the questions are still out there unanswered. But it's a pleasure to see you.

Just a couple of very basic administrative questions. First, the Ontario Energy Board is not new; its mandate has certainly been strengthened and reformed. I just wonder—in a very short response, if you could, because I've got two or three questions—about the number of staff in the budget.

Mr Laughren: There are some vacancies waiting to be filled and that sort of thing, but we have about 110 complements and our budget this next year will be flirting with $20 million—not quite, I don't think, but that's the last number I saw. That's pretty close.

Mr O'Toole: Is that pretty much operating? You don't really have much of a capital budget I wouldn't think.

Mr Laughren: No.

Mr O'Toole: I just wanted for the record, since this is all recorded, in my humble kind of citizenry perspective, to explain my understanding of the California market, as it does come up and will come up as we move toward a competitive market. California's dilemma was freezing price while the cost of their baseload, natural gas, was rising. They were buying a fuel which creates the energy higher than they were selling the product for. A huge debt accumulated. Not only that, but it was impossible for the infrastructure itself that is in the transmission lines to keep up with the growth. They hadn't had transmission increases in over a decade. The whole NIMBY, environmental opposition process was in place and the infrastructure was incapable of looking after the 30% growth in the economy.

That's basically the short story, as I understood it, and every situation that I've heard in comparison indicates that Ontario is not in the same position. In fact, you and I heard during the consultations on the nuclear industry that there was excess capacity. Since we've got so much capital tied up in the generation side on the nuclear, some of it was somewhat stranded in some respects as capital. So it's quite a different situation.

But I guess I will ask a couple of specific questions. We heard from the non-mainstream, mainly wind and solar, that they want the playing field levelled. There have been huge subsidies, direct or indirect, to the generation side, whether it's the nuclear policy decision of years ago and the consequent debt that mounted—

The Chair: We're really out of time.

Mr O'Toole: I just wondered that, if you could, and about the emission credits. As Ms Churley mentioned, the distribution or peak load management is a real serious requirement for them, because nuclear will get the cheap side, they will get all the baseload side, and the others who can come on are going to end up with the fossil taking up the rest, the peak load demand. They have clearly demonstrated that peak load can be managed, moved around. Owen Sound is a good example. Perhaps in a general sense the Chair might give you some time to respond to emission credits and the option for the alternative generators, like wind.

Mr Laughren: I think our role—

Interjection.

Mr Laughren: You still heckle around here, do you?

Mr O'Toole: Just Marilyn.

Mr Laughren: You're not supposed to heckle the witness.

The Chair: We'll give you a second or so to respond, please. Go ahead. I'll try to control these hecklers.

Mr Laughren: I know it's tough.

Our role on emission credits—I don't think we have one. Maybe Mr Lyle can help me.

Mr Lyle: The board doesn't presently play a role with respect to emissions trading.

The Chair: Thank you very much. We appreciate the presentation and your coming forward. Good information on the operation of the Ontario Energy Board.

ONTARIO POWER GENERATION

The Chair: The next delegation is Ontario Power Generation: Graham Brown, chief operating officer; Helen Howes, vice-president, sustainable development;

and Graham L. Brown, general manager, OPG-Evergreen Energy.

There has been a lot of discussion up here as to which direction you're aiming that windmill at, whether it's the opposition or the government side.

1000

The Chair: Welcome. We appreciate your coming forward and look forward to your presentation. A half-hour has been set aside for your presentation and whatever is left over will be divided up among the three parties for questions.

Mr Graham Brown: Thank you very much for the opportunity to address the committee this morning. I should probably just apologize up front for fielding two people with the same name. This is not to confuse you, although it does cause a lot of confusion inside OPG. We call Graham L. Brown, who is manager of our renewable energy business, Little Graham in OPG. That's because he's six inches taller than me. That actually helps everyone understand who's who. And thank you for introducing Helen, our vice-president of sustainable development.

As I say, we're delighted to address the select committee on green power and in particular OPG's activities in this area. I think we've got a very good story to tell and we're pleased to have the opportunity to tell it.

I think our contribution so far has been substantial. I also think it's pretty consistent with the government's vision that Ontario's new energy market should encourage the full range of development of alternative fuels.

I think we're working very successfully toward giving life to this vision but we always have to do that cognizant of the need to strike a balance with a number of other key responsibilities that we have within the province. These are, namely, to provide reliable and competitively priced electricity; revenues that return value to our shareholder and in particular help to pay down Ontario Hydro's legacy debt; and thirdly, to demonstrate continued and continuous improvement in our environmental performance. Today, I want to outline how OPG proposes to continue its strong support for alternative energy while always fulfilling those obligations that I just described.

With your permission, I'd like to cover three areas: first, OPG's alternative energy strategy and some of our current initiatives, something you asked us specifically to talk about; second, I'll talk about our efforts to encourage research and development of new and alternative energy technologies; and finally, I'd like to make a few observations on the prospects for a healthy green power presence in Ontario. The committee has asked several questions relevant to this part of my presentation which I'll reference when I get to this section.

The first area, then, is OPG's overall green power effort. Green power is low-environmental-impact electricity generated from renewable energy sources and/or technologies. So far these include wind, solar, biomass and run-of-the-river hydroelectric facilities. As part of our goal to become a sustainable energy company, OPG has made a commitment to pursue industry leadership—and I mean leadership—in alternative technologies in Ontario. To support this commitment we have pledged to invest at least $50 million in green power projects between 2000 and 2005. We're already Ontario's largest alternative energy producer. Our goal is to build on this strength and to increase our green power portfolio from about 138 megawatts today to 500 megawatts by 2005. That's enough to meet the annual energy needs of a city about the size of London, Ontario.

To deliver against this expanded commitment, we created, quite recently actually, a new operating division named Evergreen Energy, which is run by Graham, sitting to my left. Its role is to develop green power for OPG through (1) purchases from established green power generators; (2) building or partnering with companies to develop new generation facilities; and (3) partnering with customers to develop green power alternatives for their particular business.

Ultimately our commitment to green power is driven by our customers, who have told us they want a green power option. As a commercial entity, we will of course give them that option. However, since this kind of energy still generally costs more to produce than conventional power, we're going to market a blended green power offering that balances affordability and availability with customer preferences for some of the more expensive sources such as solar and wind power.

Turning to our specific achievements in alternative energy, many of our initiatives are firsts, both for OPG and Ontario, and reflect the leadership position we're seeking to establish. In wind energy, for example, we are building Ontario's first wind farm in partnership with British Energy Canada. That's on the Bruce Peninsula. Today at our Pickering nuclear generating station, we are also switching on the largest wind turbine in North America. It's a 1.8-megawatt unit, a model of which Graham is proudly displaying in front of him, capable of powering 600 homes a year. We're also installing a demonstration wind turbine at St Lawrence College in Cornwall to provide hands-on learning opportunities in renewable energy sources.

With respect to run-of-the-river hydro generation, we currently operate 29 such facilities across Ontario, representing an installed capacity of about 125 megawatts of low-impact generation. We are currently looking at redeveloping some of these existing sites, as well as developing new run-of-the-river sites for additional green power. As an example, I'm happy to announce today that work will begin on a new, low-impact generation station near the current site of our Ear Falls generation station in northwestern Ontario. When it's complete, by 2003, this new facility will produce a further 12 megawatts of green power.

In the area of biomass, we currently purchase all the electricity generated by two Ontario biogas plants. These plants are in Waterloo and Newmarket and use methane gas produced from the decomposition of municipal organic wastes. One of them, the plant in Newmarket, is helping to address Toronto's garbage disposal problem.

We are also exploring potential uses for solar power and have recently installed solar rooftop panels at our head office as part of this initiative. A solar wall heating system will be installed next month at the offices of Evergreen Energy in North Bay to reduce dependence on natural gas building heating.

This is only a partial list of our green power accomplishments. We hope these and our other achievements will act as a catalyst for Ontario's alternative energy market, while at the same time positioning us as an early mover and a leader in this area.

The second area I want to touch on is the strategically critical area of R&D, research and development, and the search for new applications and technologies. I say this is critical because to be a leader in green power it's essential to be involved at the ground floor in as many potential breakthrough opportunities as possible. The more options we have, the better our chances of success. To this end, we sponsor several alternative energy R&D projects through our science and engineering services subsidiary, Kinectrics. These include initiatives in distributed generation, bio-energy, energy storage and using hydrogen fuels from industrial off-gases to efficiently use waste energy from industry.

One of our most exciting ventures is the work we're doing, in partnership with others, in developing a commercially ready, solid oxide fuel cell. A combined heat and power plant, this fuel cell will be the first of its kind in the world and puts OPG at the forefront of what is to be, I believe, a very important technology.

We're very excited about the work being done through OPG Ventures Inc, another of our new subsidiaries. Over the next three years, OPG Ventures will invest, directly and indirectly, up to $100 million in companies with promising alternative energy or related energy technologies. Recently, for example, OPG Ventures committed to invest US$10 million in a venture capital firm whose portfolio of companies include a leading-edge voltaic module manufacturer, a fuel cell developer and a microturbine company.

At this point I would like to add that while green power is a growing component of our generating portfolio, it is part of a much deeper environmental commitment of which we're very proud. Our nuclear, hydroelectric and fossil fuel stations, for example, are among the cleanest and most environmentally responsive generating systems in our market region. Several other OPG environmental accomplishments are mentioned in the unabridged version of my speech which we're leaving with the committee. I hope you'll have an opportunity to consult it and get a better sense of the wide range of environmental achievements we've made over the last decade.

1010

The final area that I'd like to cover this morning is the future of green power within the province. The committee has asked me to comment on what impact market opening will have on the promotion of green power sources and on future policies and programs to encourage these sources. I think an open, competitive market will enable and encourage the supply of alternative energy sources. New competitors will be eager to tap this new niche market, just as OPG is.

In the US, close to one million customers are buying green power in competitive markets. We believe that consumer demand in Canada will also grow as more green options become available and prices to produce these green products decline.

In Ontario, some large electricity purchasers have already made public their intention to purchase green power, such as Dupont, Toyota and, indeed, the city of Toronto. As many as 40% of Canadian consumers have also said they are prepared to pay more for green power products. We hope that with the opening of the market, Ontario will see the emergence of more alternative energy. In addition to environmental benefits, the successful development of alternative energy in Ontario will bring with it economic spinoffs for the province. For example, all the equipment for OPG's solar panel installation at our head office was purchased from Ontario-based companies.

Nevertheless, at this point in time it's difficult to predict with precision the pace of growth and the ability of the province as a whole to sustain a vital green power sector, for a number of reasons:

(1) Despite technological advances, which have reduced its cost, green power is still more expensive for suppliers to produce than conventional forms of energy. Consumers will have to pay a premium;

(2) Given the extra costs, it remains to be seen just how much consumers in Ontario are willing to pay for green power once it's available in the marketplace. Widespread acceptance is not a foregone conclusion, despite surveys that suggest otherwise;

(3) Finally, there's the Mother Nature factor. The sun doesn't always shine—although it shines more than it does in Europe, I have to say—the wind doesn't always blow and, as we've seen this year, water levels are not always as high. In fact, the water levels this year mean that output from our traditional and run-of-the-river hydro sites is the lowest in some 35 years. As an intermittent energy source, green power cannot on its own meet the energy needs of Ontario. We therefore have to recognize that alternative energy works best only within a broader mix of conventional generation sources. It's a supplement; it's not a substitute.

Having said that, a number of things can be done to stimulate green power development in Ontario. Supportive public policies can be, and have been elsewhere, very effective in creating a viable alternative energy sector. For example, the US government's production tax credit of 1.7 cents per kilowatt hour has been instrumental in generating remarkable growth in wind power development in that country.

Just across Lake Ontario, in New York State, Governor Pataki recently signed an executive order mandating that state agencies lead the way in green power procurement by buying 10% of their electricity

from renewable sources by 2005, and 20% by 2010. Without such supports, Ontario's green energy market cannot be expected to realize the same rapid growth as experienced in these other leading jurisdictions.

I understand that there are stakeholders and associations working together to identify opportunities and barriers to green power and assess possible courses of action. OPG is participating in some of this work and we're optimistic that some innovative recommendations will come forward which are appropriate to the Ontario marketplace.

We would like to encourage the search for policy options that promote green energy in an even-handed, equitable approach. We should be wary of policy solutions that would disadvantage Ontario producers by imposing costly standards that would not be similarly imposed on out-of-province suppliers. We should also recognize that policies can directly impact on electricity prices. This can influence acceptance by consumers, who have a threshold beyond which they are not prepared to absorb premium energy costs.

There are also some straightforward ways to stimulate consumer demand. The provincial government is showing the way through labelling regulations that disclose supply types and associated emissions. Companies are also doing their part. OPG, for example, is actively supporting, with other companies, the development of a publicly recognized green energy certification system to help retailers in marketing alternative energy to customers.

More of course can always be done. The government, for example, could adopt green power procurement targets, which can be effective in showcasing Ontario's leadership in the green energy market. Both government and business could also initiate or expand consumer education efforts to inform the public of new energy options.

To sum up, we agree with the government's position that Ontario's competitive electricity market should support the search for alternative sources of power, and we will do what we can to help make this a reality.

OPG is the largest green power producer in the province, and the only commercial entity to make the significant commitment of 500 megawatts of output from alternative energy. We are also the only Ontario producer to have commercial-sized wind turbines in operation, and the only producer to announce plans for a wind farm. We are very proud of these commitments. At the same time, we recognize that green power will make its greatest contribution as part of what I described earlier as a wider generation mix. This will enable us to continue to meet our fundamental responsibilities of providing a good return for our shareholder and responding to our customers' needs for reliable electricity and competitive prices, balanced with clear environmental protection.

We have brought some additional information to the committee describing in detail our alternative energy initiatives, our energy efficiency program, and our sustainable development activities. If we can be of any further assistance to you in your work, please don't hesitate to contact us.

As you know, we have invited all members of the committee to attend our wind turbine launch at Pickering this afternoon. I know how busy you are, so in case you can't attend we are delighted to be able to give each of you one of these beautiful models of what, as I said earlier, is one of the largest wind turbines in the world and certainly the largest in North America.

Thank you very much for listening. We're very happy to take your questions.

The Chair: Thank you very much for a most interesting presentation. We have approximately three minutes per caucus, beginning with Ms Churley.

Ms Churley: Thank you very much, Mr Brown, for your presentation. I'll have to let you know what my bias is at the beginning. I believe that in order to save the planet and to save lives we've got to start thinking outside the box, and I just don't think that OPG is doing that. We have to ask the question, when you think about it logically, "Why do we have to accept that we pay more for green power that doesn't pollute and less for power that does pollute?" For instance, when we hear from people who want to bring on green power and alternative power, that is continually one of the problems. The issue is one of finding instruments and tax incentives or whatever else to bring them in, and that's still not there. At the same time, we understand that other forms of traditional energy have been subsidized and are still being subsidized. It's all topsy-turvy. I just think that we've got to start rethinking that.

I want to ask you a specific question about the Bruce nuclear plant. It's my understanding that the private company remains shielded by the nuclear liability act from all but about, what is it, $75 million or so of liability and that OPG shares that cost uncertainty in decommissioning and waste costs. In other words, nuclear energy is still being subsidized and we sit here talking about the difficulty of bringing green power on. There's something wrong with this picture.

1020

Mr Graham Brown: I can certainly confirm that OPG shares the long-term liabilities on the Bruce lease. I think more generally, about the cost of producing alternative energies, we're an informed buyer of generation capability. That's to say we can go out and build nuclear plants, we can build wind power facilities, as I mentioned we're doing, and we can build conventional fossil fuel stations. All I'm able to advise the committee is the relative costs of us generating from these sources. We don't determine those numbers.

What I can say on the plus side is that the costs per kilowatt hour of output of these alternative energies have fallen significantly over time. For example, the wind turbine that we're opening today at Pickering is three times the size of the wind turbine that we built in 1995 which is operating at Bruce, which is, in turn, probably twice the size of a lot of the wind turbines that are operating in Europe. As those turbines have got bigger,

as the technology has got better, the cost is falling, but the cost of conventional technologies tends to fall too. It is a fact, perhaps an unpalatable one, but it's a fact still today, that these alternative energies do cost more at the point of production than some of the traditional sources.

We can address that issue in a number of ways, and the perfect solution, I believe, is if consumers are willing to pay the full premium to encourage the growth of these alternative technologies, because markets work best when they're demand-led. My belief is also that consumers won't pay all that currently and that we need other—

Ms Churley: But they shouldn't have to.

The Chair: Thank you very much. We'll move to Mr Gilchrist.

Mr Steve Gilchrist (Scarborough East): Thank you for your presentation this morning. I've got three quick questions, and I think Mr O'Toole might have a question as well.

First off, I wonder if you could share with us—probably not here but in whatever detail you can, and I hope that's considerable—everything you can about Adam Beck 3. Obviously, looking at the ability to expand the hydro power, it's one of the more benign ways of generating and to know that there's another option there is something that's quite intriguing.

Secondly, perhaps you could give us a price break for where in rural and remote Ontario it becomes more cost effective, even recognizing your comment just a second ago to Ms Churley that generally speaking alternative fuels are more expensive to create. Given line loss, surely there is a point, and I would imagine it's not much more than a quarter of a mile, where there would be a trade-off with what you charge to put up poles and string wires to service cottages or hunting camps or remote communities, native reserves. The efficiency today and the cost of putting up a turbine might make that even a short-term solution here.

Thirdly, again, if you wish to comment somewhat briefly, but hopefully at greater length in writing back to the committee, we had concerns expressed from the Collingwood utility yesterday that in fact the open marketplace and a lot of the rules that have been set will act against the idea of demand-load management and the idea of encouraging utilities to shift demand to off-peak times. Perhaps as an extension of that question, should the province be considering mandating—not allowing as an option, but mandating—the charging of peak and off-peak rates to all consumers after the market is opened up?

Mr Graham Brown: Perhaps I could deal with those in a different order. We'll certainly give the committee a detailed answer of OPG's advice in each of those areas.

The distributed generation question, your second question first: typically, and this is a broad generalization, these alternative energies cost between two and three times per unit of output the cost of conventional power. Clearly, the further you are away from a centre of generation, the more of that incremental cost is covered by the savings on distribution. We, and I'm sure others, in developing these schemes take that into account in looking at where it's best to position them, so it's certainly true to say that these schemes are more attractive when they're in an area of high distribution costs. They compete. That's true of a lot of other technologies as well. Cogeneration schemes are better because they're on site and you avoid these costs.

I should just add, though it's not necessarily relevant to this, that the more of the system costs you avoid by local generation—the system cost doesn't go away. I think Floyd would have made this point. That cost, then, has to be shared over the people who remain and the costs for those who are not getting the benefit of these distributed technologies goes up.

On Beck, again, we can give you a detailed answer. We as a company would dearly love to be able to make the Beck 3 project work. There are clearly a lot of advantages in terms of its additional generation. It's part of demonstrating our environmental commitment and so on. But as I said in my opening remarks and as I've said to Jack Gibbons, who I know is talking to you later on a number of occasions, we have to balance cost and benefit for consumers. The reality is that on Beck 3 at the moment, although we revisit the project several times a year—I've been with the company a year and in that time we've looked at it three times at board level to my certain knowledge—the economics are very marginal. In fact, they're not attractive at the moment. It's a very high-cost project. It's over half a billion dollars. It has an extremely long payback and it depends crucially on the availability of the extra water to actually fill up that extra capacity. As I mentioned, we're having the lowest water flows at the moment in Ontario that we've had for 35 years. All the uncertainty around future water flows sits around that project. So you're building a lot of extra capacity and whether or not you can make constructive use of that capacity depends on how much water there is. We can't see a way of making it work.

Having said that, we're working with a—

The Chair: I may have to move on to the next caucus. I know a detailed response is coming. We appreciate that.

Mrs Marie Bountrogianni (Hamilton Mountain): Welcome and thank you for your presentation. Ms Churley responded to your comments on the relative costs of traditional and non-traditional energy sources. There have been independent studies, though, that have been done, as I know you're aware, of the enormous health costs to the implications of some of the traditional energy sources, asthma being a big one. I've said it a couple of times in this committee and I'll keep saying it: I come from Hamilton, which has the highest adult asthma rate in the world, so there are some very real costs associated there. Maybe you could comment briefly now, but if possible, make available to the committee summaries or status quo of the research and development projects that you are involved in. I guess one of the questions that you could address now is, are there any

Canadian universities involved with you on those projects?

Mr Graham Brown: I'll ask Helen Howes to comment on that.

Mrs Bountrogianni: Congratulations. You're the first woman presenter since we started.

Ms Helen Howes: And I fear, having looked at the list, one of the few.

I'll give you a more detailed list. We're involved with a number of universities with respect to looking at the air impacts of our emissions. University of Waterloo is one in particular. We're involved with Trent and I think an institute—I forget its name but I'll give it to you later—about impacts of environmental discharges on wetlands and aquatic environments. We are trying to maximize our use of university research institutes. So there is a fair amount of work and I can give you more detail.

Mr Parsons: Good morning. Electricity is an international commodity that crosses the border and crosses the other provinces. You're producing electricity in a green manner that obviously costs you more. What assurance do you have that you can sell it? What is to prevent a coal-fired plant in Michigan from underbidding your green power costs so that we have green power capability but no sale? Everybody obviously wants the lowest cost. How can you guarantee you can sell it?

Mr Graham Brown: Green power isn't bid into the power pool the independent market operator is responsible for operating. It generates when it generates, and it will be supplied into the grid at the prices that have been agreed. Graham may want to elaborate on that.

Mr Graham L. Brown: Generally speaking, the sale of green power down to consumer level will be done through a financial market, as in that you are supporting the production of power from that source and you need to distinguish between the physical energy component and the actual generation source. The IMO deals with the market on energy, to ensure that there is sufficient energy flow around the province. What we are doing is setting up a process where we can sell to our industrial customers and to retailers to allow them the opportunity to pass on the benefits for green power.

The Chair: Thank you very much. We appreciate your coming before us. Your time is up. Excellent information.

1030

SUNOCO INC

The Chair: We'll move on to our next presenter, who is Tom Ryley, executive vice-president for Sunoco. Thanks for coming. Welcome. Please state your name for the sake of Hansard. There's a total of 20 minutes to be divided between your speech and later the three caucuses for questions.

Mr Tom Ryley: My name is Tom Ryley. I am executive vice-president of Suncor Energy and Sunoco. Thank you for the opportunity to speak to the committee. I'll make my best efforts to be fairly brief to leave some time for questions.

Suncor is one of the largest integrated energy companies in Canada, but one that in addition to trying to meet the current needs of our customers is quite focused on trying to look into the future. We do see ourselves as a sustainable energy company. We've undertaken a number of initiatives, perhaps the most significant of which is that we've committed—we did this several years ago—$100 million of investment over a five-year period in alternative and renewable energy.

We have been a gold medal winner in the federal government's voluntary challenge for greenhouse gas emissions reduction. We are an active participant in the whole CARE initiative around alternative and renewable energy, and in terms of actual spending we're just completing a wind farm, albeit it's in the province of Saskatchewan. So, anyway, we are active and underway.

I actually didn't come to talk to you about those initiatives. I came to talk to you about ethanol, ethanol blended into gasoline and ethanol blended into diesel fuel. This is something that Sunoco—and Sunoco is a 100% subsidiary of Suncor Energy—is very active in. We started in 1992 and, as of 1997, 100% of the gasoline that we sell in Ontario under the Sunoco brand is blended with ethanol up to about 10%. Also, we are a 50% owner of the Co-Op fuel network across Ontario and also the Pioneer Petroleums network. In total, we supply about 20% of the retail gasoline outlets in Ontario. In all of those sites we are supplying all of the gasoline as ethanol-blended gasoline.

Why is that important? Well, ethanol blended into gasoline, if done properly, and there's a bit of science to it, makes excellent gasoline. In particular, in terms of the environmental benefits, it reduces emissions of carbon monoxide by approximately 30%. There is no sulphur content to the ethanol element of the gasoline blend, and we have managed to reduce greenhouse gas emissions associated with gasoline use by about 100,000 tonnes a year through this ethanol-blending program to this point. So those are very significant measures of performance.

I have to honestly tell you that it's not cheap to do this, but you do help support it. The cost of making ethanol from corn—the ethanol that we use is all made from corn and it's primarily manufactured here in Ontario. We are the largest purchaser and blender of ethanol into gasoline in Ontario. I was just looking at some numbers; they're in your package. In the year 2000, the average price of ethanol was 62 cents a litre. That's before the tax. The average wholesale price of gasoline, and we're talking about the wholesale price without the taxes, was only about 35 cents. The value of the ethanol blended into the gasoline is no higher than the gasoline itself. However, that's where the tax break that the federal and provincial governments have extended to ethanol is very important, because that bridges the gap between the cost of the ethanol and the value of the gasoline, and it bridges it quite effectively.

The one thing I do want to assure you is that 100% of the benefit of that flows back to the manufacturer of the ethanol. Without disclosing the exact arrangements of our ethanol purchasing, it's set up so the tax rate goes back directly to the ethanol producer. It doesn't come to the oil company but it does enable us to buy the ethanol cost competitively with other forms of gasoline.

We've been extremely happy with our whole ethanol blend program. We've had no issues in terms of fuel quality and gradually this is coming to be a positive in the eyes of consumers. When we first started, believe it or not, they felt that green energy was not quite as good as conventional energy and we've had a bit of an uphill climb here. I think we're getting over the hump of that and consumers are starting to perceive it to be a superior fuel product.

What I'd like to speak to you about most importantly is now extending that incentive to diesel fuel. What we would like to do is to start blending ethanol into diesel fuel. It would be the same type of thing where you'd be able to blend it up to about 10%. We would get significant benefits in terms of reduced nitrous oxides and also in terms of lower greenhouse gas equivalents associated with diesel fuel combustion. It would be a great thing to do for urban transit fleets. For example, we supply all the diesel fuel for the Toronto Transit Commission here in Toronto and we could do a program with them which would be a direct benefit in the urban environment, and similarly with diesel fuel for urban trucking fleets.

What that requires is for the province and the federal government to extend the current tax rebate on ethanol blended in the gasoline to diesel fuel. I would like to recommend that to you as a specific action you could recommend that would have very tangible environmental benefits in the province.

Mr Chairman, that is the extent of my formal comments. I'd be happy to take questions.

The Chair: Thank you very much. We have about two and a half to three minutes per caucus, starting with the government side.

Mr Jerry J. Ouellette (Oshawa): Thank you very much for your presentation.

First of all, I should say that your company, as I travel through the north on discussions like this, is the fuel of choice for a lot of the presenters in the various committees, whether it's Manitoulin Island or other aspects of northern Ontario. I should pass that on to you.

Mr Ryley: Thank you very much.

Mr Ouellette: When you talked about the use of ethanol you mentioned the tax rate, but how does that compare to the other oxidizing agents such as MMT or the MTBE? When you use that are you replacing ethanol with that or are you still using the other components as well?

Mr Ryley: We do not use MTBE, which is the directly comparable oxygenate manufactured from conventional fuels. We only use ethanol.

Mr Ouellette: Had you used it in the past or not?

Mr Ryley: Perhaps very occasionally in the past, but in the past 10 years we have never used MTBE as a blending component.

Mr Ouellette: Why 10%?

Mr Ryley: Gasoline is actually a fairly complex chemical composition. There are basically physical limits of approximately 10% to meet the various CGSB specifications for gasoline that restrict it to 10%.

Mr Ouellette: Yet some of the manufacturers are producing the E85, so an 85%—

Mr Ryley: You're absolutely right. If you go to the opposite end of the spectrum, you could market an 85% or even up to 100%. It is possible to do that. It's that whole area in between where you can't actually meet all the specifications.

Mr Ouellette: The other area is something I had pushed in our Legislature that the feds came through with, which was the reduction of sulphur content. I know your company is listed as the most environmentally friendly in that aspect but how do you feel? As an industry, will they will be able to comply with the federal regulations across Canada for the reduction in sulphur parts per million?

Mr Ryley: Absolutely. The requirements are that we be at 30 parts per million of sulphur by January 2005, and we're underway with our investment to meet that. In the interim, we are the lowest average sulphur gasoline in Ontario at the moment.

1040

Mr Ouellette: How are you going to do it? Where is the investment taking place? It depends on the crude that you purchase, I know. I've done the research. I showed that in a lot of the crude, if it's Venezuelan crude, I believe, the sulphur content is considerably less, or the sweet crude, as it's called. How do you bring that into the manufacturing process and where is that investment taking place? Where are the refineries that are reducing the sulphur content for you, or is it just through the purchase of sweet crude?

Mr Ryley: The gasoline that we sell in Ontario is all manufactured at our refinery in Sarnia, Ontario. We are making a new investment in a gasoline desulphurization unit to accomplish that.

Mr Ouellette: What kind of cost is that?

Mr Ryley: It will cost us approximately $50 million to build the new process unit.

Mr James J. Bradley (St Catharines): I have a question regarding the posting of the sulphur content in gasoline. I hear it's going to be on a Web site somewhere, which is nice for people who are into Web sites. I don't know how many people consult those before they head out to buy their gas, but would you be in favour of the posting at the pump of the sulphur content of gasoline being sold in Ontario?

Mr Ryley: There are difficulties associated with that, Mr Bradley, but we do post our sulphur on our Web site, sunoco.ca. By the way, you can also get the current price of gasoline at any Sunoco station in Ontario on that Web site.

Mr Bradley: The second, for consumers, is interesting. For the first, though, when people come to the pump is when they sometimes make those decisions. So what is the difficulty of posting it at the pump if you can post it on a Web site?

Mr Ryley: The difficulty is that the sulphur content in any particular batch of gasoline will vary. Gasoline is not manufactured to a specific sulphur specification. That's the complication. This is not a problem for us because we only sell gasoline in Ontario that we manufacture, but the difficulty for some of the other refiners is that they exchange gasoline and so they don't always know whose gasoline they're selling.

Mr Bradley: So you would have an advantage were you to do so. Why wouldn't you do it then of your own volition if you have that advantage?

Mr Ryley: We are very open in terms of the average sulphur content of our gasoline.

Mr Bradley: Which is reasonable.

I don't know if my other colleagues have a question. I have a second one regarding the Reid vapour pressure and whether it is your view, dealing with volatile organic compounds causing low-level smog problems in the summer, that the Reid vapour pressure requirements can be lowered further, and when.

Mr Ryley: Your technical knowledge is exceptional. Let me point out first of all, in terms of ethanol blend gasolines, that unlike the United States, we do not take advantage of a higher Reid vapour pressure for ethanol blend gasolines. We make a special low-volatility fuel to blend with the ethanol, so we meet the same RVP standards as all conventional gasolines, which is very important for environmental reasons. There are, again, some practical limitations in terms of fuel combustion for the further reduction of RVP in the summer.

Mr Bradley: The last question, if there's time for a last question, would relate to a problem California is encountering. California is now making a plea to the federal government of the United States, the EPA, to relax its requirements in terms of ethanol blending. It's all related to oxygen in there. Do you foresee that problem here in Ontario?

Mr Ryley: No. We have a world-scale ethanol plant in Chatham, Ontario. We buy 100% of the fuel ethanol production from that plant, and our whole rollout of ethanol blend gasolines was something that was very carefully developed so we wouldn't have that issue.

Ms Churley: Thank you for your presentation. Good morning. I just wanted to follow up on some of your recommendations. You say it's unlikely that alternative diesel product can be economically viable without some form of government assistance. I know you gave an example of a program similar to BC's. Can you talk about what the federal government should be doing and what the provincial government should be doing?

Mr Ryley: What we believe will work most effectively is a program similar to the rebate for the ethanol component of gasoline. Because ethanol is manufactured from corn, it's just a simple figuring out of the costs of doing this. The cost of making the ethanol from corn is higher than the cost of making conventional gasoline or conventional diesel fuel. However, there are very substantial environmental benefits to blending ethanol in the fuel and very substantial benefits in the farm community as well, which is why the province saw fit to create the ethanol incentive for gasoline. If the province were to rebate the approximately 14-cent-per-litre diesel tax and the federal government were to rebate the road tax on diesel for the ethanol component as well, we believe that would bridge the gap sufficiently that we could economically produce a diesel fuel blended with ethanol and get the commensurate economic and farm benefits in Ontario.

Ms Churley: Are you in the process of having these discussions with the Minister of Finance in Ontario?

Mr Ryley: Yes, we are.

Ms Churley: Where are you at in terms of process? Is there any way this committee could recommend, help, at this point?

Mr Ryley: Yes, that's actually what I would recommend to you, that if you were to make a specific recommendation to extend the incentive to diesel fuel, we think that would be extremely helpful in terms of progressing this.

The Chair: Thank you for your presentation. We've heard about alcohol, particularly ethyl alcohol, being added, and your company's name has come up before.

Mr Ryley: Thank you very much. It has been a long journey.

ONTARIO CLEAN AIR ALLIANCE

The Chair: Our next presenter is Jack Gibbons, chair of the Ontario Clean Air Alliance. Please come forward and state your name for the sake of Hansard. You have a total of 20 minutes for your presentation, and whatever is left over in time from your presentation will be divided between the three caucuses evenly for questions.

Mr Jack Gibbons: Thank you, Mr Galt and members of the committee, for the opportunity to speak to you today. I am Jack Gibbons, the chair of the Ontario Clean Air Alliance. The Ontario Clean Air Alliance is a coalition of 78 organizations, and our 78 member organizations represent over six million Ontarians.

According to the Ontario Medical Association, air pollution in Ontario is a public health crisis. According to an Ontario Medical Association report, every year air pollution costs the Ontario economy $9.9 billion in health care and other costs, and it also kills 1,900 people a year.

Ontario Power Generation and its five dirty coal-fired power plants are a major contributor to Ontario's air pollution problem. Just to give you a few examples to put it in perspective, Ontario Power's coal plants produce as much pollution as 6.2 million cars. Ontario Power's coal plants produce 23% of our sulphur dioxide emissions in Ontario. Sulphur dioxide causes acid rain and smog. Ontario Power's coal plants produce 23% of our mercury emissions. Mercury is a very toxic nerve toxin. OPG's

coal plants produce about 20% of Ontario's greenhouse gas emissions that contribute to global warming and climate change, and OPG's coal plants produce about 14% of our nitrogen oxide emissions that contribute to smog and acid rain.

Fortunately, we can phase out these dirty coal-fired power plants at a very low cost by promoting energy conservation, by switching to renewable energy and by converting the dirty coal plants to cleaner-burning natural gas.

Energy conservation is the best option to phase out the coal plants because with energy conservation we can achieve three benefits all at once: energy conservation reduces customers' bills, energy conservation reduces pollution because it reduces the need for coal-fired power plants, and energy conservation can make Ontario's industry more competitive in world markets and help create jobs.

Enbridge Consumers Gas has developed the best utility-sponsored energy conservation programs in Canada. In 1999, Enbridge's energy conservation programs reduced their customers' bills by $57 million. Why has Enbridge developed the best energy conservation programs in Canada? The answer is very simple: the Ontario Energy Board, under the new rules brought in by the Harris government, has adopted market mechanisms to harness market forces to incent Enbridge Consumers Gas to reduce customers' bills. The OEB has adopted a shared savings mechanism that links Enbridge's profits to their success at reducing their customers' bills by making their customers more energy-efficient. As a result of reducing their customers' bills by $57 million, the Ontario Energy Board awarded Enbridge a $4.8-million profit bonus, so basically 8% of the bill savings went to the shareholders, 92% to the customers. That's a win-win solution. It reduces customers' bills, reduces pollution, makes Ontario's economy more competitive and increases the utility's profits.

1050

Now, if Hydro One and all of Ontario's electric utilities, like Toronto Hydro and Hamilton Hydro, were also to aggressively promote energy conservation, we could achieve very large bill savings and very large reductions in pollution because we'd be phasing out the dirty coal plants.

Unfortunately, the Ontario Energy Board has adopted rules which financially penalize the electric distribution utilities when they promote conservation. That's just economically and environmentally irrational, and it's unfair. So we would urge this committee to recommend to that Ontario Energy Board that they adopt market mechanisms which will link the electric utilities' profits to their success at reducing their customers' bills by promoting energy efficiency. If you do that, I think we will see very large reductions in bills and reductions in coal-fired pollution.

There are also a number of other good options we could pursue to phase out the coal-fired power plants. As Mr Gilchrist alluded to earlier, there's the Sir Adam Beck generating station at Niagara Falls. That is a 100% pollution-free form of electricity. That is the roots of Ontario power generation; that is what made Ontario Hydro great. Now, the output of Sir Adam Beck could be increased by an additional 12% to 15% by building another tunnel under the city of Niagara Falls, and that would produce very clean electricity and at a very low cost.

Ontario Power Generation has given to us their estimates of their costs of expanding Sir Adam Beck, of building Beck 3, and according to the information that they provided us, Beck 3 could be developed for a cost of about 2.7 cents per kilowatt hour. That is very low cost electricity. To put 2.7 cents in perspective for you, according to the Ontario Energy Board's forecast, when the market opens to competition in 2002, the average wholesale price of electricity generation will be 4.3 cents; Beck 3 is 2.7 cents. Also to put it in perspective, the wind turbines that Mr Brown told you about today, they're forecasting that electricity will cost eight to 12 cents a kilowatt hour; Beck 3, 2.7 cents. This is a very low cost source of electricity. It's the lowest clean-power option available, and Ontario Power should be directed to build Beck 3 as soon as possible. There's just no excuse not to move forward on that option.

Other options: there is the Lakeview coal-fired power plant in Mississauga. That plant could be converted to high-efficiency, combined-cycle turbines. That would reduce pollution dramatically. The government is proposing to allow Ontario Power Generation, or the company it sells it to, to use its old inefficient coal boilers to burn natural gas. That leads to a wasteful use of a precious natural resource and excess pollution. The government should direct Lakeview to use high-efficiency, combined-cycle natural gas turbines.

Another option: Ontario Power Generation exports coal-fired electricity to the United States on smog alert days; there's no excuse for this. The government of Ontario should tell Ontario Power Generation, "Do not export any coal-fired electricity to the United States on smog alert days in Ontario."

Finally, the government could tell Ontario Power Generation to convert the Nanticoke generating station from dirty coal to cleaner-burning natural gas. Nanticoke is the largest air polluter in Canada. We can clean it up by one single action: convert it to cleaner-burning natural gas.

Thank you. Those are my initial comments, and I'll be glad to answer your questions.

The Vice-Chair (Mrs Bountrogianni): Thank you very much, Mr Gibbons. That leaves us about four minutes per group, and we'll start with the official opposition.

Mr Bradley: Thank you very much. The music to my ears is your extolling the virtues of Beck. I've been a proponent of that not only parochially but because I have felt it's a good source of power for a number of years and have felt that Ontario Power Generation, or Ontario Hydro in those days, was much more interested in

building nuclear generating stations than they were in pursuing Beck with any degree of interest. So it's interesting, the facts that you have provided to us in that regard.

Do you have any insight into why no other gas company besides Enbridge Consumers has embarked upon the kind of program that Consumers has in terms of conservation?

Mr Gibbons: Union Gas has also embarked on energy conservation programs, but unfortunately the Ontario Energy Board has not tied Union Gas's profits to their success at reducing their customers' bills by promoting energy conservation. Union Gas doesn't have the same financial incentive, their shareholder doesn't have the same financial incentive, to aggressively promote energy conservation, so they haven't developed as aggressive a program as Enbridge has.

Mr Bradley: There are many who pooh-pooh the possibility of energy conservation having a vital role to play; they always say, "Give me some examples of what that might be." Can you give the committee some examples of what would be good energy conservation initiatives in this province by everyone?

Mr Gibbons: There are all kinds of things. One example is what Enbridge has done. They have gone into the sites of their large industrial customers, done audits and identified cost-effective energy savings. They've identified them for customers, and then they have connected the customer up with a reputable engineering consulting firm or energy service firm that can actually implement them, and they've told the banks this is a good investment so the banks are willing to lend the money to the company to make the investment. Enbridge has played a very important role in identifying options and facilitating their actual implementation.

Mr Parsons: It has become apparent to me that for electricity that's produced by water or wind, we can relatively easily cost out what its real cost is. Have you got a handle—I sense it's pretty complex—on what coal-fired electricity really costs if we look at the downstream costs? What does nuclear really cost once you consider the health hazards, the effect on value of surrounding lands etc? Do you have those numbers?

Mr Gibbons: There certainly are cost numbers and there have been reports in the paper in the last couple of days about new studies in the United States that have estimated the cost, and they have found the health and environmental costs are double the financial price of the dirty fuels like coal. These studies, of course, are always controversial. The one that's closest to Ontario is the Ontario Medical Association, which says that air pollution costs us in Ontario $9.9 billion a year at least, as well as killing 1,900 people. Of course, that air pollution isn't just from Ontario Power Generation, but Ontario Power Generation is the single-largest source.

We know the costs are very high, but the important thing is that we know there are alternatives to dirty coal that we can implement at a very low cost, so no matter what you think the health costs are, the costs of the cleaner alternatives are a real bargain. For example, we can convert the Nanticoke station, which is Canada's number one air polluter, to natural gas for a cost of $1.69 to $2.99 a month for the typical residential homeowner. That's a very low cost compared to the $9.9-billion total health care cost. The point is that these options to phase out coal are really so low-cost, we should be pursuing them very aggressively now.

Ms Churley: Thank you, Mr Gibbons, for your presentation today. I just want to let you know that energy conservation and efficiency wasn't in the initial mandate as we have tried to determine what is alternative, but I did suggest to the committee that we add it, and it's now part of the mandate as well, to look at alternatives such as conservation and efficiency. So we'll be doing that, as well as looking at other alternative forms of power.

I wanted to clarify with you the issue around OPG entering into contracts and firing up the coal plants on smog days, because I have been in a running battle in the Legislature with Minister Wilson on this. He has said on a couple of occasions that they don't do it, although there's a letter I saw that you wrote to OPG and it seemed the answer to you was suggesting that they do do it, you're saying here in your presentation today. I've gotten different answers from OPG and the minister, and I'm just trying to clarify exactly what is going on during those smog days. Are they firing up the coal plants, as you have suggested, and how much more pollution do you think we're getting as a result of that on bad air days?

Mr Gibbons: The situation of what OPG has been doing has been a bit unclear. There have been conflicting statements. I have spoken to Mr Brown, who was here earlier today, and I've got letters from him. My understanding of their policy now is that on that very specific smog alert day they will not enter into a new electricity export arrangement. But what OPG has done is signed these export contracts which they claim oblige them to make coal-fired electricity exports on smog alert days, and they are continuing to comply with those contracts.

1100

As a result of those contracts, we have calculated on a typical smog alert day in Ontario this summer, OPG's coal-fired electricity exports were equivalent to putting an extra 620,000 cars on the road in Ontario. So it's having a significant negative impact. On smog alert days people are asked to drive less, but what OPG is doing is, in effect, putting 620,000 extra cars on the road.

Clearly, OPG should be told not to enter into any new contracts that require it to export coal-fired electricity to the US on smog alert days. I've asked OPG for the details of those contracts—who they are with, what their term is, when they were signed, what is the financial penalty if they don't make an export on a smog alert day. Mr Brown has refused to give me that information, but maybe he will give it to you and the committee.

Ms Churley: Madam Chair, I would recommend that the committee ask for that information. I think it's shocking that that's happening on smog days.

Could I ask you quickly about Adam Beck? I think in general the committee agrees with you on that. I'm concerned about the nuclear option here. I must tell you that's one of the things I've asked to have taken out of our mandate as an alternative; that and garbage incineration, energy from garbage, because I think that's old technology and we're moving on. This is an important issue you raise today. Why do you think OPG is not moving forward with Adam Beck?

Mr Gibbons: It's just impossible to find a rational explanation. Adam Beck is their roots. Hydro power is their roots. Mr Brown claimed today that it's very expensive, but given the information his company has provided to me, it's got about a $500-million to $600-million capital cost. But you've got to realize that can be amortized over the economic life of Beck 3, which will be at least 50 years. When you do that, the cost comes out to 2.7 cents a kilowatt hour. That is the cheapest possible form of electricity you can find in Ontario.

Why they haven't done it just boggles the mind. He promised to give you his analysis. I know they went through an environmental assessment hearing process. They got environmental assessment approval for it. You should look at those documents. Presumably those documents will show that it's a low-cost option financially. The city of Niagara Falls is begging them to pursue it. Why they won't do it, I can't understand.

The Vice-Chair: The requests by Ms Churley have been noted by the clerk.

Mr O'Toole: Thank you very much, Mr Gibbons, for your presentation this morning. I would certainly like to make it clear from the government side that I think the intent or mandate of this committee is to look at alternative fuels. My definition of that includes conservation and controlling the demand load and peak load; not just building more generation capacity all the time but extensively managing the generation capacity we have.

Without being political, I think the government has responded, certainly with the Lennox plant being cogeneration, at a considerable cost, and commitments by the minister to try and deal with peak demand. We know the assets that we have all invested, as taxpayers, are basically in generation in the nuclear and traditional hydro power. Then you're dealing with the whole load of who pays for the assets that get nullified and who pays for it across the whole grid, because time and knowledge change many things. We as taxpayers own that asset and are charged with managing it, not emotionally but rationally and with the public interest in mind, that being safety and health. So I'm not ignoring what you're saying and I'm not opposed to what you're saying. You've made it clear to this committee that the Beck capacity is there, and certainly I would support that.

I like one of the options being brought forward, which is the energy labelling option, to empower the consumer, the ultimate person who makes the choice about clean air, clean environment and clean water, to speak with their cheque book, with their voice. Could you comment? When I'm purchasing power on my bill, I can envision checking the six-cent kilowatt, which is fewer deaths, the eight cents, which is more deaths. Put it right there for the consumer, and I'd like to see the poll afterwards. I really am interested. I think we'd be shocked that people really will vote with their hand. I really do believe that, if you empower them, and in that we will be educating them.

In fact, the monopoly position we've seen—I think the competition is actually good so that there are more generators. The wind and solar people we've heard have made a very cogent and confirming argument for more attention to wind. We all have these little symbols in front of us that 10 years ago we'd have laughed at.

The Vice-Chair: Mr O'Toole, you've taken the three minutes to ask the question. If you want an answer, the guest will have about 15 seconds.

Mr O'Toole: On the labelling, if I could, I would say, Mr Gibbons, that would be the most appropriate.

Mr Gibbons: I agree with you. Energy labelling is very important. I think it can have a very positive impact. In fact, we have created a new Web site called electricitychoices.org to help residential consumers make an environmentally and economically responsible electricity decision when the competitive market opens. For example, we have listed all the residential suppliers in Ontario, with the price of their options and the environmental characteristics, where the suppliers will reveal that to us. Some suppliers have refused to tell us their environmental characteristics so we just have to put that as undisclosed. Compulsory labelling that would force all the suppliers to reveal the sources of their power would be very helpful.

The Vice-Chair: Thank you very much for your very informative presentation, and we look forward to the information that was asked for by Ms Churley.

Ms Churley: On a point of order, Madam Chair: Can I just have a clarification? As I understand it, Mr Brown of OPG said that he would supply the committee with the analysis of Adam Beck. That's correct. So we won't have to make a motion that that be brought forward.

The Vice-Chair: No.

Ms Churley: I've asked as well—I just want clarification on this—for the details of the contracts that OPG made about exporting power. Do I need to make a motion? OK, it's just noted. Thank you.

TORONTO RENEWABLE ENERGY CO-OPERATIVE

The Vice-Chair: The next presenters, please, Mr Young and Mr Poch, from the Toronto Renewable Energy Co-operative. Welcome. Would you please state your names.

Mr David Poch: While Mr Young is setting up, I'll introduce us. With me is Bryan Young, who is the executive director of Toronto Renewable Energy Co-operative. I'm David Poch, counsel to TREC. You'll be hearing from me again later in my capacity as counsel to the Green Energy Coalition, at which time I will be

addressing the committee particularly about conservation.

TREC's presentation today will focus primarily on matters pertaining to renewable power generation.

Mr Bryan Young: Thank you very much for this opportunity. I'm very gratified to hear that this initiative is taking place. I think we all are. As David said, he is our representative in legal matters pertaining to energy policy. I'm the general manager of the Toronto Renewable Energy Co-operative.

TREC is a member of the Ontario Sustainable Energy Association, which has member groups across Ontario now—in North Bay, Barrie and Kingston, among others—that are seeking to replicate the Toronto Renewable Energy Co-op's community-based green power investment model. TREC, with Toronto Hydro Energy Services, is developing a two-megawatt wind power plant which will be built on the Toronto waterfront next year. This is a picture of what you will be passing by, close to Lakeshore Boulevard, hopefully next spring. We certainly look forward to taking you folks on a tour as part of your deliberations.

Our comments here today come from TREC's direct experience with the approvals process and policy environment in Ontario as experienced through the development of this project over the past two years. In summary, we'd like to bring to your attention the following issues:

First—and I think we echo the Independent Power Producers' Society of Ontario here—the need for a renewable portfolio standard, ie, a minimum requirement for renewable energy.

1110

Second, we'd like to bring to your attention flaws in the proposed environmental assessment rules for electrical generation projects.

Third, we'd like to point out flaws in market design with respect to small-scale renewable generation.

Fourth, I'd like to ask David to discuss a particular problem that the OEB has created in its role as regulator with respect to transmission rates.

Fifth, we'd like to recommend the use of the debt reduction charge as a policy tool for the encouragement of alternative energy deployment.

Sixth, we'd like to propose policy support to consumers to encourage development of small-scale renewables in the form of a provincial net-metering policy.

Finally, seventh, we'd like to demonstrate our support for the consideration of energy efficiency and conservation because of its demonstrable economic benefits to the Ontario economy. However, I know this item will be certainly adequately addressed in the deputation by the Green Energy Coalition this afternoon.

Before getting into the discussion and recommendations pertaining to the specifics, let's look at Denmark today. The highest GDP driver in Denmark is not fish or cell phones; it's actually wind turbines and the services provided to get those things up. Denmark has an annual turnover of US$1.5 billion in wind turbines, their components and related services. Worldwide, of course, that industry has grown in excess of 25% every year for the past 10 years. Denmark, and you may have heard this already in the deliberations, already meets 15% of its own electrical needs through wind, so it's interesting contrasting that to OPG's remarks about wind being a supplemental and how it's impossible that it could be anything more than that, with the goal Denmark has of meeting 50% of their needs by 2030.

Small-scale generation has been the key to Denmark's economic success here, with a full 80% of their turbines owned by individuals or investment co-ops analogous to our own, TREC. And these are no small potatoes in terms of employment, with the wind industry accounting for some 12,000 jobs in a country, Denmark, of just a little over three million. Ontario too, of course, with the right policy signals, could enjoy these fruits as well.

The US, by contrast to Canada, has 20 times the amount of installed wind power capacity. Quebec has over 100 megawatts of wind power, much of it at a plant that is quite wonderful to visit up in the Gaspé, while Ontario is very far behind with three megawatts, 1.8 of those added on very recently with the installation of Pickering.

It must be emphasized that in all jurisdictions where renewables are succeeding, positive policy is fundamental, with government encouraging the manufacture and deployment of wind power and other renewables. This US government document, which we'll certainly hand over to the clerk, documents, for example, the myriad policy initiatives that exist in US federal and state jurisdictions to support renewable energy. Every country in Europe no doubt would drown your desks in the number of policy initiatives represented on paper that help support renewable energy in that jurisdiction. Ontario frankly, unfortunately, has become an anomaly, and I think everyone here would like to see that change.

Let's talk about the renewable portfolio standard. It's important to note that in terms of existing policy in Canada, first of all, there is only one specific alternative fuel policy in Canada at the federal level, and that's the Canadian renewable and conservation expense. It's not been successful, however, largely because it's overly restrictive. By contrast, the US, as I said, has hundreds of initiatives, including the RPS in many jurisdictions, as you can see on this slide. One of the best ways to give alternative or renewable fuels a leg up in the marketplace is through the RPS. This policy support would set a minimum per-cent that a retailer or large user would have to purchase or generate on an annual basis.

The advantages of this policy are that it, first, guarantees that policy goals are met because of a legislated requirement; second, encourages economic development without government subsidy; third, is flexible in that the per-cent requirement can be revisited from time to time; and lastly, at least for my points, uses the market to get the best bang for the buck. I think David had something to add in terms of the advantages of the RPS. You can't remember?

Mr Poch: I was just going to actually refer to a comment that OPG made before you this morning where they were saying that if you're looking at any kind of standards or encouragement for renewables, they cautioned you to be careful not to impose obligations on domestic producers that aren't on foreign suppliers and put the domestic producers at a competitive disadvantage.

I just wanted to assure you there's no reason in law you could not have a renewable portfolio standard that applied to everybody selling into the Ontario grid. Therefore, an out-of-province supplier elsewhere in Canada or in the States would similarly have to show that they have either blended in a requisite amount of renewable power or have contracted to have that produced in Ontario by another producer and provided to the grid. So there would be no competitive disadvantage.

Mr Young: Thanks, David. Because of the advantages of this policy instrument, certainly in terms of its fit in terms of market forces, we advocate at TREC a 10% by 2010 and a 20% by 2020 policy for a renewable portfolio standard in this jurisdiction.

Turning now to the need for fair environmental assessment rules, and this is certainly something we've experienced in our project through its development, the Ontario government's EA guidelines certainly need to be examined if we're really to get serious about sending the right signals to investors in wind energy. The threshold trigger for an EA screening for natural gas generator plants, for instance, is at or above five megawatts, while in contrast it's set for two or more megawatts for wind power. We don't understand the discrepancy, and that's despite the fact that wind creates no harmful emissions.

We perceive that there's a lack of experience in this jurisdiction, and certainly among the public and among some policy-makers, with this technology, despite the fact that we're blessed with a really terrific resource here, particularly along the lakes. Quite frankly, if the resource wasn't that good, we wouldn't be building the kind of projects we're contemplating building and we'd be concentrating on other technologies.

We'd like to ask the committee to consult with experts on the technology and recommend to the government that the threshold be increased to beyond that of gas generators, which do aggravate climate change, smog and acid rain.

I want to turn now to the need for a market that makes room for the small players. A case in point is looking at the approvals process that our small project has faced relative to OPG's project at Pickering. They actually only had to get one permit that I'm aware of, from Atomic Energy of Canada Ltd. We, however, had a very long process to go through, which certainly could stand some streamlining.

Mr Bradley: I think that's called red tape.

Mr Young: Red tape, yes. I believe there's a commission for that.

The market has been designed and somewhat understandably been built for large players, and we understand the rationale for that. It's a perception in terms of how power has been generated in the past. Just as we want to ensure a positive policy environment for the small shopkeeper who contributes substantially to Ontario's employment and prosperity, we think the new electricity sector must be made to ensure that the small producer can thrive.

I'd like to ask David to outline a very good example of what we mean on that score.

Mr Poch: The example we'd like to stress is a problem that's arisen at the OEB with respect to embedded generation and transmission tariffs.

The committee has asked, I've heard earlier, questions about the competing costs of these technologies. Ballpark, conventional fuels might be selling for perhaps four cents a kilowatt hour into the grid, not including the wires charges that get put on top of that. Wind these days, depending on the wind regime and the situation, might be seven cents, nine cents, 10 cents a kilowatt hour. There's quite a gap there.

One of the key ways you can close that gap is if you can put wind, like TREC is doing, inside the city gate, inside the distribution utility, and hopefully avoid paying the transmission tariff for the main high-voltage lines outside the cities. You can shave a penny or two pennies, perhaps another penny if we weren't paying the debt retirement charge, or seven tenths of a cent, because you're not using those lines.

The OEB held a long hearing on transmission tariffs, well attended, quite a process, and decided that embedded generators, as they're called, generators within a distribution utility area providing power to that area, would get charged, if they're small, nothing for transmission; if they're larger they would attract roughly half the charges. They would attract the connection charge and not the network charge, because they still do rely on that transmission system for some backup services and so on. We were all quite pleased. That would help close this gap somewhat.

1120

However, when the OEB went to operationalize that decision, in its handbook to the distribution utilities telling them how it should take the charges received from on high from the transmission company and from the IMO and pass them along to customers, they did not follow through. They said that there will be a savings on transmission because of embedded generation, but it won't go to the benefit of that generator or to that generator's customers within the distribution area, or, in the case of TREC, to its members within the distribution area. It will just be enjoyed by the distribution utility to be passed along to all customers. The economic signal is lost. There is now no economic signal, no way that we have a kind of user-pay principle being respected, and now we're back to the full gap, the full spread in cost.

Here's an example where the nature of decentralized technologies should give them a leg up, should help close the cost gap, because you can avoid using a transmission system and avoid pressure to expand the transmission system. You can avoid the expensive transformation

from high voltage to distribution voltages as well, and you can avoid all those line losses. But there's no way, the way the OEB is operating right now, that the economic players can actually see that benefit.

So there's an example where, if this committee wanted to give direction, it could give direction to the OEB to ensure that small, decentralized producers see the full benefits of the costs that the system avoids due to their presence.

Mr Young: Yet another way we think there could be assistance for small, alternative fuel players in the market is by exempting them, as David alluded to, from a payment of the debt reduction charge. The Ministry of Finance, as I'm sure most of you know, is currently wrapping up public consultations on the design of the debt reduction charge, a tax of seven cents on each kilowatt hour to pay for the debts of nuclear power. Our first objection, of course, to the DRC is the fact that it even applies to self-generation at all. To use an analogy, it's kind of like putting a tax on the apples I pick in my backyard. However, we understand that there may be a concern that if larger consumers opt out of the system, there would be an increasingly small pool of folks who would be there left holding the bag, essentially.

With that in mind, we think that consistent with the goals in Bill 35—

Interjection.

Mr Young: Seven tenths of a cent, yes. With the goals of Bill 35 to protect the environment while creating competition, a good incentive would be to exempt renewables from the payment on the DRC for embedded generation. This exemption would come at very little cost to the government and could even have within it a kind of kilowatt hour capacity ceiling and a time ceiling as well. It would be a very modest measure in comparison to the production tax credit that you've heard about, at 1.4 cents, that has been renewed very recently by the Bush administration.

Still another cost-effective way to promote renewables, at least on a smaller scale, is through net metering for consumers. This policy support is intended to provide a way for the real keeners in this province, some of the most vocal folks in renewable energy, to feel that the government is really interested in doing something about promoting alternative energy. The best tool in this regard is net metering. Ontario and Toronto Hydro were both local pioneers in this policy, a policy that has since been adopted in 34 states, through legislation, I might add.

Typically, this arrangement allows the homeowner or small-scale business to put PVs or a small wind generator in their backyard and allow their meter to run backwards, essentially, at times when there's an excess being produced. We think this measure would be very helpful in sending the right signals, certainly to consumers who choose to produce at very little cost to the government, that alternative energy is welcome in the province.

In summary, members of the committee, Ontario is surrounded by jurisdictions that have already caught the alternative fuels train. There is a tremendous amount that you can do to satisfy public demand for tighter emissions controls and environmental standards while not burdening the public purse. We certainly look forward to providing ongoing input to the committee if it's welcome and wish you the best of luck in your work.

The Chair: Thank you very much for your presentation. We're almost out of time, with hardly a minute per caucus left.

Ms Churley: I'll ask my question quickly; same question as I asked OPG. Nuclear is still being subsidized; fossil fuel energy is being subsidized. What's your comment on that vis-à-vis your desire to have some policy changes and incentives to get green power on the grid?

Ms Young: You know, Ms Churley, there are a lot of initiatives we discussed here that in some ways aren't subsidies. The RPS, for instance, is a very powerful tool that we could turn to to help renewable energy. As I said, environmental assessment rules are something we can look at as well. Direct subsidies are another way, much as nuclear has been directly subsidized and will be subsidized for a long time. That is an option, but there are a host of measures that we could implement in this province that would be something other than subsidy.

Mr Gilchrist: Very quickly, because we only have a few seconds. I'm intrigued and we're seeing some common suggestions coming forward. I certainly agree with net metering and ways of encouraging a level playing field.

I'm a little curious. You don't mention in your presentation the actual structure of TREC. We are hearing that local generation is an important thing. In terms of a model, I'm wondering if you'd be prepared to share with us details of who you are, how you're funded, how long you've been in existence, that sort of thing.

Mr Young: Sure. We'd be delighted to send you some materials. As part of our broader provincial task, we're setting about actually talking to communities about the model. It's a co-operative in its essence. It gives the individual investors basically one vote per member and they directly invest. It's a way to close that gap between the consumer and the producer by getting consumers directly participating, not simply by pulling out their wallets for a commodity but pulling out their wallets to actually build bricks and mortar—in this case steel and fibreglass. We've stolen it blind; we're not terribly original. Denmark has been very important with their co-op movement in terms of actually getting the industry going in that country.

Mr Gilchrist: Perhaps you could send that.

Mr Young: Certainly.

Mr Parsons: I'm getting some sense, particularly in rural communities, that they support wind generation as long as the towers aren't visible to them or where they reside. You're going a step further in wanting to put them into high-density areas where they'll be used. What is the public reaction to these windmills in their community?

Mr Young: Well, it's interesting. When you talk to folks in rural areas they're actually quite excited about

turbines. I visited the plant up on the Gaspé, actually with my colleague Joyce McLean from Toronto Hydro. The farmers are ecstatic and I'll tell you why. These turbines, which are owned by another company, provide income for the farmers because their land is being rented out.

Mr Parsons: I'm talking about the farm next door that doesn't get the income but gets the view.

Mr Young: Right. You're talking about the aesthetic component of wind power and that's a very subjective one. I'll tell you that from all the studies and all the experience we have here at TREC, we know that before the turbine goes up is when people have the reaction. After the turbine goes up, that reaction goes away. For instance, we took a busload, as part of our public consultation, up to the only turbine at the time at Kincardine and we did a poll. We surveyed people before they got on the bus and afterwards, and concern around aesthetics went down. They were totally impressed.

The Chair: Thank you for your presentation. The time is up. We appreciate your offering and coming forward.

TORONTO HYDRO ENERGY SERVICES INC.

The Chair: Our next presentation is from Toronto Hydro, Joyce McLean, manager, green energy. For the sake of Hansard, please state your name. There's a total of 20 minutes for presentation, and what's left over will be left for the three caucuses to divide up evenly for their questions.

Ms Joyce McLean: Thank you very much. My name is Joyce McLean. I'm the manager of green energy at Toronto Hydro Energy Services.

Mr Chairman and members of the committee, I want to first thank you for the opportunity to speak to you about an important matter relating to the energy future of this province.

I work at Toronto Hydro Energy Services Inc, one of three subsidiaries of Toronto Hydro Corp. Toronto Hydro Energy Services has been set up as an energy retail company in anticipation of the electricity market opening to competition by May of next year. It is my job to develop and promote electricity generation alternatives such as wind, solar, small hydroelectric, methane from anaerobic digestion in landfills, for instance, as well as to develop the support for the use of energy efficiency and conservation measures. Most of these technologies have barely been explored or utilized in Ontario, something we are very excited about now that the opportunity is upon us.

Our current green power projects include siting two utility-scale wind turbines on Toronto's waterfront with the Toronto Renewable Energy Co-operative, and Bryan has already alluded to our partnership; a methane capture system at the city of Toronto's former landfill at Thackeray Road up in the Steeles and Kipling area; solar photovoltaic panels on a couple of Toronto Catholic District School Board schools as well as a full retrofit of all of those schools; and other projects in the works.

1130

We are also developing a green energy retail offer for both residential and commercial customers. For all of these initiatives, we need to be assured that as the market establishes itself and inevitably grows, the sitings, development and approvals for green power projects are easily attainable. To date, we are concerned about the level of support being shown for renewable energy developments.

I'd like to discuss two important regulations the Ontario government has, one that is now law and one that is in consultation. Neither is favourable to developing renewable projects in this province.

The first is the environmental assessment rules for the electricity sector confirmed earlier this year by the Ministry of the Environment. Those regulations put undue, expensive process on developers of wind, a pollution-free technology, relative to the scope and capital costs that other types of generation can avoid. Despite protestations to the MOE, several renewable developers found that consultation resulted in absolutely no change to the trigger number for an EA screening process, that being two megawatts. That's essentially two or three turbines, or an investment of about $4 million in wind turbines. If you are developing a landfill gas project or a cogeneration project, that trigger is 25 megawatts. That is a capital cost investment of approximately $50 million for landfill gas, or approximately $30 million for cogeneration. Both of those technologies, while valuable additions to our portfolio of energy technologies, do have emissions which need to be recognized and mitigated. A capital cost analysis tied to the level of emissions would have been a prudent method of developing this regulation and should still be given serious re-evaluation. How is it that a pollution-free technology needs more process than one that creates emissions?

The second regulation is the emissions credit and trading regulation, which is currently out for public consultation. The problems we see are that the definition in the regulation is too narrow as it only includes wind, solar and small hydroelectric. It ought to include methane from landfill and anaerobic composting, deep-lake water cooling and geothermal, to name just a few technologies.

The definition for conservation is equally narrow as the regulation would allow only lighting retrofits to be eligible for credits, while there are a host of improvements, such as increasing building insulation, that can be made in order to conserve energy.

The one kiloton set aside for renewables may be sufficient at the beginning of the market, but the language in the regulation does not allow for any increase to this number over time. This is in direct conflict with the anticipated growth of renewables in the global marketplace. Globally, wind power installations in 2000, according to the Worldwatch Institute, grew by 30% over 1999 installations, as an example, and that's a replication of what happened for 1999 over 1998. Currently, as you

know, we only have two utility-scale wind turbines in Ontario.

Another problem is the five-year limit on emissions credits being contradictory to the financing and lifespan of energy projects of this type, or actually any type. Most wind turbines have a life of between 20 and 25 years yet the duration of the emission credits are only being established at five. The duration should reflect the duration of the benefits that go along with the project itself.

If the government is serious about cleaning up Ontario's air, reducing smog days will come about only if there are significant, scheduled declining caps to both $N0_x$ and $S0_2$ emitters. Yes, this will cost money and, yes, those costs are likely to be passed on to consumers. Our surveys that Toronto Hydro has paid for tell us that people are prepared to conserve and to support green generation if this will ensure cleaner air for their kids and their elderly parents, even if it costs a little more.

As you know, the true cost of our energy is not captured on our electricity or our gas bills. In a truly competitive marketplace, our bills should include the pollution costs of damage from acid rain, ground level ozone and smog due to energy generation, particularly coal; the number of asthma patients in emergency rooms and the earlier mortality of vulnerable populations; and the cost of containing the waste products, particularly from nuclear, to name only a few points.

While Ontario consumers may benefit from relatively low electricity prices, 20 smog alert days so far in 2001 is really a measure of that price.

Wind and solar energy do not have any hidden costs. One factor that is critical come May 2002 is the establishment of a green market. The Ontario government could help this sector by easily following the lead of the city of Toronto and the federal government and establish a green power procurement policy. The city of Toronto, in its 2000 environmental plan passed by council, indicates a willingness to purchase 25% of its electricity supply from green sources. The federal government already buys green power from Alberta wind farms and is scheduled to buy from a recent Suncor-Enbridge wind farm in Saskatchewan. The Ontario government, with its many facilities, could establish a similar benchmark. They could even improve on it by tying that green power purchase to increased building efficiencies of government facilities. Employing certified contractors to do the audit and retrofit work would create hundreds of jobs, make government buildings more comfortable and reduce energy costs. This would free up tax dollars for other purposes.

Conservation works: the Ontario government could also help this sector grow by establishing, like many American jurisdictions, a renewable portfolio standard, or RPS. An RPS would ensure that a certain percentage of green power is included in both the transmission and distribution grids. From the province's perspective, this is a virtual no-cost item. From the sector's perspective, this would ensure green power developments in all parts of the province.

Toronto Hydro, like other deputants before you, is a member of the CARE Coalition, a unique collection of utilities, private companies and environmental groups formed to lobby for expanded tax measures favourable to renewables. I would urge you to review a recent Conference Board of Canada report that does point to inequities in terms of both tax treatment and subsidies for energy technologies in this country. Renewables, we all know, are better for the environment, yet polluting technologies continue to enjoy government support. It's time this changed.

While the federal government is considering the proposal by CARE for a producer tax credit for renewable developers, modelled on one the US government offers its developers—and that's 1.4 cents a kilowatt hour—the Ontario government could easily offer similar tax relief. This would be a tangible example of how Ontario can support the reduction of $C0_2$ and related pollutants, and would show the public that the federal and provincial governments can work together to address serious pollution and health problems, something the public clearly wants.

Toronto Hydro has done a lot of work in the past year examining the potential for developing renewable energy projects in this province, including studying the wind resource. As a business, we've also naturally examined the economics of renewables. We believe there is a strong business case to be made that complements the obvious environmental case to develop and promote projects of this type. The government can help through an information campaign to educate consumers so we can all benefit as a society.

In conclusion, Toronto Hydro is very interested in working further with this committee to establish the right kinds of policies, programs, incentives and tax measures to ensure that renewable energy has a rightful place in the energy future of Ontario.

Thank you very much for the time you've given me today and the opportunity to address you.

The Chair: Thank you for coming before us with an interesting presentation and good thoughts. We have about two, two and a half minutes per caucus, starting with the Liberal caucus.

Mr Bradley: You have some excellent suggestions for us, no question about it, particularly in terms of financial incentives that should be available for renewable energy, and I was pleased to see you raise once again the issue of the hidden costs that we find in the production of electricity using what we might refer to as the traditional methods.

You mention that should be calculated and factored into the costs. We're looking at those costs. Where would we be able to get those figures, that kind of information, today?

1140

Ms McLean: I know that one of the previous deputants, Jack Gibbons, has done some work on that, and I believe I'm not speaking out of turn in saying the

Green Energy Coalition has also started doing some work in this area. I'm looking at David.

I think there are resources out there to try to put better numbers on that. Jack specifically referred to the health care costs of over $9 billion in terms of health effects associated with bad air quality, so it needs to be put into context. From a retailer's perspective, hoping to sell green power to people, we know it's going to be a challenge to explain that green power is going to cost more than your traditional or status quo energy. The problem we're going to face in helping to inform consumers could certainly be helped by the government in terms of an education campaign, because most people, when you explain it to them, realize there are these external costs that are out there that aren't captured on your bill, that we're all paying for anyway. But if they were on your bill, then as I think one of the government members mentioned here, if you had an active choice that gave you some information like that, that would help inform consumers when they do have the opportunity to buy from a variety of distributors.

Mr Bradley: Do you think the Ontario Energy Board would be an appropriate body perhaps to initiate some of those studies? I don't expect Ontario Power Generation to do it. They're in the business, and much of their generation so far comes from nuclear plants and coal-fired plants and others. But do you think the Ontario Energy Board, which is supposed to be above the fray, is an appropriate source?

Ms McLean: Yes, I do, and I would also refer you to the Conference Board of Canada report that I mentioned in my deputation. They looked at tax treatment primarily federally, but I think the same would apply provincially in terms of the subsidies and various measures that support the different types of technology, none of which are available really to the renewable sector.

The Chair: Ms Churley.

Ms Churley: Thank you, Ms McLean, for your excellent presentation. I should say that I think if the externalities were factored into our energy bills, the rates would just go through the roof, which is always an issue. That doesn't mean we should not have an understanding of what those externalities are and how much it would actually cost us if they were figured in, because one of the problems is that it's all topsy-turvy. When we talk about trying to bring in green energy, people have to pay more, because the others in a way are subsidized, and that is really absolutely crazy. We want to save our planet and we have to start thinking outside the box. Thank you for putting some perspective on that.

I wanted to ask you quickly about the EA process for wind turbines. As the environment critic for the NDP, I did receive—from time to time there are concerns about windmills killing birds, noise, other factors that people talk about, and I agree with your position on this. But I also would like to hear your position on those concerns around why people want EAs.

Ms McLean: I think there certainly needs to be an opportunity for the public to be consulted on any type of projects that affect their community, their view, their perspective. However, I think that the way the EA rules are currently written, they're very skewed to the traditional types of technology and, in part, as Bryan Young alluded to, I think a lot of that comes from a lack of complete information at the official level in the Ministry of the Environment. We asked a very direct question, "What do you think the most specific concern is with windmills?" and the staff person we were dealing with said, "Aesthetics." I said, "Oh, so you like the look of smokestacks better?"

It was a flippant answer, but I think the fact that that was the concern that was raised as the predominant one, when we have other technologies that actually produce very harmful emissions that can hurt people, that can hurt the environment, that can hurt wildlife and so on, when we're talking about a pollution-free technology that, granted, is large but doesn't have the same effect, it's not being treated equally.

I think there is a definite need for information and experience at the official level in the ministry. As Bryan said, we took busloads of people, average people from around the sites where we're proposing to put our turbines up in the city, up to Kincardine, and it was amazing to see what they thought they were going to experience and then what they actually experienced. We did a little informal survey on the bus where we asked them, "What do you think about noise, height?" because the basic issues associated with turbines really come down to four: specific site, birds, noise and visual, and that's it. So when we asked people, they had a certain perspective before they saw the Kincardine turbine, and everybody's view changed once they stood underneath it, could touch the tower, could look up at it, could barely hear it and so on. So, as I mentioned, I think there is a serious lack of information and experience at the official level, and this got translated, unfortunately, into a regulation which will cost wind developers more than it will status quo developers of other types of energy technologies.

Mr O'Toole: Thank you for your presentation. Certainly we have been hearing from many of the proponents of alternative energy and I think it's very educational for us as committee members. We only bring our natural insights into these roles.

I'm quite sympathetic to the first two points you make with the EA process. It's duly noted. I think discounting the legitimacy is part of supporting the current technology and the current kind of monopoly position of generation.

Specifically on the emission credits, I think that's an important one. It's part of a larger debate, as you know, with Kyoto. It's widely debated as to what are they, how are they accounted for and the rest. But there's clear evidence that clean energy, specifically wind—and I might say that I'm going to the Pickering demonstration today, because it's close to my riding. I commend OPG and the government for working toward establishing that

as a legitimate demonstration of supplying 600 homes with a renewable form of energy.

I want to take up one question, with respect. We hear relentlessly in the House—and it's good to hold the government accountable—all governments: provincial, federal and indeed municipal. I think the number that's bandied about is the $9 billion on health care and the 1,900 deaths and the asthma. There's no disputing that there is linkage between that.

I'm questioning the accounting functionality here. When I hear $9 billion, I'm saying, OK, if we just eliminated Nanticoke and the other plants and dealt with that asset being written off somehow through rates or whatever, which may be the challenge for the consumer-education component, would that $9 billion actually come out of health care? That's the question I have to you. In reality, we use these numbers, and Howard and others use that in the House frequently as a number, as if it's something we can save. How do you respond to that? Could you take $9 billion out of the $23 billion in health care? That's realistic if we're using the number as the real number we'd save over time perhaps. Give me your response to that, as part of the educational-fairness equation.

Ms McLean: First of all, that's not my number; that's the Ontario Medical Association's number.

Mr O'Toole: Whatever number. They all throw it around.

Ms McLean: But it's important to look at where that number comes from. That's the OMA's number. They are talking about 1,900 premature deaths in this province, and in Toronto alone 5,500 needless hospitalizations every year due to smog days. This year we have had 20 smog days already. There's no question the costs are difficult to calculate because you're also talking about people's general functionality going down too, which is very hard to put a dollar figure on. So I can't answer that question directly. I'm not responsible for that number.

The Chair: Thank you very much. You are well over three minutes. We appreciate your presentation and your coming before the committee. Good information.

UNION GAS

The Chair: The next presentation is Union Gas; Brian McKerlie, director, engineering design and construction. If you don't mind, just state your name for the sake of Hansard. There's a total of 20 minutes for presentation and questions from the three caucuses.

Mr Brian McKerlie: Thank you, Mr Chair. I understand there's a name change that was on the agenda. My name is Brian McKerlie. As you mentioned, I'm the director of engineering design and construction for Union Gas. I just want to say that it's a pleasure to appear before this committee today.

First off, I would comment that we're supportive of the mandate that's been set for the committee. We feel this initiative has a challenge of really a longer-term plan in terms of moving toward the goals as laid out in your mandate. Our suggestion would be that it be a plan with a number of phases and it be a plan that we agree with you should be initiated today.

We offer some considerations today perhaps a little more focused and focused on some of the interim phases that we believe the plan should give consideration to. I'll be spending a few minutes on emerging technologies for distributed generation, primarily fuel cells and micro turbines, and the benefits for Ontario's future and how we think the process can be supportive to ensure that these technologies have a reasonable introduction into the market.

1150

For those of you who may not be as familiar with Union Gas, I thought I would start briefly by introducing ourselves to you. We are part of the Westcoast Energy Inc group of families, a Vancouver-based organization. The slide on page 3 gives a brief profile of the Union Gas activity. We serve 1.1 million transmission and distribution customers in northern, central, eastern and southwestern Ontario. Also notable but not shown on the slide is that this year we're enjoying our 90th birthday. We have been in business for 90 years. We're definitely proud of that fact and the areas we've served.

From a Westcoast perspective, we've moved sustainable development to the forefront of our business decisions. This activity has been strongly confirmed through commitment at our most senior levels through the establishment of an executive sustainable development committee.

The Westcoast Energy family of companies accepts that climate change is real and that the effects are influenced by human activity. Our commitment to sustainable development dictates that we approach all operations and activities with an eye on their economic, environmental and social impacts. While we may be somewhat biased on this issue—after all, natural gas is the foundation of our business—the fact remains that natural gas offers part of the solution to climate change and concerns over air quality. In combination with energy conservation it will help bridge our current energy needs with renewable energy sources that will become more viable in the future.

You probably have had some discussion over the past few presentations relative to what distributed generation is. It's actually a term that you could translate fairly literally. It is the generation and production of electricity on or near the site that will use it. This, of course, would be compared with centralized generation, with large centralized plants and a transmission wires grid to distribute the power. From an emerging technologies point of view, I'll be spending some time today on fuel cells and microturbines.

There are a number of considerations as to how these systems may be designed and worked into the market to serve the needs of consumers. There are applications where the equipment could serve part of the load of the consumer, meet all the needs of the consumer or produce

excess power, and then, of course, the residual would be balanced against the existing grid.

Current economics, through our review, do not support these emerging technologies in today's market with current commodity costs and capital development costs. Our concern, though, at this point in time of the process is that there are a number of policies that are not supportive of this technology being introduced to the market, and we would like to spend some time highlighting that with you today.

Page 7 is just to help illustrate what you might see if someone were to take you to one of these sites. We've tried to illustrate a couple of fuel cells and a microturbine. At the top right is the initial development stage of a Ballard 250-watt stationary fuel cell power generator. At the bottom would be PlugPower's residential fuel cell that would produce in the order of seven kilowatts, which would be the approximate size that you would require in a typical residential home. The top-left corner is the Capstone 30-kilowatt microturbine which would be utilized for small commercial application.

Moving on, I'd like to go back and discuss the bridge that natural gas will form between today's demand, conservation efforts and the longer-term goal of renewable energy forms. Looking at today's market, we can see that compared with coal or oil, natural gas energy is environmentally preferred because it emits fewer of the compounds that cause acid rain, climate change and smog.

However, looking forward to the role of natural gas in introducing environmental forms of energy generation into the future, I'd like to draw your attention to slide 9. Emerging technologies like fuel cells and microturbines represent a new generation of energy products—clean and efficient. There has been a good amount of debate over the role and opportunities for hydrogen, but the real issues that we need to be conscious of are not so much the benefits of the use of the hydrogen but also to be aware of the issues around the production of that hydrogen. When natural gas is used to produce hydrogen, fuel cells can reduce the number of pollutants, including carbon dioxide and nitrogen oxides, as seen in this slide, relative to the carbon dioxide comparison for fuel cells in transportation use.

We should keep in mind that until hydrogen can be produced in market quantities from renewable energy sources such as water and wind, it must be manufactured using fossil fuels.

Distributed generation by emerging technology offers many benefits to Ontario. By supplying customer choice and a diversity in the way power is brought to the markets, Ontario will be in a position to meet its demands by optimizing its existing system while avoiding costly upgrades of the centralized generation infrastructure. Competition in the industry is important and a stated goal of this government through the latest legislation of Bill 35. These emerging technologies offer advantages and complement this goal while at the same time having favourable environmental performance. We believe this opportunity should be encouraged.

How can we do this? We have a couple of recommendations for your consideration. We've identified a couple of overall areas that are not currently aligned in a way that will support the market introduction of this distributed generation. I'd like to highlight a couple of issues, one from emissions trading that you've heard a little bit about today, and the other from the electricity industry restructuring that we're currently in the middle of.

From an emissions trading perspective, we've already commented that natural gas as a fossil fuel is not the ultimate solution. At the same time, we feel we must walk before we run. Natural gas represents a bridge by emissions reduction, a necessary step toward emissions elimination. We're all operating in a shades-of-green environment at this time. An indirect reductions trading system would encourage this technology and be reflective of the environmental benefits that result.

In the area of market restructuring, the Ontario electricity market is poised to open to competition. Much work has been done in its preparation. However, there are a number of non-conventional issues that have not been addressed, and I would suggest that they have not been addressed due to the necessity of dealing with some of the bigger issues in preparation of market opening now targeted for May 2002.

Small-scale distributed generation can be a real benefit to Ontario, but at this time the technology would face real roadblocks. There is not a provincial standard for how to interconnect with the power grid, and that's regardless of the actual fuel in this distributed generation. But small-scale distributed generation would have to deal with each of the municipal electric and provincial electric distribution grids. So you can imagine the potential for 93 sets of requirements in Ontario alone in terms of standards for this technology to meet.

Second, there's been much discussion about the debt retirement charge and other tariffs relative to the new market rules. To have a small DG plant attract such a charge on self-generated power would create an administrative as well as financial burden. The 15-kilowatt threshold in the current debt retirement charge draft should be revised. Additionally, other tariffs such as standby and net metering should be developed as well.

Third, theoretically anyone who distributes power requires a distribution licence from the OEB. So picture an apartment or shopping mall owner being subjected to this requirement if they install a microturbine and distribute their own power. The OEB has indicated that while this not practical, it is technically a requirement of the OEB act.

In summary, then, there are two key thoughts that fall within the opportunity to move Ontario toward a greener future. First, distributed generation has a role to play in a flexible and fair emissions reduction trading system. Such technology that reduces emissions should be considered. Second, we need to focus on the electricity

market rules to ensure DG is encouraged and not disadvantaged. Progress in this area will create an environment that is supportive of this environmentally friendly technology and begin the process that will meet the goals as laid out in your mandate.

Thank you very much.

The Chair: Thank you for your presentation. There are approximately two and a half minutes per caucus for questions. I started with the Liberals accidentally last time, it should have been the PCs, so I'll start over here this time.

Mr Ouellette: Thank you very much for your presentation. Being that you're from Union Gas, I want to emphasize something I've been dealing with with other gas suppliers in the past: future investments in natural gas. According to the Alberta energy board, gas production should peak by 2003 and then, after that, have a 2% decline for the next five years. Yet the US energy board claimed that by the year 2015 there will be a 45% increase in natural gas, with only a 2% increase in supply. The new lines possibly coming down from the Arctic aren't due to be on-line until 2008 to 2010, should they proceed, yet will only replace current production. How is your industry going to take into account the increased demands without having the supply there?

1200

Mr McKerlie: What we found is that there have been numerous studies relative to how, as existing production declines, as you've pointed out, it would be replaced. I think there is a high optimism that the supplies from the northwest, supplies off the east coast and to some extent supply out of the Gulf will continue to be advanced by improved drilling and resource recovery techniques.

Without being overly critical of the industry, I think we have to appreciate the fact that the recovery of energy resources and the techniques that are utilized are often reflective of the value of that commodity. So when natural gas was at very low levels in fairly recent history, I think you would find that the drilling activity was really recovering the gas that one would say would be the easiest to get at. As the market commodity transitions and is more reflective of the new drilling activities, I think you'll see the techniques improve, such that I believe we'll find that the statistics relative to available supply will actually improve.

The Chair: We'll move on to the official opposition.

Mr Parsons: Interesting presentation. The calls to my constituency office last year were from individuals who heated with oil or natural gas and faced substantial increases. No one who heated with electricity called me. The price was relatively stable.

Your proposal to have the individual electricity generated at the house: will there be stability? How can I say to my constituents that the price will be somewhat stable for their electricity if they do generate it from natural gas?

Mr McKerlie: Mr Parsons, I think electricity has been very stable: seven years of either flat pricing or, in some cases, declining as a result of the price freezing. I think what you're going to experience upon market opening and introduction of Ontario into a broader regional trading grid is that over time you will start to see natural gas and electricity price convergence as a result of one being produced from the other.

I think our suggestion relative to the opportunities of producing electricity at the home is several years out and that economically producing electricity at the home for natural gas is probably at least five to 10 years off, at which point in time I think you will experience a significantly different electricity commodity price structure in Ontario.

Mr Bradley: The question I have relates again to supply. My concern is that the federal government and the Alberta government, to give two examples, are itching to peddle as much gas as they can to the US, and the last I heard there wasn't an unlimited supply of gas. It's not a renewable resource. How do you view your ability to obtain natural gas for eastern Canada in view of the penchant of the federal and Alberta governments to sell as much as they can into the US market?

Mr McKerlie: I think at Westcoast we've made some fairly substantial statements along that line. We have invested significant capital in linking the northern Alberta and BC markets directly into Ontario through our participation in two pipelines: one known as Alliance, which brings gas from Alberta to Chicago; the other known as Vector, which brings gas from Chicago right into our system in Ontario. I think that our participation in ensuring that those supplies are deliverable and available for Ontario is a matter of record to our investment.

Ms Churley: I liked your presentation; I think it was really clear and concise. But following up on Mr Bradley's question, it does seem odd to me: if Mr Ouellette is right, and he has raised this on several occasions, there are more and more possible uses for natural gas that we've heard about over the past day or two and recommendations to go even further with natural gas, which I think we generally all support, and you said yourself that you see what you're proposing now as an interim bridge. In a way, you answered that question in your presentation by saying this is not the be-all and end-all; it's an interim bridge with shades of green right now. But at the same time you're saying that we are exporting natural gas when there is a finite amount. Can you comment on that?

Mr McKerlie: Westcoast's and Union's position is that it is an evolving industry and it is going to require greater advancement in the area of renewable resources, and that's some time off. I think what we're saying is that during that interim period of time we have made investments and certainly put plans in place to ensure that our ability to continue to supply natural gas is strong. At the same time, we are dealing with a very open economy with the US from a commodity perspective, and that's the industry in which we work.

What I didn't have an opportunity to offer earlier was the fact that in Ontario, Union has taken a number of steps toward education around conservation and energy

efficiency through educational programs and products and services that we've brought to market through channel partners who are sort of the face of that initiative on our behalf in Ontario. So we are trying to balance both ends of that issue.

The Chair: Thank you very much for coming forth. Time has run out. We appreciate your presentation.

The committee is now recessed until 1 o'clock and we will commence at 1 o'clock. Please, all members, be here at 1 o'clock so we can get started on time, because I think there are a couple of members who would like to make sure that we end on time this afternoon for some event.

The committee recessed from 1207 to 1301.

TORONTO ENVIRONMENTAL ALLIANCE

The Chair: We'll call the select committee on alternative fuel sources to order once again. Our first presenter for this afternoon is from the Toronto Environmental Alliance, Keith Stewart, smog and climate change coordinator. Welcome.

Dr Keith Stewart: Dr Keith Stewart. I'm the smog and climate change coordinator with the Toronto Environmental Alliance. I'm delighted to be here today. Energy has been a long-standing interest of mine. I actually wrote my PhD dissertation on environmental policy in Ontario and a lot of that was looking at energy policy and different energy paths.

I'm reading some overheads. Is it OK if I just speak or do you need me to speak into the microphone?

The Chair: Maybe we can get the other microphone turned on at the other end of the table there. Speak loudly enough so that Hansard will hear you. I guess they want you to sit down. We'll get somebody else to put the slides up for you, just so they'll hear you.

Dr Stewart: I want to speak briefly on some of the costs of air pollution and then look at five different policy measures which could be part of an overall package to promote alternative fuels and non-fossil fuels.

You have a package which includes this material and a little bit more depth on some of the policy ones. You've probably already heard that fossil fuels are a major problem for the health of this province and for the long-term future of the province with regard to climate change. The electricity sector, which I'm going to focus on today, is a significant source of air pollution in this province. I've put some numbers up there which are taken from the Ministry of Environment report on coal in Ontario, so these are just the numbers for Ontario Power Generation.

What this air pollution leads to is preventable deaths, unnecessary premature deaths, and illnesses and real reductions in our quality of life. Last year Toronto Public Health estimated that air pollution results in 1,000 premature deaths per year in Toronto and 5,500 hospitalizations in the city. The Ontario Medical Association estimated that particulate matter causes 1,900 premature deaths each year in Ontario. The distinction between these two numbers is that Toronto Public Health looked at six different air pollutants; the OMA only looked at one when they were looking at premature deaths.

This also has significant economic costs. According to what the OMA says are conservative calculations, we're looking at $580 million in health care costs—that's only hospitals, because they didn't know how to calculate visits to doctors; $560 million in productivity losses; and total economic damages to the province of about $10 billion per year. That is, in their words, a conservative estimate.

Of course, many of these things which come out of the fossil fuel stations are fuelling climate change, which we're already experiencing now, and it's definitely a major problem for this century.

How do we deal with this? The most important way, when we're looking at alternative fuel sources, is to look at what we can call negawatts. That is, energy we don't use because we're undertaking our activities more efficiently. That type of energy efficiency is definitely the greenest source of energy. It's also going to help make our economy more competitive and reduce fuel imports into our economy. But to make this happen, we need a supportive public policy framework. Without policy measures we're going to run into what political scientists call the tragedy of the commons, where each individual seller is going to do what's rational for them—that is, try and sell the most electricity possible. That's how you make profits. You don't make profits by not selling something. And we're going to lose a lot of the opportunities for achieving the savings on the consumer side. We need to help those energy distributors or seller become energy services companies, so they're selling not just electricity but a whole package of services which include conservation measures.

I think we have a good model—it would obviously have to be adapted to the electricity sector—with what's being done with the gas companies right now. I know you're going to hear more about that from David Poch, who will be speaking next; I won't go into too much detail. This is also being done in a number of US jurisdictions. For instance, Wisconsin requires the utilities to spend 0.5% of their total revenue on programs designed to achieve energy conservation. Overall, I'd like to see actual conservation targets rather than just spending, because that encourages companies to do it as efficiently as possible, which of course is better for all concerned.

But we should be looking at ways to level the playing field so that the companies which are doing the right thing and helping their customers conserve energy don't get undercut by people who are not undertaking those expenses, and potential lost revenue. We need the sort of financial incentives and disincentives which the gas companies face.

Secondly, I think one of the most efficient public policy measures we can have for developing renewable energy is what's called a renewable portfolio standard. This is a standard which says that a certain percentage of electricity, which increases over time, must come from

renewable sources. If you want to be allowed to sell electricity in Ontario, you have to do your part in promoting clean forms of energy by achieving a certain standard which increases over time.

This can be done with a good deal of flexibility. You can use some sort of market incentives to enhance, so if you have somebody who wants to specialize in renewable, they can provide that share of the portfolio to other companies. But this is the way we're going to get steady, predictable growth in the renewable energy industry. It's going to help this fledgling industry obtain lower-cost financing and achieve economies of scale. That'll make these technologies more competitive and help develop an Ontario economy in this so we're not simply importing all of the technology from other places but creating jobs here. We're going to have some competition happening between renewable suppliers, which is going to help achieve better prices, and in terms of various policy measures, this one has a relatively low administrative cost because the market is going to be deciding what kind of renewable energies are going to be produced and where. You're just saying, "You've got to meet this standard, but how you do that within these guidelines is up to you."

As of April 2000—I'm trying to find the most recent number, but this is what I've got for the moment—10 US states had adopted renewable portfolio standards. These are expected to lead to the development of 5,450 megawatts of new renewables by 2012 and to support 3,600 megawatts of renewables already in place. To give you a sense of what this means, that's about 5.7 million typical homes being powered by renewable energy.

Some model RPSs that you might want to look at include those in Texas—which actually has quite a good one—Connecticut and Massachusetts. We can learn from the experience of the American states in implementing these types of measures and look at what has worked, how to get the wording and how to make the system the most efficient and effective possible.

The Toronto Environmental Alliance would like to see a renewable portfolio standard for Ontario which sets a minimum of 5% of electricity from green power by 2005, 10% by 2010, and this number will continue to increase over time. Coupled with energy conservation measures which are reducing demand, this means we're going to get some real improvement in air quality.

1310

The next screen is power labelling. For the first time in almost 100 years, people are going to be able to choose where to buy their electricity from. It's going to cause a certain amount of confusion, based on the experience we've already seen with the gas and telephone companies when monopolies were deregulated, but there already are people who want to buy green power. A 1999 Environics poll found that 15% of Canadians said they would definitely pay more and 50% said they would probably pay more for green power. In Ontario the mean amount they were willing to pay per month more was $12.30. With consumer education on this, I think these numbers will actually rise.

The trick is to turn this desire to do the right thing into actual purchases, into results. For this to happen, consumers are going to need confidence in the integrity of the green electricity offerings that are being made. They don't want to think they are being fooled by Green-Watch. They want to know that it's going to be green and they want to know it's making a difference.

For this to happen, we're going to need clear and stringent green power labelling programs. The one we would support right now, and that I know a number of other environmental groups are interested in supporting, are the draft Eco-Logo standards which have been developed by the federal government. This is a widely recognized system. There has been a lot of stakeholder input into this and they are good, clear rules.

On to net metering. Net metering is, if you produce your own power, if you are producing more than you need, you can feed it back into the system, with of course appropriate safeguards to protect the occupational health and safety of the power workers. It's a good way to encourage households, small businesses, schools or other institutions to start producing their own power in a very decentralized way, reducing losses over the transmission system.

In the US, 33 states currently have net metering policies. Four more are being developed. A model you might want to look at is the one in Iowa, which has been very effective in promoting institutions generating their own power. Rather than setting an overall cap, if you're a big power consumer, you can produce more of your own power and feed more back on to the grid if need be.

Another policy measure which will improve or help foster a market in green energy is government purchases. The federal government has committed to a 20% purchase of green power. The city of Toronto has committed to buy 25% of the power for its own use from green energy by 2005. This purchase commitment was crucial to Toronto Hydro launching their own request for a proposal for 15 megawatts of green power. The Toronto Environmental Alliance would like to see the provincial government match the city of Toronto's commitment to buy 25% of its energy requirements from green power by 2005. We're also interested in trying to aggregate demand from other large consumers—companies, institutions and individuals—to help achieve economies of scale and lower prices, basically good deals for everyone involved.

I'll stop here, and wonder if you have any questions.

The Chair: We have about two and a half minutes per caucus, beginning with Ms Churley.

Ms Churley: Thank you for your presentation. We've heard, and I'm sure we'll continue to hear, some of these suggestions. At this point what I'm wondering is, there are a lot of good recommendations. If we had to make priorities here, just getting things kick-started more than they are now, what would you suggest to us, the com-

mittee, that we recommend to the government to put in place right away?

Dr Stewart: My top priorities would be the energy efficiency measures and the renewable portfolio standard. I think those are the most effective policy instruments. It's a way to create a fair playing field which is going to help improve environmental performance from the electricity sector.

The green power labelling—I'm going to be going out there telling people to buy green power. A lot of environmental advocates are. That's going to be important. But I'd say in terms of this committee's work, my priorities would be the efficiency measures and the renewable portfolio standard, because those are the things where I think provincial policy is going to be crucial to make a real difference.

Ms Churley: What do you think about the externality associated with the cost of the fossil fuel provision of energy that we have now? The rates are kept low, and the public demand that rates be kept low. On the other hand, there are a lot of hidden costs and yet green power has been asked to actually pay more. It's topsy-turvy; it's upside down. How do you think we could start changing that around?

Dr Stewart: I think the renewable portfolio standard is one way to begin doing that. Rather than asking people to pay more for a product which is actually providing a net social good, you're creating a base in which if you want to sell in this market you have to achieve this level.

The European Union just financed a major study which found that coal is about twice the cost of wind power once you take into account the externalities, the health damages and other environmental impacts.

Ms Churley: Exactly.

Dr Stewart: The current edition of Science, which is a very prestigious journal, has an article on renewable energy policy based on the US context which is making a very similar argument, that in fact wind energy in particular but also other forms of renewable, when you look at their total costs, are cheaper. This is where I think we need a role for public policy, to help realize those social benefits which the market—well, the market always operates within rules and we need rules for the market which help people achieve the overall social good rather than simply the lowest internalized cost, with huge costs that are externalized on to the lungs and the future of the province.

Mr Gilchrist: Thank you very much for your presentation. We are certainly seeing some common themes emerging here in terms of the labelling, the RPS. We've had some other suggestions. In fact, your presentation to some extent touches on the more accurate way of comparing apples with apples and looking at all of the downstream and upstream costs in the production of each type of energy.

One of the things the committee is obviously going to be struggling with as we prepare our report is the cost of any suggestions we might propose. You talk about how the existing technologies have health-related costs. How are we going to quantify, for the purpose of looking down the road, a realistic shifting in those costs for the energy sector? There is so much, by guess and by God, going out there right now. The OMA had their opinion and a week later there was a think-tank that came out and rebutted their numbers completely and said their methodology didn't work. Notwithstanding that, nobody agrees that dirty air is anything other than a contributor to asthma, so I'm not going to try and just pick up numbers.

But everything has some impact. Somebody has a factory manufacturing those wind turbines, and if we're proposing to build them here in Ontario, what will that cost be? Where do we turn to get the best possible science? When you judge these different technologies, whom do you trust?

Dr Stewart: The problem with trying to figure out the real cost of things is that it isn't actually passing through a market. We don't have a fixed price. So you're always going to have to clarify what assumptions you're making in order to determine what this is costing either the economy or people's health or whatever.

The European Union's model provided a range of estimates. What they said was, "If you have this set of assumptions, it's about here; if you have that set of assumptions, it's up there. We're going to get somewhere in the middle," but it's within this kind of range.

Obviously, I would look to the high end because that's where my values lie and where I would agree with that as the set of assumptions being made. But I think if you clarify your assumptions, you'll actually still find that things like coal—a great 19th century technology but it's had its day. Certainly if you wanted to get direct numbers, it would require a little bit of work but you could feed into the OMA's "illness cost of air pollution" model, the figures for what happens if you were to remove, say, fossil-fuelled electricity generation in Ontario. We know how much tonnage reduction that would be, and then you have to model that into what that would do to the ambient air, and then their model will predict, using widely recognized epidemiological co-efficients, what the health impacts of that are going to be.

1320

Ms Bountrogianni: Just very quickly, before Mr Bradley asks a question, my only question is, may we have the reference for that European health study? That would be something that perhaps the province might think of commissioning at some point.

Dr Stewart: Can I give it to the clerk? I have it back at my office and I'll get a hold of that and send it along. It was done by ExternE, but I'll get the actual reference.

Ms Bountrogianni: Thank you very much.

Mr Bradley: I'm interested in your opinion of emission trading. I call it "licence to pollute" and "pollution trading"; that's really what it amounts to, in my view. But there are many people who like to propose emission trading or pollution credit trading as a viable alternative to requiring everybody who produces pollution to reduce that pollution as much as possible. I'm interested in what your view would be of the

proposal that the Ontario government has at the present time for pollution credit trading.

Dr Stewart: We have some major concerns with that proposal, particularly because not all sectors are capped, so capped sectors are trading with non-capped sectors, which is a problem.

With regard to the renewable energy, one of the things we're going to be doing is, as we evaluate offerings, as we do on our Web site right now, one of the criteria we're going to use is, is it Eco-Logo certified? But the second one, is it new—to have a net benefit it should be new—and have the people who are selling this agreed to retire any credits that they receive? The Toronto Renewal Energy Co-operative and Toronto Hydro have made this commitment, the idea being that they receive credits for renewables and rather than sell those to basically allow someone else to put out that emission, that pollution, if they're going to be genuinely green they should retire those credits.

I'm not a big fan of emissions trading, because I think to actually police the system properly would require more administrative resources than other types of regulatory standard setting which can achieve continuous improvements such as that called for in the Gibbons report that went to the MOE. I think emissions trading can be so complicated and there are so many loopholes that to police it properly will be more trouble than it's worth. We have serious concerns with even the existing rules that have been put forward, many of which have been voiced with regard to whether or not it's capped, the system being overly complex and currently seeming to be biased toward Ontario Power Generation.

The Chair: Thank you, Dr Stewart, for your presentation; it's much appreciated. Time has more than run out. I appreciate your coming forward with some very interesting information.

Dr Stewart: Thank you very much.

Ms Churley: Before we move on, may I ask, Mr Gilchrist, for the name of the institute or think-tank that disputed the OMA results?

Mr Gilchrist: Fraser.

Ms Churley: Oh, it was the Fraser Institute. OK, thank you. I just wanted that for the record.

GREEN ENERGY COALITION

The Chair: I now call on the speaker with the Canadian Renewable Fuels Association.

Mr David Poch: Are you changing the order?

The Chair: Oh, I'm sorry; I've jumped one down. Green Energy Coalition, Greg Allen and David Poch. My apologies for that.

Mr Poch: Hello again and thank you for this opportunity to speak. As I indicated this morning, the Green Energy Coalition, which comprises the Energy Action Council of Toronto, Greenpeace Canada and the Sierra Club of Canada, wants to focus today on demand-side management. We think this is at least 50% of the solution to the problem that you're grappling with, the big problem of what we do as we, through whatever means, natural attrition or more active intervention, phase out the older plants that are giving us difficulty today.

With me is Greg Allen, who is a professional engineer and designer who specializes in low-energy designs and who is on the steering committee of the Green Energy Coalition. I'm going to talk about DSM and then I'm going to invite Greg to just expand a little about some of the other opportunities for the government.

We've had gas sector deregulation in Ontario for more than a decade. Often residential customers aren't aware of it, but you have that opportunity to buy your commodity from a number of suppliers. I'm sure the committee members will hear complaints about some of the practices there. But we've had deregulation; we've had this experiment going in Ontario, and we have a tremendous success story which is relatively unknown in the form of gas demand-side management.

The energy board has given its blessing to a set of regulatory rules governing Enbridge Consumers Gas in particular that were developed in a kind of collaborative effort with Enbridge and the various customer and environmental stakeholder groups. It's a set—I won't burden you with the details—of regulatory accounts, the net effect of which is to give the shareholders of Enbridge a piece of whatever energy conservation savings they obtain for their customers to the extent that they perform better than targeted. If they perform under the agreed-upon target in any given year, they pay a penalty to their customers.

We've had it in place for a couple of years now. They are running with it, we're delighted to say. I think Jack Gibbons gave you some numbers this morning for 1999. The numbers for the current year, 2001: Enbridge has budgeted $10.5 million, funded out of rates. It will achieve for that benefits to its customers on the order of exceeding $100 million, which benefits of course accrue over the years, over the life of the measures that will be installed this year. That will repeat each year, and it's been growing dramatically. Well, we hope it will repeat and we hope it's growing.

We have a problem right now. The energy board—I think you might have heard it in a bit of coded language this morning from your former colleague, Mr Laughren, when he kept referring to that section of the new Bill 35, with their mandate facilitating energy conservation in accord with government policy from time to time. I think, if I may, what Mr Laughren might have been getting at there is he needs to know from you what government policy is. They have indicated in a recent Union Gas decision that they're cogitating on where they go with all this. Mr Laughren mentioned that within the next year there will be the next round of hearings on the electric distribution side, and that's the question on the agenda: should there be DSM for electricity, and if so, how to incent it.

We have a fantastic example. It's working with Enbridge. I think all the government needs to do is say to the OEB, "We're pleased with that. Implement it in some

suitably adapted fashion on the electric side, and you will have done tremendous service to the province," with relative ease and, I should say, ultimately with negative cost. That $10.5 million I spoke of, which is what Consumers will spend this year, its customers will receive not only that direct $100-million benefit if they are participants in these various programs, and they cut across all sectors, but even if they're not a participant in a conservation program, consumers will lower the utility's long-term costs of expanding pipeline storage and so on by more than $10.5 million by reducing the growth of demand on the system. So all customers will enjoy benefits from that program.

If it's such a good free lunch, why do we need to have special roles to encourage anybody to do it? Why don't we all go down and pick up the money off the sidewalk? The answer is market barriers, as the economists would say. There are any number of little problems out there in the economy that stop the economy from doing what is optimum. I've given an example in my materials of the split incentive. It's perhaps the most famous one, where you've got a tenant and a landlord. The tenant is paying the electricity bill; the landlord is paying for the capital plant, the HVAC and what have you, the furnace and so on. The landlord doesn't have an incentive to put in a more efficient furnace. The tenant doesn't know that he or she is going to be around long enough, if they were to negotiate something with the landlord, to pay for a more efficient furnace, they just know that they have to pay the operating cost. No one has the incentive to do what rationally would save some money overall.

1330

Utilities are well positioned to recognize those problems and come up with innovative financing techniques, what have you, to get around these hurdles, and they've been very innovative. If you give them the carrot, they'll go for it. So I would just say if this committee does nothing else, this one is easy. It's low fruit there for the picking. Amory Lovins, the fellow who coined the term "negawatt," said this is a free lunch that they're going to pay you to eat. We just have to make sure that the regulatory structure is there to support it.

I'd like Greg to expand a little more about some thoughts on other opportunities for the government.

Mr Greg Allen: I've been on the front lines for 30 years in trying to practise state-of-the-art energy efficiency opportunities as they are permitted. I think I've certainly come across most of the barriers that are out there and they can become impossible, even though I'm pretty bull-nosed about trying to overcome them.

The good news is that over the last decade the electrical sector in Ontario has had a pretty flat demand for electricity, which has had enormous benefits in terms of avoided capital investment, reduced costs, reduced import of energy and therefore wealth staying in the province. It has maintained stable electrical costs and reduced pollution emissions as a result. The quantity must be large. This province has grown economically and in its population enormously in the last decade. But the potential is much larger. Even in conservative estimates on the currently available economic potential of retrofit we should be able to achieve a 50% reduction in our electricity consumption; it's how to get at that very large market opportunity.

In the new construction field and new products, the figures are higher, typically around a 75% reduction over current practice. Certainly in my own practice I've achieved those ends at negative capital cost. In other words, capital cost savings and having dramatically reduced energy bills is not an inconsistent design objective.

Unfortunately, we have rate structures—unaccounting and misallocating of benefits—in our energy markets as they sit right now. We have inappropriate regulatory constraints, any number of economic reasons why optimum selection isn't being made. Most perversely, though, if you allow the market to do what it's been doing, which is sometimes called cherry-picking, a firm will go in and retrofit lighting or change a furnace instead of employing the choice of measure that could have achieved good paybacks in, say, seven to 10 years. You pick the two-year payback because you get your money and run. That's been happening with energy service companies and it's a problem, because once you've made that decision, then the economics are eroded for going back and upgrading it again. If you put in a mid-efficiency furnace and then decide, "Oh, gee, I blew it. I should have got a high-efficiency furnace," it's too late. You've already sunk that capital and you're going to have to wait till your next furnace is ready to retire. So you want to stimulate optimum economics. Obviously on the production side of electricity the plants are amortized over much longer periods, at lower-cost capital too, than the consumer end of this bargain, so we have this great discrepancy about economic opportunity and non-take-up.

There are many other market failure mechanisms. Some of the ones that I come across routinely: institutions typically divide their operating and capital cost programs. They don't look at the life cycle decisions. A university will build a building that would have been able to reduce the overall costs of operating that building enormously—capital amortization and the operating cost—but because the budgets are separated, there's no price signal over to the designers of the buildings to optimize for the economic interests of the university. That's commonplace even in this government's operations, I suspect.

The access to capital is a big one. Churches, for example, can't even borrow against their real estate. There are high transactional costs for small customers. The design fees that we have as professionals are based on the capital costs. We would like to drive the cost of construction up because that's how we make the most money, not drive the life cycle cost of our designs downwards. So there's perversity in the way that professionals are paid. They need to be paid adequately to change the status quo to a much more optimum end result.

Governments, of course, are in very strategic areas that affect outcomes here: regulatory, establishing the

market rules, standards enforcement and creating them, industrial development support, and its own portfolio of energy consumption. In a variety of ways, I believe, the government can be very crucial in accelerating the take-up of energy efficiency and yielding the economic benefits for the province.

We've talked about the role of demand-side management within the utility business and the successes that have been demonstrated in the gas sector. We need to scrutinize the devil in the detail of our rate structures so that we actually are signaling the marginal cost of new generation to customers and that the customers see the full benefit of a reduction that they would make that corresponds to the savings in the system. One example would be that right now line losses, which can be quite high on peak days—this summer we saw a lot of electricity just wasted on the lines getting the power down. Because it's a square law, with the amount of current on those peak days, a lot of energy is consumed. It's being charged back to the customer on an even basis across the board, so it doesn't reflect that peak load. There's no signal to customers to invest in ways of offloading the peak demand periods. I think that's been alluded to in previous presentations.

We need to have some oversight in developing protocols on how you evaluate energy savings if there is going to be an allocation of credits. You've mentioned the emissions trading, but any number of issues, like the formulas for Enbridge's DSM efforts, need to have ways of evaluating the actual savings that are being created by the measures undertaken.

We need to maintain minimum performance standards which create a level basis—I'll call it a basement of performance—across an industrial sector. We need support in the way of education. We need a lot of engineering and other skill sets provided in this area. Much as we have invested in information technology, energy efficiency likewise needs that kind of support and curriculum development.

We need to see leadership in the form of government taking on best practices in its own energy portfolio. We need market rules and guidelines that recognize the value of conservation. Right now, we have a ban on local distribution utilities being able to buy green power within their standard supply offering.

All of these opportunities of government permitting—these are not high-capital-cost or intrusive market interventions. These are simply enabling methods to start breaking some of the barriers down that prevent us from realizing these most cost-effective opportunities.

In closing, we're confident in our claims that the transformation to a green energy future is demonstrably practicable, affordable and must rest first and foremost on energy efficiency. Thank you.

1340

The Chair: Thank you very much for your presentation. We're down to less than 30 seconds per caucus. If you would like to make a quick comment or question, you will have to be super quick.

Mr O'Toole: Thank you very much for your informative input. Many of the same observations are now beginning to form a pattern. Sustainability has a lot to do with having regard for not just the output but the actual marketplace itself. Some of the conditions you're referring to have been reinforced a couple of times. I appreciate your input. If we were to implement one of the several recommendations you've outlined, which would you put the most emphasis on?

Mr Poch: I agree with the last speaker. The top two are that the OEB transfer its lessons learned on the gas side to create an incentive for the electric utilities to do DSM, and then the second one would be a renewable portfolio standard.

Mr Bradley: It was a great presentation. There are a lot of good ideas in here. Just to go quickly to the one on which you place a lot of emphasis, what could possibly be the reason that they would not apply that to the electricity sector? What reasons would they possibly advance not to do so?

Mr Poch: I think the short answer is they're just waiting for a cue from the government. This is a board that's appointed, like any other board, and is in its act explicitly required to take its cue on policy with respect to energy efficiency from government policy. It's spelled out in the act. They were more polite this morning than I'm being perhaps. They are just waiting to hear, "Do you want us to go with this or not?" It's that simple.

Ms Churley: I wanted to ask you about rates. I've been raising with others this morning the externalities that aren't factored into rates on the fossil fuel side, yet you have a problem in getting off the ground a lot with alternative energy. What do we do to start turning that around?

Mr Allen: Obviously it's very unpopular these days to create subsidies, but in fact the subsidies that have been extant for many years in the oil patch and in nuclear operations have been extremely large, generous and almost intractable. The right answer would be to extract governments from the biasing of the playing field to enable fossil fuel explorations and nuclear expansion ambitions, but for a variety of reasons we have a very entrenched relationship between governance and corporate interests in that scale.

The answer is, is there a will of this government to recognize and do all that it can within its budgetary constraints to overcome the enormously biased situation in conventional energy supply that we've now deemed harmful to our health and to enable the transformation to take place as economically as we can as a society?

The Chair: Thank you for your presentation. It's much appreciated. Time has run out on us, unfortunately. Thanks for coming.

CANADIAN RENEWABLE FUELS ASSOCIATION

The Chair: Our next presentation—we gave a little false alarm there earlier—is from the Canadian Renewable Fuels Association, Mr Bliss Baker, president.

Mr Bliss Baker: My name is Bliss Baker and I'm the president of the Canadian Renewable Fuels Association. The wind turbines were a great addition. I would have brought samples as well but it probably would have changed the tone of our discussion this afternoon. We represent the ethanol and biodiesel producers and marketers and agricultural interests in Ontario that have a stake in the renewable fuels industry in Canada but certainly in Ontario.

These committee meetings today, yesterday and the day before are very timely. In case you've forgotten, we've just come out of the longest string of smog advisories this province has ever seen. Many of you from rural parts of Ontario know that this is no longer a Toronto problem, it's no longer a GTA problem. In fact, a number of times this summer I recall seeing Parry Sound and cottage country as having the worst air quality index in the province. So this is no longer a GTA or Toronto problem, as I think we all know. I'm sure this is unacceptable to you, I know it's unacceptable to me, and I know from our polling that it's unacceptable to the vast majority of Ontarians.

I can tell you that our members certainly appreciate the intentions of the committee here today and the government's intentions with this committee, and we welcome the opportunity to provide you with some insight into a very rapidly changing and exciting industry, not only in Ontario and Canada but around the world today.

I take every opportunity I can to tell people, when I speak to them about renewables, that we have an opportunity today. Again, it's timely. We have an opportunity to capitalize on some conditions right now, both economic conditions, with high gas prices, and environmental conditions. We have unprecedented political support for some of these issues today and unprecedented popular support from the public to support things like renewable fuels. I think we owe it to ourselves to take advantage of the conditions that are out there today and build an industry, not only an industry that can alleviate some of our air quality issues but something that can employ hundreds and hundreds of Ontarians and build a real industry in Ontario.

I want to spend most of my time focussing on ethanol because my colleague Tim Haig will join us shortly to talk about biodiesel and some of the opportunities the province has to capitalize on this fuel that's new to Ontario but certainly not new to different parts of the world. Biodiesel has been running vehicles, buses and cars in Europe for years, and the Americans right now are building a huge industry south of the border, rolling out fleets and buses running on blends of 20% biodiesel, ethanol-blended diesel and renewable fuels. This is not pie-in-the-sky stuff. This has been around for years in many jurisdictions and I think it's incumbent upon all of us to take advantage of it here in Ontario. Without stealing too much of Tim's thunder, I can tell you that the emission reductions from biodiesel are unquestionable, and the benefit to farmers and rural economies is real.

Now I want to take a minute to talk about ethanol. The ethanol industry has changed dramatically in 20 years. We were first introduced to ethanol as gasohol in the late 1970s. Back then it was not cost-competitive. There were a number of questions around ethanol. But today we have an industry in Canada that's poised for some significant growth, particularly with the right conditions and the right leadership. I think by 2005 we will see the industry in Canada top a billion litres, much of that coming from corn from southwestern and eastern Ontario. In a typical blend of 10% ethanol mixed with gasoline, that means that by 2005 we'll be cleaning up 10 billion litres of gasoline.

For those of you who are not familiar with the way ethanol works, ethanol is an oxygenate. It's made of 35% oxygen, and when you add it to gasoline it encourages and promotes a cleaner and more effective combustion, thereby reducing harmful emissions of GHGs—greenhouse gases—and other harmful pollutants. Without getting into too much technical detail, I can provide you with all the studies you like, if you wish. A 10% blend of ethanol can reduce carbon dioxide by up to 10%. It also is a net reducer of ozone-causing emissions. For those of you who are not familiar with the way smog is created, there are a number of compounds such as carbon monoxide, benzene and unburned hydrocarbons that go into creating ground-level ozone, thereby creating smog. Study after study has shown that ethanol reduces carbon monoxide significantly. There is also a net reduction in ozone formation.

The environmental benefits, in my view, are unquestionable. Study after study has shown that it does reduce emissions. Are there better sources of GHG reductions? Absolutely. My colleague Tim Haig will probably tell you that biodiesel is one of them, but ethanol can be and should be part of the solution to meeting our climate change challenges.

More importantly, we've seen that in other jurisdictions, particularly in the US, they are being very aggressive in creating an industry. The American Lung Association has credited ethanol with reducing smog-forming emissions in Chicago by 25% since 1990. They have seen the benefits of cleaner air for 10 years now in Chicago with reformulated gasoline and ethanol in gasoline.

1350

Today in Ontario we've put about 15 million bushels of corn into ethanol, primarily through the Chatham ethanol refinery and the Tiverton plant. A third refinery is going to be built in Cornwall any day now. I understand they've got their financing in place. That's the good news. The bad news is that it took the co-op in Cornwall nine years to get financing to build that plant, and they had to go to Europe to get that financing. It also took the Chatham plant several years to get the financing in place to build their plant. Several other projects, I know, have died because they couldn't find the right conditions or the right financing and access to capital to build refineries. The province does deserve some credit

for seeing some of these plants through to fruition and making them happen. However, it would have been significantly easier had the province had a very clear, specific strategy with respect to renewable fuels, one that fostered technological development, and one that had, in this area, worked to minimize the risk for financing and created venture capital pools dedicated to this sector.

Not to harp on the US, but south of the border that industry now employs tens of thousands of people. There are some 30-odd refineries on the drawing board, another 50 or 60 in operation right now, and they will produce five billion gallons of ethanol at record production this year. A lot of that has to do with political leadership. There's something called the Governors' Ethanol Coalition in the United States with over 25 governors who are active members. The Premier of Quebec is a member, and the province of Quebec is very active in trying to promote an industry in Quebec. They're very new to this, but they're active and they're taking part.

Their strategy south of the border includes a variety of things. Some of them are direct subsidies—not something that we're coming out and advocating today—but R&D incentives, tax incentives, and innovative programs that support the use of specific feed stocks, like corn and soybeans, are all part of their ethanol and renewable fuel strategy south of the border.

In Ontario, of course, we benefit from some specific tax treatment. Ethanol, when blended in gasoline, is exempt from the excise tax federally and the road tax provincially, as are propane and natural gas. We believe that tax treatment should be extended to diesel fuel. It's the dirtiest fuel on the road, and right now, when you blend ethanol or biodiesel into diesel fuel, it's taxed as if it's a gasoline. We think that treatment should be extended to renewable additives to diesel fuel, which would make a significant impact in kick-starting the biodiesel industry in Ontario, not to mention reducing harmful emissions significantly. Studies south of the border have shown—a recent study released this year—that these types of tax treatments are returned to treasury in excess of twofold in terms of jobs and new tax revenue for the government.

I'll try to cut it a little short so that we can leave time for questions, but if you remember nothing else, there are a couple things I'd like to leave you with.

First, ethanol and biodiesel production means rural jobs. Eighty percent of revenue from an ethanol plant is spent within a 150-kilometre radius. So revenue from that plant stays in the local community.

Second, biofuels mean new markets for Ontario grain. Fifteen million bushels of Ontario corn goes into ethanol production in Ontario this year. Five years ago, it was zero.

Third, ethanol production increases commodity prices. Studies in the US have shown that in parts of the US commodity prices have risen as much as 40 cents a bushel for corn because of the demand. In Ontario, I saw a recent study that said it was between seven and 11 cents a bushel in the Chatham area. Those are real benefits, economic benefits, notwithstanding the environmental benefits.

Fourth, ethanol reduces emissions. That's primarily why we're here today. There are other benefits, of course, that I've just talked about, but the environmental benefits, in my view, are unquestionable. If you have questions with respect to that issue, I can provide recent studies to shed some light on that.

One final word to members today: I don't think supporting renewable fuels has to be about direct subsidies or handouts. That's not why we're here today. But I do think, with the proper incentives in place, such as venture capital pools, R&D programs and a clear commitment to a tax regime that encourages renewable fuels rather than discourages them, we can build a thriving industry in Ontario that not only employs people, but one that will leave a cleaner and greener future for generations to come.

Thank you, and I'll be happy to answer some questions.

The Chair: Thank you. We have approximately two minutes per caucus, starting with the Liberals, the official opposition.

Mr Parsons: I'm intrigued, because I quite agree with you that ethanol has so many positives to it and yet I see only one company using it. What is the obstacle to the others? Is it lack of production facilities at this stage? To me, it would be a tremendous marketing approach.

Mr Baker: You're talking about the gasoline retailers markets. You're right. When you say one, I'm assuming you mean Sunoco.

Mr Parsons: Yes, and associated companies.

Mr Baker: That's right, yes. Sunoco is one of them. They've certainly been leaders in Ontario. All of their gasoline has ethanol in it, a blend of up to 10%, and sold at a regular price. Their regular gasoline competes with Petro-Canada and Esso, as do their mid grades and high-octane fuels. UPI and MacEwen Fuels are others that also are very big leaders in Ontario in this area.

The previous speaker mentioned market obstacles. There are obstacles. One of them is the learning curve. There are oil companies out there today that still think that ethanol is not cost competitive, which is wrong. Twenty years ago that was the case; maybe even 10 years ago that was the case. It's not any longer. With high gasoline prices and efficient refineries like the one in Chatham, they are very cost competitive. So there's a learning curve.

There are new companies coming on board. Next year, Petro-Canada will start selling ethanol-blended fuels in every station in Quebec. That's not in Ontario yet because the supply is not there. But there are market obstacles. There's a learning curve but there are also refinery issues that they have to deal with in blending their ethanol. They have to make a business decision to do it. We can't convince them to do that. What we can do is convince them that this is a green product and with some leadership at the provincial and federal levels, all jurisdictions, it will come.

Ms Churley: Are you familiar with—I presume you are—the Minnesota program?

Mr Baker: Yes.

Ms Churley: It's probably one of the most studied because of the state involvement in that. I wonder if you support the state involvement there. The second part to that question is that I understand there's some concern that despite the support of the state, the ethanol program might be in some jeopardy because of rising corn prices and lower prices for ethanol. Can you comment on that?

Mr Baker: Yes. Two things: I had the great pleasure in early July to meet with Governor Ventura, which was an experience.

Ms Churley: That's another story.

Mr Baker: It is. We talked at length about the Minnesota model. One of the challenges with mandating oxygen requirement in gasoline or biodiesel requirements in diesel fuel is that I don't believe we can do this without the oil companies. We can't do it without them. I'm not going to be an apologist for the oil companies, because they have taken their shots at us, obviously, but we need to do this together. I think it requires some leadership. We're trying to do our bit to convince them that ethanol is a viable product and one that they can actually make money on. In Minnesota they've gone to lengths to mandate a certain oxygen requirement in gasoline and also to mandate biodiesel. We're not convinced that's the way to go unless we have willing partners. Let's put it that way.

With respect to corn prices, they are still at an all-time low. You talk to any farmer in the Midwest and particularly in southwestern Ontario and they are up. Ethanol has had something to do with that, but they are still at an all-time low. It's not going to put ethanol refineries out of business.

Mr Ouellette: Thank you for your presentation. Earlier on you mentioned that it was just the ethanol and the biodiesel that are members of your association. Are those all that you're affiliated with?

Mr Baker: No. we have a number of agricultural groups. For example, the Ontario corn producers, the Quebec corn producers, Quebec agricultural interests, wheat producers from Manitoba, canola development corporations from Saskatchewan, a number of agricultural interests. We also have industry partners: Delta tea, engineering firms, a number of stakeholders from agriculture right up to ethanol producers like commercial alcohol. It's a broad range.

Mr Ouellette: You mentioned the increase of about 11 cents a bushel for corn in Ontario, but yesterday in Ottawa we heard that it was mostly cobs and stalks that were utilized in ethanol production. Are we adding more value to the actual crop or is it a per bushel increase on the kernel as well?

1400

Mr Baker: I think what you're talking about is using some of the waste corn stover. Is that so? There's a company in Ottawa called Iogen Corp that you may have met with yesterday. They are world leaders in developing enzyme technology that will make ethanol from agricultural waste products like corn stover and wheat grass and things like that. That is certainly the future of ethanol. They are active members of ours and we certainly see that that's the way the industry is headed.

Mr Ouellette: So most of the production now is based on the use of the kernel.

Mr Baker: Exactly, the actual kernel. That's right. In Ontario it's strictly the kernel of corn. In western Canada they use wheat and barley.

Mr Ouellette: That's something I didn't realize.

The Chair: Thank you very much for your presentation and thanks for all the literature you've left behind here.

BIOX CORP

The Chair: Our next presenter is Biox Corp, Mr Tim Haig, President and CEO. Just while you're getting organized there, when you do get ready to roll, just state your name for the sake of Hansard. You have a total of 20 minutes for your presentation and also receiving some questions from the three parties.

Mr Tim Haig: While this thing is charging up, can I just draw your attention to a blue folder which should probably be circulated. There are a few handouts in that. On the left you'll see the slides from the presentation. On the right-hand side there is a document that was developed by the National Renewable Energy Laboratory in the States which we are Canadianizing through the use of NRC in Ottawa.

My name is Tim Haig. Beside me is Dr Gord Surgeoner. He's from Ontario Agri-food Technologies.

What we have here is a very interesting industry which is at the early stages of development within Canada. It is not a fringe overseas. I'd like to point out that 5% of France's fuel as a country is biodiesel. Things have been legislated in the States. Minnesota has legislated that 2% of their consumption as a state will be biodiesel.

I'd like to just talk about biodiesel as an industry. I will highlight some things about Biox as a company, but I'm more interested in getting the idea of biodiesel as an industry understood.

The first thing you'll see is a quote which I understand you also saw on Monday. It is from Rudolf Diesel, surprisingly enough, the guy who invented the diesel engine. He's quoted as saying, "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." He actually developed the diesel to run on vegetable oil. We are now getting back to the point where we can run it back on a cleaner fuel, which is diesel.

My presentation will be as follows: I'll describe what biodiesel is, I will describe who benefits from the biodiesel industry, who Biox is as a company, what are the market drivers that we're looking at, what we need from

the Ontario government specifically, and then what Ontario gets in return.

First, biodiesel is to diesel what ethanol is to gasoline. We are the clean alternative to mix with the fuel. We are a liquid fuel made from vegetable oils and/or animal fats. In simple terms, because I won't bore you with the chemistry of it, all we're doing is reducing the viscosity of a very good molecule in the first place. It retains the same combustibility as vegetable oil has or animal fats have but it reduces the viscosity and it works within the diesel engine exactly as diesel fuel does. There are no changes to a diesel engine required. You can run it 100% neat or in a mix. I expect it will be like ethanol, as Bliss highlighted in the last presentation. It will likely be run as a mixed fuel—10%, 20%, 5%, even 2%.

It is not an energy-intensive process. Therefore, we get far more energy back than is actually consumed in it, so it is truly a clean alternative.

Biox is a new technology which I will highlight. It is set to change the economics of biodiesel production, and it's an Ontario homegrown technology.

First, who benefits from the biodiesel industry? First and foremost, like the ethanol industry, most of the money, 95% of the money, will stay within 100 miles of a plant. These are going to be locally generated plants. Also, what's important right now is that there has been a lot of flux on the oil side of the industry. Unlike the starch side, which is associated with ethanol, the oil side has been under great attack. So it enhances and stabilizes agriculturally.

Biodiesel is a huge reducer of urban smog, which I will explain, and global warming. We reduce greenhouse gases.

Quickly highlighting what Biox is: Biox is a technology that was developed by the University of Toronto chemical engineering department and bought by a company called Madison Ventures. We are taking this thing to the market. Other contributors to funding so far have been IRAP and TEAM, which are federal. CanAdapt—the Canadian agricultural adaptation program—with support from OMAFRA, has also helped fund us. Notwithstanding, there has been great support from three other major stakeholders: Rothsay recycling, a rendering company owned by Maple Leaf Foods, which is a real proponent of biodiesel, and Ron Wardrop is here to answer any questions that may be associated with rendering; Ontario Soybean Growers has given us all the soybean oil we need to change into biodiesel; and Trimac Transportation, one of Canada's largest trucking companies, has been supporting us with both technology and a location. We have a pilot plan running in Oakville.

When a plant grows, it consumes CO_2. You use or extract the oil and/or the meal from that plant, you feed it to a cow or whatever, and eventually it comes back in waste or used oil. We put it through a process called transesterification. That simply is cracking the viscous end of that molecule off. The viscous end of that molecule is actually glycerol. So one of the by-products of the process is glycerol, which is a very value-added commodity. It's in every single cosmetic thing you want to look at. We create biodiesel. Along comes a truck, or whatever you want, to use that biodiesel. In so doing, it produces exhaust, the majority of which is CO_2. We also have issues which reduce smog. I'd like to highlight two of those as we go forward.

The first thing is greenhouse gas. For every unit—let's say a kilogram—of biodiesel that we displace from diesel, we reduce the load on the world's atmosphere in CO_2 by three kilograms. Ethanol is a very good fuel, but in comparison ethanol is less than 0.5 kilogram—and I'm not trying to reduce the importance of ethanol. So we are six times more greenhouse gas friendly than ethanol in comparison. I apologize to the previous speaker, Bliss, who is a friend of mine, but I just had to highlight that. He's smiling, anyway.

The other important thing is what is called smog. As Bliss pointed out, there are three smog precursors: NO_x, SO_x, and particulates. NO_x are oxides of nitrogen, SO_x oxides of sulphur, and particulates are exactly what they are. By the year 2006, we have to reduce from low-sulphur diesel to ultra-low-sulphur diesel. The problem with that for diesel engines is that you lose that lubricity. It's the same argument that went on when we were losing lead from gasoline. The good thing is that you can get all that lubricity back by adding just 2% of biodiesel, and it is a fuel. You would have to add 2% of an additive anyway. But if we could use biodiesel, which is a fuel, it adds that back to that.

Particulate reduction is the same argument as ethanol. It is 35% bioxygen, and it burns more completely. With a 20% blend biodiesel, you will not see that black puff or belch of smoke you see from a truck pulling away. That will be gone, and that is categorically stated.

Unfortunately biodiesel does not add any benefit to the reduction of NO_x, or oxides of nitrogen, but diesel engine manufacturers are pushing very hard to get that under way with post-combustion. I just want to highlight that every single diesel engine manufacturer has warrantied the use of biodiesel in their engines. This is not a fringe as far as they're concerned.

If I graphically state exactly what I said before, it makes it a little bit more clear. Further reduction—there is no sulphur in biodiesel, so by displacing sulphur with biodiesel you get a linear relationship between the two. When you look at the particulates on the far right of the slide you're looking at, we get a huge reduction in particulates, even with a 20% blend.

1410

Other market drivers: there is a real need to lessen our dependence on fossil oils—that's why we're here—and there are legislated changes to do so. I highlight that we are on an unlevel playing field with the biodiesel industry in the States. The States is giving biodiesel producers US$1.20 per US gallon. That is a gift; that is not a tax incentive. That is, "You produce it; we give it to you." The situation is, we need a level playing field in this country. The biodiesel market and the actual ASTM standard is very well established—ASTM is the Ameri-

can Society for Testing and Materials. This standard is very likely to be adopted in Canada, but it's a very high standard.

I'd like to highlight one thing: the safety and toxicity. There's a great quote from the national research lab in the States, which says biodiesel is as biodegradable as sugar, which is one of the most biodegradable things you can have, and 10 times less toxic then table salt, which we all know is fairly benign, judging from the way I use table salt.

The other thing is biodegradation, which is important. If you blended it at a B-20 blend, 20% biodiesel and 80% diesel, and you were to spill it—God forbid you would, but it does happen—it would biodegrade in a third of the time that diesel would degrade in the first place, the reason being that bacteria live very well on biodiesel as they consume diesel. Up to now—and this is the shameless promote of Biox—the cost of production of biodiesel has been upside down. We have a very cost-effective technology that we're bringing to market.

I'd like to highlight another marketing driver, the rendering industry. The rendering industry is part of the industry that recycles carcasses and that kind of aspect. It's not a glamorous industry but it's extremely important to the cattlemen society. As you probably well know, profits have been severely compromised, and without a strong rendering industry, the whole meat industry of the country is very compromised, and we can talk to that at the end.

The soybean industry is also under attack. There's a huge US influx of soybeans; Brazil is the largest producer of soybeans. And there's a glut of palm oil on the market. We need alternative uses, and biodiesel is a clear alternative use.

What do we need from the Ontario government? We need tax parity—we're not asking for anything else—with ethanol, compressed natural gas, propane, all these other fuels that are getting favourable treatment when talking about the provincial road tax. We would like the same parity. That's all we're asking for, to be treated the same as these other fine fuels.

We are now talking at the federal level. We believe the excise tax is being considered this fall. We have every reason to believe, by talking to environment, agriculture and everything federally, that the excise tax will be waived in the same way as with ethanol and these other renewable fuels.

What does Ontario get in return? First and foremost, rural development; secondly, we get a more stable agricultural market, which is very important right now; we get a reduction in urban smog—diesel is categorically a contributor to urban smog, and biodiesel will be a reducer thereof. Global warming reduction—you can't open a paper now without having some headline on that.

I'm asking for a level playing field. We want to have a new industry, and we have a home-grown technology that we need Ontario to recognize and give us the same parity. That's all we need and we will be underway. With that, I'll open it up for questions.

The Vice-Chair: Thank you very much. That leaves us with about two and a half minutes per caucus. Ms Churley, you're first this time.

Ms Churley: Thank you very much for your presentation. I was watching you while your competitors—

Mr Haig: We're not competitors, no.

Ms Churley: The thing I want to ask you about is, we heard yesterday in London and Ottawa from both sources, and I'm wondering how you're working together. I presume you're saying there's room in the market for all of you.

Mr Haig: No question, and it's really important to understand and get very clear that we are to diesel what ethanol is to gasoline. We are the healthy alternative to diesel fuel. We are not competing with ethanol. Ethanol is a completely different fuel. Gord, do you want to speak to that?

Dr Gord Surgeoner: We're the trucks and buses; the other guys are the cars.

Ms Churley: That's a good way to put it. For the lay person, I think it's really important to make that distinction.

You just outlined what you want. You want fairness in the tax system. What about other jurisdictions? Have you looked, for instance, at the US? What else can you suggest we do?

Mr Haig: The US has already given a tax break in a cash handout for $1.20 a gallon produced. It equals quite a bit more than what we're asking for from the province and federally. They're already getting it. Australia gets 100% tax relief on biodiesel produced and Europe gets a 100% tax relief on biodiesel produced. We are behind.

Ms Churley: Why are you asking for less, then? Do you think you can't get it, or do you honestly believe that if you get that much it'll be the boost that you need?

Mr Haig: I do believe it. One reason is that the Biox process is that much more cost-effective than our competition. There are some very good technologies out of Austria and they're about three times more operations-cost-per-litre than ours is. I believe we could get thing going. I also don't want to ask anybody to reinvent the wheel. We'd like to get this thing going quickly. So getting just tax parity seems to me to be an easy way to get started. It's not asking to rewrite anything; just be inclusive of diesel in the same way that we are inclusive of gasoline. That's all we're saying.

Dr Surgeoner: A quick comment from the farm community, which I represent: I want to emphasize—and we thank you—the government of this province, and federally, gave the farmers of Ontario $105 million. They don't like to be on the dole. They want markets for what they produce. We believe that biodiesel, through animal rendering, through corn oil, soybean oil, can help alleviate our market stress, because all around the world other governments are subsidizing farmers. The way we look at this is, here is a market for us, as rural Ontarian farmers, to help the smog problem of downtown Toronto, and we can do so with Canadian technology and help our rural sectors and help the people of Toronto. To me, it makes a lot of sense.

Mr Ouellette: Thank you for your presentation. In defence of Mr Baker, is diesel six times more polluting?

Mr Haig: With respect to greenhouse gas, yes, it is. With respect to CO_2—

Mr Ouellette: So proportionately—

Mr Haig: Proportionately, but let me put it the other way: we're just that much cleaner. They're much cleaner than gasoline. We're just that much better in the same volumes.

Mr Ouellette: I think you've targeted on one of the key things that I hope to see as a result, something I've been pushing for for a couple of years: set policies within the ministry for establishing new fuels. What are the feds telling you in regard to the tax break, or have you spoken with the feds?

Mr Haig: Absolutely. We've been speaking to the three areas that are very interested in this. Obviously, agriculture; this is a huge win for agriculture.

Mr Ouellette: So they said they would continue on or they're going to give you the tax credit?

Mr Haig: They've given us every indication. It's never over till it's over, sort of thing. They want a chicken-and-egg situation. We're asking them to take the leadership role on the excise tax and we're also asking Ontario to take the leadership role on this sort of thing.

Mr Ouellette: One of my concerns is that it's going to be specific for the biodiesel.

Mr Haig: No, we're not asking for that. We're asking for it to be—

Mr Ouellette: What I'm seeing, because I've been working on the issue of fuel for two years now and fighting with about five or six different ministries on the same issue—I feel they're all playing ping-pong and passing it back and forth. Everyone is afraid to make a decision on that issue, what the impact is going to be. What should be the lead ministry, in your eyes, or which one has been the lead one you've been dealing with?

Mr Haig: I think it's both environmental and agriculture. Mr Anderson has indicated that he would do this and Mr Vanclief has indicated they would do it also. There's a joint task force between the two looking at the excise tax and, as they say, they can't see any reason why we wouldn't get the excise tax for renewable fuels mixed with diesel fuel.

Mr Ouellette: So once you've got those two approvals, won't you have to go to finance to get the final—

Mr Haig: Absolutely, and we're handling that also. That is being discussed. Obviously finance has the last say but, let's face it, our environment, in the last few papers, has been highlighted as the third most important thing that's in front of a taxpayer right now. So I believe it'll be there. We're not asking for a lot. It's not a large investment. It's just an investment.

Mr Parsons: Your costing is based partly on animal fats from rendering plants. Is it based on buying it or simply obtaining it?

Mr Haig: Our partners in this thing would be the renderers. Obviously they need to cover their costs and make a profit on the animal fat, so our costing has included a living and a profit element with them, getting them back to where their numbers used to be. They've got to be a profitable industry for the cattle to be a good industry.

Mr Parsons: It's not a very pleasant topic, but the major issue facing rural Ontario is dead livestock.

Dr Surgeoner: And that's one of the key things. Each week in this province basically a SkyDomeful of dead animals is created, and if we don't have markets for the rendered products of those animals, then we're not going to have renderers, and then we'll have a far greater tax problem and environmental problem. So here's one where we can solve two problems at once.

1420

Mr Parsons: So it would make it viable, then, for firms to go and collect dead livestock?

Dr Surgeoner: That's correct.

Mr Haig: Absolutely.

Mr Bradley: We have to be a bit skeptical when we're here. I said at the beginning of this committee that we would have a lot of people coming before us with what I refer to as the "magic box." I think the committee has already had some magic boxes before it.

Who would be the final arbiter? Where would we go to determine who is selling us a bill of goods and who is selling us something that is viable, and what is the best? We're probably going to have to make some choices in this committee as to what's going to be the best, what should receive a government incentive one way or the other, so who is the final arbiter of this? We're lay people here. Who out there is the—is it some national or international firm?

Dr Surgeoner: I guess the first thing I would emphasize is that if you look at all the statistics—here's the US Department of Energy and the US Department of Agriculture. I think they are a reliable source in all of the energy reductions. The USDA has done lots of studies on what it's going to do for the rendering costs and things like that.

If you look elsewhere around the world, in Europe, the US, Australia, all those other nations are investing in this very technology. Most important to me is that it's a Canadian-invented technology that's ahead of the game, and we're going to lose it to the US if we don't start investing in it. So I think the marketplace in many ways is showing you that in other countries of the world, and then you have independent studies from other countries as well, and we will have one from the National Research Council as well.

Mr Bradley: I'm very interested in that, yes. Thank you.

The Vice-Chair: Thank you very much, gentlemen.

Is the Citizens for Public Justice group here? No?

HALSALL ASSOCIATES

The Vice-Chair: The next group is Halsall Associates.

Mr Paul Hanratty: Good afternoon, ladies and gentlemen. My name is Paul Hanratty. I'm with a Toronto-founded firm, Halsall Associates. We're a firm of engineers and consultants founded in 1956. We're an employee-owned company, and our focus is in engineering in buildings, both in the built environment and in new construction. We operate primarily in Canada, but in high-profile projects we're asked to get involved, particularly relevant to building-envelope issues around the world. We're currently doing projects like the Smithsonian and the Sears Tower in Chicago.

We have a number of services that we offer in buildings, but what we're going to focus on today is that we have been involved in the design, construction, destruction, repair and replacement of thousands of building envelopes or building cladding systems over the last 40 years. We bring a breadth of experience in building-component issues to what we're going to talk about today, which is solar photovoltaic in the built and building environment and how we integrate that to the buildings we have and the buildings we're about to build.

Our mission statement on sustainability is to foster an understanding and acceptance of sustainable issues among our staff and clients, to adopt a holistic design approach and life cycle thinking, to demonstrate economic viability of sustainable development, and to lead in the implementation of sustainable technology in the built environment, the built environment being the buildings that are up now rather than what we're going to be building in the future.

Today I'm going to speak about the deployment of building-integrated photovoltaics in new construction as well as the built environment, and outline ways that Ontario's participation in public-private partnerships will increase the likelihood that this province can take a leading role in the manufacture and deployment of solar electric building components around the word.

Photovoltaic solar energy first came to the forefront approximately 40 years ago with NASA's fledgling satellite program. At that time, the cost to generate solar electricity was $1,000 per watt. There was a tenfold decrease over the following 10 or 12 years and again through the 1980s, to the point where the cost to produce a watt of power from photovoltaic cells is now approximately $3 to $6. If NASA had had an electrical cord long enough to go back to Houston from the satellite, our industry may not have been born. They have been the primary drivers in moving this technology forward over the last 40 years.

Building-integrated photovoltaic or photovoltaic solar cells have a number of sustainability benefits, including no raw material inputs to produce electricity. If you take all the fossil fuels burned on the globe every day, the sun provides us with 14,000 times that amount of energy, which we use a very small part of. There are no greenhouse gas emissions from photovoltaic-generated electricity, there are no noise emissions, no moving parts and no real estate or site development costs. What I mean by real estate or site development costs is that you have a building already. If you're going to be building the building, why not build the walls, roofs, skylights and windows etc encompassing photovoltaic technology?

The true definition of sustainability is something that consumes less energy in their lifetime than what they will produce over time, and photovoltaic is very unique in that manner in that it does. The types of applications we're currently working on integrating photovoltaics in buildings are in the walls, roofs, skylights, windows and sunshades, of which every building has one or more.

There have been great advances in the photovoltaic industry throughout the world. This is an example of a building in Austria, privately constructed, to demonstrate the opportunities for high-comfort, low-energy building.

This is a Belgian application: a new cafeteria complex incorporating semi-transparent photovoltaic systems, one for shading and one for glazing. The overall peak power from this small array is 23 kilowatts.

The is EMPA, the Swiss federal laboratories for material testing and research, featuring parapet walls and shading elements throughout the building that generate electricity for the building.

Here is a Japanese model of integrating photovoltaic cells to produce power for the building. This is a roof that was constructed from photovoltaic which produces three and a half kilowatts of power for that building.

In all the buildings I'm showing they're not only building-integrated but are net-metered and grid-connected. Obviously the major disadvantage of photovoltaic is that it doesn't produce electricity when the sun is not shining, so in essence we have to use the electrical grid as our battery pack for night consumptions.

This is a kindergarten building that was built in Frankfurt, Germany, out of PV modules as a geometric element in an open and transparent building. It's an excellent example of building-integrated photovoltaic that doubles as building component and fulfills the technical requirement of power production.

PV is a more economical source of electricity in many parts of the world because it replaces the huge infrastructure spending required on building large power plants and transmission lines. Therefore, to deploy small photovoltaic arrays in developing countries is very simple and easy to do at a very low cost. It's cost-effective for the governments of those countries to take advantage of it.

It's also commercially viable in many parts of Canada. It's used in remote areas for powering cottages, for powering weather stations, for powering remote communications infrastructure. Other areas where you'll see photovoltaic in the city that's used every day is in watches, calculators, illuminated highway signs, parking meters, off-grid cottages, in agriculture for pumping water etc.

1430

The annual market growth in photovoltaic since 1990 is quite staggering. From 1990 to 1999, the global photovoltaic market grew by a factor of 25% each year.

In 2000 that grew 40%; in 2001, 42%; and we anticipate in 2002 the growth in the market will be 45%.

Photovoltaic makes too much sense for it to be ignored as an option of renewable energy for buildings. Photovoltaic produces electricity for use at the source to feed the electrical grid. This significantly reduces transmission losses that are apparent with most other forms of generated energy. Photovoltaic does not emit greenhouse gases or other pollutants of any kind.

Here's another example of a photovoltaic building that produces 128 kilowatts of power. It's a bank in Switzerland. This particular building utilizes a number of sustainable systems, such as thermal, solar power, natural daylighting technologies and grey water utilization. The majority of the photovoltaic on this building is actually on the roof. There's 100 kilowatts of it on the roof of the building, which incidentally is one of the more economical ways of deploying photovoltaic currently.

Here's an example of employment of photovoltaic in the Netherlands in an environmental education centre featuring glass corridors. The solar modules combine three functions in one element—building cladding, producer of electricity and shading element—making this type of application ideal for atria and sun spaces in many different forms of buildings.

The advantages of building integrated photovoltaic are that they serve a dual role of power plant and building cladding material. The real estate for them, as we stated earlier, is free and there are minimal site development costs. There will be no incremental costs for the development of areas to produce this because obviously you're constructing your building from photovoltaic arrays. The grid acts as a battery to ensure 24-hour power.

The public relations value of photovoltaic is enormous. Any organization incorporating photovoltaic into a building is providing a highly visible statement of environmental commitment. This can generate goodwill among customers in the community and in many instances may translate into improved financial performance.

The challenges to the building-integrated photovoltaic industry in Canada are that electrical production is not yet as cheap as by natural fossil fuel sources. A large part of the reason for this is that we don't calculate the environmental and social costs of the pollutants from fossil fuels when calculating the cost of a litre of fuel of any other kind. Widespread public education is needed to change the attitudes and show alternatives to fossil fuel electrical generation.

Demand for photovoltaic is higher than supplies globally and this is probably the most significant factor that affects the viability or the deployment of large-scale photovoltaic around the world. The reason for the high pricing of photovoltaic currently is that global demand for solar cells exceeds global supply. There aren't enough people manufacturing photovoltaic cells globally.

This is a graphic illustration, going back as far as 1980, that illustrates that the more shipments of photovoltaic modules there are, the lower the price goes. As long as demand stays higher than supply, then the price will be stuck between $3 to $5 a kilowatt. There are strident efforts in Germany, Japan, Europe and the United States to increase production of photovoltaic cells. One of the world leaders in this technology is a firm whose head office is right here in Ontario called Automated Tooling Systems, or ATS. I believe you heard from them earlier in the week.

We are lagging far behind our G7 partners in the deployment and manufacture of photovoltaics. For instance, in the year 2000, Japan produced 128 megawatts of power from this technology; the United States 75, produced or installed; Europe 61 megawatts. In Canada, it was two megawatts. Our federal government's support is largely responsible for Canada's two-megawatt installation in 2000. Private organizations are now at the stage where they are willing to participate in and contribute to the deployment of this technology. Additional participation by the government of Ontario will significantly accelerate research and deployment of the technology in the coming years that can make us larger users and exporters of this technology.

A stakeholder in photovoltaic technology development in Ontario is, obviously, the Ontario government. The federal government is a significant contributor, to the point where it now has asked us to construct a building-integrated photovoltaic array in Toronto. We will be doing that between now and next March; we hope to have it completed. The purpose of it, as much as generating power, is as an educational tool to raise awareness among the general public that this is another alternate fuel source that makes sense.

Initiatives that Ontario can take to support building-integrated photovoltaic is to participate in public-private partnerships through the development of a Canadian power wall system technology. To do that, we need continued research and development assistance. We need demonstration projects, such as government of Ontario buildings or Ontario-funded buildings, to integrate this technology into their buildings for education purposes. We need to educate the public on the environmental, fiscal and social benefits of using solar photovoltaic. From our perspective as engineers, Canada is renowned globally for our expertise in building tight, efficient buildings in cold-weather environments. We believe that photovoltaic inclusion in these buildings will give us a unique position for future exports of technology and services in this sector.

From Ontario, we would like to see assistance in development of this technology. We would like to see ongoing education of Ontarians on the benefit of clean, renewable energy sources. We know that with further deployment of technology such as this, we will contribute to our Kyoto commitments and we will be able to offer our citizens an alternative source of clean, sustainable energy.

These are the last three examples I'll show you. The top left is the Netherlands, the noise barrier along the

main highway. The solar modules installed along the top half of the barrier produce electricity and noise protection. The electricity produced from these photovoltaic arrays lights the highway. On the bottom left, Georgetown University, installed in 1984, sponsored by the US Department of Energy, produces 300 kilowatts of power on its step roof. On the right, the United Kingdom, funded by the European development fund and the UK Department of Trade and Industry, this is the first speculatively constructed building incorporating photovoltaics and is also one of the largest arrays ever built. It produces 550 kilowatts of power for the building and represents approximately 40% of the building's electrical usage.

To sum up, the Ontario government can lead the way for us to become a world leader in building-integrated photovoltaic for solar energy production. I'll take questions now, if there are any.

The Vice-Chair: Thank you very much. Before I hand it over to the government for questions, do you have either a handout or a business card with contact numbers on it?

Mr Hanratty: I have a business card. I was going to forward to the clerk a copy of my presentation for distribution. I didn't bring slides.

The Vice-Chair: And, curiously, where are you based? I might have missed that.

Mr Hanratty: We're based in Toronto. We have offices in Sudbury, Burlington, Ottawa and Windsor.

Mr Ouellette: Thank you for your presentation. You mentioned—it was one of the slides that you showed—one of the houses that produced three kilowatts.

Mr Hanratty: Yes.

Mr Ouellette: You also stated at that time that you would have to use the grid as a battery pack to store the electrical energy in the evenings. How large a grid would you require for a house like that, or is it hooked up to the grid as it is now?

Mr Hanratty: It's hooked up to the grid as it is now, and net metering would accommodate that.

Mr Ouellette: So for remote locations, say, somebody at a cottage in a remote location, if they weren't hooked up to an already established grid, it wouldn't be something that would be able to be utilized?

1440

Mr Hanratty: In remote locations they use battery packs that are charged during the day, and they use that charge at night.

Mr Ouellette: What's the life expectancy of the cells?

Mr Hanratty: Of the solar cells?

Mr Ouellette: Yes, and how easy are they to replace and/or repair?

Mr Hanratty: They're as easy to replace as a pane of glass; they're generally not repairable. It's like a computer chip: when it's broken, it's broken. The manufacturers, such as ATS, that are making these modules right now in France and possibly very soon in Ontario, will guarantee the units for 30 years.

Mr Ouellette: Mr Gilchrist.

Mr Gilchrist: Very quickly, the question I haven't seen addressed anywhere in the presentations that have been made to us so far about solar is the climatic differences between some of the venues you've shown on your slides and here in Ontario. To what extent, utilizing PVS systems, particularly on the roof, is that feasible in a climate where for an awful lot of the winter you're going to have snow covering those panels, or, by their design, do they tend to heat up enough that they actually melt the snow?

Mr Hanratty: You're correct on both. In Canada, snow is an opaque material, so the solar radiation goes through the snow. The photovoltaic cells do heat up as the sun hits them, and the snow tends to run off. If you had huge snowfalls in a specific area on a flat array, it may have to be cleared—

Mr Gilchrist: Arrays don't tend to be flat, do they?

Mr Hanratty: They don't tend to be flat; they tend to be angled at approximately 30 to 45 degrees. There is an installation at 700 University, OPG's building, that has been there for a couple of years, and there have been none of these problems.

Another question on that was, would atmospheric particulate or pollutants reduce the efficiency of the arrays, and it was found not.

Mr Parsons: These will now become part of the structural envelope on the building?

Mr Hanratty: Yes.

Mr Parsons: How durable are they? Can you walk on them on the roof? Will they take hail and so forth?

Mr Hanratty: Yes.

Mr Parsons: The second question: I get the impression from your slides that the applications you have used are dealing with custom, architect-designed buildings, not houses. I think Henry Ford, maybe incorrectly, has been given credit for inventing the mass production system, but I'm intrigued by the economics of custom shaping them for each building versus the ability to mass produce one standard shape and simply add it to the outside. Does your cost analysis show that for one unique building, where every panel is perhaps a different shape, it's more economical to custom make it than to do a standard, easily replaceable, snap-in-place panel?

Mr Hanratty: That's a very astute observation. In fact, one of the areas where we're encouraging ATS to apply their energies and their resources is to flexible manufacturing to accommodate custom configurations as needed for buildings, to give it architectural merit. There is no such manufacturer currently globally. Photovoltaic manufacturers tend to make standard-sized panels and then leave it to the designers to make them work within an aluminum frame system. ATS is currently looking at that as one of their options for further investment.

Mr Parsons: I would be intrigued to follow up on that. My experience with architects is they never want a 90-degree angle.

Mr Hanratty: You're absolutely right.

Mr Parsons: They never want two panels the same, so I'd like to see how you make out.

Ms Churley: Thank you for your presentation. I think it's fair to say that this is a really exciting and growing trend in parts of the world, and we're far behind here in Canada and in Ontario. I fear that if we don't make some of the changes that are necessary, regulatory and otherwise, we're going to get so far behind that we're actually going to lose out on the ability to create jobs—not only to conserve energy but to create jobs. Would you agree with that?

Mr Hanratty: I would absolutely agree with it. By establishing a robust photovoltaic industry here, where we can do so very easily, given the private partners who are willing to invest heavily in this, we can have huge social benefit in creating better jobs, in creating an export technology that's purported to be the size of the semiconductor industry right now and that we can use at home, that has the environmental benefits of no pollutants yet generating electricity.

Ms Churley: I know you've mentioned different options, but what would be the single thing you'd recommend to this committee to do to help get this industry on the road?

Mr Hanratty: I would recommend that the government of Ontario participate in public-private partnerships. We do have the federal government contributing to some extent; we do have municipal levels contributing on a project basis. But for this industry to grow, I think it's critical over the next five years that the government be willing to invest alongside committed private enterprises that are doing so.

The Vice-Chair: Thank you, Mr Hanratty, and we look forward to receiving the handout of your presentation.

Is Dr Anderson here? Take your time and make your way up to the front, Dr Anderson.

D.V. ANDERSON

The Chair: Please state your name for the sake of Hansard. You have 20 minutes for your presentation and for questions from the respective caucuses.

Dr D.V. Anderson: Thank you very much, Mr Chairman.

The Chair: Actually, I misled you. As an individual, it's 15 minutes that you have.

Dr Anderson: I'll try to stick to that. Thank you very much indeed, Mr Chairman, for inviting me to address you and all the members of the committee. Since it doesn't say on your program, I'm head of an institution none of you will have heard of; it's called Wolfe's University. I'm head of it, as I say. We're located in Toronto. Wolfe's is a small, private university.

As I say in my notes, and I want to emphasize it so I am going to read them, I think the mission of your committee is one of the most important and difficult, in all its ramifications, undertaken by Queen's Park in my lifetime. I've been interested in the subject of your duty for the past 50 years, half a century now, so I wish you extremely well in the discharge of your mission.

The major request I have to put to you is that you tell the people of Ontario, of Canada and of the world what your estimate is, based on the expertise that is available to you, of the length of time that is available to us before the sources of coal, petroleum, gas and uranium are exhausted. This morning Marilyn Churley used the word "finite" in connection with the Union Gas man, and that's a word I wish to emphasize to you. These are all finite resources. The previous speaker had a renewable resource, but we run on non-renewable resources so far, except for the hydraulic energy an earlier speaker spoke about, at the low price of 2.7 cents per kilowatt hour. So that's my first request to you, and the only one if you wish to consider it.

Thirty years ago, when the Arab consortium raised the price of petroleum, everybody on this continent and in Europe flew about to deal with the subject of your committee: solar cells, ethanol, tar shales in the United States, tar sands in Canada. For a period there was a great flurry of activity, and then the Arabs dropped the oil prices and the activity dropped. But it still continues today, as the beautiful little models of windmills show. There's a lot of talk today about ethanol and interesting talk about biodiesel fuel.

1450

Another question I leave with you is to ask these people to make sure you know, because there has been a good deal of talk and questions from you, about the indirect costs as well as the direct costs, including pollution, of course. I would like to know and would like to have asked them how much it would cost, by way of petroleum or propane, to produce the corn or soybeans to make their renewable resources. I trust and hope they get enough out of the fuel they make to grow the material.

My second major question to you is for the future. In maybe 50 or 100 years from now, but at some point, Madame Churley's "finite" is going to come to pass in Ontario. Ontario hasn't been self-sufficient in food since the war. Where are we going to get our food when petroleum and gas are exhausted? Of course, I'm delighted that you've been set up to answer such questions. I look forward to hearing what you think and what your answers are.

There are two main routes. One is new sources such as the photovoltaic ones. Nuclear energy came out of my trade, physics, 60 years ago; and fusion energy, again out of my trade. We haven't seen it yet, and they've been working for 40 years. So it's a very difficult business sometimes, and in those two cases very difficult and expensive. I hope you'll find a new source.

The second route is to conserve energy. I was very pleased that Mr O'Toole stated that your official position—at least his official position—is that conservation is part of your mandate. I was worried about that, but I take it that's not a worry; you're as concerned with conservation as with everything else.

I have six specific things for you to look at, five of them technical. Twenty years ago, when the oil crisis was on, I invented a scheme to make a synthetic fuel from

hydrogen—electrolyzed water, of course—through nuclear energy or hydraulic energy or sunlight, and carbon dioxide from the atmosphere. Unfortunately I found that my invention had been preceded by the Americans, who had gone much further than I and spelled out all the technical details. I set up a corporation called Methon Energy Corp, and Premier Davis was good enough and interested enough to ask Ontario Hydro to make a feasibility study of Methon. I regret to inform you that Premier Davis, whom I thought all-powerful, as I do Mr Harris today, was totally ignored by Ontario Hydro, who refused to make the feasibility study he requested.

One thing that came from that was the proposition that Wesleyville, which became an abandoned project at that time, into which they had put $150 million, was available as a trial Methon plant. It might not have come to be, but at least it was available. Incidentally, you should keep in your historical minds that Wesleyville was designed to operate on petroleum—diesel fuel, if you will, heavy stuff. To this day there is a huge cavern out there to act as their gas tank. It was closed down because of the high price of petroleum. To me, Wesleyville is a monument to the 25-year-old crisis you people are addressing. Methon may still not be feasible because of the cost. As you've heard today, the cost of all these synthetic fuels is not sky-high but very high in comparison with the cost of petroleum and hydraulic power, which is the cheapest. Wind power—I hope you'll tell us what the real costs are, because they haven't been mentioned in the papers.

My second suggestion is a modest one, but very easy to install. It is that you invite the cities of Ontario to introduce what we had during the Second World War: staggered work hours. Everybody goes to work at 8 or 9 o'clock. Have them start at 6 and go to 10, to reduce congestion and the waste of fuel and time that is consequent upon that. Here is another favourite of mine: two classmates of mine invented the computer-controlled traffic system which was installed here 50 years ago; it was a marvellous system. For reasons I've never learned or could understand, it was virtually destroyed. I suggest—and I made this suggestion to Mr Harris a year or two ago, but nothing happened—that you get the computer-controlled traffic system rejuvenated so that you save millions of dollars in fuel costs involved in running our cars and trucks.

Here's another one that may seem to you like going back to the Stone Age, but we learned from the Stone Age—caves. In our climate, heating costs are dramatic, so I suggest that you look-this is not a novel idea for me; it's been around not only for thousands of years, but for the last 30 or 40 years in Canada—at the introduction of houses, for example, that are underground and so are cheaper to heat in the winter and cool in the summer.

Along the same lines, another old idea long used in the United States is storage of heat from the atmosphere in the summer, in piles of rock in the ground to conserve heat—well insulated—to be released in the wintertime by reversing the flow.

These are all inexpensive to study on paper, and not too expensive to implement.

Finally, I'm reiterating a suggestion I made to the late Honourable Al Palladini, our local member, a year ago or a year and a half ago, that you do what you're doing today. I applaud it, because I made the suggestion. I'm curious to know whether my suggestions had anything to do with your being set up. I don't suppose so, but in any event I'm very pleased that you—the government and Mr Wilson and Mr Harris are blowing in the same direction I was a year and a half ago, suggesting to him, as I did, that you set up a joint research group, led by the government, of course. There's been some reference to it earlier today. The Honourable Mr Laughren mentioned research being conducted by his group. I suggest it be conducted in association—someone else asked one of you over here about the universities' role. To me it's obvious it should be industry, government, corporations and universities.

1500

My final point is much more general and I'll make it quite brief. I've written it out here. It's the moral question. I found over my 50 years in conservation work that most people are moral; most people don't want to waste things. But we all waste things idling our cars in traffic and waiting for stoplights when there's nobody coming the other way—to revert to my earlier suggestion. I was pleased to see the gentleman here turn out that lamp. If he hadn't, I would have pointed it out to the Chairman as a waste of a non-renewable resource that comes from uranium in this very room. He proved the point that I want to leave with you: the moral obligation upon all of us to use our wits, our brains and our labour to conserve our energy and to use it usefully.

Thank you again, Mr Chairman, and all of you who have remained here to hear my plea.

The Chair: Thank you very much. As to your comments about whether this committee was set up because of your suggestion or not, as a good politician, if I was you, I would take credit for it.

We are out of time, but we are running ahead. I'll give 30 seconds to each of the caucuses for a comment or quick question. To the official opposition.

Mr Parsons: I want to first of all answer one of your questions, and that's about computer-controlled traffic control. It still does exist. The problem is, if you set it up for all the traffic and one direction gets the green light, it means every car going the other way gets every red light. If you've got a greater number of cars going one way than the other—I have some experience with timing traffic lights—then it is very beneficial. In high volume areas where you have equal volumes going the two ways, it is not possible to give every car a green light at every intersection.

I'm also intrigued by your comment about the true cost of wind power. I'm wondering if you can expand on what you mean.

Dr Anderson: I just haven't seen the figures. How much did this cost? Do you know? It's a beautiful machine that they've put up.

Mr Parsons: Yes, we have prices for the various ones. I wasn't sure whether you meant—with coal, for example, there are other costs such as health costs. With wind power there appears to be just the capital and some operating costs. A million dollars a tower and up is roughly what we're looking at with those.

Dr Anderson: And how much per kilowatt hour? Around 10 cents?

Mr Parsons: Some 10 or 11 cents a kilowatt hour, I think.

Dr Anderson: They've got a long way to go to get down to the 2.7 for the new station, Sir Adam Beck, Queenston.

Mr Parsons: You're correct.

Dr Anderson: But it can be local.

Ms Churley: I noticed you sitting here today, and it was gratifying to see a private citizen interested in the proceedings here. We thank you for your suggestions. It sounds to me, to some extent, like we're reinventing the wheel again, and if we'd listened to people like you 30 years ago or so we might not be in some of the messes we're in today.

On the advice of the Chair, in terms of taking credit where credit is due, I will tell you that conservation and efficiency was not on the list of alternatives, but I suggested to the committee that we do that—

Dr Anderson: He was echoing you, then?

Ms Churley: He was. No, Mr O'Toole.

Dr Anderson: Mr O'Toole, I mean.

Ms Churley: But I'm happy to report that the entire committee fully agreed with my suggestion, and that is something I will be following up.

Mr Ouellette: Thank you for your presentation. I was just wondering, being that we're limited on time, do you have any students in Geraldton or Kendal? I know in Geraldton there is a house that is buried on three sides and I could never figure out why. I always wondered what the savings would be. It was the first time I had ever seen a house actually buried. In Kendal I have met individuals who have the heat storage bunkers. So these are practices that are being utilized in locations in Ontario. Whether you had any influence or not, thank you for your presentation and input.

Dr Anderson: May I reply?

The Chair: Of course, quickly.

Dr Anderson: Research was done 30 or 40 years ago, when I first became interested in it. I haven't heard anything about it technically from the National Research Council. I may not be informed, but I hope you will find out and see what is going on, if anything.

I was referred to a professor at the University of Toronto by the National Research Council 30 years ago. Speaking of morality, I was appalled, being then a professor at the University of Toronto myself, that his first question to me was, "Who do you represent?" I said, "I'm a professor in the department of mathematics. I represent myself. I want a reprint of your paper on underground houses." He refused to give it to me. You've got a difficult task ahead of you, Mr Chairman.

The Chair: Thank you very much, Dr Anderson, for your presentation. It's very much appreciated.

Dr Anderson: May I say just one thing? Mr Bradley has just left; I already said it to him personally. I am very impressed with the courtesy and manner in which you asked the participants your questions. I congratulate you on your uniform display of courtesy.

The Chair: Thank you very much. I manage to insult them all.

FUEL CELLS CANADA

The Chair: We'll call the next delegation, Fuel Cells Canada. Gordon Potts is the director of member services. Mr Potts, you have 20 minutes for your presentation. The time left over from your presentation will be divided among the three caucuses. Please start by stating your name for the record for Hansard.

Mr Gordon Potts: My name is Gordon Potts and, as you said earlier, I am the director of member services, eastern Canada, for Fuel Cells Canada. Thank you for this opportunity to speak.

I'm going to spend the first bit of my presentation giving some background on Fuel Cells Canada.

Fuel Cells Canada is an industry association. We were founded a year ago and are based in Vancouver. Alternative fuels and the devices that convert them to electricity, like fuel cells, will get an increasing share of new power generation in the years to come, both for stationary and vehicle applications. Fuel Cells Canada's mission is "To accelerate Canada's world-leading fuel cell industry." Presently, Fuel Cells Canada is developing a national fuel cells strategy in collaboration with federal, provincial and municipal governments.

Some of the companies in Ontario working in the fuel cell industry include DuPont Canada, Enbridge, Fuel Cell Technologies Ltd, Hydrogenics, Inverpower, Kinectrics, Siemens Canada Ltd, and Stuart Energy Systems.

To give you some of the benefits of fuel cells, fuel cells are efficient and environmentally friendly. Fuel cells convert clean fuels to electricity at high efficiency; typically, 40% to 60% electrical efficiency. Furthermore, waste heat can be recovered to achieve 80% efficiency—additional energy—waste heat being used to heat water and space. Fuel cells are compact and quiet, have zero or low emissions, and are fuel-flexible and can utilize renewable fuels like hydrogen. Some of the schemes being discussed and demonstrated for fuel cells include producing hydrogen through photovoltaics and converting them back to electricity through fuel cells during the evening hours.

1510

There are three main applications for fuel cells: portable and micro power systems, stationary power systems for commercial and residential electricity supply, and vehicle applications for buses and cars.

Fuel cells represent a global opportunity. The current market for fuel cell systems is presently US$500 million per year. Projections suggest that in the year 2005, the

market for fuel cell systems will be $10 billion per year, and by the year 2020, over $1 trillion per year. This is also very much an issue of jobs. Each billion dollars in revenue for the fuel cell industry represents approximately 15,000 skilled jobs.

What is at stake? Fuel cells are being commercialized now. Ontario has the potential to be a major player in this industry. Ontario companies like Stuart Energy Systems, Hydrogenics and Fuel Cell Technologies are world leaders in this new industry. Canadian fuel cell companies will develop and manufacture their products where they find the best environment for business success.

Canada is leading the charge but is beginning to lose that lead. As an indicator of where the industry is going, Hydrogenics, a Toronto-based fuel cell company, manufactures fuel cell test stations used for the development and commercialization of fuel cells. Primarily their sales are outside of Canada. Why is this important? Fuel cell test stations are going to locations where the fuel cells are being commercialized first, and if they're going outside of Canada, then it's not being done here.

What are other governments doing? Europe spends approximately US$75 million per year in fuel cell research and development, as does Japan. In the United States, governments spend over US$150 million per year. Canada, on the other, hand has spent C$130 million over the past 20 years, or approximately US$4.5 million per year. These Canadian figures don't include anything from Ontario, which as far as we know hasn't contributed to this industry. As said earlier, Canada still has the lead through companies like Ballard Power Systems, but Europe and Japan, with their high energy costs, and the United States, with its high-tech design and manufacturing capabilities, are coming on strong and will overtake Canada's position.

Some of the US government policies which are helping our industry include those in California, which is providing early markets for fuel cell systems through legislation, subsidies and purchaser credits. Michigan is positioning itself as a leader for fuel cell and alternative power-train manufacturing for automobiles. They have recently published an 80-page report suggesting a direction for them to head in order to secure that lead. And New York provides consumer incentives for stationary fuel cells.

What can our governments do? Government can lead the commercialization of fuel cells by purchasing systems for their buildings and vehicle fleets; provide incentives to encourage the purchase and use of fuel cells and other environmentally beneficial technologies; support industry through the tax system, being able to write off their capital costs faster etc; and finally, provide funding for demonstration projects. Fuel cell technology will be a disruptive technology. To push our way into a system that works pretty well, albeit one that is inefficient and environmentally unfriendly, is going to require some leadership from the various governments.

In closing, Fuel Cells Canada's mandate is to ensure that this industry flourishes in Canada. The race to replace traditional power generation has begun, and the Canadian fuel cell industry can't maintain its lead without strategic support from all levels of government.

That's all I have to say. I'd be happy to answer any questions.

The Chair: Thank you very much. We have about three and a half minutes per caucus for questions.

Ms Churley: Thank you very much for sitting patiently and for your presentation; I saw you sitting and listening to some others. Having listened to all the other alternatives that are out there—there are many exciting possibilities—how do you see it all fitting together?

Mr Potts: I think fuel cells become an enabling technology for virtually all the power-producing technologies that are out there. Photovoltaic panels will only produce electricity when the sun is shining. When the sun isn't shining, you could produce the electricity required through fuel cells. You can imagine a photovoltaic system producing power when the sun shines, and any excess power that's produced could be converted into hydrogen through electrolysis, and then the hydrogen can be recombined with air or through oxygen in a fuel cell in the evening to produce power through the fuel cell. So it's a device that enables renewable power to produce electricity 24 hours a day. It essentially becomes a battery system.

Ms Churley: I see. You said at the end of your presentation that it would be disruptive to the present system. Can you expand on that a bit? I know we don't have much time to get really technical here, but I'm not quite clear on what you mean.

Mr Potts: A good example is vehicle applications. The infrastructure for providing fuel to vehicles is in place: it's gasoline. It's well established and there's a huge infrastructure to do that. In a world where cars are powered by fuel cells and vehicles are refuelled by hydrogen, the delivery of hydrogen is an important infrastructural change and it'll disrupt, in this case, the gasoline supply system. To accommodate the fact that it will be so disruptive, auto companies are working very hard at seeing how they can use reformulated gasoline as a fuel for fuel cells and do onboard reformation to produce the hydrogen that the fuel cell ultimately needs. But it's our opinion that in the perfect world, hydrogen produced by renewable energy or hydrogen produced by cleaner fuels like methane or methanol will provide a better environmental solution to our energy needs.

Ms Churley: So it requires a lot of co-operation, I would assume, between government and the private sector to make this happen.

Mr Potts: Absolutely.

Mr Gilchrist: Thank you, Mr Potts, for coming forward. I'll put my bias on the table: I'm a passionate believer in the potential for fuel cells to be part of the solution to our existing energy challenges. But coming back to your recommendations, and I would ask for your comment, one of our challenges would be, it would seem, if we were looking at sponsoring demonstration projects or supporting the development of fuel cells, the very

considerable range of technologies within that category of fuel cells. At this stage how do we, as people charged with putting together a report that's going to be making some pretty specific recommendations, get over the hurdle of understanding the various merits of the different technologies that are applied, whether it's pure hydrogen from cracking water or whether it's recovering the hydrogen atom out of hydrocarbons in gasoline or some other petrochemical?

Mr Potts: It's an interesting question. I think the way to cover it and to also cover other alternative energy technologies would be to do some sort of a measure of the environmental impact of whatever the proposal is that you're considering.

If you're looking at solid oxide fuel cells that are going to take natural gas and convert it into electricity, they compare that to a thermal power station and say, "What is the efficiency of the solid oxide fuel cell converting natural gas into electricity? What are the other benefits of doing it in a distributed way?" which is one of things that fuel cells permit.

I mentioned in my presentation that fuel cells can get up to 80% utilization of the energy that goes into them. This is through combined heat and power systems, and that figure comes from Fuel Cell Technologies in Kingston, who are developing these solid oxide packages. They'll use 40% of the energy input to produce electricity, and they'll get another 40% out in the form of hot water, and that can be used for heating your home. There's no technology that can achieve 80% utilization quite like that. It's pretty impressive and it's not an unachievable or even a difficult target for them to hit. So the simple answer to your question is, evaluate them on their environmental merit.

1520

Mr Gilchrist: To the extent, though, that we're not scientists and we're going to have to rely on others, to what extent would Fuel Cells Canada be in a position to assist us in determining or at least directing us to the appropriate technical experts?

Mr Potts: We'd be delighted to direct you. We're based in Vancouver. I work from my Toronto office on behalf of Fuel Cells Canada. In British Columbia we have a pool of funds provided by the BC government and the federal government, about $6 million, to look at demonstration projects and to recommend demonstration projects that the governments should be funding. In that capacity we're helping our members and non-members to come up with proposals for fuel cell technologies, and we're also doing a screening process, so we become a review agency for the governments. This streamlines their job. We've got the expertise to look at these different proposals and decide whether or not they have merit and, if they don't, suggest ways to the proponents on how they can improve them or say, "Look, it's not going to fly." So, yes, I think that's a very clear and important role we can play in helping identify what projects make sense.

Mr Gilchrist: We'll be calling on you.

Mr Parsons: I also believe that fuel cells are probably one of the items of the future, but I guess I'm intrigued, and I'm trying to decide how to phrase this question. Canada is one of the leaders in it, and that always begs to me the question why. I guess I ask that because I look at European countries and what they are paying for gasoline for their vehicles compared to us. The cost of gasoline in European countries should have been enough to have driven a lot of companies into this. I look at your sheet with your members of Fuel Cells Canada and I don't see an automotive manufacturer.

Mr Potts: I can comment on that. The automotive sector in Canada isn't doing research into fuel cells. Automotive companies are doing research into fuel cells, but they're doing it outside of Canada.

Mr Parsons: OK. It is being done?

Mr Potts: Oh, yes. General Motors is spending a lot of money: $1.2 billion a year, I think.

Mr Parsons: If I were a European country, a government, an elected official there, I would be pursuing big initiatives into fuel cells to address the cost of the fuel they're paying there. I was just intrigued.

Mr Potts: I think the reason Canada has the lead right now is because the federal government did some strategic partnering many years ago with Geoffrey Ballard and funded his work to develop the Thames fuel cell. What they did is quite incredible, given the limited funds they had. They had some remarkable breakthroughs which have brought the Thames fuel cell to the fore. But that's the whole reason the Canadian fuel cell industry is as strong as it is: because of early federal government initiatives.

Mr Parsons: So it's a great federal government initiative.

Mr Potts: I'm saying that's great for the R&D. But we're at the commercialization point now, and commercialization is a whole different ball game, with a lot more dollars and cents required to achieve results.

The Chair: Thank you very much for your presentation. I noticed your comments about how much had been spent by different governments over 20 years. It's my understanding that in the early 1980s some $7 million was spent by Ontario on fuel cells, and I believe that project was abandoned in either late 1985 or 1986. My understanding is that there was $7 million spent at that point.

Mr Potts: By the provincial government?

The Chair: Yes.

Mr Potts: I'm sorry, I stand corrected. I will go back to whomever gave me this figure and—

The Chair: There was a provincial initiative at that time.

Mr Potts: Great.

Ms Churley: Of course, he may be wrong.

The Chair: I'm just setting the record.

Mr Potts: OK. I'm glad to be corrected. I hope you noticed that when I made that point, I said, "As far as we know."

The Chair: Thank you very much for your presentation.

ETHXX INTERNATIONAL

The Chair: Our next presentation is by Tony Humble, chairman and CEO of Ethxx International. Am I pronouncing the name of the company correctly?

Mr Tony Humble: Yes. Thank you very much for inviting us. I invite you to interrupt whenever you want. We have some pretty startling things to say today, if you haven't already heard from the grapevine. So by all means, jump up and yell, wave your arms, interrupt me.

The Chair: We try to be polite. As you start, please state your names for the sake of Hansard. It's a total of 20 minutes for a presentation. We'll wait until you're finished, and then I'll divvy up the time that's left over between the three caucuses for questions. I have a gavel here; I try to make them be polite.

Mr Humble: What I'm actually going to present on the screen is just the first half dozen or so foils from the package you have. If we have time, we'll get into some of the details.

Let me just start by saying the company is majority owned by Canadians. I'm the largest investor.

The Chair: Could we have your name, please?

Mr Humble: I'm sorry, I missed that instruction. My name is Tony Humble, chairman and CEO of Ethxx International.

The Chair: And your associate?

Mr Humble: This is Peter Johannes, the general manager of Ethxx.

Ethxx International is majority owned by Canadians. I'm the largest shareholder. I'm the investor. The inventor of the technology is an American. He is one of the most renowned chemical engineers in North America, having built 14 major plants for Dow Chemical, including the chlor-alkali facility in Sarnia, Ontario, as well as a major coal gasification plant in Louisiana. Our head office, such as it is, is based in Aurora, Ontario. We have a plant that's virtually complete in Aberdeen, Mississippi.

The technology itself: our process is a thermo-chemical process for producing ethanol. We also produce syngas to make energy, and we produce zero emissions in our process. What I mean by thermo-chemical is that we take the biomass or the carbonaceous material and reconfigure it into ethanol in less than two minutes. This compares with a typical 24-hour cycle to make ethanol through traditional methods. The term "disruptive" was used in the previous presentation. This technology is disruptive with a capital D.

It consists of two parts. One is a gasifier. The gasifier has been "certified unique" by several major corporations we're dealing with, in that it will convert biomass and coal, preferably younger, dirtier coal, into energy with zero emissions and a very high BTU count. It does so safely, using techniques that have been tried and true for many years with our own specific technology applied to it. In less than one second we can convert biomass into a very clean syngas with zero emissions that is a combination of essentially hydrogen and carbon monoxide. We do so extremely cheaply.

The second part of our technology is a breakthrough catalyst. I heard the term "magic box" used earlier on. We don't have the magic box; we have the Holy Grail of alternative fuel in the sense that this catalyst can take the syngas we produce very cheaply and very cleanly and convert it into ethanol in less than two minutes. This is a process, a catalyst, that major corporations around the world have been trying literally for decades to identify and perfect. Mr Pearson, my partner, has done so.

1530

As an example of the output, the productivity of our process, from wood waste—and now we're talking about whole-tree wood waste as opposed to selected white wood or selected types of trees—we can take a tree, throw it in a chipper, put it through our process and make ethanol in two minutes. The yield is 890 litres per dry tonne of wood waste, and the cost to produce this, depending on the cost of the feedstock, is between 11 and 15 cents per litre. That's what you call a breakthrough.

Technology benefits: the feedstocks we've used—which we've tested in our pilot facilities in Aberdeen, Mississippi, all of which run extremely efficiently with similar outputs of syngas, and therefore ethanol—are forest, mill and urban cellulosic waste; corn and wheat stover; straw; switchgrass; many other energy crops such as hybrid poplars and so on; distillers' grain; bagasse, which is what's left over from processing sugarcane; animal manures; and coal, peat and stranded natural gas. We also use natural gas, but it's just too expensive, so we don't bother.

Our gas reformer technology itself, which is only one-half of our technology offering, can be used to very cost-effectively retrofit existing coal-fired thermal power plants to eliminate emissions and significantly reduce the cost per kilowatt hour to produce energy.

The thing that is probably most significant in terms of ramping up our production is that there's a design of manufacturing plant that goes by the name of Fischer-Tropsch, and it's used to make primarily methanol and ammonia. We can very inexpensively retrofit these plants to produce biomethanol or ethanol and, come to that, we can also make propanol and butanol from biomass. The significance of this is that because of the high cost of natural gas over the last, let's say, 12 to 18 months, many of these facilities have been shut down. In fact, the majority of them have been shut down. I noticed Methanex announced yesterday the permanent closure or the extended closure of their Medicine Hat facility. I'm not saying we're talking to them or anything, but we certainly could take that facility and convert it using agricultural waste to make somewhere in the order of 200 million gallons of ethanol a year, and that's close to a billion litres.

In fact, just to give you a comparison, we have a consultant based in New York who has taken on our

cause. He's considered the world ethanol expert. His name, appropriately, is Jim Evangelow, and he's become an evangelist for our technology. He likens our situation to the post-war free world, where Aristotle Onassis recognized the availability of millions and millions of tonnes of tanker capacity and used it to fuel the post-war industrial boom and became the richest individual in the world in about 10 years. Jim says what we are faced with right now, or the opportunity we have, is very similar in that we have somewhere close to a couple of billion gallons of excess capacity that's not being used that for very little capital infusion we can convert to the production of ethanol at around 30 to 40 cents a gallon. I'm sorry if I revert to US measures, but that's normally what we talk in.

The advantages of Ethxx: to repeat again—I guess you can't repeat it enough—our processes are emission-free. We have zero-design vents on our system. We convert all the carbon—not just some of it; all of it—to ethanol or fuel with zero emissions. Number two, we can significantly impact the greenhouse gas situation, because we can use waste that's currently being burned. That's a pretty flat statement, but the fact is there are millions and millions of tonnes of agricultural waste across North America that has to be burned simply because it can't be landfilled; it spoils the groundwater very rapidly.

The fact that we can use waste materials—and eventually energy crops, which don't have quite the same positive impact on the environment but still a very significant impact—gives us a significant advantage over any other form of alternative fuel we're aware of because of the impact on reducing greenhouse gases as opposed to just remaining greenhouse gas neutral.

Another advantage is, because of our ability to use existing facilities, our capital costs are very low, and because we use tens of millions of tonnes of biomass waste, our operating costs are very low. Our margins are almost ridiculous; they're off the map. But most of all—and this is what appeals to the, I'd say, 50 or so companies we're now talking to—it's a simple, proven technology with a couple of pieces of proprietary technology added to it. The Fischer-Tropsch technology has been making methanol and ammonia for decades. We have added a proprietary gasifier, one relatively small piece of technology at the front end and a proprietary catalyst at the back end, and that combination takes an extremely safe process and produces an extremely valuable output extremely cheaply.

Commercial potential: as you can imagine, we're in discussions all over North America. We've actually got the Japanese coming to see us next month, but until now it's mainly been in Canada and the US, and I would say that 75% of the companies we're in advanced discussions with are household names. The fact that we're presenting our technology to the Fifth Biomass Conference of the Americas in Orlando next month is due to the intervention of the Department of Energy national renewable energy lab, who, when they found out about our technology, prevailed upon us to go down there and give a paper, which we're doing. The publication of the abstract resulted in a torrent of interest, and we're trying to follow up on that now.

The Office of Industrial Technologies, I believe it is—we're meeting with senior officials from OIT, which is a division of the Department of Energy, in Orlando. We believe that, given the available capacity and the ease and relatively low cost with which we can convert it, we can be producing 10 billion litres of ethanol with our technology by the year 2006. That's our goal, and it's actually quite a modest goal, particularly given the demand for the product.

Our operating margins, which I referred to earlier, are approximately 50 cents a litre, based on a delivered cost of bone-dry biomass waste of C$22 for a dry tonne. I guess what really makes us stand out from most of the alternative energy, and particularly the ethanol technologies, is that (1) we're 100% private equity funded—we've had not one cent of government money go into this, and we're not seeking it now—and (2) we have a production facility 80% complete. We're aware that there are many other technologies out there attempting to break down the cellulose and ferment what's inside and so on at tremendous cost with a lot of capital and operating costs and very selective use of feedstocks. None of them have built a plant yet. We'll have a plant operating in February—speaking of which, this is our plant.

This plant has actually run, made ethanol—sorry, if you'll refer to page 21; I've zipped down a bit in the presentation to show you a few of the key slides. This is based in Aberdeen, Mississippi, population 5,000. Hardly anybody knows it's there. My partner has been extremely secretive in the 15 years that he has been developing this, and this facility and his technology is basically what I invested in two years ago.

1540

I'm going to refer you now to page 13. This is the first of two slides I'm going to show you that demonstrate the process. I know that people's eyes glaze over when they see it, and mine do too actually, but what this demonstrates beginning to end is that using cheap, dirty coal, the cheaper, dirtier and younger the better, or biomass of virtually any form, including human and animal biosolids, we can produce electricity for approximately—if we have to pay for the feedstock, it costs us $1.50 per million BTUs, which is about one half to one third the cost of natural gas.

That number is pretty startling in itself, and obviously we've been asked the question, "Why don't you just go out and sell your gasifier to make energy?" The fact of the matter is, that's in the business plan. But the most important fact is, from a commercial enterprise point of view, the margins from making ethanol, which is in such high demand, are so astronomical—we're looking at 200% to 300% ROIs on plant retrofits—that we're focusing all of our effort in the short term on maximizing ethanol production. Over the long haul, and on a selective basis, we'll be offering our technology to convert biomass and coal to clean energy. You can imagine that the

people we're talking to now are the ones who are in that business.

Lastly, we'll just show you the overview of the ethanol process, which is on page 20 of your presentation. The previous one ends at the syngas running a gas turbine. This one goes through an alcohol reactor. We can make the syngas in one second. It takes us another couple of minutes to make the ethanol. It's a very simple process, very inexpensive, and it will change the world.

The Chair: Thanks very much. We have about a minute or a minute and a half per caucus, and we should start with the government.

Mr Ouellette: Thanks for your presentation. You mentioned the 890 litres per tonne of wood. Does it matter what sort of wood you're using, if you're using an aspen or a—

Mr Humble: No, there's very little variance. We count atoms: carbon, oxygen and hydrogen atoms. We don't count sugar content or—

Mr Ouellette: Are you working with Tembec at all? I believe they are working on these areas as well.

Mr Humble: Yes. They are at our plant next Wednesday. We've met with them on a few occasions. We've met with Frank and the boys. They're very excited about this.

Mr Ouellette: There are a number of opportunities in the wood industry, I think, because there is so much waste that's unutilized now.

Mr Humble: Yes, particularly bark.

Mr Ouellette: The other thing is, what about leaves as well? During the fall periods, a lot of municipalities are disposing of their yard wastes and that, and there are opportunities there. Has that been explored as well?

Mr Humble: I have one question for you: does it have carbon in it? There's your answer. Absolutely. We use yard waste, leaves, branches, anything that has carbon and anything that can be collected at a reasonable cost.

Mr Ouellette: So your best avenue is to place your plants near the source of materials?

Mr Humble: Yes. The question everybody asks us is one of logistics: how do you move the biomass to where you need to process it? Without giving away too much, that's probably the issue that has concerned us most over the last couple of years. We have solved that problem, and all I can say in a public forum is that we have an extremely cost-effective way of reducing that waste locally to a form that's very cheaply and cost-effectively transported.

Mrs Bountrogianni: Do you have any operations or plants here in Canada at this point, or are you in the discussion stage?

Mr Humble: No, we don't. We're just in the discussion stage.

Mrs Bountrogianni: I'll ask a question that others have asked of others. If you were to give the government one or two good recommendations as to assisting us in our goal of enhancing alternative sources to fossil fuels, what would those be?

Mr Humble: I don't know if this is a direct answer to your question, but the implementation of our technology in Canada is going to be a matter of not just corporate but also government stewardship. We're keenly aware of the need to get our technology out there. This is not a model that focuses on making a lot of money. Both my partner and I are philanthropists to various degrees. For that reason, we are here today to inform. We're not here looking for money. Our model is a cash-generating machine. The reason we are here is specifically to let you know that we have this technology and, through the process of the committee, to identify ways in which it can be used. I've pointed out a few of the ways. There are other ways: for example, we can make ammonia fertilizer by recycling biomass. Right now, it's made out of natural gas. So we can be greenhouse gas neutral in the production of ammonia for fertilization.

All I can say in answer to your question—it's actually a tougher question than it sounds—is that we want to be available to provide you at all times with feedback and input to any situation that you think might be one that your committee can affect. That's particularly true, for example, for coal-fired generating stations. We are talking to the folks at OPG, but that's sort of like talking to an elephant that's travelling in the other direction. I shouldn't say that.

Mrs Bountrogianni: Can I ask just one quick—

The Chair: OK, sure.

Mrs Bountrogianni: Where will your plant opening in February be? There is a plant opening in February, you say?

Mr Humble: Yes, it's in Aberdeen, Mississippi. It's in north Mississippi.

Mrs Bountrogianni: Oh, not in Canada.

Mr Humble: No. Just to give you an idea, there are small skid-mountable modular ammonia plants that make about 20 million gallons, or 80 million litres, a year that we could implement anywhere in Canada within about nine to 12 months. Our objective would be to do one of those quickly.

Ms Churley: So you say you're going to change the world.

Mr Humble: We're going to change the world.

Ms Churley: That's quite a statement. Not being an engineer, and I don't understand the—

Mr Parsons: Is that a boast?

Ms Churley: That's a boast, I say to my colleague here who is an engineer, along the lines of being a lawyer.

Mr Parsons: That hurt.

Ms Churley: Now I'm in trouble.

I just wanted to ask you a question, because we don't have time to get into it. It just sounds almost too good to be true.

Mr Humble: Too good to be true. You don't know how many times I've heard that.

Ms Churley: I used to be Minister of Consumer and Commercial Relations, and in terms of consumer protection I was always told, "If it sounds too good to be

true, it usually is." So I want to ask you, except the transportation of the goods—that was answered to some extent; it was an issue I was concerned about—you say there are absolutely no emissions. I don't quite understand what you mean by that. If there are no emissions, there are no harmful emissions—

Mr Humble: In the process.

Ms Churley: —in the process. But there must be something, some residue somewhere. The other part to that question is, are any of the major environmental groups that are involved in green energy aware of what you're doing and have they said good things about it—like the Sierra Club or any of the organizations who were here today, Suzuki?

Mr Humble: The first part of your question regarding emissions: I'll try to explain a little about the design that enables this that nobody else has yet come up with. Our design depends upon the metering of biomass; in other words, it has to be at a certain level of moisture for it to be metered into the process. If we combine a metered amount of biomass—or coal or other fossil fuel—with a metered amount of super-heated steam, the carbon, oxygen and hydrogen in the biomass combine with the hydrogen and oxygen in the super-heated steam, which also acts as a transport gas, and the proportions of CO and H that are input to the process are almost exactly the proportions that are required to create the combination of carbon monoxide and hydrogen that create the syngas. Nobody else has figured out how to do that. The best-known alternative, such as the Battelle gasifier, for example—you've probably heard about that—can eventually get up to our level of BTUs, but they use air. They use oxygen in their process, so they create carbon dioxide. We have 100% carbon utilization; we let out no carbon from our process. It's a closed system.

Ms Churley: OK. I'd be interested to learn more.

Mr Humble: The second part: we have met with one group. Unfortunately, it's the only group we've had time to meet with, and I'm struggling for the name of the group. It's a local group—Energy Probe. We met with the executive director, who basically said, "Wow. Why are you here talking to me?"

Anyway, we want to inform as much as we can. Our objective is to get the technology out there, and we'll do whatever it takes within the time available.

The Chair: Thank you very much for an excellent presentation. That brings to an end the presentations for today.

COMMITTEE BUSINESS

The Chair: You have before you minutes of the subcommittee and a proposed motion. Also, a motion is on the floor. With the indulgence of the committee, I would ask that you take these and read them and that we look at having a vote at 11:50 tomorrow; in other words, at the end of the morning session.

Ms Churley: I would assume that we're going to have to build in a little time for discussion.

The Chair: That's obvious.

Mr Gilchrist: Why don't we vote at the end of the day?

The Chair: We could. I know the end of the day is rather late tomorrow. That's why I suggested 11:50.

Ms Churley: We have a very lengthy day tomorrow. I recognize we can't do it now. You're suggesting from 11:50 to 12, something like that?

The Chair: Something like that, yes.

Ms Churley: OK, we'll do that.

The Chair: Is that in order? Agreed.

Thanks very much. With that discussion, the committee is now adjourned until tomorrow at 9:30 in this room.

The committee adjourned at 1552.

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CONTENTS

Wednesday 29 August 2001