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Select committee on alternative fuel sources

Comité spécial des sources de carburants de remplacement

Chair: Doug Galt
Clerk: Tonia Grannum

Président : Doug Galt
Greffière : Tonia Grannum

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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

Monday 28 January 2002

Lundi 28 janvier 2002

The committee met at 1004 in room 151.

The Chair (Mr Doug Galt): We'll call to order the select committee on alternative fuel sources. Happy new year. Welcome to everyone who is here, committee members.

PEARL EARTH SCIENCES CORP

The Chair: Our first presentation is from Donna Dickson, the president of Pearl Earth Sciences Corp. Will you please come forward and join us at the table. If you have any others whom you would like to join you, there's a total of four microphones here. As you begin, please state your name for the record for the sake of Hansard. You have a total of 20 minutes and you can use that in presentation. What's left over will be divided equally among the three caucuses for comment or questions on your presentation.

Thanks for coming. We appreciate your interest in our committee and look forward to your presentation.

Ms Donna Dickson: Is this mike on now?

The Chair: Yes, it is. It's operated centrally so you don't have to worry about it. When the red light is on, it's on. The button there is for muting, so if you want to say something to your associate without our hearing it, you can mute it and have a chat.

Ms Dickson: OK. Good morning. My name is Donna Dickson. I'm president of Pearl Earth Sciences Corp. This is my business partner and vice-president of our company, Gerry Morgenroth.

Thank you, Mr Chair, for the opportunity this morning to address you and your select committee on alternative fuel sources. The presentation comprises four sections and you will see how one leads to the other. The first one will be who we are; the next one will be an explanation of the Plasma Converter technology for the processing of all waste materials and its value in helping to move toward the goals of reaching a sustainable society; the third will be a brief description of the useful gases we produce; and fourth, the strategic planning for the hydrogen economy, the hydrogen commercialization plan and how our government can help us to achieve this.

First of all, I'd like to set the tone for the presentation this morning. If everybody has a piece of paper, I'd ask you to write down the two following quotes. The first one reads like this: "Sometimes we have to do what we have to do because we have to do it." I'll repeat it. "Sometimes we have to do what we have to do because we have to do it." You can underline the last "have" in that sentence. The next quote is, "To sin by silence when they should protest makes cowards out of men and women." At the end of the presentation I'll tell you whom those two quotes are from.

I would also like you to make note of the following Web address. I believe Tonia is going to make copies of it, but the Web address is www.hydrogenus.com. It's a 21-page document. I didn't know whether I should print it off, being an environmental company. Anyway, I believe Tonia is going to print that off, and you'll know why I'm giving you that address as we get further into the presentation.

I'm sure all of you have reviewed this videotape. It's called Exposure: Environmental Links to Breast Cancer. It was hosted by Olivia Newton-John. I believe all of the members of the Legislature probably had a chance to review that at some time or another.

First of all, I'd just like to read the following. As international representatives of Startech Environmental Corp, it is our pleasure to provide the enclosed technology information to you. We feel that after reading this material, you will share with us the enthusiasm that this technology inspires. Tonia will be giving you a copy of our brochure. There is other pertinent information in the back of it that you can read at your leisure.

The Startech Plasma Converter system is the most innovative and environmentally responsible technology today for recovering the resources residing in otherwise unwanted and no longer useful products and materials. This technology addresses and solves three problems simultaneously: (1) it ensures the total and safe disposal of any kind of waste; (2) it reclaims the materials and energy for reuse in new commodity products; and (3) it relieves the stress on the environment and precious natural resources. There is no further need for the harmful disposal of waste, and it also significantly lessens the need to discover and extract new resources. That is in your kit.

1010

In order for you to understand where alternative fuels come into our business, I'm going to read to you a synopsis of what's in the brochure we've given you—it's also in the brochure—on Plasma Converter systems.

What is plasma? It's a very special form of gaseous matter that conducts electricity. It's the raw material of

the sun and stars. It makes up 99% of all matter in the universe. It's found in stars, lightning, electric arcs, aurora and fluorescent lights. It's also referred to as the "fourth state of matter."

Physicists have known of plasma for over 30 years. Plasma technology was originally used in the aerospace industry, but continued research in the field of plasma physics has developed an application process. This development, the Plasma Converter system, has global significance in achieving a sustainable society.

Pearl Earth Sciences Corp regards all waste produced by industrial societies as a valuable, renewable resource that helps to offset the need to consume the ecosphere's limited virgin resources. The Plasma Converter is a manufacturing system that converts both hazardous and non-hazardous organic and inorganic wastes into safe, valuable commodity products.

The global challenge is to achieve a sustainable society in view of the following.

Hazardous waste: there are more than 200 million tons a year produced in the United States alone.

Non-hazardous waste, such as municipal waste, industrial/commercial waste: there are now over 13 billion tons in the US alone;

Exponential North American population growth means there are going to be over one-half billion people within 60 years;

The future infrastructure will have to double.

There are four critical demand factors: (1) the need for customers to reduce the costs for hazardous and obnoxious waste disposal; (2) the need for customers to comply with present and anticipated environmental regulations in a cost-effective manner; (3) the need for customers to eliminate the personal and organizational liability associated with hazardous waste disposal; (4) the need for customers to economically process hazardous and non-hazardous wastes and industrial by-products while recovering commodity products for re-use or sale.

A few principal advantages: it greatly reduces the cost and risk associated with hazardous waste generation; it can process any and all waste material in any forms; it's safer than current and proposed environmental standards; it recycles waste into valuable, saleable commodity products; the systems are for plants of hundreds of pounds per day to plants of hundreds of tons per day; they can be stationary or mobile systems; and they have safe and irreversible destruction of even the most deadly wastes.

How the plasma waste converter operates: it forces gas through an electrical field to ionize the gas into a plasma which conducts electricity. The intensity of plasma excites and breaks apart the molecular bonds, or molecular dissociation, as it's referred to. It recycles waste into commodity products, such as clean synthetic gas, which we called plasma-converted gas or PCG, methanol and hydrogen. These will be discussed in more detail later in the presentation. Other products could be metals and silicates. We achieve volumetric reduction—more than 300 to one—and it's safer than US and Canadian environmental standards by orders of magnitude.

The obvious benefits: there's no sorting required of garbage and waste; it converts toxic substances into harmless materials; it converts all such substances that would require storage due to their environmental hazard into usable materials; it converts waste from hospitals and general household garbage into beneficial, valuable materials; all industrial wastes, hazardous chemicals, automobile tires, and liquids can be converted without difficulty; ceramic encapsulation renders harmless low-level radioactive substances and materials; the burn residue or ashes from incinerators can be converted into new construction materials instead of disposal in landfill sites as hazardous material; and construction wastes can be processed.

Conclusion: the Plasma Converter system offers the best solution for a clean and healthy environment by converting hazardous and non-hazardous organic and inorganic wastes and by-products into safe, valuable commodity products. The benefit from the profitable recovery of materials from wastes and for the prevention of landfill expansion without the use of incineration will help preserve the earth's virgin resources and provide the blueprint for a truly sustainable society.

The next section: because I don't believe you need to reinvent the wheel, I will read some press releases from Startech Environmental as it relates to the hydrogen fuel cell vehicles, or hydrogen vehicles. I want to make it very clear that we are not promoting any one automobile manufacturer, although there is one mentioned here, but we know the stage that the different automobile manufacturers are at when it comes to fuel cells and using alternative energies or gases such as hydrogen and methanol. In this case, I'm going to concentrate on the hydrogen aspect, because we feel we're into the new hydrogen age and that we will be at the forefront of that hydrogen age. This was a release made in July 2001. It says:

"Startech Environmental Corp, the world leader in plasma waste remediation and recycling technology, announced today that it has demonstrated the successful operation of its hydrogen vehicle by driving it around Bristol, Connecticut." That's the location of the company's demonstration and training centre.

"The centre houses an operating, industrial-sized Plasma Converter system and the new StarCell unit. The vehicle is a white Ford pickup truck with a four-cylinder engine and a standard transmission.

"Shell Hydrogen and Sunline Transit Agency logos are prominently displayed on the truck along with the names of industrial, governmental and educational organizations who are also playing a leading role in advancing hydrogen vehicle transportation. Sunline Transit Agency is a world leader in commercializing hydrogen fuel technologies and is a recognized force in the development of low-cost, pollution-free transportation. Shell Hydrogen is a global business of the Royal Dutch/Shell Group of companies. Shell Hydrogen develops business opportunities and provides energy solutions to promote a hydrogen reliant fuel economy."

It says in the brochure "President Joe Longo." Since this was printed, he has retired. The new president and CEO is Joe Klimek. Anyway, Mr Longo said, "'This is a major step that will help forward the expansion of our worldwide marketing program. We plan to use the truck at our centre to show how the hydrogen produced from safely processing many kinds of waste in our Plasma Converter system can be used as the fuel for the truck. It is powered by a direct-use hydrogen engine. In fact, much like an ordinary car, there is a reciprocal engine under the hood that produces the horsepower through the transmission to propel the car, and also produces the electricity through the generator to supply all the car's electrical systems. This is not a fuel-cell/electric motor vehicle, nor is it a hybrid engine. The car uses no other fuel but hydrogen. It gets good mileage and is very easy to fill. While it's quite impressive, we want to keep it simple and straightforward. This is about hydrogen power from trash; there will be more on this to come.

"'When you consider the fact that hydrogen is one of the most abundant materials in the world, and that trash is one of the most abundant renewable resources in the world, and further, that their affordable future joining through the Startech system can help solve some of the environmental and energy problems facing the world, it seems to me that this is a most elegant and exquisite solution to those problems, and a solution in perfect harmony with Mother Nature. One of our jobs is to get people to really understand this. They will.'

"After driving the truck, Karl Hale, VP of engineering, said, 'It's great. It has the same pep and feel I'd expect from a car that uses gasoline. But, unlike a gasoline engine, there was no smoke or smell coming out of the exhaust even when starting and accelerating, and even when I drove it up a hill. As a matter of fact, the only thing you could see coming out the exhaust were a few drops of fresh water.'"

There's about another page and a half, and I do think it's important that it be read out loud so that everybody, in case they don't read the material themselves, will at least have heard it.

How the converter works: The Plasma Converter system is a process whereby waste materials continuously fed into the system are safely and economically destroyed, re-formed and recovered by the company's molecular dissociation and closed-loop elemental recycling process. The principal Plasma Converter achievement is that it safely and irreversibly destroys non-hazardous, hazardous and toxic waste in all their forms, no matter how lethal, at low cost and without any harmful emissions or residues. And it does this safer than prevailing environmental standards. While hazardous waste destruction is Startech's main business, the ability to recover valuable commodity products is becoming more important to its customers every day. One of the principal products recovered is plasma converted gas, a clean synthesis gas that has many commercial uses as a clean fuel.

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The PCG gas would be an excellent gas to use where you have district heating within your municipality, and that doesn't account for the fact that if there is no district heating we can still convert it by using StarCell and convert it into hydrogen. However, we do also produce steam. When you're processing municipal waste, steam is another by-product which can be used in a cogen station.

What is plasma? Plasma is a gas or air that the converter ionizes so that it becomes an extremely effective electrical conductor. This allows the converter to produce a lightning-like arc of electricity that is the source of an intense amount of energy transferred to the waste by radiation. The interior temperature of the lightning arc in the plasma plume within the vessel can be as high as 30,000 degrees Fahrenheit, three times hotter than the surface of the sun. When waste materials are subjected to the intensity of that energy within the vessel, the excitation of the molecular bonds is so great that the waste materials' molecules break apart into their elemental components—the atoms. It is the absorption of this energy by the waste materials that forces elemental dissociation, resulting in the complete and total destruction of the waste.

What is plasma-converted gas or PCG? PCG is a manufactured synthesis gas produced from processing waste in the converter vessel that can be used as a clean fuel and as a chemical feedstock to make many hydrocarbon-based products including methanol, an important alternative fuel. PCG is not a molecule such as methane; PCG is a gas mixture rich in hydrogen. That hydrogen can be separated and captured for use by StarCell. StarCell hydrogen is a valuable commercial-grade hydrogen that can be used in fuel cells and in direct-use hydrogen engines to produce electric power for domestic and industrial use and also for transportation such as in the hydrogen vehicle mentioned earlier.

What is StarCell? StarCell is the company's new patented hydrogen selective membrane system that separates hydrogen from PCG. Once the hydrogen is removed for use, the remaining carbon-based component of the PCG syngas can still be used as a valuable fuel or chemical feedstock. StarCell is not a fuel cell; it is a ceramic membrane filtration system.

Again, Mr Longo went on to say, "In many respects hydrogen is safer than gasoline. But even though hydrogen is so abundant in the universe, it is not readily accessible. Expensive and sophisticated chemical-industry processes must be used to extract it. Nearly all of the hydrogen produced today is made from fossil fuels. These fossil fuel molecules are 'reformed' in a complex thermo-chemical process consisting of many steps. This expensive reformation process is exactly what our Plasma Converter does in destroying most wastes. This gives us a special market advantage in the production of hydrogen."

The Chair: You have approximately two minutes left in your presentation, so you may want to sum up.

Ms Dickson: OK. I'll leave that then, because it's in your brochure.

Since we're intricately connected to the United States, I think it's important that as governments, when we make up our own policies to do with the energies that we're producing here in Canada, we're at least in sync with the US government or we are far superior to them. I'm not promoting the US government. However, there's a brief synopsis here, and it really will pertain to Canada as well.

All I'm asking is that when the government is forming its policies they look at what is required for the promotion of hydrogen within Canada. We are at the dawn of the new hydrogen age, and as I said earlier, we expect that Pearl Earth Sciences will be at the leading edge of the production of hydrogen. We are in the process of finishing our business plan to do a 100-tonne-a-day tire facility within Durham region. We are also in talks with many municipalities, not only here but across Canada, internationally. It's very exciting, and I'd like to think that you, as government officials, as politicians, understand the significance of what we're telling you today.

I'll read this little bit on the strategy planning for the hydrogen commercialization plan, as it was written in the United States. But I know in Canada the federal government is also on board with our hydrogen plan and is working in close contact with the US government, I believe.

The Chair: Thank you very much for—

Ms Dickson: Is that it?

The Chair: Yes, you're well over. Sorry. It was much appreciated.

Mr John O'Toole (Durham): Mr Chair, I have a—

The Chair: It would have to be 30 seconds or less, if that's possible, Mr O'Toole.

Mr O'Toole: Thank you very much. I do appreciate your quotes. I think it was George Bernard Shaw.

Ms Dickson: Which one?

Mr O'Toole: That's the question.

Ms Dickson: No, it wasn't.

Mr O'Toole: It wasn't. You've got the source wrong, then. Thank you.

The Chair: OK. Again, thanks very much for coming forward. We appreciate your information on technology.

Ms Dickson: The first quote was by myself and the second quote was by Abraham Lincoln.

The Chair: OK. So the first one is pretty famous?

ADMIC ENERGY CORP

The Chair: Our next presenter is Admic Energy Corp, David Rygier, executive vice-president. Thank you very much for coming forward.

Mr David Rygier: I'm David Rygier and I have with me my business partner, Dr Charles Rhodes, who will be the presenter this morning.

Dr Charles Rhodes: As David has indicated, my name is Charles Rhodes. I am the chief executive officer of some of the Admic group of companies. These companies are involved in the design, manufacture, installation, operation and maintenance of small cogeneration systems. These systems are primarily applied to high-rise residential buildings within Ontario. As an organization, we also have hands-on experience with district heating systems. I remind you that most high-rise apartment buildings are in fact vertical district heating systems.

Cogeneration is a process that involves the conversion of high-temperature heat, which is usually obtained from the combustion of a fossil fuel, into both electricity and low-temperature heat. The low-temperature heat is usually used for space heating and potable water heating. In an apartment building application, generally the fuel is natural gas. The low-temperature heat, as I've indicated, is used to provide space and domestic hot water heating. The electricity generated is used to reduce the amount of electricity the building owner purchases from the municipal utility. Viewed as a percentage of the chemical energy input, the outputs of a typical cogeneration system are as follows: electricity is generally in the range of 20% to 30%, useful recoverable heat is generally in the range of 40% to 60% and the balance is waste heat.

We're in a business which is generally categorized as small cogeneration systems. In the industry, small cogeneration systems are units with an electrical output capacity of less than 500 kw. However, in most high-rise residential buildings—and I'm talking typically of buildings of about 180 to 200 suites—the optimum cogeneration unit size is in the range of 75 kw to 125 kw, and the recoverable heat is about 150 kw to 230 kw. That is the size range I will be referring to in the balance of the presentation. Obviously, larger buildings can have either multiple units or larger cogeneration units, but this is where the bulk of the market is.

Why have a cogeneration system? There are two reasons. First of all, if the building in which you're applying it is already purchasing natural gas for space heating, then you can generate an amount of electricity approximately equal to half the heat that is used in the building at a very high efficiency. This is typically in the range of 75% to 85%. That efficiency is three times higher than can be realized by a utility with a thermal generating station. What's most important from the point of view of this committee is that the carbon dioxide emissions associated with the generation of that electricity can be reduced by 85%. That is, the carbon dioxide output from a natural-gas-fuelled cogeneration set located within an apartment building is generally about 15% of the corresponding carbon dioxide output from OPG generating the same amount of electricity by burning coal. So herein lies a huge opportunity for this committee to address itself to reduction of carbon dioxide output with a few strokes of the pen.

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The opportunity is roughly as follows: about 6% of all the electricity used in Ontario is used in high-rise, multi-residential buildings. That includes apartments, condominiums and nursing homes. About two thirds of this amount, or 4% of all the electricity used in Ontario, can readily be displaced by small cogeneration systems. The

opportunity for reduction in carbon dioxide emissions is substantial.

Unfortunately, there's been a prolonged uncertainty relating to electricity pricing in Ontario which has made building owners very reluctant to contemplate installation of cogeneration systems. Some form of incentive tied to carbon dioxide emission reductions will be necessary to make building owners willing to consider large-scale investment in these systems in the near future.

Several new cogeneration technologies are emerging. However, some form of financial incentive, perhaps funded by the Ministry of Energy, will be necessary to enable further development of these cogeneration technologies in the province of Ontario. I remind the committee that there was considerable investment in these systems about two years ago, but when the electricity market didn't open, many of those investors got seriously burned.

Why do we not have cogeneration systems all over? One of the big reasons is opposition by the municipal utilities. The primary reason that cogeneration systems are not widely used is opposition from electrical utilities, particularly municipal utilities. From the point of view of these utilities, each cogeneration system with the parameters set out herein reduces the utility's gross revenue by about $8,000 per month. This revenue is removed from the utility's best customers, those that purchase a lot of electricity, are relatively inexpensive to service, and have excellent payment records.

The opposition takes the form of predatory rates, unreasonable metering requirements, unreasonable grid connection requirements and threats of imposition of debt reduction charges relating to Ontario Hydro's stranded debt. In the absence of intervention by the government of Ontario to address these issues, there will be few small cogeneration systems installed or operated in Ontario.

I would like to deal with each of these opposition mechanisms in more detail.

The first and greatest is what I call predatory rates. A practical reality with cogeneration systems is that they are mechanical in nature and must be serviced at least monthly for safety checks, lubrication and replacement of worn components. That means you have a machine that's generating 100 kilowatts of electricity, but you have to service it sooner or later, and generally the service interval is monthly. The minimum off time required to carry out this work is about 15 minutes. During that period, the building must purchase about 100 kilowatts of additional power from the local electrical utility. During the year 2001, Toronto Hydro charged its customers as much as $28.72 per kilowatt hour, plus GST, for such short-period standby power. During the same period, Toronto Hydro charged its high-load-factor customers in the same rate group as little as 6.3 cents per kilowatt hour for the same electricity. This enormous rate differential is outrageous. It has the effect of putting existing cogeneration suppliers out of business and of discouraging anyone else from entering the market. To put this in perspective, prior to the amalgamation of the electrical utilities in Metropolitan Toronto, Scarborough PUC charged only about 10 cents per kilowatt hour for similar standby power; that is, the cost of standby power has gone from 10 cents per kilowatt hour to $28.72 per kilowatt hour.

The solution to this rate problem is for municipal utilities to provide the owners of multi-residential buildings the option of choosing the same rate schedule as is applicable to single-family homes. In the single-family home rate schedule, the electricity bill is based on the net number of kilowatt hours consumed, and costs related to demand issues are rolled into the cost per kilowatt hour. This entire issue is missing in the interim report.

I'll now address some issues that are also addressed by others in the interim report.

Net metering: the electrical output of a cogeneration system varies in proportion to the heat load available. In a multi-residential building, the heat load on a cold day in the winter is much larger than the heat load during the dead of night in the summer. The benefits of cogeneration are significantly increased if there is net electricity metering so that the cogeneration system can fully track the heat load. Otherwise, the building must operate "in fence," meaning that the building never exports electricity to the grid. With net metering, the building owner pays the utility in proportion to the number of kilowatt hours imported from the grid less the number of kilowatt hours exported to the grid. Net metering is easily achieved using a simple induction meter similar to the meter you have in your home. This is not complicated. This type of meter has the property that it runs backwards if electrical energy is exported from the building.

Municipal utilities are opposed to net metering because it forces them to purchase a portion of their electricity at the same rate at which they sell it. The municipal utilities argue that they should receive a higher rate for electricity that they sell than the rate that they pay to purchase the same electricity. Utilities use this argument to try to justify installation of expensive real-time metering systems that are sensitive to the direction of power flow. To address this problem, the government of Ontario needs to enact legislation allowing large building owners the option to use net metering. Net metering has the support of other parties and is discussed on page 17 of the interim report.

Unreasonable connection requirements: some municipal utilities are trying to make buildings that contain self-generation meet a higher equipment standard than is met by the utility itself. Subject to reasonable provisions for safety, the equipment standards for connection to a municipal utility grid should be no higher than are met by the utility itself in serving its other customers with similar voltage and power requirements. The issue of unreasonable connection requirements is discussed on pages 21 and 22 of the interim report.

Debt reduction charge: uncertainty about the future applicability of a debt reduction charge to self-generators in Ontario makes building owners reluctant to invest in cogeneration systems. At issue is the self-generation

power level at which an Ontario Hydro stranded debt reduction charge might be applied. Current discussions are around 5,000 kilowatts. This threshold could be reduced to as low as 500 kilowatts without affecting most small cogeneration systems. If this threshold is further reduced, it will become very difficult to enforce.

For example, a heavily loaded escalator is in fact a self-generator. That is, if you imagine a department store full of people and it's closing time, they all go down the escalator. That escalator is actually generating electricity, it's not consuming electricity, and that electricity is flowing out, either into the building or into the grid. Similarly, a conveyor belt carrying goods downhill is frequently a self-generator.

1040

In order to have enforceable legislation relating to a debt reduction charge on self-generation, it is necessary to set the threshold for applicability of this charge high enough that small self-generators such as described herein are not caught up in that legislation. Our experience indicates that the threshold for applicability of the debt reduction charge must be set above 500 kilowatts in order to make the legislation enforceable. In those circumstances, the proposed debt reduction charge would have no effect on small cogeneration systems.

This matter has the support of other parties as set out on pages 24, 49 and 51 of the interim report.

Summary: to enable installation and operation of small cogeneration systems in Ontario, the government of Ontario needs to make the following legislative changes.

(1) Provide a specific financial incentive to equipment manufacturers and non-profit development laboratories, such as the Canadian Gas Research Institute, via the Ministry of Energy to encourage the development of new or improved cogeneration technology within the province of Ontario.

(2) Provide a financial incentive to building owners based on net overall reductions in carbon dioxide emissions actually realized by cogeneration and other alternative energy systems. That is, there has been a lot of talk about reducing carbon dioxide, but right now, if you're a building owner, there's not a cent to be saved by reducing carbon dioxide other than by taking the most elementary energy conservation measures. This is a way for the government of Ontario to make a big impact on carbon dioxide emissions with almost no input of taxpayers' dollars.

(3) Require municipal utilities to offer multi-residential buildings the option of the same rate structure that is offered to single-family homes. That is not a complex thing to do.

(4) Require municipal utilities to offer net metering to buildings with self-generation. That is really the same as number 3 above; that is, if you had the same type of metering you get in a single-family home, you have net metering. It's done.

(5) Require municipal utilities to meet the same electrical equipment standards in all their installations that they require of a system with the capacity to export electricity to the grid. That is, what's fair for Peter is fair for Paul.

(6) Remove the uncertainty regarding the threshold at which the proposed debt reduction charge on self-generation will apply. Set this threshold above 500 kilowatts.

Thank you very much for your attention. I'd be pleased to entertain questions.

The Chair: Thank you for your presentation. We have approximately one minute per caucus. We'll begin with the official opposition.

Mrs Marie Bountrogianni (Hamilton Mountain): Thank you for your presentation.

Who are these high-load customers on page 3 that are charged six cents per kilowatt hour?

Dr Rhodes: Apartment buildings, the same buildings. You see, what is meant by the term "high load"—

Mrs Bountrogianni: Private? Public? All of them?

Dr Rhodes: No. What's meant by the term "high-load-factor building" is a building that has a continuous demand almost 24 hours a day. For example, in an office building they may shut off everything other than between 8 am and 5 pm weekdays. In apartment buildings, things are running all the time, 24 hours a day, seven days a week. That means the ratio of the average usage to the peak usage is generally in the range of over 50%. That's what is referred to as a "high-load-factor building." In some buildings, if you can imagine a thing like an underground parking lot, where the lights are simply running 24 hours a day and it's a self-contained load, that is a 100% load factor.

Mrs Bountrogianni: Thank you for your recommendations.

Ms Marilyn Churley (Toronto-Danforth): I support the concept of small-scale cogeneration and generally support the positions you bring forward here. I wanted to ask you what your view is when you talk about what happened with the rates after the amalgamation of the city of Toronto and why you think that is happening. Is it to generate extra revenue because it's needed? In your view, why is that happening?

Dr Rhodes: Let me be quite candid without being accusatory.

Ms Churley: OK. That's a trick.

Dr Rhodes: The Scarborough PUC was one of the most efficient PUCs within the multiple PUCs that constituted Metropolitan Toronto. They brought in what Ontario Hydro requested them to, which was a time-of-use rate. That time-of-use rate enabled various energy efficiency measures.

Unfortunately, during the amalgamation process, the executives of Scarborough Hydro were given their walking papers and the rate structure was fundamentally changed to be similar to that of downtown Toronto, which had not done any of these innovations and which was largely a demand-based rate. The problem with demand-based rates is if you draw on that electricity for even 15 minutes a month, you pay the full shot on the

demand. That is what creates this high per kilowatt hour standby charge.

Ms Churley: I guess we don't have time to explore that further, do we?

The Chair: Not really, no. We'll move on over to the government side. Mr Gilchrist?

Mr Steve Gilchrist (Scarborough East): Just a quick statement, and then Mr Hastings had a question. But you might want to add to your list of recommendations that whatever we do looking back, perhaps the building code could be amended to require the design of co-gen in the construction of all new high-rise buildings as a proactive step that this committee could recommend.

Dr Rhodes: Quite frankly, I would like to have an hour before this committee to deal with building code issues, but we were limited to 20 minutes. Building code issues are what I'll call—I didn't think that they were quite within the purview of what you people could accomplish. I came here with a narrow set of things I thought you could do easily and we could make some forward motion, as opposed to getting caught up in building code complexities. Yes, it's very important, extremely important—

Mr Gilchrist: Written submissions are just as easily digested, so feel free to send that in, in a timely fashion if you could. Sorry, Doug. John had a question.

The Chair: You had a full minute there.

If you can do something in 15 seconds, Mr Hastings.

Mr John Hastings (Etobicoke North): Mr Rygier, thank you for inviting me over. I think we were at your facility near Christie last fall, right?

Mr Rygier: Correct.

Mr Hastings: In your presentation, what kind of a capital incentive are you advocating that the government of Ontario undertake with regard to the equipment standards—

The Chair: Answer?

Mr Hastings: —faster acceleration rates and write-offs?

The Chair: Leave him a little time for the answer. We're going to have to move on.

Dr Rhodes: Currently, there is a class 43 CCA standard which is very helpful in getting this equipment in. The primary thing that we're looking for right now is to turn this industry around, and what might work is a program the Ontario government used to have, called EnerSearch, which partially funded demonstration systems which were of an inherently high-risk nature for the building owner.

The Chair: Thank you very much. We really appreciate your input. You've zeroed in on some of the things we're looking for. It's much appreciated.

ICLECTRIC

The Chair: We'll now call forward our next delegation, ICLectric, Mr Trevor Parker, owner—and looking very patriotic this morning.

Mr Trevor Parker: My name is Trevor Parker and I'm here on behalf of ICLectric.

Ladies and gentlemen of the select committee on alternative fuel sources, I wish to thank you for the opportunity of speaking before you today. I would like to congratulate the committee for having the good common sense to look at all these sectors together—solar, biomass, wind power, alternative energy, transportation etc. After all, all these sectors are somewhat interconnected.

I am an entrepreneur who is working hard to show the business world that not only is it possible but it is actually profitable to be an entrepreneur and environmentalist at the same time. I know most would suggest that you can't be both, but I'm here to tell you that capitalism and environmentalism are a much greater fit than most would care to believe.

I'm not a tree-hugging environmentalist; I'm just an entrepreneur with a keen level of environmental awareness. I'm working on a retail concept that will sell many different types of battery-powered transportation vehicles. These will include battery-powered four-wheel cars, three-wheel cars, motorcycles, moped-type scooters, scooters, bicycles and even battery-powered boats. Whatever products I uncover that allow consumers to get from point A to point B, using battery power only, will be looked at. I will also have a division in my company for the sale and promotion of battery-powered landscape equipment. There seems to be very little public awareness of the air pollution that is caused by gas-powered landscape equipment, including lawn mowers, trimmers, blowers and hedge trimmers. Two-stroke engines do more damage to our air than most could imagine.

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The third and final division of my business will focus on alternative energy household-related products, namely solar-powered generating systems for homeowners. I have spent the last year and a half researching all these industries, and I have been incredibly surprised by how large these industries already are in the United States. If we, as Ontario citizens, were to follow through with legislation, develop incubator-type agencies to nurture and develop this entire sector, and provide financial incentives and rebate programs for anyone who wants to sell or buy alternative energy transportation products, we would all win in the end, because we would be saving the environment and saving our health care system at the same time.

It's my belief that the best jurisdiction to follow for a business model like this would be the state of California. In my estimation, California is literally 10 to 15 years ahead of Ontario in terms of all aspects of the alternative fuel energy sector. For example, when California deregulated its electricity sector, the rhetoric started flying about how bad an idea this was. In the beginning, it was very difficult: brownouts and power shortages did occur. This follows what our provincial NDP leader has been spouting to the media recently. If this leader had continued to do his homework, he would have discovered that this was not a bad thing for California in the end.

Opening the California electricity market has opened the floodgates to alternative power generation, the two largest sectors being wind power and solar power. California consumers have taken to this in a very positive way. Many people are purchasing solar panel systems, having them installed on the roofs of their homes, and then having themselves unplugged from the grid. This in itself has been incredibly beneficial to everyone concerned. The state has lost some income because utilities have been privatized, and tax dollars have been reduced when people are removed from the grid. The state has benefited from this in that health care costs have been substantially reduced. The use of solar systems to produce electricity eliminates emissions, therefore air pollution levels drop. This reduces the health care costs related to the treatment of air-pollution-related diseases: emphysema, asthma and others. In order to fully appreciate the growing pains of this sector, it is advisable to contact CARB, California Air Resources Board.

The need for legislation to allow 100% electric vehicles on our streets is required immediately: not in six months, not in two years—now. Our world is changing rapidly, more rapidly than scientists previously anticipated. The need for us, as Ontarians, to make some very difficult but timely decisions is now. Electric vehicles are, by far, the best alternative that we have right now to help try to repair the environmental damage that we have already done.

Electric vehicles first came to be in the early 1800s. Many people have tried over the decades to develop and market these products to the general public, with little success. There have been reasons for this. The biggest problem with getting electric cars to market to date has been the range in cost of these vehicles. Battery technologies are advancing so rapidly now, that range is becoming less and less of a problem. As well, production costs are dropping due to the fact that so many Americans are purchasing these products. There are different types of alternative fuel technology vehicles: battery-powered vehicles, hybrid gas electric vehicles, propane and natural gas vehicles.

On a side note, I wish to congratulate the taxi companies of Toronto. I have worked for a printing company as a van courier in Toronto for the past two years. I spend eight hours a day driving around the downtown core of Toronto. I have seen a huge number of taxicabs using propane and natural gas. This industry should be publicly acknowledged for their clean car mentality.

Getting back to the different types of vehicles, the auto industry has worked to develop hybrid-type vehicles. General Motors produces the EV1, Honda produces the Insight, and Toyota produces the Prius. The problem with these vehicles is that the auto industry has not made any real attempt to make them available to the public. They've been producing them in limited numbers with very little fanfare. I've discovered articles in chat room conversations from Americans who have been on waiting lists for, in some cases, almost a year to purchase a hybrid. The general consensus is that the auto industry does not want these vehicles to make any kind of major impact on the market.

One of the other interesting things that I have uncovered about hybrids is that the US automakers will not sell these vehicles; they will only lease them. This tells me that they want to maintain close-knit control of all the hybrids out there. This stands to reason. The auto industry stands to lose considerably if alternative energy vehicles make it to market. If you consider the secondary revenue streams that the auto industry benefits from, for example, oil changes, tune-ups etc, there is considerable income to lose by introducing EVs to the market.

What I am hoping is that by introducing broad-based legislation covering all forms of electric vehicles, the auto industry will begin to aggressively produce and market battery-powered vehicles.

I'm not interested in going head to head against the auto industry; I am interested in working with them. Electric vehicles are by far superior to gas vehicles in many ways. They are actually cheaper to build, cheaper to maintain, and they virtually eliminate air pollution and noise pollution. If the source of the electricity can be converted from coal-fired and nuclear to wind, solar and biomass, air pollution can be eliminated. We must work aggressively and in a timely fashion to make this happen.

The hydrogen fuel cell vehicle is the technology that almost all major carmakers are focusing on at present. Hydrogen fuel cell vehicles combine hydrogen gas and air to generate electricity, with the only by-product being water. This is a wonderful technology, but with substantial drawbacks. First, it now appears that fuel cell vehicles are not expected to be mass-produced for another few years at least. We don't have this much time to wait for another type of zero-emission vehicle. Second, hydrogen is a very volatile gas. Methods to safely contain and transport this gas must be determined. Third, hydrogen filling stations will be required for these vehicles. This means that millions and millions of dollars will have to be used to help to develop the infrastructure needed to accommodate these vehicles.

A conversation I had with a federal government employee before Christmas told me that the government's intention is not to promote electric vehicles; they are only interested in promoting fuel cell vehicles. My comment to this individual was, "Let me guess. You're going to use millions and millions of taxpayer dollars to convert the local Esso station to a hydrogen filling station." He sort of hummed and hawed. This is not going to be beneficial to Canadians in the end.

The roller coaster gas prices in this country are causing many Canadians to seriously rethink their travelling habits. We all know there is price-tampering by the oil industry. Any other industry that tried to increase their prices of a certain product so dramatically and in such a short period of time would be under criminal investigation by the federal government. Consumers do not believe governments when they say there is no price-fixing going on in the gas industry. Consumers want alternative choices to the guessing game of what the price

of gas will be today, this afternoon and even tomorrow. When you monopolize a market in this country, sooner or later you will lose. Canadians are quiet protestors. This is evident with Bell Canada's diminishing market share in the past few years. Consumers will not be held hostage by big business or government. Sooner or later there will be a backlash.

Electric vehicles do not require any expensive infrastructure development. All the vehicles that I will sell can be plugged into a standard electrical wall socket, even the cars and motorcycles.

These vehicles do move somewhat slower than most vehicles, but we believe this is a good thing. I recently heard a radio broadcast about the needless deaths that are occurring on our roadways. The story was about how young people are getting their licences at 16 or 17, going through the standard probationary measures of the graduated licensing program, and then getting killed in their parents' cars because they pushed the pedal to the floor. This begs the question, why is it that automakers are allowed to produce vehicles with speedometers that reach 190 to 210 kilometres an hour? Where in the province can we drive 210 kilometres an hour? The answer is, "Nowhere." Electric vehicles may help reduce the number of young people who die in Ontario every year. If student drivers were forced to drive only electric vehicles until they reached the age of 21 or 22, the chances of their getting killed in a high-speed accident may be dramatically reduced. This won't sit well with this age group, but it is a known fact that teenagers and young adults believe they are invincible. All too often they are proven wrong when they take unnecessary risks. This may be a painful introduction to the world of driving, but it's something that may help them to live longer.

I could go on for hours about the benefits of electric vehicles, but I only have 20 minutes to speak to you. I will finish with my recommendations for EV legislation and related issues for the alternative fuel technology sector.

(1) Electric vehicles must be made legal for use on all Ontario streets as quickly as possible. Electric cars, four- and three-wheel vehicles, should be allowed on all roads with posted speed limits up to 80 kilometres an hour. The only way an EV should be allowed on 400-series highways is if that particular vehicle is able to attain a speed of 100 kilometres an hour. Battery-powered cars that can reach this speed are out there.

Electric motorcycles and electric moped-type scooters should be treated the same way as gas motorcycles. All licensing issues should remain the same.

Electric bicycles should be allowed on all Ontario roads. Municipalities have been legislating conventional bicycles to city streets; they are generally not allowed on sidewalks. This should be the same for the electric version.

All motorized vehicles should require riders to wear helmets and obey all rules of the road.

Electric people transporters like the Segway HT should be allowed on sidewalks.

As far as licensing goes, the rider of any motorized vehicle must be at least 16 years of age and hold a valid Ontario driver's licence. This eliminates the chances of minors getting injured or killed on these vehicles. If an individual is deemed by the province to be responsible enough to have a driver's licence, he or she should also be deemed responsible enough to operate an electric vehicle.

As earlier indicated, the more we promote these somewhat slower-moving vehicles to younger people, the fewer fatalities will occur.

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(2) Adults over the age of 65 should be required to operate only electric vehicles if they fail to pass their yearly driver's test. Students up to the age of 21 should be required to do the same. In my two years of driving, I have seen a great many seniors in large cars who should not be on our roads at all. The issue of independence for seniors makes EVs an attractive alternative to losing their licence and their independence. Studies have shown that a senior's losing his or her licence can have negative health effects due to increased depression and overall poor state of mind.

(3) An all-party, permanent governing body needs to be established in Ontario to spend its time looking at and legislating new technologies in an expedient fashion. If this agency becomes aware of new technologies as they happen instead of after the fact, they would be able to make these technologies available to the public much quicker. The same body should be responsible for developing rebate programs, liaising with other jurisdictions, and monitoring the overall movement of all aspects of the alternative fuel technology sector. Battery technologies are advancing on a very frequent basis. It is almost impossible to stay abreast of new technologies unless they are being monitored daily. This needs to be an all-party body. Politics must be removed from the environmental concerns of this province. All party members must have the same vision to make this province a better and cleaner place to live. This body would also be responsible for helping develop and nurture this new sector of our economy.

Small business and big business need a government contact that wants to help them make these technologies a reality for all the people of Ontario. Red tape must be minimized. It is a known fact that all levels of government in Canada seem to have this notion about taking as long as humanly possible to pass any kind of major legislation. Some political parties feel a need to have open forums, debates, studies and anything else that helps stall the legislative process. This new technology sector must be treated as something that moves quickly and broadly. We must keep up with changes. Manufacturers, engineers and inventors must be courted to bring these technologies to Ontario in a large way. Just as with Silicon Valley in California, Ontario should be the Silicon Valley of the alternative fuel technology sector. With wind projects, solar testing, EV manufacturing etc, there is a massive amount of money to be made in this

industry. Ontario needs to be at the Canadian forefront of these technologies. We must act quickly, as it is my belief that Quebec appears to be working toward the same goal.

The last thing this agency should be responsible for is helping manufacturers and importers with either lobbying or money to help in the extensive cost of bringing a new vehicle into Canada. Transport Canada requires that a certain number of test vehicles be made available for the purpose of testing. Transport Canada does not purchase these vehicles. The manufacturer or importer must provide these vehicles at his or her cost. An up front expense of $500,000, $1 million or $2 million worth of test vehicles could cripple or kill a start-up company before it even gets started. The large automakers can afford this expense, but I can't.

Education must be prevalent at all levels of government. High school and college courses should introduce students to all forms of alternative energy transportation. Wind, solar and biomass technology should be introduced through alternative energy technology courses. This in itself will produce a new generation of environmental engineers and environmentalists with a keen understanding of present-day technologies. Driving schools should offer courses in electric vehicle driving. The principles would be the same, but the ins and outs of an electric vehicle are more simplistic than with a gas car.

Municipalities should lead by example. All Ontario municipalities should be required to utilize a certain percentage of their budget toward green vehicles and products. Landscape equipment would be included. The more these products are seen, the more interest there will be. This must be a mandated principle, as there is a certain number of managers who will be uninterested in looking at these products.

Within seven days of the launch of the Segway HT people transporter, US police agencies—for example, the Boston police—were testing these vehicles. The US Postal Service also began using them. This creates positive media coverage for electric vehicles. It also adds credibility to the whole sector.

Lastly, a simple green scale must be established. Vehicle rebate programs would be based on how green each vehicle is. For instance, an EV would be at the top of the scale due to zero emissions. This would be followed by natural gas, propane gas, diesel, gasoline etc. The higher the vehicle is on the green scale, the larger the emissions rebate it would get.

As for credits to manufacturers, this must be dealt with differently. Although Canada has not signed the Kyoto treaty, it should act as if it had.

The ZEV—zero emissions vehicle—credit program in the United States has its faults. The Big Three have begun to purchase electric vehicle manufacturers in order to obtain ZEV credits. They don't even have to produce these vehicles, just have the capacity to produce them. This doesn't help ZEVs in getting to market. Automakers are still able to produce the standard gas-guzzling pig of a car, and we are no further ahead as society. I don't have a strong understanding of this system, so I should make recommendations based on what I do know. I do know that the credit program in the States is flawed and should not be used as a model here in Canada.

In closing, I would like to thank you for allowing me, as an entrepreneur and Ontario citizen, the opportunity to speak to you today. I sincerely hope you will make some prudent decisions about this exciting new industry.

One last thought: recently I was driving down Kipling Avenue. I drove past the Ontario Power Generation site and saw their single wind-power generator at the back of the property. It was spinning furiously in the wind. It was an incredible sight to see. I heard a little voice in my head saying, "Dollar, dollar, dollar," every time the turbine made a revolution.

The Chair: Thank you very much. We have approximately 30 seconds per caucus, beginning with Ms Churley.

Ms Churley: I heard some fighting words there about my leader on the deregulation of electricity.

Mr Parker: I'm sorry. I'm keen on what I do.

Ms Churley: But clearly we're not, in 30 seconds, going to get into that. I support many of your ideas and wish you good luck. Where is your company based?

Mr Parker: It's going to be in Toronto. My first retail store will open in downtown Toronto. I'm going to concentrate on urban centres, obviously, because there's a larger market. There are a lot of people in the city core who need to get around. They need alternatives to what's out there now.

Ms Churley: Good. Good luck.

The Chair: To the government side.

Mr O'Toole: Just good luck. I think it's great to see innovative thinking. Certainly I don't disagree with some of the interlock that's involved with the auto manufacturers wanting to slowly phase in whatever their response, electric or hydrogen.

One thing I do think is that the federal government could do something about the testing component. I think you're right. I've heard that before in some of the smaller companies.

Mr Parker: I heard a story specifically: a guy lost $2 million trying to bring an electric car to Canada. They put you out of business right before you start.

Mrs Bountrogianni: Thank you for your interesting presentation. I'm sorry I missed the fighting words. I had to step out for a couple of minutes, but it's OK.

I'm very interested in your proposals about young people and requirements and perhaps safety issues around them. I don't know if you're going to give us a copy of your report.

Mr Parker: I will. I was hoping to leave something with you today. What I will do is put together a written presentation and submit it to you, and I'll make copies for everybody if that's required.

Mrs Bountrogianni: OK. There is a little bit of alternative fuels in the curriculum now. I've just supervised my son's grade 9 exam. There's a little bit in geog-

raphy. There's even the Toronto issue and the Adams mine issue in there. So they're starting to learn.

Mr Parker: Just starting.

The Chair: Thanks for coming forward. We appreciate your presentation.

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WOODLAND CHEMICAL SYSTEMS INC

The Chair: The next delegation is Woodland Chemical Systems Inc, Andrew Wyszkowski, John Totten and Tony Moran. We'll give you a couple of minutes to get set up there.

Mr John Totten: Thank you very much. I appreciate that.

The Chair: There we are. Technology is working. Just state your names for the sake of Hansard.

Mr Totten: My name is John Totten. I am the chairman and chief executive officer of Woodland Chemical Systems. With me this morning are Mr Andrew Wyszkowski, our president and chief operating officer, and Mr Tony Moran, our vice-president of marketing and sales and our corporate secretary.

What you're going to see in this morning's presentation first of all is a brief introduction of our company and then an introduction of our technology. We consider that our technology is in fact revolutionary. By the time you've heard our presentation, I'm hoping you'll at least agree with us that it does represent a significant breakthrough. I'd like to then cover off some of the positive impacts of our technology on our society and, to put things into perspective for you a little bit this morning, relate our technology to some of the other biomass technologies that are currently in the marketplace. I know you've had presentations about them. Finally, I want to describe for you where Woodland Chemical Systems is going and show you a little bit about our future. Then, as you've asked that we do, we have a series of recommendations that we're putting forward for consideration by the government.

I hope everyone can see that. If not, I think you've already been given our handout package, which has the slides in it.

I've introduced ourselves to you this morning. Now I'd like to introduce the company, so if we can flip forward, Andy.

Woodland is a privately owned, Ontario-based company. The company itself has existed for nearly three years. However, and most importantly, there have been nearly 12 years invested in the development of our technology which is known as catalyzed pressure reduction, or CPR. We have patent-pending status today on that technology. We have additional patents that we are developing and that we'll be making application for.

CPR converts biomass materials to both biochemicals and biofuels. The key process advantages that we see: first of all, our technology operates on the basis of clean air throughout the complete process cycle. In the other presentations you've seen, and for various other alternate fuel solutions, one of the difficulties is that while the fuel itself may represent a very friendly environmental solution, to get to that point requires significant pollution development. A couple of examples: electrical power, where it's being generated in coal-fired stations; hydrogen, for example, and I'll talk a little bit about hydrogen this morning. The creation of hydrogen first of all requires substantial cost and, second, frequently generates substantial amounts of pollution materials as well. Not only does our technology not do that, our technology utilizes renewable resources all the way through. Finally, the result of that is the production of a variety of alternate fuels: ethanol, methanol and others I'll talk to you about in a minute.

To give you a brief overview of our company in a nutshell, first of all we design, build and sell highly efficient chemical plants that operate on an extremely profitable basis. To put that into a little bit of perspective for you, our pro formas show that the operation of one of our plants will typically produce a return on investment of greater than 100%. In other words, the plant will pay for itself in less than a year for the owner of that plant. That's quite incredible when you consider that the cost of our plant is US$25 million.

Our technology, the CPR technology, is not sold along with the plant but it's provided instead under licence to the plant owner. We retain the environmental benefits that are created as a result of the plant for Woodland. It's part of our pricing strategy. Nevertheless, the plants still produce the kind of economic return I talked about earlier.

The costs of our plants are indeed relatively low, as I'll show you in just a minute. Finally, we support the owners of the plants in every aspect of plant ownership, all the way from funding support and assistance through to maintenance of the plants, marketing of the products and so on.

Our plants are significantly smaller in scale than conventional petrochemical plants. Typically today a petrochemical plant starts at about half a billion dollars US and goes up. As I mentioned before, our plants start at US$25 million. That makes our plants highly attractive to small, local owners and it means that there are a number of advantages when compared to the half-billion-dollar facility.

We sell our plants on a turnkey basis. In other words, we build the plant, we test the plant, we commission the plant and only when it's operating at commission capacity do we turn the plant over to the owners to operate from thereon. Because of the size of our plant and the relatively low cost, it certainly supports regional deployment. So rather than one great, huge, massive facility in some location, which then has the difficulty of distributing its products through distribution methods, our plants can be located close to market.

The CPR process is emission-free in every single aspect of the process. CPR can produce a wide range of petrochemical derivatives, which are biochemicals, and a series of alternative fuels. In fact, our ambition is to

eventually be able to offer plants that will produce every single form of fuel or chemical that is being produced today in the petrochemical industry and in other industries as well.

What we do is convert biomass materials, which are not only a renewable resources but in fact themselves constitute significant pollution problems. I'll give you a couple of examples of that. Wood waste in North America today is a major problem. For a long time, wood waste was being dumped into lakes and rivers, old mine sites and so on, or it was being burned. All of those things have been eliminated or severely restricted. It is still a problem, but no longer can companies simply get rid of it. For example, here in the city of Toronto there are a number of furniture manufacturing companies that use a great deal of glues and resins in their process to manufacture furniture. They cannot dispose of that wood waste material here in Ontario, so what they're doing is shipping it, much like Toronto's garbage, all the way to the state of Michigan, paying $50 a tonne to ship it down there, plus tipping fees. We can use all of that biomass material, all of that wood waste, even with the glues and resins; those will go through our plant with no problem whatsoever.

As I said before, we operate in small-scale modular plants. Our plant technologies are all skid-mounted modular design. The manufacturing partner that we have, which is Thermo Design Engineering located in Edmonton, Alberta, has been in business for 27 years now. They're in their 28th year. They manufacture petrochemical and chemical plants and build them all around the world. They too have followed the skid-mounted modular technology concepts for all of their existence. Of course, as I mentioned before, the smaller-scale local plants promote regional deployment and highly efficient operation.

Let's take a look at the process, just to help explain it a little bit better to you. First of all, the input is biomass material. It goes through gasification. Gasification is a well-known, well-proven technology. It was created back in the early 20th century. It was used by Britain and Germany in the Second World War either to fuel street lamps or to produce a product called gasohol, which was used in place of gasoline for trucks, tanks, military vehicles of all kinds. So it's a well-proven technology. Then it runs into CPR, our catalytic pressurized reduction process, and from there it goes into purification or refining. Again, refining technologies are well known and well understood. Both of these technologies are incorporated in literally thousands of plants around the world today.

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Our biomass input is roughly two tonnes per hour of all types of biomass. When I say "all types," we can use everything; we can use logs, bark, chips, sawdust, coated or chemically treated wood, as I said before, or beetle-invested wood. A good example of that is in British Columbia, where the pine beetle is a major problem. I had no idea how big it was until I was out there many months ago and realized how many tens of thousands of hectares of their forests are now infected by the pine beetle.

A quick story: in the first year, you cannot tell a tree has been infected by the pine beetle. It gets cut down, turned into dimensional lumber and all of a sudden you discover you've got all kinds of lumber that has these blue-green stains on it, and either you can't sell it or you sell it below your cost. By the second year, the only thing those trees can be used for is to produce logs for log cottages or log homes. I don't think either one of those is exactly a growth industry. By the third year, the tree has begun to check and it can no longer be used for any purpose. The worst part is that not only no longer can you use that tree, but it's now occupying land space that you could be growing other trees on; but because no one gets paid to cut it down or do anything with it, the trees simply stay there until eventually they fall over and rot. We can continue to use those trees as input to our technology all the way through until the tree has rotted so far it has literally turned into soil.

But in addition to that, we can use other cellulosic materials. For example, we can use organic residues: paper, cloth, plastics and all forms of organic waste. We are working right now with a regional government where we're investigating the possibility of building a showcase plant in their state-of-the-art waste treatment facility and taking a great deal of their waste and developing, through R&D methodologies, the ability to take even more of their waste as feedstock into our plant facility. Think about what that might mean for the world. Localize it: think of what it could mean for the city of Toronto.

Our plant chemical outputs today include methanol, ethanol, acetic acid, vinyl acetate monomer, formaldehyde and something I'm going to speak more about in a minute, hydrogen. As you can see here, what we can do is essentially use biomass to replace fossil fuels. Petrochemical plants today are known to be one of the largest sources of pollution on our planet. We have a technology that replaces that and produces exactly the same end products, far less expensively and far more efficiently.

Let's talk about some positive impacts of Woodland's technology. First of all, as I said before, our technology is totally positive, from an environmental impact standpoint, throughout. There is no stage at which our technology creates pollution. There are no toxic discharges or residues at any stage. We consume underutilized renewable resources: wood waste, municipal waste etc. We provide a broad range of alternative fuels and other products. We've got a series of smaller plants that can locate close to markets and feedstock sources. Finally, what we're doing is supporting the forest products industry itself. For example, consider that the forest products industry today typically utilizes only 50% of a tree when it cuts that tree down; the rest goes into waste. We can use all of that waste to create products that are of service to mankind.

If we look at traditional industrial chemical production, first of all, it's dependent, as you know, on fossil

fuels—either petroleum or natural gas. It's an essential feedstock. Those things are scarce, they are expensive and they are, quite frankly, running out. We are consuming more of them every year than we're finding. The typical processes that are out there today, even with modifications and improvements that have been made over the years, still produce substantial greenhouse gas emissions—in fact, some of the most heavily polluting plants in the world. In addition, fossil fuel consumption and CO_2 emissions can be reduced significantly only when current petrochemical production methods are replaced. We have the technology that will in fact replace them.

There have been all kinds of coverage about this in every type of magazine you could imagine, magazines from Fortune to science magazines, all talking about when the invention arrives that will be able to use biomass in place of petrochemicals. We are here this morning to tell you that we have that technology and we have a patent pending on it. We have not been able to find anything anywhere in the world that compares or competes with what we have, either economically or environmentally.

If we take a minute to put things into perspective and look at some of the other technologies that are out there today, cogeneration certainly is an advantage: it absolutely consumes waste biomass materials, no doubt about that. But there are also disadvantages. It still emits typical combustion-associated contaminants: greenhouse gases, NO_x, particulant matter—not exactly good for our environment.

If we go to ethanol production, you've seen presentations on ethanol production. Some of the advantages of that are, of course, again, that it generates alternate fuel products—that's a plus—and it utilizes biomass materials—another plus. But again, it has disadvantages: very inefficient; does not utilize the whole carbon input; always generates significant CO_2, which may or may not be captured and sold; and finally, the energy efficiency is limited by the process consumption itself and by restrictive product formation.

If we look at bio-diesel production, the advantages of bio-diesel production are, again, that it generates an alternate fuel product, unquestionably, and utilizes biomass materials. But its disadvantages are that it does not utilize the entire carbon input, the fuel products are low BTU value and very limited-use, and it produces carbon dioxide, which is exactly what we all want to avoid.

Where are we going as a company? Woodland is certainly focused on maintaining high standards of design and creating no pollutants at all stages of our process, as we've said before. We want to continue with our process of invention to create significant numbers of additional products based on our technologies. Finally, we want to clean up the environment by continuing to replace technologies that pollute at any stage in their process and remove, by using as a feedstock, materials that themselves represent an environmental hazard.

We will also continue to deliver solutions that are cost-effective, offer very high rates of return on investment, are available to smaller business owners and provide significant environmental benefits wherever and however that measurement is taken. Finally, we will continue to produce dramatic new product breakthroughs through intensive research and development efforts.

Society has long considered hydrogen to be the ultimate fuel product. I think all you have to do is take a look at the awareness that exists out there in the marketplace for companies like Ballard or Stewart Energy, located right here in Toronto, that are able to raise a dramatic amount of money. In fact, their move to the market was oversubscribed by 10 times, which meant they could have easily raised $1.5 billion. They raised $150 million for a very small household-based technology that generates hydrogen, which still produces pollution.

In line with our product goals of producing dramatic new product breakthroughs, Woodland has now completed the process design work for the production of hydrogen. Ladies and gentlemen, I would tell you that we are announcing that this morning to this committee for the first time that information has ever been made public. We have a plant design that is capable of producing hydrogen at costs not just below but dramatically below any competitive method out there today, and there are three of them. We do it from a renewable resource and we do it with absolutely no pollution. All of a sudden, the world of hydrogen fuels becomes just that much more practical.

Let's talk briefly about what we would like to see the government do. First of all, I want to refer back and quote from Mr Don O'Connor, who in his presentation to you in representation of the Methanex Corp said, "It is never easy for new technologies and new products to make it in the marketplace no matter how attractive they are to consumers and governments." Boy, is that true. As an organization, we have been in the process of funding ourselves, raising money to support and grow our company, and it's quite amazing the number of people we can show our technology to, prove that it works, give them some feeling for how substantial the opportunity is, and they still hang on to their wallets and decide, no, they're not going to participate just yet. "Once you've proven it a little bit further"—I'm not sure what that means, but in any event—so it is difficult.

Therefore, if Ontario is to be serious about encouraging the development of alternative solutions, it must be willing to consider, we believe, all forms of tools to encourage development, everything from grants to subsidies to tax incentives, imposing strict emissions limits on technologies that are out there today and, finally, full endorsement of the Kyoto accord. It's incredibly disappointing that the United States government has not signed the Kyoto accord, because they are the most heavily polluting nation in the world. But the fact is, many of their states are taking steps. You heard a previous speaker this morning refer to the moves that are

being made by California, and there are many other states that are taking very aggressive moves to promote and support elimination of pollution. Well, we think that the Ontario government and the Canadian government should strongly endorse the Kyoto accord.

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The province should also consider providing incentives for those corporations that are prepared to be the purchasers of technologies that offer environmentally sound alternative fuel solutions or their end products. Motivating the early adopters, the people who are going to buy new technologies like this, is absolutely critical to making sure that they work, making sure that they're brought to the market and making sure that our society can enjoy the benefits that they will produce. The strongest motivator that we're aware of is financial, and that is one action that can certainly be taken.

Finally, we also believe that the government itself should become an early adopter of a technically and environmentally sound technology or the end products. We would strongly encourage the use by the government of electrical vehicles or hydrogen-based vehicles or other steps that can be taken by the government in many areas to foster and encourage the development of environmentally friendly solutions.

At this point—that concludes our presentation—we would like to open it up and invite any questions you may have.

The Chair: Thank you very much for the presentation. Unfortunately, we are over the 20 minutes. We are going to have to move on, but your technology is intriguing and we really appreciate your coming forward with it.

Mr Totten: We appreciate the opportunity to present to you this morning.

CANADIAN RENEWABLE ENERGY CORP

The Vice-Chair (Mrs Marie Bountrogianni): I'll let you get settled and start as soon you would like: Mr Gillette from Canadian Renewable Energy Corp. Welcome back.

Mr Patrick Gillette: I want to begin by thanking the Chair of the select committee on alternative energy, the Minister of the Environment and the committee members for allowing CREC, Canadian Renewable Energy Corp, to make this deputation in response to the committee's interim report.

CREC, to reiterate, is a private developer of renewable energy assets. CREC will finance, build and sell green power in the province after market opening.

The Canadian Renewable Energy Corp is the only company that we are aware of that is proceeding to build a renewable energy asset in Ontario this year. The shift since we last made our deputation is that CREC has received its approvals from the Ministry of Natural Resources and will be proceeding to build a $6-million run-of-river hydro plant that will be producing 15-plus gigawatt hours of renewable energy by this time next year. CREC has plans to invest, in equity and debt, over $400 million in the next seven years to construct in excess of 200 megawatts of capacity, which will include water power, wind, biomass and biogas projects.

The mandate of this committee, as I understand it, is to investigate, report and recommend ways of supporting the development and application of environmentally friendly sustainable alternatives to our existing fossil fuel sources. I will constrain my comments today to the interim report's discussion of definitions of green power, green power marketing and what potential incentives the government could consider to create a level playing field.

The federal government is currently holding public consultation on their EcoLogo program. EcoLogo does provide a definition of what is considered renewable energy or green power. Numerous EcoLogo critics exist, and CREC agrees that there are alternatives that may be superior. However, no other program is so widely accepted as yet in Ontario. Furthermore, many of the critics have their own agendas, driven by factors as far-ranging as ideology to economics.

CREC believes that the Ontario government should accept EcoLogo as the minimum baseline standard in Ontario for building, operating and selling renewable energy, that is, green power. To do otherwise would create instability in the Ontario market. Intervention would only be required if federal actions negatively impact on the development of new renewable energy in the province of Ontario.

The definition of green power leads directly to marketing issues. Without clear standards, the retailers are vulnerable to criticism. This criticism will be targeted at eroding public confidence in the product the retailer is selling, that is, the accusation that the seller is taking advantage of the consumer and not selling "green" power.

This problem is not helped by the occasional claims of large water power and, at times, nuclear producers that they are renewable or clean, regardless of the validity, or lack thereof, of their statements.

What is needed is a public education program. Consumers need to understand that they have a choice and can make a difference by the electricity they consume; that they are part of the problem—that is, their electrical consumption contributes to environmental damage; how the renewable energy will be sold to them; what is renewable power; what is EcoLogo; what questions they should ask the retailer.

The Ontario government can take a leadership role by educating the public. Why is this important? Because marketing is crucial to the success of green power sales. It has been observed in other jurisdictions that the success or failure of green programs rests with marketing. Retailers must go forward and promote their green products with confidence if they are to create a market. An informed public will contribute greatly to establishing that market.

What are the important variables to that market? From our research, first is consumer confidence that what they are purchasing benefits the environment; second is an

ability to sell the product to consumers' "willingness to pay" scale. To do this, retailers must have flexibility in how they sell their products to various "willingness to pay" levels. As an example, most consumers will only want to pay a small premium for green. A smaller group will have specific demands and be willing to pay more. The government should work with industry to put in place measures that inspire consumer confidence and flexibility of sales and pricing.

CREC believes there will be three methodologies to sell green power in the Ontario market: a percentage of EcoLogo mixed with standard supply; certified marketing packages; and green tags, which is the separation of green attributes to be sold on a differences contract while the electricity is sold as standard supply electricity. Essentially, you're separating the green part and the electrical part, and selling them separately on different contracts. Licensed retailers are the only entities that can sell EcoLogo mixed with standard supply, which limits the number of entities that can market green power using this format.

As an alternative for retailers, there are certified marketing packages, which are a step above EcoLogo mixed with standard supply in that they attempt to quantify clearly the mix of electricity, and exempt certain forms of generation and include others. Clear reporting and labelling standards are needed if these types of initiatives are to be successful. Why it is in the government's interest to support such programs is that it widens the marketing effort for green and may encourage the production of low-impact, non-renewable power; as an example, cogeneration. CREC is involved in one such initiative, Clean Energy Ontario, which is focused on creating a marketing package that offers consumers a choice based on their willingness to pay.

Green tags may be the most flexible alternative. Because no electricity is actually sold, it would allow a wider set of organizations to market green power. This would include non-governmental organizations. This would increase the likelihood of every community in Ontario being able to purchase green power. CREC believes that for a green tags initiative to succeed, what is required is a separate license to sell green tags; a way to verify the separation of green tags from standard supply electricity; a way to quantify and label what is sold as green tags; a way to transfer the green tags across jurisdictions and, if necessary, reattach them to standard supply electricity for sale as green power; a way to bank green tags for future sale; and a way to ensure that the green tags are not sold more than once.

Furthermore, green tags may be a way to resolve, in part, cross-border exports of green power. If Ontario can integrate a green tags program with our neighbours to the south, there is no need to actually transmit the electricity. This should resolve, in part, the trade issues raised during my last deputation.

Green tags also include the emission credits. CREC believes that under no circumstances should the emission credits be separated from the green tags. Emission credits are a way of calculating the environmental benefit. Their extraction would devalue green attributes and indirectly lead to the double selling of green electricity.

Where the government can also take action is to continue to structure a "cap and trade" emission credit system that would allow industry to buy green tags or electricity and then extract the credits to meet their cap. This would set a market value for emission credits, set a market value for the corporate goodwill generated by purchasing green power to meet environmental objectives, and give a clear incentive for industry to purchase green power. However, this should only be allowed for the end user of green tags or green electricity.

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In summary, CREC is recommending to the committee that the government create a public education program, create the necessary structures to assist marketing efforts, and encourage diverse marketing strategies through industry consultation and changes to current regulations.

As mentioned in our previous deputation and the committee's interim report, this could be organized through a separate department created to encourage renewable energy development. Funding for such an effort could be imposed on the sale of standard supply power—a cost measured in the fractions of a cent per kilowatt hour. Part of the mandate of this department would be similar, or could be similar, to that of the United States Department of Energy's Green Power Network. Their Web site is enclosed in this deputation. In fact, the government could simply build on what the DOE has already created.

The final comment CREC would like to make is on how government can encourage the growth of renewable power in Ontario. I believe the best way for government to act is to focus on new renewable generation. Various groups with existing generation have their issues. Regardless, the economic and environmental benefits are going to arise from stimulating new development. In meeting the concerns of the groups with existing generation, the government should be focused on encouraging them to upgrade their facilities and put in place new generation.

CREC has raised and the committee has taken note of the need for a level playing field. Related to that, we would like to make the following observations.

Ontario Power Generation currently has approximately 125 megawatts of EcoLogo certified old green. This provides OPG with an unfair market advantage. Unlike the standard supply market, OPG's Evergreen program is not being forced to reduce to a 35% market share. This oversight is understandable, but the renewable market is separate from the standard supply market. OPG has defined its supply of green and separated it from other assets, creating a separate market.

It seems to CREC that the government policy is inadvertently inconsistent in its treatment of the standard supply market and the green market unless it forces OPG to divest down to 35% market share. Fortunately for the government, OPG has declared openly its supply of green

power, which could be ratcheted down in tandem with OPG's standard supply market share to 35% by 2010.

CREC believes the government has numerous options to encourage the growth of renewable energy:

Exempt PST payments on equipment for renewable energy projects for the next 10 years. Give Ontario developers the same advantage as our Alberta counterparts;

Production tax credits;

Create a flat fee or allow for no-fee hook-up to the grid;

No transmission fees for new green power;

Force landfills to put in collection systems so they stop emitting methane into the atmosphere, a greenhouse gas with 20 times the impact of an equal amount of carbon. By forcing collection systems into place, you immediately stimulate electrical generation at these sites because suddenly it's flared and can be accessed easily;

Ensure the MNR's new water power policy is implemented as soon as possible;

Match the federal government's green power purchasing program in Ontario.

Additionally, it was raised in my last deputation as to whether a provincial Canadian renewable conservation expense flow-through could be viable. We have put some thought into this concept and believe there are two options: copy the CREC flow-through but loosen the restrictions on expenses—allow for 100% flow-through of all expenses if tied to the building of a specific project; allow legitimate expenses to be flowed through to the investor prior to and after they have been incurred within a two-year period.

All of these efforts and others could be funded by a surcharge to the sale of standard supply electricity. How better to level the playing field? The amount can be as little as one tenth of a cent per kilowatt hour sold, which would generate approximately $140 million per annum for the government. In many respects, such a charge which was then used to promote renewable energy would be superior to a renewable portfolio standard because it could provide the same stimulus while preserving a free competitive market structure.

Another alternative, which is not included in my written deputation because I heard it last night on the radio driving home: Australia is putting on their retail licences a carbon cap. If you cap the retail seller and force him to go out into the market, you get the same result as with a renewable portfolio standard, but you force the retailer to go out and take many activities to meet their cap, which I think is the most innovative idea I've heard in the market in a long time.

I want to thank the committee once again for its time and kind consideration. I also want to congratulate and thank you for all your efforts to date. If time allows, I would be happy to take any questions.

The Vice-Chair: Thank you very much for your presentation. We have two minutes per caucus, starting with the government members.

Mr Hastings: Mr Gillette, what is innovative about the New South Wales proposal?

Mr Gillette: It's attaching it to the retail licenser. If you're looking for a methodology, from my perspective, of trying to stimulate green purchasing and to set up a green marketing program, if you attach the cap to the retail seller, he has to go out and meet his cap or pay a penalty. So if I'm selling electricity—if I'm Toronto Hydro, for example—I have the option of encouraging conservation, I have the option of going out and buying green power and putting it into my grid normally, just a normal sale as part of my system mix. Also, I'm really incentivized to go out and create a green marketing program, because the more people I sign up and the more companies I sign up to purchase a portion or all green power, the easier it is for me to meet that cap. So it just forces the industry, the retailer, to hustle and think of ways it could possibly meet its cap by just selling green power and reducing the use of electricity. It incentivizes on both ends.

Mr Hastings: This is consistent with the commonwealth government's approach there, in the creation of renewable energy certificates.

Mr Gillette: Exactly.

Mr Hastings: They work together, I assume.

Mr Gillette: They're farther along than we are. We're struggling with these ideas.

Mr Hastings: They're way ahead of us.

Mr Gillette: Yes.

The Vice-Chair: There are 30 seconds left for the government. Does anyone want to take them?

Mr Gilchrist: We'll pass.

The Vice-Chair: OK. May I ask a question, even though I should really be sitting over there to ask a question? Is that OK, Mr O'Toole.

Mr O'Toole: Agreed.

Ms Churley: You should step out of the chair.

The Vice-Chair: Thanks for your understanding.

I read on your Web site about your promotion of an industrial green power pool in Ontario. For the sake of the rest of the committee, can you talk a minute on that?

Mr Gillette: It's called the Ontario clean power pool. The concept which we are promoting is to pool renewable energy and have business and industry guarantee that they're going to purchase up to a certain level, as the power is provided. For example, an industry can commit, "We're going to buy five megawatts." Let's say we have 10 groups that are buying five megawatts, so that's a total of 50 megawatts. As that power goes into the pool, the industry has the option to take a certain amount equal to their percentage out of that pool. Basically, it's used as a mechanism to provide the supply based as a percentage of commitment, and it also gives us one way of creating a power purchase agreement, which we can then leverage for financing for our projects.

The Vice-Chair: The third party?

Ms Churley: I think your presentation points out some of the gains since you were last here, but also the complexities of what we're trying to do here. My

question is, how are you or your sector involved, as the government begins to reach its goal of complete deregulation, in trying to figure out how to get this done?

Mr Gillette: We're involving ourselves where we can. We're a developer. We want to build renewable energy assets and sell our power and make money for our shareholders from this process and use that further investment to build new renewable energy assets. Where we find a venue to discuss the issues we're encountering—because we're one of the few companies going out and selling the green power, we run into retailers, so we get their input all the time.

There is a desire to sell this power on the retail level. We go to trade shows and we also go to general public shows and we know people want to buy this power and have an interest in it. The question that comes up is how the market is going to form up and where the government can find roles for itself. I believe the market is there, and I think it's going to be a much larger market than most groups expect, but it depends. If everything is done right, we'll see a great development of green power in the province. If it's not done properly, we could see the market sort of stumble or stall on us, which of course terrifies us, to be honest. The actions the government takes will impact directly on how—

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Ms Churley: Exactly, and it's so critical. I really have my doubts. I don't need you to go there and get political here, but I have my doubts about the process that's in place and I'm very concerned about it. Is there a process for you within OPG/government to participate in how this is all going to unfold for alternative green power?

Mr Gillette: Not one that I'm aware of. There is no process. This is why we've recommended the government set one up.

Ms Churley: So this is something this committee really should be looking at and recommending be done.

Mr Gillette: If I can go back to the point I made about the 125 megawatts that OPG has, it is rather like saying to the larger standard supply market, "OK, here is a $10-billion-a-year industry with 125 megawatts of supply already paid for. You go compete against them." It's like saying to TransAlta, "We're going to let OPG keep all its assets, but you come on into the market and you compete against OPG."

Ms Churley: And it's doomed for failure if that happens, if that's the way it unfolds.

The Vice-Chair: The time is up. In fact, I donated half a minute of my time to Ms Churley. Thanks very much. As always, your presentations are informative; welcome back again.

Mr Gillette: Thank you very much for having me here.

RENOSCAPES CONTRACTING

The Chair: Our next delegation is Renoscapes, Glen Shevlin.

Mr Glen Shevlin: Thank you, sir. The basic plan that my company is working on is a system to use hydrogen to fuel a combined-cycle gas turbine electrical generating system. The combined-cycle gas turbine system is at the moment the second most efficient electrical generating system that we have. In my handout you'll find a short list of the different systems of generating electricity and a few pros and cons on them, and what the problems are with them. You'll have to excuse me if I'm a little nervous here.

Most electrical generation at the moment in Ontario is of two types: nuclear generation or natural gas carbon/hydrocarbon burning. Nuclear generation is the most efficient system of generating electricity up to the point where the electricity goes out the door. There are added costs on the tail end of that—disposal of nuclear waste and so on—that are very expensive. To generate electricity, you burn a fuel to heat water to spin a turbine. That's basically what it amounts to. The fuels used at the moment are coal, heavy oil—which is also called bunker C—and natural gas. All of these fuels are a finite resource and they are effectively controlled outside of Canada. If you've tried to fill your car up on a Monday or a Thursday with the gas prices going up and down, that's the same effect you'll have on natural gas. Last winter, the natural gas prices spiked because somebody outside the country decided they wanted more money.

They all produce pollution of one description or another and they all require a very large infrastructure to support the production of the fuel. You have to have a gas line running from somewhere in Alberta to somewhere near Sarnia and then from there to wherever you're using it. The infrastructure is in place, but it requires large amounts of maintenance. The coal burners need coal mines. You've got to get the coal from the mine to the point you're using it.

Hydrogen, as a fuel, has several benefits. It's produced on site. Our model uses the electrolysis process at the moment. However, I've got to talk to the gentleman from Woodland Chemical; he certainly got my attention earlier today. The fuel supply will be under the control of the plant management. The fuel generation will be on site. Waste products using hydrogen for fuel are basically water vapour, nitrogen oxide and heat. Nitrogen oxide you will get any time you burn something in the atmosphere, because we have a 70%-odd nitrogen atmosphere. It can be scrubbed out and dealt with. Further research will allow us to find a better way to get rid of it, but at the moment you can reduce it a fair amount. There's no large infrastructure required for the plant; it's all right there. There are no pipelines outside of the plant, nothing else.

This project can be done at the present time with off-the-shelf technology. The technology all exists. It's just that none of it was actually planned to be used for this particular purpose; nobody decided to put A with B to produce C. It does have a few problems because it wasn't designed this particular way. Stewart Energy Systems is in the business of producing electrolysis plants to gener-

ate hydrogen. That technology was designed to be used with the new generation of electrical cars. It's probably five to 10 years away before they can get them up and running the way they should, but the technology is usable to produce the hydrogen we need at this point.

The system is scalable. It can be done from any size, from 50 megawatt hours up to a gigawatt-scale plant. Lakeview is a gigawatt-scale plant; there are four 280-megawatt-hour generators in there.

Because it is scalable, the system will lend itself to use in remote areas or as a cogeneration plant. Over the last several months, the president of Dofasco Steel has pointed out that his biggest concern right now is the cost of electricity in the future, partly because of turning the electricity system public—I can't remember the right word for it. He figures it could cost him $20 million to $40 million in extra electrical costs next year alone, or when it becomes public. He doesn't know—nobody knows—because nobody knows which way the rates are going to go, but it concerns him because he's a huge electricity user. There are several other different types of businesses that could use the same system.

The big requirement at the moment is for a study to determine the actual feasibility of the plan. It will work; we've got the stuff available right now. But we don't know if it's workable from the point of view of whether or not you can talk anybody into building a plant that size. Does it make sense from a monetary point of view? I believe it does.

You can build a plant right now. The Ontario Clean Air Alliance put a study out last year on the Nanticoke generating plant on Lake Erie and they discovered that you could build a natural gas plant, which is the receiving area for the natural gas for the plant, for approximately $56 million. That's just the gas plant. Plus you have costs to convert over the natural gas fuel of the generators themselves. That works out to about $500 a kilowatt, or $500,000 per megawatt. You multiply it up from that point depending on how big a plant you want. You can build an electrolysis plant for approximately the same cost as you can build a natural gas plant.

The big bonus with this is that at the end of the day you don't have to pay for the fuel. When I did this, natural gas on the spot market in Chicago was about 10 cents a cubic metre. That was last winter so it's probably a little lower now, but when you're using 61 million cubic metres of natural gas, the price does get up there rather quickly.

As I said, the processes and systems are in place right now. We could build this. It wouldn't work all that well, because nobody's actually designed it this way. Gas turbines have been run off of hydrogen. Because of the difference in the energy output of the hydrogen and the speed that it burns, some engineering would be required to optimize the plant. The president of Siemens Canada, who deals with these things, has assured me that if I can come up with a way to produce green energy, he'd be more than willing to invest some money in designing a gas turbine to burn the hydrogen. If he gets clean energy he can sell on the worldwide market, he's not too worried about the cost of designing the gas turbine.

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The electrolysis process requires electricity to start it off. That would be generated by wind turbines, biomass systems—there's any number of ways that it could be generated. Wind turbines are a nice system because they're renewable and they don't cause any pollution. The disadvantage is they only run at about 30% efficiency because of the wind. But with a storage plant and everything else lined up, it can be done right now; whether or not it can be done efficiently is the big question. On that point, we're trying to line up people to do a study right now, but people don't want to get interested in anything they don't totally understand or if it goes against what their current views are or what their current products are.

The government could help with any number of these systems, basically with a grant system for alternate energy programs. I haven't been able to find a provincial program to study these things. I can understand the situation with the government and money and everything else, but at the same time, you're going to be saving yourself money at some point.

That effectively concludes what I wanted to talk about.

The Chair: Thank you very much. We have about two and a half minutes per caucus, beginning with the official opposition.

Mrs Bountrogianni: Thank you for your presentation. Many of your points we've heard from others as well, which confirms and validates what you have said. I am curious about, and I believe Ms Churley asked this earlier of another presenter, your perspective on the deregulation issue and the lack of knowledge of what the cost of electricity will be. That is one of the barriers? If you could talk a little more about that.

Mr Shevlin: I don't know enough about how the system is being deregulated. California and Alberta both provided pretty good—I guess "lessons" would be the best way to describe it, on how not to do it. If those lessons are learned, I don't think we'll have a serious problem. My big concern right now is a system of reducing the pollution output from these plants. They're big polluters. Nuclear waste can be dealt with, but I guess a lot of people don't have the nerve to actually sit down and deal with it the way it can be dealt with. A lot of it's bad news, but it can be dealt with. But a lot of people would rather stick their head in the sand and say, "Let's bury it for 20,000 years." It doesn't work.

Greenhouse gases, which are the main production of coal-fired and natural gas plants, are a problem. Once again, it's just a question of dealing with the problem.

Society requires electricity. There's no way we can do without it right now. Deregulating it is a way, in theory, to bring lower prices. If the lessons that have been learned elsewhere are applied here, we shouldn't have a problem—until we find new problems, but they always pop up anyway. There will be some, but what can you

do? If you don't know what the problem is, you can't solve it beforehand.

Mrs Bountrogianni: That's the issue, I think. Thank you very much for your presentation.

Ms Churley: I just wanted to ask you a question. You have a bit of a vision about how we make that leap from mostly theory about this now to making it happen. We know it can work. Are you aware of other jurisdictions that are more advanced than we are in getting this on the market? What do you advise us to do to go from knowing that it can be done and making that leap and putting stuff in place so that we make it happen? You mention that there are groups that don't want the status quo changed, and we'll deal with that when we come to it, but it's a big challenge.

Mr Shevlin: Yes, it is a big challenge. As far as this particular system of using hydrogen goes, I don't believe anybody has actually looked at it, the reason being that it was a great deal more expensive up until the power cell system for cars came out. Now people are looking at electrolysis. It's been around since—

Ms Churley: It's been around for a while.

Mr Shevlin: —the 1880s. Most people do it in high school chemistry class. The hydrogen is producable. It's renewable because when you burn hydrogen with oxygen, you get water. It's renewable. The Great Lakes have fallen, but there's plenty of water there for what we need.

Some places aren't going to be too thrilled about the idea of changing from, say, natural gas to hydrogen. For example, Enbridge sells natural gas to these plants and it's probably a billion-dollar profit for them, until somebody points out that you are probably going to be able to sell the same amount of gas to residential customers at three times the price.

People are happy with their profit margins and the systems that they know work. They have no real incentive to go out and try to do something different. Why would they? Everybody is happy.

Ms Churley: So it's going to take some government initiative and policy changes and things, in other words, to make this work.

Mr Shevlin: I've never been a big fan of government initiatives and government—I hate to say "interference." In my opinion, the best position for the government is in supporting people, industries, schools or whatever that are coming up with these ideas. If you get an idea that will make something else obsolete, great, but the problem is that nobody is willing to finance it. It would cost about a billion dollars to build a plant like this, which is on the same lines as a natural gas or coal-fired plant. But nobody really wants to do it because it's something they've never tried before. People like the stuff they understand. That's the best way I can describe it, I'm afraid.

Mr Gilchrist: I just had a quick question. First, thanks for coming before the committee today. We appreciate your taking the time and your thoughts here. You talk about the need to move from theory to practice, and I wonder if you've given any consideration to relatively easily acquired sources of hydrogen, for example, using off-peak nuclear power to crack Lake Ontario water or Lake Huron water, and therefore the potential location of any test plant that you might want to develop.

Mr Shevlin: The idea, when I came up with this, was to make it totally independent at the production end from requiring electricity from the usual sources. You lose some of the point of trying to do something totally green if somewhere down the line you're producing something that's not in line with your objectives. Off-peak power is inexpensive and it would be used as a backup just in case, for example, if in the middle of August you've had three weeks of southern Ontario humidity and no wind. If you don't have the power to crack the water, yes, you hit the off-peak power and load up your hydrogen so you can continue operating.

The location of the plants is not serious. You could actually use municipal water to supply the amount of water you need. It's about a thousand to one. A cubic metre of water will produce a thousand cubic metres of hydrogen plus oxygen. So the location isn't really serious. I don't know if that actually answered your question or not.

Mr Gilchrist: You clearly have considered the idea. My only point was that at the design stage, rather than also looking at the engineering required to develop a new stream of energy, being able to at least perfect the turbine technology by using off-the-shelf, as it were, off-peak nuclear power might—

Mr Shevlin: Simply things?

Mr Gilchrist: —simplify it and make it a little faster if you were to bring it to market.

Mr Shevlin: Right now, all the technology is in place. If you drive along the 401, you can see the windmill down by Pickering. I think it's a 1.2-megawatt turbine; I could be wrong. That technology is in existence and it is, I don't want to say "mature," but a solid technology. It will produce the electricity required. The added bonus with a wind turbine is that it's DC current, as opposed to alternating, and you need the DC current to crack the water. That was a minor bonus I found out about after the fact, but it's still the same thing.

The place that government could take in this is, if there's a feasible idea, regular sources of capital will not support things like this. The government could provide grants or incentives of some sort for somebody else to invest in it. That's the big problem.

I was talking to the Ministry of the Environment last summer and nobody had anything in the way of grants that they could say, "OK, apply to this." It just wasn't there, which is a problem. You end up having to go to the federal government, and we're still four months into waiting for forms. It's literally that bad.

It appears my time is up.

The Chair: It is. Thank you very much. We appreciate your coming forward with some good information.

1210

TORONTO TAXI ADVISORY COMMITTEE

The Chair: Would the committee look at our next presenter, item 7 at 12 pm, and put in an "i" after "Tax." It changes the organization slightly. Instead of the Toronto Tax Advisory Committee, it's the Toronto Taxi Advisory Committee, Gerald Manley, member. Thank you for coming before us. Sorry for the wee bit of confusion a few minutes ago.

Mr Gerald Manley: It would be nice to be representing that. Maybe I could do something on my own.

The Chair: It might be more profitable.

Please state your name clearly for the sake of Hansard.

Mr Manley: My name is Gerald Manley. I'm a taxi owner and operator in the city of Toronto; I have been for approximately 30 years. I'm here today as a representative of the Toronto Taxi Advisory Committee, which is composed of Toronto taxi industry members. It was officially formed by the city of Toronto and was mandated to report to the city on issues involving the taxi industry. It represents well over 10,000 taxi drivers and owners who currently work full- and part-time in the taxi industry in Toronto.

Actually, your committee's inquiry into this subject matter is rather timely as on February 19, coming up, I will address the Toronto subcommittee on planning and transportation licensing issues on the subject of natural gas as an alternative fuel source in the Toronto taxi industry.

There are several important questions that need to be asked when applying this fuel source to the Toronto taxi industry. Is it a suitable fuel source? Does it meet industry requirements? Should it have been given a two-year vehicle extension in the Toronto taxi industry? Does natural gas have fewer emissions than other fuel sources when applied to this industry? And does natural gas cost up to 40% less, as the manufacturers claim? The answer to all these questions is emphatically no.

In 1998 the city of Toronto formed a committee to reform the taxi industry. One of the recommended points which was officially adopted was that if a taxi owner would convert his vehicle to operate 100% on natural gas, he would be given a two-year extension to operate his car. Where the problem occurred in this initiative was that Enbridge Consumers Gas was the only major stakeholder allowed to speak on this proposal. Subsequently, it was passed into law in 1998 by city council. It's now part of our Toronto taxi bylaw.

It's important for the committee members here to understand that many alternative fuel sources produce data that are key to the private sector, and when applied to a commercial venue, the results are totally different. The example of this was the data that Enbridge Consumers Gas submitted to the 1998 Toronto taxi reformation committee. Because of the data produced, a bylaw change was enacted which does give the owner of a taxicab a two-year extension if he runs his vehicle on 100% natural gas. But the initiative was really totally unwarranted.

It was strange that the reformation committee chose not to follow city of Toronto acceptable guidelines before adopting the natural gas extension. Normally all major stakeholders, pro and con, are allowed to address the issues. It's then sent back to Toronto licensing and standards for investigation. Then it is forwarded to the planning and transportation committee for review, before being passed on to city council. This procedure was not followed and it was quickly passed into law.

It also seemed bizarre to us that the reformation committee never consulted with Clean Air Ontario, which sets the provincial guidelines for emissions. The committee also never requested that Enbridge produce a commercial vehicles study on this fuel source. All of Enbridge's data are based on a factory natural gas vehicle operated in the private sector with about a 40% city usage and a 60% highway usage. The taxi industry is 90% city usage and 10% highway usage, with a large volume of idling time which dramatically alters fuel consumption and emissions.

From January 2000 to mid-May 2000, I did an in-depth study, which you have in front of you, on natural gas as it applied to the taxi industry. My study included a mileage comparison between gasoline and natural gas and also the gathering of emission data provided by Clean Air Ontario, which is the governing body for setting and enforcing emission levels of vehicles in the province of Ontario.

This data totally contradicts the claims made by Enbridge Consumers Gas. I submitted these findings to the full planning and transportation committee on May 16, 2000. Along with my study, Toronto licensing and standards produced their own study, which corroborated my findings. These two reports were taken as information only, which at that time tentatively squashed the issue.

Recently, Enbridge Consumers Gas has been lobbying the city of Toronto to mandate their new Ambassador taxicabs to operate on a 100% natural gas fuel source. This of course has reopened the issue, and I've had further meetings with the new director of Clean Air Ontario, Mr Ed Gill. Upon my request, he forwarded to me the more recent data on this issue, which is also in front of you. I've included my May 16, 2000, study.

In the following paragraphs, I've included a slight portion of the deposition which I will be giving to the subcommittee in February. The first topic is emissions. The natural gas industry claims of huge reductions in emissions were and are untrue. This is supported by Drive Clean Ontario, which is the Ministry of the Environment's office for setting and enforcing emission levels in our province. Mr Dave Petherick, who is a consultant for that office, stated at the December 11, 2001, meeting that the 3,700 taxicabs' possible negative emissions would have an atmospheric result equivalent to one drop of water in a huge bucket of water. Emission data is heavily predicated on vehicle maintenance. It is

obvious that the data provided by Enbridge was in the private sector, not in the taxicab sector, and it's normally accepted that the private sector maintains their vehicles at a higher level.

Fuel savings: The natural gas industry claims there would be as much as a 40% fuel savings in the usage of their product. A chart in my May 16, 2000, report clearly shows that was and is untrue. At present, with natural gas priced at about 49.9 cents per litre and gasoline between 51.9 and 62.9 cents per litre, it now costs 20% to 40% more to operate on natural gas. Again, as I said before, Enbridge data comes from factory-operated natural gas vehicles—60% highway, 40% city—whereas our industry is composed of 90% city, 10% highway and we have an awful lot of idling time, which does alter the fuel consumption and emissions. It also takes approximately one and a half litres of natural gas to go the same distance as a litre of gasoline.

Availability: At present, there are fewer than 25 natural gas refuelling stations in the entire GTA. This limits how far the taxi driver can go and it removes him from out-of-town runs. Some corporate accounts, such as one my company has with CP Rail, order taxi service with the specification of "no natural gas cars." Natural gas vehicles have a maximum range of about 170 kilometres per tank, whereas a gasoline vehicle ranges between 450 and 550 kilometres per tankful.

Product supplier: The province of Ontario has the province mapped out into areas for natural pipelines. There is only one pipeline provider allowed in each area. In the GTA, this is Consumers Gas. Though deregulation has occurred in the natural gas industry, allowing anyone to sell the product, it still must go through the pipelines owned by Consumers Gas, which charges a fee for delivering the product. Because natural gas vehicles make up a small percentage of natural gas sales, Enbridge Consumers Gas, which is the deregulated company of Consumers Gas, predominantly sells the product. This in every way violates a basic philosophy I think of any government but especially Toronto city hall, which is, never give a monopoly to any product or service involved in city business.

Aftermarket conversions: Out of the list of cars that are allowed to be operated as taxicabs in Toronto, less than 10% can be converted to natural gas. Therefore, even if the owner wished to convert to the product, he is extremely limited as to what model of car he can purchase. Drive Clean in-use emission testing showed that failure rates for 1980 to 1997 model year cars converted to natural gas are higher than the overall gasoline vehicle test failure rates. There is no reason to believe that the newer model cars would show any difference.

Other natural gas providers' opinions: I've talked to senior officials from Westcoast Energy, Union Gas and their deregulated company, Union Energy, which I guess you already know Duke Energy now owns, and EPCOR owns Union Energy now. These companies make up the other major players in the natural gas industry in the province of Ontario. My inquiry was, why aren't these companies more involved in natural gas sales to vehicles in Ontario, seeing as Ontario has in excess of seven million vehicles? Their response was that they thought natural gas in the vehicle marketplace had a limited expected lifespan of between five to 10 years, and that it would eventually be replaced by hydrogen and electrical fuel sources, as they emit zero negative emissions, which is a plateau natural gas can never ever achieve.

1220

New vehicle technology: Clean Air Ontario stated that beginning with the 1998 model year, all new light-duty vehicles sold in Canada must meet an emissions standard to at least the tier 1 level. They must be equipped with the latest generation of on-board diagnostic systems, that's the OBD-II, for all fuel types. On certain model engines, some vehicle manufacturers have been able to meet the more stringent LEV, ULEV and SULEV standards using gasoline fuels. Their conclusions, in summary, show that the new 2002 vehicle emission standards are very strict, and all vehicles 1998 and newer are certified to tier 1 standards or better, regardless of fuel type. May I point out that after the 2002 Toronto taxicab mandatory spring inspection, all cabs in our city will be a 1998 model or newer. It is evident that the province of Ontario's current rules and guidelines for emissions are stern and for the new cars of the future will be even more rigorous, which should dispel any concerns the city of Toronto has regarding negative emissions.

Unjustifiable legislation: The taxicab industry is the only vehicle industry requiring a city licence that is involved in a natural gas initiative. There is no other city-operated vehicle that has been mandated to this program. If the emissions and fuel savings were anywhere near what Enbridge Consumers Gas portrays them to be, then every vehicle coming under the city of Toronto's umbrella would be involved. It is not the city's position to help a fuel source get their foot into any industry. They should find their own market level and let the taxi industry choose what fuel sources it wants.

Recommendations for the city of Toronto: The city of Toronto should grandfather out the two-year extension for vehicles using natural gas as a 100% fuel source. The data clearly shows that natural gas does not afford any special considerations as it does not meet the higher standards it has portrayed. By using this method, the city will have lived up to its obligation to any driver who bought into the natural gas vehicle extension program.

The city, strangely enough, has also given a two-year extension to any taxicab which is wheelchair accessible without dictating the fuel source. This clearly sets a dual-level standard within the industry. This is unfair. Every licensed taxicab, regardless of area of service, should be governed by the same rules and regulations.

It is further recommended that the city seriously look into increasing the lifespan of taxicabs from five to seven years, regardless of fuel source or area of service. This will address not only the public's concern for in-shape vehicles but will also give the taxi owner a reasonable opportunity to recover his capital expenditures, which, by

the way, was one of the major considerations involved in the two-year extension for natural gas and wheelchair accessible vehicles.

Recommendations for the province of Ontario: Formulate stringent guidelines for all cities and towns that want to adopt alternative fuel initiatives. These guidelines must include that all major stakeholders in the alternative fuel proposal are given an opportunity, whether pro or con, to address the issue. If there is a dispute, it should be settled by a provincial government committee so as to avoid the current confrontation we have between Toronto city council and the Toronto taxi industry.

Ensure that all aspects of the recommended fuel source are thoroughly studied and that the fuel source will be a positive step in enhancing the intended industry.

The province should assist private industry in establishing an infrastructure for any business desiring to enter the alternative fuel market. The present system of one pipeline provider per area in the natural gas industry sets a bad precedent as it shouldn't be the province's position to assist private industry in monopolizing the delivery or sale of any alternative fuel as it infracts federal guidelines for free enterprise.

The province needs to monitor the deregulated companies in the natural gas area. Even though anyone can sell natural gas, it is becoming apparent that only one company is selling natural gas in the vehicle market, because it makes up a low percentage of the overall natural gas sales.

Due to the present monopolization in the natural gas fuel area, the province needs to monitor the consumer's cost for this fuel.

Thank you.

The Chair: We have about two and a half minutes or so per caucus, starting with the government side.

Mr O'Toole: Thank you for a very interesting presentation. It seems like you've been on a one-man mission to confront the seeming public perception and I guess the industry's attempt to change the perception that natural gas is the way to go, for all the right reasons. You seem to be saying it's for all the wrong reasons.

Even the province itself gives a rebate for the conversion of cars to natural gas, and theoretically I support that, because I guess if you look at an ideal running condition comparison with gasoline and natural gas, they are supposed to be cleaner.

Mr Manley: It doesn't pan out in the data.

Mr O'Toole: Everything we're getting seems to suggest that they are cleaner, whether it's NO_x or SO_x. I'm not a scientist, but you seem to be the only person I've heard refuting it and I tend to be sympathetic to what you're saying and encourage some of the points you make. On two occasions under "Emissions," you accuse the industry of lying—well, you didn't use that word directly but it's pretty strong on page 3: " ... claims of huge reductions in emissions were and are untrue."

Mr Manley: Check your Clean Air Ontario data that I have in front of you. Their charts clearly show that this isn't my data; this is your provincial government's data.

Mr O'Toole: I don't disagree with you. I'm more or less complimenting your courage to come and take on Union Gas and Enbridge and all the rest of them. Good luck to you. I hope you're successful.

Mr Manley: It is not just my opinion. Over 96% of my industry has not bought into the natural gas phenom, but it does give us a real problem with trying to recoup our dollars, because it costs about $5,000 per year for car replacement and they're getting an unfair advantage, which is costing, as I said, over 96% of our industry an additional $10,000 for new car replacement, which is absolutely not necessary.

Mr O'Toole: John has a little comment.

Mr Hastings: Sir, what do you recommend, then, given the disputatious nature of some of the data you've presented compared to the associations we have had before from natural gas? What do you see as the transitional fuel from gasoline? Are we always going to have a carbon-based economy, in your estimation—to a great extent, in my estimation of reading it, the hydrogen fuel industry is eight or 10 years away—unless there are some things done to move that along more quickly?

Mr Manley: Certainly, from some of the articles that I have read—like Shell Oil is now getting into a study of putting in hydrogen stations Canada-wide. That came out just a few months ago. So if the government does enhance these particular companies and assist them financially, we could probably move up the hydrogen and electrical vehicles. Yes, certainly the taxi industry wants to be part of that movement, but why should we bear the costs when the negative environmental thing that our industry causes is next to nothing? Nobody else has been mandated into this, and unless you mandate millions, 3,700 isn't going to make a great deal of difference, according to your experts. Therefore, we need to enhance people who are involved in the alternative fuels that emit zero emissions. We shouldn't be helping any alternative fuel sources that still emit negative emissions.

Mrs Bountrogianni: Thank you very much for your presentation. It is an eye-opener. I have two things. One for the committee: Mr Chair, could we have someone from the Ministry of the Environment comment on this discrepancy?

The Chair: For the Drive Clean program?

Mrs Bountrogianni: Yes.

The Chair: It's already requested; I just did it.

Mrs Bountrogianni: Wonderful, great, because this is certainly not what we've been told in the other presentations, so I appreciate this other point of view.

Just out of curiosity, why wasn't the usual process followed in Toronto?

Mr Manley: I've asked that question many times. I certainly have my comments, but I'll keep them to myself just for that. The point was, nobody else was allowed, and that's what made it very difficult. I feel it's one of the real mandates of this province to make sure that if cities are going to get into an alternative fuel program, everybody, pro or con, be given an opportunity. This was not afforded in this at all.

Mrs Bountrogianni: I would really be interested, from the scientific department of the ministry, in an explanation of the discrepancy—not a bureaucratic explanation but a real explanation.

The Chair: You're talking about the pollution level.

Mrs Bountrogianni: That's right. We have two sets of data.

Mr Manley: The data there is provided to me by Clean Air Ontario and it's the most recent. It is just less than a month old, and clearly shows that natural gas vehicles are failing at a higher rate than gasoline, and worst of all was propane.

Mrs Bountrogianni: There were a number of scientists, if I can remember, in that ministry as well as in the Ministry of Science and Technology. Perhaps we could get a full—

The Chair: Maybe you're asking that we should go further than the Drive Clean program in this inquiry?

Mrs Bountrogianni: I think we want a definitive explanation as to the discrepancy between this set of data and what we have been presented so far.

The Chair: Do you think we should be going to the Ministry of Energy, Science and Technology as well?

Mrs Bountrogianni: If we have to, Chair, I think we should.

The Chair: We'll leave that to our researchers and clerk to sort out whom. Certainly Drive Clean would be part of it, but it may extend further.

Mrs Bountrogianni: Yes.

The Chair: That's in order with the rest of the committee? OK.

Mr Hastings: Inherent in that, Mr Chairman, is how municipalities, unless it's under our amended legislation, allow any municipal government to mandate by bylaw what they should be doing for any given industry and transportation.

The legal basis here—I imagine you have challenged that?

Mr Manley: Yes, I have, because we already have a precedence in this area with the province, who is the senior government in this area. It's the contention of the taxi industry of Toronto that if our vehicles meet provincial standards in emissions, who is the city of Toronto to turn around and say, "No, we don't think they do. You need this fuel source." We think if they thought that strongly then why have they only picked one faction of their entire operation to make do this?

The Chair: Would the committee entertain possibly inviting someone from the city of Toronto who's involved? I think they do have some jurisdiction here, but there might be a better understanding for us.

Mr Manley: Councillor Denzil Minnan-Wong was the chair of that committee. And you'd probably want to get Mark Dimuantes, who actually did the study for licensing and standards, and the head of the taxi division, and there is Bruce Robertson.

The Chair: We'll have staff look into this further and follow it up. Any other questions from you, Dr Bountrogianni?

Mrs Bountrogianni: No. Thank you very much.

The Chair: Thanks very much for the presentation. It's much appreciated.

Just a few comments to the committee, maybe, before we adjourn at lunchtime here. You've seen what's laid out before you from now at least until Wednesday. Is everybody comfortable with the direction we're going?

Mr O'Toole: I do have a few—not criticism at all. I have some other personal travel needs. Is there a problem with changing? I might go from Buttonville as opposed to Toronto. That's more convenient for me, and cheaper, by the way, too. Not everybody wants to go Bearskin; I understand that. I have no problem with that. But it's about half price.

The Chair: You're talking about to Ottawa.

Mr O'Toole: Yes, to Ottawa. Coming back from Ottawa, I will be staying over an extra night, so I'll just make my own—

Clerk of the Committee (Ms Tonia Grannum): Yes, you can make those.

Mr O'Toole: I'll let you know. You can cancel these tickets as long as you're notified, right?

Clerk of the Committee: I think the tickets are printed, so they'll be yours and you can make the changes if you need to.

Mr O'Toole: Yes, but we can get a full refund on them.

Clerk of the Committee: Yes.

Mr O'Toole: I just don't want to cost the taxpayer any extra money.

The Chair: OK, if there's nothing further, the committee stands recessed until 2 o'clock. Dr Bountrogianni will be chairing this afternoon. For the sake of those presenting, please be on time so she can start at 2 o'clock and the presenters won't be embarrassed with the few numbers. I'm at some presentations in my riding. The committee is recessed until 2.

The committee recessed from 1233 to 1401.

The Vice-Chair Mr O'Toole.

Mr O'Toole: I'd like to seek the indulgence of the committee to allow a young student who is very interested in science and alternative energy, Sapphyre Gervais, to make a brief presentation when it's convenient for members of the committee this afternoon.

The Vice-Chair: I just spoke to Sapphyre. The trucking association is already here, so perhaps right after.

Mr O'Toole: Great.

The Vice-Chair: The presentation is five minutes. Is that fine with the committee?

Mr O'Toole: It's fine with me.

ONTARIO TRUCKING ASSOCIATION

The Vice-Chair: We welcome the Ontario Trucking Association, Mr Laskowski and Mr David Bradley.

Mr David Bradley: Thank you very much, Madam Chair and members of the committee. We too look forward to hearing Sapphyre's presentation afterwards. Some new ideas couldn't hurt. But we would like to

respond to some of the elements from your interim report. Indeed, most of the recommendations that we're making in our paper are consistent with, covered off by, or in some cases identical to what appeared in the interim report. We were quite pleased with it.

We'll talk about two major areas, one being energy efficiency in our industry and the other being emissions and alternative fuels.

First, with regard to efficiency, the fuel efficiency of the trucking industry in Canada has doubled in the last 20 years. In fact, trucking has made the major contribution in terms of fuel efficiency, as compared to any of the other freight modes. That's a reflection of a number of things, but predominantly it's in our interests as an industry to try to maximize our fuel efficiency as best as possible. When we've seen the kinds of taxes that historically had been heaped upon diesel fuel, and then, for example, the kinds of escalations in prices that we saw a couple of years ago, certainly where we can improve our efficiency, it makes good business sense.

But these efficiency gains have been made at the same time as our engines and our fuels have been consistently regulated, since the 1970s by the USEPA and by the federal government of Canada, to reduce emissions. It's really important to understand that it comes down to what problem are you trying to solve, because there is a trade-off between fuel efficiency and emissions. Our engines have pretty much maxed out in terms of the major strides they're able to take in terms of fuel efficiency, because the focus has been on reducing particulate matter, NO_x and the like, and that will continue to be the case for the foreseeable future.

So in addition to driver training and all of those things, there are other things companies are undertaking to try to improve their fuel efficiency more, and I believe there may be a role for government to assist. One of those is tax incentives for speed controls. Speed is the enemy of fuel efficiency. Many, many companies in our industry are now investing in on-board computer technology, tachographs and the like, which allow them to monitor their fuel efficiency. These don't come cheaply, however. If we want to increase the penetration of that sort of equipment, those devices, into the industry, government may see fit to consider tax incentives and the like.

It's similar for anti-idling devices. There is no reason these days for a truck to idle, even though you do still see it. This can be controlled through various add-ons: heaters and cooling systems and the like. Again, they are expensive and not everyone has embraced that technology. There may be opportunity for incentive there.

But overall, and this isn't in our paper, one thing we desperately need is the electrification of truck stops, because a lot of this technology won't work unless you actually have something to plug it into. So first we need some truck stops and then we need them electrified.

One other area of fuel efficiency that the government of Ontario in particular might consider is to look at the experience of other jurisdictions with regard to special configurations that presently aren't permitted in this province. There's one in particular, which is called the environmentally efficient motor vehicle—the E^2MV. This configuration is used in Quebec, the western provinces and about half the US states, including the New York thruway, the Massachusetts Turnpike etc. This holds out some rather large economic gains for certain industries, particularly the auto and food industries in Ontario, and also in terms of the reduction of fuel consumption. This is something that we believe the government of Ontario should be looking at: piloting and determining whether in fact those vehicles would be suitable under certain conditions for use in Ontario.

With respect to alternative fuels, the definition of alternative fuels can be broader or narrower, I suppose, in terms of how you look at it. When we appeared before this committee last time, we spoke of the advent of ultra-low-sulphur diesel fuel. Through US EPA regulation, both diesel fuel for heavy trucks and heavy truck engines have been regulated for decades now, but by the 2006 fuel year and the 2007 model year, we are going to see the introduction of technologies that will eliminate 90% of the emissions of NOx and particulate matter, two of the most nasty pollutants in terms of human health. One has to precede the other because the engines and the particulate traps, NOx absorbers and those kinds of things that will be part of the new engine won't work without ultra-low-sulphur diesel. So by 2006, we will see the sulphur content of heavy truck diesel reduced from the current regulated maximum of 500 parts per million down to 15 parts per million.

By way of comparison, not all freight transportation modes are required to meet these standards. For example, railway locomotive diesel fuel and engines are not regulated in Canada. In fact, the sulphur content of locomotive diesel fuel can be up to 14 times what it is for truck diesel fuel.

The year 2006 is still quite a ways off, obviously. If you look at the experience of some other jurisdictions, particularly in Europe, where they were able to use the tax system to accelerate the penetration of ultra-low-sulphur diesel fuel into the marketplace, we're suggesting the committee might want to take a closer look at the UK experience, and if we can enhance that penetration and accelerate it, then we'll get the environmental benefits somewhat quicker.

1410

I mentioned about the differential between truck diesel and off-road diesel, particularly locomotive diesel fuel. This is obviously somewhat of a competitive issue for us, but we also believe it's an environmental issue. As alluded to in the interim report, we certainly support a regime where the government of Canada, which has jurisdiction in this area—Transport Canada in particular—would regulate the emissions from locomotive engines and diesel fuel. But in the meantime in Ontario, we still have a situation where there's a gross disparity between the tax on rail diesel—and if you look in the background papers and the reports, some of it that's used in Ontario is basically home heating oil—versus the

ultra-low sulphur in trucking. There's a differential: 14.3 cents is the provincial fuel tax on truck diesel fuel, and 4.5 cents per litre on rail diesel. We believe that differential creates an incentive to remain with dirty diesel in the rail sector, and that's something that we think needs to be looked at.

In terms of how the industry is performing with regard to emissions, one of the measures here in Ontario that you could look to is the results of the Drive Clean program. What you'll find is that the heavy trucks are passing at least 95% of the time, and any of the engines built after 1991—the 1992 model year on—are passing at least 98% of the time. This is not a surprise to us. This is when the electronic engines came into being, and we're now in the era of the smokeless engine. If you're seeing a truck spewing black smoke, it's probably an old one, pre-1991, and/or, in the odd case, someone not maintaining their vehicle. It really raises some questions in our mind as to the effectiveness of that program. We have called upon the provincial government to increase the threshold, increase the standard, that if trucks pass that tougher standard they be allowed, just as cars are, to move to biannual testing, and to revisit the model years so that we're meeting the goal of trying to identify the gross emitters and going after them as opposed to simply creating business for some of the repair and dealer shops for doing the test.

There is, to our understanding, a cost-benefit study underway at MOE with regard to the heavy-duty program. We're not privy to the terms of reference or to where that study is at at the present time. It might be prudent for this committee to ask MOE to bring the results to the committee so that you could have a look at them and review them.

Again, in closing, it's important to note that there is a trade-off between significant new efficiency improvement versus reduction in emissions, and the focus has been in terms of reducing emissions, so there's a bit of a dichotomy between NO_x and PM and greenhouse gases. We recognize that. We've recommended some things that will help the industry to embrace new technologies, new configurations that would allow us, at the same time as the emission performance of our fuel and engines is improving, to also improve our fuel efficiency.

With that, we'd welcome any questions that you might have. Thank you very much.

The Vice-Chair: Thank you very much. You've left about three minutes per caucus. We'll start with the NDP.

Ms Churley: Thank you. Welcome back again. Were you both here before?

Mr David Bradley: No. Unfortunately, I was somewhere else.

Ms Churley: You weren't here—

Mr Steve Laskowski: I was here.

Ms Churley: —but you and I had an exchange, if I recall correctly. It was you who said trucks were good for the environment.

Mr Laskowski: That's right.

Ms Churley: That's right; I remember now. We had a discussion about that.

I appreciate the fact that your industry is looking at ways to use cleaner fuel and all of those things, and I'm sure you're going to continue on that path.

I just wanted to come back to your comments about rail because obviously, in terms of your industry and the competitive side of that, that's an issue for you. There are more people calling for the federal government to bring back the rail business. You seem to be saying, and I believe we discussed this the last time as well, that you believe that your industry can in fact—I don't know if you said this. Did you say "is cleaner now" or "could be" if you proceed along the path you're on right now?

Mr David Bradley: You have to separate out service, economy, environment. Let's assume we're talking about enhancing the environment and separate that out. The reality of it is that the emissions from truck fuel and the emissions from truck engines have been progressively regulated by the United States Environmental Protection Agency since the mid-1970s, and since 1991 have become increasingly stringent. That has led to the introduction of the electronic engine, and will be leading in the 2007 model year to the new particulate traps, NO_x absorbers and all of those sorts of things. So we're going to see a marked reduction in those particular emissions.

At the same time, in this country at least, railway locomotive diesel fuel and railway locomotive engine emissions are not regulated. What I think you heard last time was that, all other things being equal, if you were to somehow force a shift of freight—and there are a lot of reasons why this likely wouldn't happen anyway—from truck to rail, what you would in fact find is not a decrease in emissions but an increase in emissions of NO_x and particulate matter. That was a finding of a study that was conducted for the Commission for Environmental Co-operation. That's a council comprised of the three NAFTA environment ministers. They looked at the impact on the environment of increasing trade, and they found, because of the stringent regulation on the trucking side and because truckers are able to turn over their fleets quicker, that you get a bigger environmental benefit and that you would lose that if you were to force a shift to rail.

Were you to level the playing field, as it were, and require railway locomotives to use ultra-low-sulphur diesel fuel and were you to require railway locomotive engines, as they are now beginning to do in the United States but not in Canada, to regulate the emissions from those vehicles, then other factors will come into play—whether they can provide the service, whether it's economic; society will make whatever choices that it makes—but in terms of the environment, it's really somewhat of a spurious argument to suggest that one mode is better than the other. The reality is there is not a whole lot of difference. The truck is getting increasingly better, whereas rail, as a report done for Environment Canada this past fall showed, is basically using home

heating oil in many instances here because there aren't any controls.

The Vice-Chair: Thank you. It's the government's turn now, please. Which member?

Mr O'Toole: I think we'll probably all share here. It's nice to see you, Mr Bradley. The trucking industry is important to a strong economy. I guess I would be asking, what would you recommend in terms of some sort of subsidy? It looks like if they go to this ultra-low-sulphur diesel it's going to cost more, ultimately. What are you looking at there?

Mr David Bradley: I'm not looking at a subsidy; I'm looking at a tax incentive that would increase the penetration of ultra low sulphur into the marketplace. Where there is a differential between one fuel and another, people are going to gravitate toward the cheaper fuel, so if you can use the tax system, as has been done in the past with propane and unleaded gasoline and everything else—an incentive was provided through the tax system so people would begin buying the ultra-low-sulphur diesel more quickly. Not only would that apply within the trucking industry, but across all sectors as well; if the tax system was used to provide an incentive for off-road users to move to ultra-low-sulphur diesel as well, so much the better. Our concern is that, so long as there is a significant market in Canada for dirty diesel fuel, we may not see the supply required of the ultra-low-sulphur diesel fuel, or we'll see it at an extremely high price.

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Mr Jerry J. Ouellette (Oshawa): Part of the problem with that is that I don't believe there should be a subsidy or tax incentive. It has to go to the manufacturer's level. What takes place currently in the production of diesel is that when heavy crude comes in and it has a high sulphur content, it's traded off so that the rail users and the homeowner users can utilize that heavy crude, and then the trucks are allowed to use the sweet crude, or the low-sulphur crude. If you give subsidies, the only thing that's going to happen is that it will cost more for the production. You're not encouraging the manufacturer to reduce their costs because everybody will try to gravitate to that, and then the rail diesel will still have the problems of the heavy crude. So when coming forward with a subsidy, it should go to the manufacturer, if anybody. Trying to go to the end user is not as much of an incentive as it is to go to the manufacturer.

Mr David Bradley: I might disagree with you on that. If the end user has a choice, ultra-low-sulphur diesel fuel or dirty diesel fuel, and the dirty diesel's cheaper, that's what they will purchase. In the marketplace, ultimately it's the end consumer who drives the market, not the manufacturer.

It's true, there are issues and there are cost implications. Fuel coming through the pipeline: how do you separate out the ultra-low-sulphur diesel from the dirty diesel? How do you do that?

Mr Ouellette: It's in the refining process. When they do a purchase of goods, they essentially know whether it's heavy or sweet crude at the time. So it's the manufacturer who should be receiving the incentive to bring all uses of diesel down, whether it's in the diesel or whether it's in the trucks or whether it's in the home heating fuel. Right now, trucks are receiving the benefit from it, because it's the homeowner and the diesel user who have to eat up the heavy crude so the trucks can use the low-sulphur diesel.

Mr David Bradley: Or one might say that it's the homeowner and the railways who are polluting the environment, and isn't that what we're talking about?

Mr Ouellette: That's what I just said, that the way to go about it is at the manufacturer's level.

Mr David Bradley: I think there are different ways of creating demand. I would rather create the demand in the marketplace than at the manufacturer's level, but I accept your point. We'll just agree to disagree.

The Vice-Chair: Interesting interchange. Thank you very much for your presentation.

SAPPHYRE GERVAIS

The Vice-Chair: Those of you who were here earlier know there's been a slight change in the agenda. We will have a five-minute presentation from a student, Sapphyre Gervais.

Miss Sapphyre Gervais: My name is Sapphyre Gervais. I am a student currently at Memorial School in grade 6. Two years ago, I did a presentation in my classroom during science on a way to derive hydrogen from water. It was environmentally friendly.

I do not have a business to represent or anything and—

The Vice-Chair: You're doing great. I like that last line. Keep going.

Miss Gervais: I do not have a business to promote or an engine to sell. I only have an idea that I think should be developed further.

The world needs an alternative to fossil fuels. That alternative must be able to replace fossil fuels as the primary energy source for transportation.

Your report calls for a public definition of green energy. What is meant by green energy? I have a simple answer: the word ACE. The A stands for abundant. If green energy is to replace fossil fuels as a primary global energy source, there must be a large, perpetual, renewable supply. The C stands for clean. Green energy must produce no or almost no pollution during either the conception process or the production process. E is for efficient. If green energy is to replace fossil fuels as a primary global energy source, it must be able to generate high levels of power, be convenient to store and transport and be available at a low cost to consumers.

Hydrogen is the perfect green energy source but the production of hydrogen may have some environmentally harmful results. My idea is to produce hydrogen cleanly, using (1) ocean water as the unlimited renewable source—I'm using the ocean because you're not using up the fresh water resources and there's lots of ocean water; (2) the tides to collect the water and dispose of waste;

and (3) solar energy to distill the water and produce hydrogen through electrolysis.

I have a picture. First, you've got to understand that I made this in grade 4 with a not-so-great printer, OK? This is the sun and this is a photovoltaic cell. It shines on there and it makes electricity, which goes to the electric diodes, and when it zaps the water, it separates the hydrogen and the oxygen. The hydrogen you store and the oxygen you can sell to hospitals or you can let out into the air. This is a little picture in there of the tide coming in.

Glen Shevlin of Renoscapes talked about hydrogen production this morning. I talked to him afterwards about my plan and he said that it was completely feasible but expensive. But everything in this plan consists of large upfront capital costs. Once the infrastructure is built, the hydrogen will cost almost nothing to produce.

I realize that Ontario doesn't have much oceanfront property. Nevertheless, if you are looking for a large-scale solution to society's energy needs, we need to look at large-scale investment and the commitment of all governments to contribute where they can.

I would like to thank the committee for allowing me to share my ideas today and I hope this idea of hydrogen as an alternative fuel source goes further.

The Vice-Chair: Thank you, Sapphyre and Mr Gervais, and thank you, Mr O'Toole, for bringing Sapphyre in. I hope we can have a copy of your drawing. It looks very good even for grade 4. Wonderful.

Mr O'Toole: Do we have time for questions?

The Vice-Chair: If you'd like. We are a little behind, but that's fine.

Mr Hastings: I have a question. Sapphyre, you talk about hydrogen being the way of the future, and I think it probably is in the next 10 or 15 years. Since Ontario, as you say, doesn't have much oceanfront, what kind of solution do you think we'd need to undertake to bring ocean water from the Maritimes to Ontario? Would we use tankers or do we create a pipeline right at Sable Island and bring the water that way?

Miss Gervais: I'm thinking that maybe Canada in total will start thinking about hydrogen.

Mr Hastings: That would be nice.

Miss Gervais: Maybe you can get a lot of people thinking about it and just have people go to the ocean and do that.

Mr O'Toole: I have a question, sort of a technical question. What engineering program are you thinking of going into?

Miss Gervais: I don't know.

Mr O'Toole: Good luck in your future.

Ms Churley: I've watched you here all morning and wondered what your interest was. I asked you if you were going to make a presentation, and I'm so pleased you did. I must say it's really nice to see a girl, because mostly we have men come before this committee. Every now and then we have a woman, but it's really nice to see a girl involved in this, and I hope you continue to pursue your studies. That was an excellent presentation.

Just so you know, I come from Newfoundland originally. Instead of building a pipeline from there, people can just go to the ocean and produce it. I think that's what you had in mind, instead of trying to bring the ocean to places like Toronto and Ontario; is that correct? Yes.

That was great. Thank you very much.

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CONSERVATION COUNCIL OF ONTARIO

The Vice-Chair: Our next presenter is from the Conservation Council of Ontario, Chris Winter. Welcome, Mr Winter.

Ms Churley: Another guy.

Mr Chris Winter: Yes, another guy. Sorry, Marilyn. I'm not about to change.

The Vice-Chair: As you probably know, you have 20 minutes for your presentation.

Mr Winter: Thank you very much to the committee members for inviting me here. My name is Chris Winter and I'm the executive director for the Conservation Council of Ontario, which is an umbrella group for a multi-stakeholder, multi-sector organization, an umbrella group of organizations all interested in promoting conservation and environmental protection.

I do want to note right off the top how interesting it is that both the Ontario Trucking Association and Sapphyre were talking about the high costs of green energy and the barriers they present. It also twigged in my mind—thank you very much, Sapphyre—that one of my first projects in school—granted, it was in university, not in high school or anywhere—was looking at alternative fuel for farms and ethanol as a source for farm energy.

Mr Hastings: That was the old curriculum.

Mr Winter: That was the old, yes—way old.

I looked at it, and everyone said it costs too much to produce, it costs more than $30 a barrel and it won't be effective until oil hits $30 a barrel. I thought, you could bring the cost down. This is Canada. Why not just freeze your basic beer mash and pull the alcohol off it, and then you've got only a small amount that you need to distill in high grade. That was my innovative solution as a student, which, of course, went nowhere.

But what I have done is looked at your interim report, and I want to start by thanking you very much for that interim report. It was an excellent report. I found it very informative, provocative. You raise some very good questions and in going through the questions, at least the first 30, which I did, on the general policy framework, I found them very useful for structuring my response and my presentation on a green energy strategy.

I'm presenting on a green energy strategy because that is my background now for 20 years with the Conservation Council of Ontario, working on conservation strategies. I also manage the GreenOntario.org Web site, where we look at Ontario's existing environmental programs and commitments within a strategic context. So this presentation will probably be up on that Web site in the next day, if anybody wants to find it.

You will hear a lot of presentations, I'm sure, and submissions on the details of how to do a green energy strategy and all the different nuances of it. I've looked at the general principles and the structure for a green energy strategy, because what your paper started out with was a question that said, "Should we have a green energy strategy?" The answer, I hope, is a resounding, "Yes, of course we should." But the real question is, what should that strategy look like? How detailed, how focused does it have to be? What are the goals of that strategy?

Your questions that follow kind of skirt around different pieces of it and don't really bring it together into a cohesive, strategic framework. So that's what I've done for you, and you'll find on the first couple of pages of my presentation here a strategic framework for a green energy strategy.

The first thing is the title: call it A Green Energy Strategy. "Green energy" is a pretty commonly accepted term. In fact, it is being formally defined, so it is not just a term that the public understands, but it is becoming one that, through programs like EcoLogo, is beginning to get that formal definition that industry and government can buy into. Include in that term of "green energy" energy conservation. We agree with Pollution Probe's suggestion that energy conservation is perhaps the cheapest and first form of green energy.

Second, the coordinating bodies for a green energy strategy: you've asked about the role the government should play, how it should be coordinated within government. I think you should also look at the external coordination.

So for the Ontario government, we recommend that the Ministry of Energy, Science and Technology be the lead body, or, if you prefer, an interministerial task force. You definitely should look at how to integrate the goals of the green energy strategy into the business plans of all affected ministries, and into other significant initiatives.

For outside government, we recommend a green energy task force. You need to bring together the key stakeholders in an ongoing process, where these stakeholders come to the table with a commitment to leadership in their sector and a commitment to continuous improvement in their activities. We all need to be moving forward.

What are the goals of a green energy strategy? We have three goals that we recommend: first, maximize energy conservation and the generating capacity for green energy in Ontario; second, create viable conservation and green energy industries in Ontario; and third, provide consumers with access to affordable conservation measures and green power options. So you need to look at the economics, the viability of the green industry and also the consumer end, the ability to afford conservation measures and green power—eliminate that barrier, that gap of a premium.

You've asked about targets, and I've not suggested specific targets, but I've alluded to some areas and suggested some that others have recommended. First, there should be an overall target for the renewable sector. In Ontario's environmental agenda, I think they recommended a 5% start and a 1% increment per year. Their date on that, I think, was the year 2000, so we've passed that already. You need to adjust that for the initial 5%.

Do we need specific targets for individual sources? Yes, that would be great. In particular, I'd like to see something for rooftop solar. For some of the smaller, individual kinds of industries that might get overlooked, we need to look at things like in the United States where they have an excellent program called the Million Solar Roofs program, where their goal is to get a million solar installations on rooftops across the US by, I think, 2010 or 2011. We need to look at something similar to that with similar targets—not quite a million, but whatever fits for Ontario.

We need targets for energy conservation as well so that we're actively pushing forward on conservation measures. You need to relate the green energy strategy to emission reduction targets. So where we have those targets, like the Kyoto Protocol or the Anti-Smog Action Plan, tie them in.

Finally, we need performance measures for conservation and green energy built into ministry business plans. There's very little in the ministry business plans at the moment with respect to green energy, even within the Ministry of Energy, Science and Technology; there's certainly nothing within the science and technology division on green energy.

Activities: I've divided this into regulatory activities, support programs, economic instruments, voluntary programs, and outreach and education. I will skim over them. They were largely drawn from the recommendations that you have included in your interim paper, so it's everything from emission caps, tradable credits, renewable portfolio standards, green power definition and labelling, green tape reduction—I think that's one I added in; we need to look at something equivalent to red tape reduction for green energy—and delegating regulatory powers to the Ontario Energy Board. The other one I'm adding in there is Planning Act requirements for energy-efficient urban design, linking a green energy program into the Smart Growth initiative.

Support programs—this is government with partners: research development fund, pilot technology, things that you mention in your paper. Homeowner outreach and support is also useful.

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Economic instruments: now we come to the big one. Economic instruments are vital if we're going to achieve the goals of a green energy program. Right now, with voluntary measures, we are depending on consumers to step forward and pay the differential in cost. I don't know how many of you are intending to buy green energy at a premium. I know I probably will; I'm assuming Marilyn will. My fear is that there are very few fools like us who will step up and buy the green energy at a premium. Even where people say at arm's length in opinion polls, "Yes, I will buy green energy at a premium," you're probably not going to see that when push comes to shove. There's

a difference between arm's-length and point-of-sale decisions. So we cannot rely on voluntary measures to achieve our goals for green energy; we need to have strong economic instruments that are going to eliminate the gap, the premium between green energy and conventional polluting energy. You can look at it on an ethical basis, on a principle basis: green energy should not cost more than polluting energy. But on an economic basis, you're not going to have a viable energy industry in the long term and you're not going to have consumers paying for green energy unless we can eliminate that gap.

You mention some economic instruments in there. We've added one that we think is vital. We can't tinker around the edges; we need to have something in there that is going to put the cost of green energy on conventional energy. Back last April we recommended, in our response to the Managing the Environment report, that as a test case for economic instruments, the government should take part of the 0.7 cent per kilowatt-hour surcharge on electricity to pay for Hydro's stranded debt and apply some of that to a green energy fund. This is consistent with the recommendations that Macdonald made, that after the debt was paid down, part of that fund could be used and transferred for things like environmental projects. We think that should be stepped up; you should start doing it now. By my calculations, if we took 0.1 cents per kilowatt-hour and applied that as a surcharge or took that part of the surcharge on electricity, we would generate $150 million a year that would be applied to reducing the cost to consumers for green energy. That's the scale we need to be looking at.

Finally, the other thing I want to talk about is the carrot or stick approach, and I'll close with that. There's a lot of talk about the role of emission limits and emissions trading and how that fits into a green energy strategy. There is definitely a very important role for emission credits and trading of those credits, but I fear that should not be the only driving force for a green energy strategy. It's the stick approach. It's forcing utilities to play a part in the game by saying, "You can use green energy to achieve your emission caps." What misses in that is the small energy options: the individual homeowners, the local energy co-operatives, a lot of the very innovate and local things that could be developed through positive incentives. So I would argue very strongly that we need to look both at the carrot and the stick. I like the role that emission caps can play in forcing utilities to play into the green energy game, but I also want to see a lot of the good incentives and positive things like a green energy fund would do to create the stimulus for all kinds of green energy activities.

I'll close with that. I do want to say that it's extremely important come May, when we announce all the deregulation and shift gears, that you have in place the start of something that is going to be significant and long-lasting. To do that, it's not just announcing a couple of programs. We need to announce a commitment to eliminating the cost differential for green power, to announce the formation of a green energy task force and a long-term green energy strategy, and to announce the creation of a green energy fund that will be a significant economic instrument in support of green energy.

I thank you for your time.

The Vice-Chair: Thank you very much for your presentation. We'll start with the NDP.

Ms Churley: How much time do we have?

The Vice-Chair: About two minutes per caucus.

Mr Winter: I rambled again.

Ms Churley: I appreciate your presentation today. It's clear that you have read the report carefully. It's nice to see a response to the actual report, and I think we have Jerry Richmond to thank for putting that report in the form that it was—

Mr Winter: I'm sorry I only got through the first 30 questions and not the rest of them.

Ms Churley: Yes. It indeed was and is a good report, and this is the kind of thing that we need to help us now develop a framework around our final recommendations.

I like your idea of an Ontario equivalent, I think you're saying, to the Toronto atmospheric fund.

Mr Winter: Yes.

Ms Churley: That, as you may know but people here might not, grew out of, when I was on city council, I believe an energy conservation office, an energy office. I even forget what it was called when I was there, 1988-89. The atmospheric fund grew out of that office. I think it's a very good suggestion, to put something like that in place. The fund, as it now stands, was an endowment from a sale of some property. Can you describe the way it works so we have some idea of what you're proposing?

Mr Winter: That one was a windfall, I guess, in the sale of—

Ms Churley: Langstaff, was it?

Mr Winter: —Don Jail lands or something.

Ms Churley: I don't know; Langstaff, I think. But anyway—

Mr Winter: Yes, some lands were sold, resulting in, I believe, about $25 million. That $25 million, rather than being sucked into general revenue, was put into an arm's-length fund that would fund long-term-interest loans or low-interest loans.

Ms Churley: So that's how the money is used now.

Mr Winter: Yes.

Ms Churley: That's what I'm trying to get at.

Mr Winter: It's not a granting program as much as it is loans for projects that would not otherwise be funded. So I think the city was able to use it to do a lot of its street light retrofitting and improve efficiency in its street lights.

Ms Churley: Right. So how would you see such a fund being operated, if there were such a provincial fund? Going to what sorts of projects? Some of the energy efficiency stuff, for instance?

Mr Winter: I would see definitely some of the energy efficiency stuff, but I would see also an opportunity to link in with the green communities initiative, which is still going great guns and doing excellent work.

Ms Churley: That's something else the NDP started, for the record.

Mr Winter: I knew you'd pick up on that. I happen to be on the board of the Toronto GreenSaver and I am extremely impressed with the job they do in reaching out to homeowners and providing a very much needed service to people, saying, "Here's what you can do to make your homes more efficient."

Ms Churley: If I'm going to be buying that more expensive green power, I'm going to need lots of energy efficiency and conservation programs in place to help me conserve energy so I can afford to pay those higher premiums for green power, because the two go together.

Mr Winter: The payback on a lot of these things is 10 to 20 years, which is a long time and a major investment to expect people to put in. So what we need to do and what this fund would do is cut down that payback time and make it significantly more viable for individuals to say, "Yes, I can make that investment. I can put in energy-efficient windows."

The Vice-Chair: Thank you. It's Mr Hastings's turn from the government side.

Mr Hastings: Thank you for coming in. I think it's a pretty good report in terms of the scope of things you've tried to tackle. I'm certainly very happy to see and I agree with you completely on point 26, page 12: no more pilot projects. We've had pilot projects going on at whatever levels for eons in time. Get on with the job.

Could you elucidate a little more on your thinking as to how Ontario can become a leader in the renewables field, given that most countries—Australia, Japan, the European Union, the US—are light-years ahead of us, really quite far ahead? How can we catch up?

Mr Winter: That's a good point, because when I was saying Ontario could become a leader, I was thinking about a leader in Canada.

Mr Hastings: How about a leader in the world?

Mr Winter: That might take a little more time, because as you say, yes, we are behind the ball. A lot of other countries, especially Europeans, are investing much more in solar and wind technology—

Mr Hastings: Photovoltaics.

Mr Winter: —and we need to catch up with that. We need to develop our homegrown technology. But I think again, to get back to the area of energy conservation and the green communities outreach, that's one area where we have developed a very innovative approach, a very cost-effective approach, and that's one where we could be a leader.

Mr Hastings: But we don't have the company infrastructures to deliver in these renewables, do we?

Mr Winter: No.

Mr Hastings: We have some companies, yes.

Mr Winter: And a lot of that is done through the non-government sector, non-government organizations in partnership with utilities and so on.

Mr Hastings: Any thinking on how we could encourage that?

Mr Winter: Again, the simple way to do it is to reduce the price differential for conservation and for green energy. If you eliminate it, they will come. That's one thing where we can take a leadership role. If we found an innovative way to add a small surcharge on conventional sources, which will be a major impact on the renewables and the conservation side, we would be a leader in that, because I don't think anyone else is really that far ahead on the economic instruments.

The Vice-Chair: Thank you very much, Mr Winter, for your excellent presentation.

1450

ADM AGRI-INDUSTRIES LTD

The Vice-Chair: I believe our next scheduled presenter, Mr Kartofel, is not here yet. Mr Downing of ADM Agri-Industries, if you're ready you may proceed. Would you like the lights turned off or dimmed? I have one name here and I see two gentlemen: Mr Gerry Downing, and the other gentleman?

Mr Gerald Downing: Gerald Downing, and this is—

Mr Robert Barlow Cash: Robert Barlow Cash. These computer presentations make doing these things so much faster.

Maybe I'll just start by means of introduction. I'm the Canadian environmental manager for ADM Agri-Industries. My colleague is Gerald Downing, who is the biofuels manager for Archer Daniels Midland Co. Gerald is from our head office in Decatur, Illinois. It's a pleasure for both of us to be before the committee today, and for me, I guess, a repeat. I had the pleasure of presenting to you before the first report.

I thought I would start with just the briefest of introduction to ADM Agri-Industries in Canada to help you understand the relevance of our presentation for renewable fuels. That means we're almost queued up on the slide for that.

ADM Agri-Industries is Canada's largest flour miller, with nine flour mills across the country, two oilseed processing plants, two feed and premix plants, a number of country elevators, two chocolate and cocoa processing facilities, a starch plant and four edible bean processing plants as well.

We also have a 19% interest in United Grain Growers and Agricore, which recently merged to form Agricore United. ADM has over 1,000 employees in Canada, with $1.5 billion in revenue here, $1 billion of which is right here in Ontario.

A quick look at the map of Canada will show you our locations are indeed across Canada. Here in Ontario we have four flour mills, one cocoa processing plant, one chocolate plant, a feed premix mill, one oilseed plant, a public grain terminal and four country elevators. So you can see indeed ADM Agri-Industries is a Canadian company and well-invested here in Ontario.

The next slide also shows our involvement with United Grain Growers. The slide is a little bit behind the times; since the last time I presented to you, Agricore and

United Grain Growers merged. On the slide here are just the United Grain Growers sites and we have not yet added in the Agricore sites, never mind the country elevators and grain terminals that we have here in Ontario.

This all by means of helping you understand that one of the reasons for ADM support for renewable fuels in Canada is indeed our presence here and that renewable fuels is an integral part of our portfolio of businesses.

With that, I'd like to turn it over to Gerry to continue with our presentation.

Mr Downing: Robert has spoken a little bit about why we are here and ADM's current interest in Canada. Now I will cover four areas and then summarize and close. The first area I'd like to cover is ADM's involvement in renewable fuels in Europe, Germany and also in the US. I want to do this just to give some perspective as far as what's going on with ADM in Europe and Germany as well as the United States in renewable fuels. The second thing I'd like to cover is biodiesel legislation in the US and Europe and projected impact on demand. The third thing is current biodiesel efforts in Canada. Finally, I'll discuss biodiesel as a viable alternative fuel and talk a little bit about the field experiences in Europe, Germany specifically, as well as the US.

First of all, ADM's involvement in renewable fuels: biodiesel producer in Germany, ethanol producer in the US, and we are an associate member of the National Biodiesel Board in the US.

Looking at the biodiesel sales in Germany, if you look at the bar chart there, it's almost parabolic growth. It has been very impressive, to say the least. I'd like to make two points about this parabolic growth. Tax incentives have played a significant role as well as OEM support. OEM support is essentially the foundation that gave the industry and gave the users of biodiesel a level of comfort with this fuel.

What I'd like to point out here is that the 2002 projection is 750,000 metric tonnes of biodiesel. In 1993, it was 10,000 metric tonnes. So there has been remarkable growth. ADM is a large presence in Germany. In 2002, we will have a production capability of 250,000 metric tonnes, which is one third of the total projected biodiesel sales in Germany.

Now over to renewable fuels in the United States. ADM has been very involved in ethanol. This is more of a ramp-type growth, but nonetheless it's very impressive. Our production capability today approaches one billion gallons; it's around 950 million gallons of ethanol. We are anticipating the MTBE being replaced, first of all in California and then possibly in Illinois and throughout the Midwest. If this carries through to the nation, we're looking at an additional 2.1 billion gallons in the total US ethanol market. Right now it's about a two-billion-gallon market. I mentioned before that ADM is close to a billion gallons, so we're close to 50% of the market share, and then of course the market could double with the phase-out of this MTBE nationally.

1500

Back to biodiesel, United States legislation: we have some current legislation. On your left there is the EPACT, ECRA, and this is essentially a way to get federal government fleets purchasing and using biodiesel. The second piece of legislation is down there near the bottom in the left-hand column, the CCC credits. That's a USDA program and that's designed to encourage the increased use of agricultural products in the country.

On the right is proposed legislation. Number one is an excise tax reduction. Essentially what this is: on a B2 blend that would be 2% biodiesel and 98% petroleum fuel. That amounts to three cents per gallon on a 2% blend. Then we're also looking at proposed renewable fuels mandate legislation, which has a number of scenarios. You can see here the effect it would have on demand. There's Senator Daschle's bill and then there's also the Hagel-Johnson bill. If you look at that, year 2002 to 2010, you can think of this as year one up to year nine. As you can see, that's a very impressive growth rate there, as well, the USDA high-demand scenario, and the FAPRII, which is an independent study that was carried out by the USDA.

The total diesel fuel demand in the US in 2001 was approaching 35 billion gallons. It's projected by 2010 to be around 43 billion gallons. So if you look at the projected demands, close to 1% of renewable fuels will be biodiesel.

What are the ag economics? They're very positive. Again this is a study that was commissioned by the USDA. What they projected is, with this type of demand that would be generated under the high-demand scenario, soybean oil prices would rise 22% per year, soybean oil and meal production would rise 2% per year above baseline levels, meal prices would decline roughly 6% below baseline levels, soybean prices would rise 3% per year over the period, and employment would increase by roughly 13,000 jobs. Of course, the value of exports would rise, and biodiesel would displace US$1.2 billion in oil imports. The real economic impact is here on net farm income. It would rise, on average, $300 million per year.

So just looking at that, we have about US$1 billion over this nine-year period going into the US treasury just in terms of increased taxes due to the increased income of the farmers. But the program itself was projected to cost about $2.1 billion over the life, over the nine-year period. So we have a net cost of $1 billion to the treasury. It has been looked at to pay for this, the LDP payments, taking LDP payments that would be significantly lower, and the USDA-CCC program to basically reimburse the Highway Trust Fund, which of course could lose some of the tax revenue with an excise tax exemption.

Just to give you a backdrop here, what the credits look like in Europe and how this demand has been stimulated: in France, it works out to about US$1.19 per gallon; in Germany, US$1.11 per gallon. This is on a neat basis. In Germany essentially that's a B100 blend. That is, the vehicles in Germany utilize 100% biodiesel; there's no

petroleum. That's essentially going around a mineral oil tax, and as a result there's no tax. That US$1.11 per gallon is essentially a complete exemption, because there's no petroleum, or no mineral, in the fuel. Of course, Italy is free of tax on the B100 also. Those are the three major players in Europe.

The economic community is proposing a tax incentive. The tax would be on biodiesel, a maximum of 20% of the normal tax for each country. That's a tax incentive, and there's also a proposal for a mandate. As you can see, it sets minimum percentages of biofuels for member states: in 2005, 2%; in 2010, 5.75% and so on.

This is the projected resultant demand. In Germany, if you recall the bar chart, there has been a huge increase in demand here in the last five to six years. As you can see here, it's basically a straight-line ramp-up; 2003 is when it really kicks in for the US and of course Europe.

I wanted to talk a little bit about the current biodiesel efforts in Canada by various grower and processor groups. My understanding is that in the short term they are looking for tax parity with ethanol, and in the longer term a renewable fuel mandate as well as additional tax incentives for biodiesel. This could be on a blended-litre basis. Throwing out a number, approximately one cent per litre has been estimated as something required to bridge that gap between what the price of petroleum fuel is and what the price of neat biodiesel is. So that would make up the gap if it's on a blended basis.

Over the next few slides, I wanted to discuss a little bit about why biodiesel was a viable alternative. I know that issues might have been raised earlier that there are some concerns about the performance of biodiesel. Experience tells a lot. As we can see in Europe, it has gone a long way; also in the rest of the world. In Brazil, from 1978 to 1988 there was some field testing done; in Malaysia, from 1987 to 1990. Germany of course got started in 1991 and 1992, and then did some Porsche work in 1992 and 1993, getting the OEMs involved. Then of course in 1991 ADM started their own production in Leer, Germany. VW approval was a very important event that happened in 1996. As we can see, the number of cars today totals 10 million to 15 million, so there's a lot of experience out in the field with this fuel.

The other leg of this is OEM support. We have worldwide support, with a worldwide fuel charter. It is comprised of OEM associations such as the Engine Manufacturers Association of the US; JAMA, which is the Japanese engine manufacturers; AECA, which is the European engine manufacturers; and the Alliance of Automobile Manufacturers. So there is OEM support behind this.

I'd also like to talk about the lubricity aspects of the fuel. A number of studies have been done; one in Germany. As you can see, there is the HFRR test, which is short for "high-frequency reciprocating rig." It basically is measuring where. As you can see, the limit is at around 450 microns, and the 2% blend would put it down below 300 microns in terms of the depth of scarring. So biodiesel at a 2% blend is a very good lubricity additive. As you can see, low-sulphur diesel, which would be at the 0% range, is above the limit of 450 microns.

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Biodiesel emissions: essentially no sulphur, nitrogen or aromatic compounds. It contains 11% oxygen by weight. NO_x is slightly higher or lower. There are ways to lower the NO_x either via additives or the three-degree retardation of the combustion.

The other thing is global warming. The life cycle of CO_2: if you look at it, 80% of the life cycle will decrease. Significant reductions in the risk of cancer and birth defects; these are some of the health effects of the fuel.

In summary, I'd like to tell you a little bit of what I just spoke about. The biodiesel industry needs significant legislation for long-term commercial viability. This has been shown in Europe as well as the US. Biodiesel is a viable alternative fuel with major worldwide OEM support. Biodiesel has lower emissions. Its lower CO_2 emissions are good for reducing the risk of global warming. It also is a good lubricity additive. Finally, it's a homegrown renewable resource.

That concludes my presentation. Thank you for your attention.

The Vice-Chair: Thank you very much for your presentation. We have time for a very quick question and answer from each caucus.

Mr Gilchrist: I've got a couple but I will keep the questions really quick. I appreciate the international perspective, but let's get close to home here. Production capacity limitations here in Canada: what are they now? Are there any regional considerations in terms of where the ethanol and biodiesel are produced and where they'll be consumed? Range of the incentives required here in Canada: are you suggesting the models adopted in the States and the EC are acceptable here? The time frame that has been proposed by the European Community to implement their standards: is that appropriate? And what would be the practical impediments to a rapid introduction of those standards here in Ontario? Pick and choose out of all those.

Mr Downing: The first question again? Let's take them one by one.

Mr Gilchrist: The production capacity: you talk about, if MTBE is eliminated, the need to double in the States right there. It's my understanding that we already are importing ethanol into Ontario. What are the practical considerations, what are the dollars-and-cents, import-export implications for our economy if we were to mandate tomorrow European Community-type standards?

Mr Downing: I'm not really familiar with the production capacity of ethanol in this country at this time. I do know, as far as your diesel fuel uses and gasoline uses, that's another matter. Currently we think we can grow another 2.1 billion gallons in the US. As far as, will there be a surplus that could be imported into Canada, or exported into Canada, that's a question I cannot answer at this point.

Mr Gilchrist: You're confident that the time frames the European Community has proposed are reasonable without unduly inflating the prices?

Mr Downing: That's going to be up to them, as far as their own research and what they move forward with on that, since they're much more familiar with the European theatre. Essentially, my goal here was to give you a backdrop of what has been done in other areas, which you already might have known about, but I just wanted to put some things in perspective and see what you could do as far as your own programs.

Mr Gilchrist: OK. Thank you.

The Vice-Chair: Welcome to Mr Smitherman, who says he is passing on a question.

Mr George Smitherman (Toronto Centre-Rosedale): No questions, Madam Chair.

The Vice-Chair: It's the turn of the NDP, then.

Ms Churley: Do I get his time too?

The Vice-Chair: No, you don't, because we're already over time.

Ms Churley: He took it; that's right.

This is a very comprehensive report on what other jurisdictions are doing and that's good background for us to have. When I look at this, I would think that our federal government as well would have to be involved in this kind of incentive approach. There are certain things that we in Ontario need to do but it's also—and this is the kind of thing we're looking at, these kinds of incentives. This is some good background in terms of what other jurisdictions are doing, so thank you for that. But I assume you would agree that this is the kind of area where we'd need to look at what the federal government is doing as well, or not?

Mr Barlow Cash: Indeed it needs to be looked at in connection with the federal government. There are things Ontario can do on its own in terms of a mandate. We know that the tax portfolio is not solely Ontario's, but certainly there are things that Ontario can do toward a mandate.

Ms Churley: I guess we don't have time for me to ask you to make that distinction now.

Mr Barlow Cash: There are two main thrusts between tax incentives, and those can come in a variety of fashions. I think probably what the community is looking for is parity with ethanol for biodiesel, but on the mandate side of things is to require a certain amount or a certain percentage of renewable fuels in fuel as a whole. That's certainly something that Ontario could move forward on on it's own.

Ms Churley: That's helpful. Thank you.

The Vice-Chair: Thank you very much. Time is always our biggest challenge. An excellent presentation. Thank you for coming.

STEPHEN KARTOFEL

The Vice-Chair: I understand Mr Kartofel is here now. Make your way to the front as these gentlemen are wrapping up their technologies. As yours is an individual presentation, you have 10 minutes, including any questions.

Mr Stephen Kartofel: Very good. My name is Stephen Kartofel. I'm from Niagara Falls, the crossroads of the world of the common man; not the jetsetters, just the common man. I don't know where the jetsetters usually go. They fly off to Rome or Rio or whatever and look for something, whatever they're looking for, but the common man comes to Niagara Falls.

I've lived there for 30 years and I've been involved in the tourist industry, but being in Niagara Falls, I have always been in awe of the raw power surrounding us. That power seems to be everywhere, not only in the water, using hydro power, but in the air, and it has energized men of ideas for the last 100 years or even longer.

The first major hydroelectric projects in the world were conceived and implemented in Niagara Falls, by George Westinghouse, Thomas Edison and Nikola Tesla. That was a paradigm shift in the standard of living for all of humanity back in 1890. Of course, we're at 2002. The automobile was invented at roughly the same time as those power generating stations were first put on line.

We're scratching our heads right now, searching for alternative fuels. I was sitting watching TV last week, where I saw this advertisement put out by the Ontario government for ideas on what to use as an alternative fuel.

Something had come to mind that I read about two years ago, and that fuel is not fuel at all; it's cars that run on air. That sounds almost fabulistic, a car that runs on air. You have to burn something. Well, this inventor in France apparently developed a piston engine that doesn't burn anything. What it is operated on is compressed air. It's a vehicle like any other vehicle. It has wheels and rack-and-pinion steering and a steering wheel and everything else that goes along with what vehicles have to do, but it runs on air.

The way it works is that you drive the vehicle up to your house, plug it in overnight as if you were plugging in a block heater in your car, like they do up north all the time when it gets really cold so the engines don't freeze up.

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Mr Smitherman: We haven't had to this winter.

Mr Kartofel: No, not this winter. But I've seen it happen in the past.

You have a little compressor such as this Canadian Tire special, maybe a little larger, under the hood. Do you see what that looks like? Cheap. What this air compressor does is fill up air tanks that take the place of gas tanks. These air tanks are made out of material similar to what the new swimming pool sand filters are made out of, that heavy-duty, high-impact plastic. These air tanks get filled up, and in the morning you jump in your car and away you go. You're now running on compressed air instead of gasoline or corn oil or whatever you want to put in that engine. Instead of that being injected into your cylinder, you get a shot of air that hits the cylinder—

boom; only in this case it goes, "Boom, boom, boom, boom," and away you go, up to 130 kilometres per hour top speed. Your air tanks will run out of air at 200 kilometres of driving, and then you have to recharge your tanks.

Of all the vehicles on our highways in Ontario and all over North America, probably 85% of them are privately owned passenger vehicles, whether they're sedans, vans , light pickup trucks or something like that; 85% of those vehicles are the ones that are on the road. Next you have heavy transportation, motor coaches, buses, transport trucks and the like.

These vehicles were unveiled at the South African auto show in October 2000. The person who invented them obtained his worldwide patents and trademarks for this type of engine. The engine itself only weighs about 35 lbs and is about the size of this briefcase. In fact, a physically fit male can pick it up with one hand—some females, too, I suppose.

Costs to run a vehicle on a combustion engine today are somewhere between 10 cents and 15 cents per kilometre. To run this type of vehicle, you have to pay for the electricity to run the compressor, to charge the compressors. The running cost per kilometre would be about one cent per kilometre, which is one tenth to one fifteenth the cost of running a gasoline-powered engine, on any car right across the line. That's significant.

The only thing is, there is one serious problem which I worried about; they didn't touch on this in that newspaper handout article that I think you have all gotten, or will get: government road taxes. As we all know, we all love our cars, we all buy our gasoline, but up to and over 50% of the cost of that gasoline is road taxes. Governments and their civil services are highly addicted to these road taxes. Many politicians would shrink back, aghast: "What will happen to our road taxes?" Very simple. Not to worry. We all understand that roads and highways are not free, although—

Interjection.

Mr Kartofel: OK, whatever. Roughly 50% of every tank of gas goes to taxes, whether federal or provincial—I don't know what the splits are—and the revenues are significant. They have to be replaced by something else. The average family car might buy up to $200 worth of gasoline per month; $50 a week or less, depending if it's a micro or whatever. You have to replace that $100 worth of tax that the government collects with something else. Send them a bill like the 407 boys do. It's very easy. Send them a $100 bill a month, and there you go. People will understand, I'm sure, because what's the alternative, sucking on the tailpipes of those vehicles today?

By the way, these vehicles come in three formats. They come in six-passenger minivans, they come in sedans and they come in light-duty pickup trucks, ideal for our situation here in Ontario.

The Vice-Chair: Mr Kartofel, that was a very interesting presentation. I'm afraid your time is up and there is no time for questions, but thank you very much for coming and giving us your time.

Mr O'Toole: Tell us the cost.

The Vice-Chair: There is no more time for questions, Mr O'Toole.

ALUMINUM-POWER INC

The Vice-Chair: Our next presenters are Aluminum-Power Inc, the Honourable Robert Kaplan, CEO, and Mr Vijay Sharma, the president. Please make your way to the front. Go ahead.

Mr Robert Kaplan: Madam Chairman and members of the committee, thank you very much for inviting us—on really short notice but very much appreciated—to come and tell you about the work of our company. We have made an important breakthrough in the technology of alternative energy that we want to tell you briefly about today, and I hope we'll be able to leave some time for questions.

For the last five years, we've been doing research into producing an electric flow from aluminum. We all know about lead batteries, nickel batteries, zinc batteries, cadmium batteries. It has been known by physicists that aluminum has the highest potential to produce energy, but a tremendous amount of research that has been put into it in the past has not succeeded in harnessing the metal to get it to oxidize in a flow which would make its electric product useful. We have done that in the last five years, as I say, in our lab in Downsview, Ontario. We are now at a point where we are wanting to turn our research project into a commercial business producing fuel cells based on aluminum.

I'd like to introduce the president of our company, Vijay Sharma, who is with me, and who will make our presentation.

Mr Vijay Sharma: Thanks, Bob. As soon as technology catches up with us, I'll carry forward.

Mr Kaplan: I could make a brief point that, by weight, aluminum has more electric energy density than gasoline does. So the power is there; it has just been a matter of getting it out, which, as I say, we have done.

Ms Churley: It was five years ago, did you say?

Mr Kaplan: We started five years ago, yes, working with aluminum.

Ms Churley: How many people do you employ?

Mr Kaplan: We have 15 people in the lab; a total of 21 altogether. We have six PhDs, including our president.

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Mr Sharma: OK. When we saw the newspaper clipping describing the select committee and its call for speakers, the first thing I noticed was the title, alternate fuel sources. It came immediately to mind that hydrogen is not the only game in town, and I'm here to make a case for that. When we think of alternate fuels, fuels other than gasoline or diesel, or fuels that we do not necessarily burn, hydrogen is not the only one in town; there are others. Aluminum-Power is focused on the delivery of electricity from aluminum, not by burning aluminum but by making aluminum undergo a chemical reaction.

Our company has been funded by Angel Investors since 1996. We were incorporated in 1999, and today we employ 25 people in Ontario in our laboratory in Downsview. We're focused on commercializing technology for three principal areas: one is portable electronic devices like cellphone batteries, laptop batteries, digital camera batteries; the other is stationary power systems like residential backup power systems that the people of eastern Ontario would have found particularly useful in 1998, commercial backup systems, portable generators; and lastly, the one area that has probably the single greatest impact for the environment in Ontario, electric vehicle power units.

Very quickly on the slides I'd just like to show some of the various products we're working on. That's a cellphone, that's a digital camera battery, that's a military power pack.

Ms Churley: Could we have the lights turned off, or are they already?

Mr Sharma: They are. Here are some backup power station applications.

Our aluminum technology is very well-suited to replace stationary diesel generators. If you notice in this picture, which is a US picture, there's a diesel generator with about 30 drums of diesel, and half of them are encased in a fence, because that's the way it's supposed to be, and the other half are violating a series of municipal codes, I'm sure. People don't like dealing with fossil fuels that need to be burned. We get around that, we solved that issue, with our aluminum technology.

We have a whole suite of military applications that we are working on. So the technology applies in a variety of sectors.

The basic technology is very similar to hydrogen technology. The few key differences are that our fuel is aluminum, solid aluminum which comes in plate form. It doesn't burn on its own. I can ship it via FedEx or UPS and no one thinks twice about it. I can cook with it, and I can drink my Diet Coke from it. That's aluminum that we use for fuel. We have a gas diffusion cathode, which is a simple carbon-based material, and it can be manufactured in Ontario without great difficulty. And we have an electrolyte. The electrolyte is an alkaline solution in which the reaction takes place. So, there are three very simple components.

As Bob had mentioned, when we compare the energy of aluminum to other materials, aluminum wins the race. Aluminum here, if we can see in the blue box, provides anywhere from 800 to 2,000 watt-hours per kilogram of energy. In comparison, a lead-acid battery provides about 50 watt-hours per kilogram. So aluminum is anywhere from 30 to 50 times more energy dense than a lead-acid battery in use today.

That's not a good slide; it's cut off at the bottom. If I can refer you to page 4 of the handouts, if you have those, the second slide on the bottom isn't truncated like it is on the screen.

Mr Kaplan: The bottom two lines are missing. We need to show you those in the document.

The Vice-Chair: We have them on our handout.

Mr Kaplan: They're just not on the wall.

Mr Sharma: When we look at various fuels, the first column I'd like to draw your attention to is the energy density column by mass. The first one on the list is hydrogen. On a mass basis, one kilogram of hydrogen has an enormous amount of energy: 141 megajoules of energy. In comparison, a kilogram of gasoline only has 47 megajoules of energy, almost a third; natural gas, 47 megajoules; ethanol, 22 megajoules per kilogram. Kerosene is pretty high: that's why it's in jet fuel; crude oil, very high. Wood comes in at 17, not so good; coal at 31, but it's really cheap so it's OK. Aluminum comes in at 29 megajoules per kilogram on a mass basis. But mass isn't everything, because, as we know, hydrogen is a gas. If we look at the column here where we compare the fuels on a volume basis, it tells a totally different story.

Hydrogen is very difficult to compress, and so there are two technologies we use in the hydrogen industry to try to transport hydrogen. One is we try to make it where we need it, and that's called reforming or generation in place. That has its own drawbacks. The other is we compress it, and we compress it at 500 times normal atmospheric pressure and we carry it around in tubes marked "dangerous." But even doing that, we can't put enough hydrogen into one of these tubes to let a car go more than 150 miles before you need to refill the hydrogen. It's not hydrogen's fault; it's our fault because we don't know how to put enough of it into a small space.

As we go down the list, we'll see gasoline, because gasoline is a liquid, on a volume basis still has 35 megajoules per litre of energy, which isn't too bad. Hydrogen comes in at a hundredth of the value of gasoline. Natural gas, because it's a gas, is much lower; ethanol, 18; crude oil, 38; and coal on a volume basis, 63. So you can see the story for coal is very good. It's good on a mass basis and on a volume basis because coal is relatively light. It comes in very well on a volume basis. Aluminum on a volume basis, however, is 79, the highest on the list. In fact, it's twice as energy dense as gasoline, twice as energy dense as crude oil, and I can't even do the math, the number is too big, when we compare it to hydrogen. It's on the order of 1,000 times more energy dense than hydrogen gas. That has some great implications.

This slide the computer doesn't display very well, but if we turn to the next page at the top, we talk about the total energy cycle. The first time I made the pitch for aluminum was at a conference in San Antonio, Texas. When I mentioned we should use aluminum as a fuel, people thought I came from Mars and were just about ready to send me back, because it's a very novel idea. In fact, it's not a very novel idea. The likes of Alcan and Alcoa have ventured down this road before. They ran into some significant obstacles and abandoned their efforts. We never stopped, and so we strongly believe we've got some solutions to the problems they once faced.

The key in the total energy cycle is to position whatever fuel you care to use within the usage cycle. In the far left I have the various fuels: aluminum-air fuel cell, electric battery, gasoline and hydrogen. In the columns, moving over, in the first column is the ore production, the fuel production, crude oil production and the crude fuel production. Whatever fuel we use, we have to start somewhere with it, and each of the four different methods starts with fuel somewhere. The next column over, where it starts with aluminum smelting, in any fuel that we decide to use, we have to process that fuel, whether it's aluminum, whether it's electricity. Mother Nature provides the water and we have to harness that water at Niagara Falls. For gasoline, we have to refine the gasoline. For hydrogen, we have to generate this hydrogen. Whether it's by splitting water or whether it's by stripping it off of gasoline, we have to make the hydrogen. The next step is that we have to transport our fuel, whether that's electricity and distribution lines or it's gasoline and gas trucks. The next column: we have to fuel our devices. And lastly, we use our devices.

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So when we look at the way fuels are used, aluminum is no different than any other fuel, whether it's gasoline or hydrogen. The key difference, though, is that when we get to the last step in the aluminium-air fuel cell, there's an arrow that takes us back to aluminum smelting. That's because aluminum is unique. The by-product of our reaction is something called aluminum hydroxide, which happens to be about step number 4 in the 10-step process to make aluminum. We can take our by-product and put it back into the process and remake aluminum into fuel again. We can't put in energy for free; we have to put that energy in from somewhere. In Canada, we have a wonderful thing called hydroelectricity. Mother Nature provides us consistent electricity with no greenhouse effect, no environmental impact that's ongoing, virtually forever. Like they say in Quebec, as long as James Bay is flowing, they have very reliable and very inexpensive power. It's the perfect place to make aluminum fuel.

The other considerations for any fuel are infrastructure cost, environment and safety. To deliver aluminum, we already have the infrastructure. There's no additional expense required. Environmentally, aluminum is stable. The by-product is, in fact, used in lake remediation. So even the by-product of our system isn't environmentally dangerous, and it's inherently safe.

As we apply it to automobiles, we see that for the past 100 years, the automobile hasn't changed. It still uses an internal combustion engine with hazardous emissions. We've come to realize that, at some point, hydrocarbon fuels will run out—maybe not in our lifetime, but in somebody's, certainly. Hydrogen is only an incremental step to solving this problem. We start with an expensive hydrogen fuel cell—a dangerous fuel—with no infrastructure in place today to deliver this fuel, and then we ask that you refuel your vehicle frequently at fuel stations that don't yet exist. I don't know if solving this problem is the government's issue or the issue of the companies selling the fuel cell, but it certainly is somebody's.

Aluminum power will change the mould. We start with an aluminum-air fuel cell that inherently has no emissions. There is no tailpipe. We don't leave anything on the road or in the air. Aluminum is the third most abundant element on earth. We propose that, because of the energy density of aluminum on a mass and volume basis, you would only refuel an aluminum vehicle once every several thousand kilometres, which means that once every two or three months for a typical Canadian, you would take your vehicle in for a 15- or 20-minute aluminum change—not an oil change, because it wouldn't need oil, but an aluminum change. The aluminum fuel that would be recovered in that aluminum change would be sent for recycling. We'd have a zero reliance on fossil fuels, we'd have a zero reliance on imported energy and, ultimately, we'd have a national energy stock of 700 kilograms of aluminum per vehicle. That could be recycled continually, until Canada wouldn't have to rely on anybody for its energy.

It all comes down to cost. If it costs three times as much as gasoline, no one's interested. But it doesn't cost three times as much as gasoline; it's competitive with gasoline. If you look on the chart at the two circles, the one in the upper left shows that the aluminum-powered second-generation vehicle will achieve economies of about six cents US per kilometre to operate that vehicle. That translates to about 85 cents or 90 cents per litre of gasoline. In the third generation, once some form of aluminum recycling is in place, the costs come down to less than five cents US per kilometre. That makes our systems competitive with any vehicle in the US that gets less than 30 miles to the gallon, which is most vehicles. Certainly, in other parts of the world where fuel costs are higher, the aluminum system is more competitive.

To summarize aluminum technology strengths, aluminum has a very high energy capacity, higher than lead acid batteries; in fact, it's higher than hydrogen, on a volume basis. Aluminum, water and oxygen, the three components of our systems, are regularly available and inexpensive. The by-product is recyclable and reduces reliance on fossil fuel sources. We don't generate greenhouse gases. Aluminum can be renewed as a national energy stock. The system is environmentally responsible and ecologically friendly, it's cost-efficient and the distribution infrastructure is in place.

Finally, Aluminum-Power Inc is called to action. Aluminum is a viable fuel alternative and we feel the Ontario government should promote technology, research and development, particularly in the automotive industry, and should participate actively in the Canadian fuel cell alliance and broaden its scope to welcome all fuel choices. Our feeling is that the alliance was born in British Columbia, where the 800-pound gorilla that was fed on hydrogen is doing all the work and talking. We'd like to get a piece of that in Ontario, but it requires that we open our eyes and realize that hydrogen isn't the only fuel choice.

We'd very much like to see the government of Ontario establish criteria to assess the environmental impact of fuel cell applications and fuel cell types over the total energy cycle. Although hydrogen, when it goes through a fuel cell, spits out water, which is very clean, no one seems to be talking about how we're going to make this hydrogen. Are we going to be burning coal or are we going to be burning diesel to make hydrogen? So an environmental assessment that looks at the total energy cycle is what's needed. Certainly, we'd be happy if the government of Ontario would fund or co-fund research and sponsor demonstration projects. For young companies, that's tremendously important.

Finally, we think the Ontario government should consider carbon credit incentives, simply because aluminum power would do very favourably if you considered carbon credit incentives to promote the use of alternate fuels.

I thank you for your time.

The Vice-Chair: Mr Sharma, a very interesting presentation from both of you. We have a minute and a half for the NDP and then for the government. We'll start with the NDP.

Ms Churley: How long? A minute and a half? OK. Fascinating. I am wondering if there are any other jurisdictions that are already ahead of us in this, or are you at the forefront of this?

Mr Kaplan: Not really. We are pioneers in the use of aluminum. We're the ones who have made it into a usable product and we've patented it internationally. So it's here in Ontario and it's for us.

Ms Churley: When you said that others had started work on this and had dropped it, what kinds of problems were they running into that you've overcome?

Mr Kaplan: There are a lot of technical problems to getting the aluminum to produce an electric current. Recently, for example, we had a visit from the head of research of Alcan, who had been in charge of Alcan's multi-million dollar investment in trying to make this battery. He had been away from it for a few years. Alcan had given up. He came to our lab, was very impressed and is coming on with us as a consultant.

Ms Churley: How far along, then, are you in the process of testing this?

Mr Kaplan: We don't have products yet, but we do have three or four prototypes, which we could demonstrate. In fact, we ask the committee, if you'd like to hold this meeting at our lab, we can show you a cellphone battery that runs on aluminum. In about two weeks, we'll be able to show you a power generator that is the equivalent of a diesel or gasoline generator that produces an electric current from aluminum that runs the generator, which is the full equivalent, in production and performance, of a normal generator of the kind that's presently in big demand nowadays. We can show you some military application batteries that we've developed. We have quite a large number of potential users who have come to us and ordered samples to test with their own products, who have given us some incentives to produce particular products for them. That is the stage we're at right now in our work.

The Vice-Chair: In fact, we are running this committee a little differently in that individual members do go to individual sites. So even if we don't go as a committee, if there's anyone interested on this committee, we thank you for that invitation.

It's the government's turn.

Mr Hastings: Thank you, Mr Sharma and Mr Kaplan, for coming. My first question would be, do I detect that you're excluded from the Canadian fuel cell alliance? You're not involved in their—

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Mr Sharma: We're not involved at this stage, no.

Mr Hastings: Shouldn't you be?

Mr Sharma: We should—

Mr Hastings: Or is the information, the intelligence, too proprietary—

Mr Sharma: I'm sorry?

Mr Hastings: Is the information, your research, too proprietary to share with members of that organization?

Mr Sharma: No, I think it's an issue that most, if not all, of the research in the fuel cell alliance is hydrogen-based, so a collaborative research environment where we bring aluminum to the table isn't effective.

Mr Hastings: Isn't effective?

Mr Sharma: No.

Mr Hastings: My next question relates to carbon credits. How do you see them functioning? How do you see that structure? Would it be a faster write-off on the depreciation of your R&D or would it be a tax credit for putting these kinds of devices into, say, remote stationary area power situations in northern Ontario?

Mr Sharma: I was thinking broadly in terms of vehicles. Ontario has a Drive Clean program where your emissions are checked. If you're emitting, you get charged a certain amount for emitting, and if you're not emitting, you get a credit. That places an incentive on the driver to look for more fuel-efficient, more environmentally friendly vehicles. Ultimately, not having a tailpipe gives them a big credit. That's how it works.

Mr Hastings: Having visited Hydrogenics, they said they preferred to walk rather than run, like your friends with the 800-pound gorilla in BC. Do you need to walk before you run and have your devices working in stationary power situations?

Mr Sharma: I think the reason you don't run before you walk is because you can't run, not because it's a wise thing to walk first. We've walked and we're ready to run. I can't speak to why other people aren't ready to run.

The Vice-Chair: Mr Gilchrist, you have a quick question?

Mr Gilchrist: Just very quickly. You might want to elaborate. First, I guess I should say I certainly would like to take you up on your offer to visit and see the prototypes at the first break we get from these hearings. But I would ask you to give some thought to the total life cycle cost because while it's certainly fair to comment about, on the one hand, nuclear power and the down-

stream and upstream costs, we can't forget that there is considerable energy required to mine the bauxite and then transport it from the tropics up here and process it. I don't need those answers today, but I'm just suggesting to you that you might want to have that in your back pocket—the total lifecycle cost of producing and using aluminum.

What I would be more curious for an answer today is about the specific by-products. I'm assuming that in the oxidation the result is some kind of oxide that comes out. What would the steps be that the government might participate in to develop the infrastructure to do the re-refining to get you to your third generation?

Mr Kaplan: You honestly don't require an infrastructure for the recycling of it. It's a matter of collecting it, of course, but in a certain sense that could be optional. A customer who is willing to pay for a fresh aluminum battery and throw out what is produced by the process of producing the electric current can do that. If he does that, that garbage, if I can call it that, is totally benign; it's actually an ingredient in medicine and in underarm deodorants that doesn't have any negative or adverse effect at all on the environment or human life or anything like that.

Our plan would be that a user of one of the batteries could take this residue and bring it in to be recycled. It can be recycled to produce the aluminum plate again at a much lower cost in energy and in dollars than it cost to produce the first aluminum.

Mr Gilchrist: So you'd propose some kind of a deposit system, at a minimum?

Mr Kaplan: We do, yes. When aluminum vehicles are developed, as Vijay was saying, our customer would drive his car in much less frequently than you need to do for gas—in fact, once every two or three months—and the residue would be removed, a new anode of aluminum would be put in. We would recycle that and save money in producing the next generation of aluminum anodes.

The Vice-Chair: Thank you very much, both of you. I've noted to the clerk that some or all committee members would like to visit. We really thank you for that invitation and for your excellent presentation.

AL WATSON

The Vice-Chair: Our next presenter is Mr Al Watson. Welcome, Mr Watson. As an individual presenter, you have 10 minutes, including any time for questions.

Mr Al Watson: I don't think I'll need that long. I wanted to put a personal aspect on your report; industry has been well represented. I want to thank the Chair for this opportunity.

I currently live off the grid, using horse power, solar, wind, propane, kerosene, and have plans to build a digester. I ask that your final report to the government, and government policy, reflect all alternative energy sources. This last number of people have certainly provided that we haven't seen the end of the alternatives. Do not set targets and pick the flavour of the day. Your recommendations should reflect the individual, like myself, for programs, access to information, R&D programs. Do not leave this to big business only.

My needs are low-cost loans, tax exemptions and access to information. My major roadblock is batteries. I don't have a Web site, so I ask that the information on your Web site be mailed to me. If I can't have it, then I've been disenfranchised.

I've answered your questions on policy as only I can answer them, in the context of my own situation and knowledge. It's your responsibility to prorate this to a provincial level.

Every user of fuel energy opting for an alternative source is significant and the government should view that as such. Most off-grid users will build a multi-alternative source. The sun doesn't always shine, the wind doesn't always blow and water doesn't always flow. That was my main point.

Going through the report—I got it late Friday and I spent the weekend trying to go through it and write this up. I was busy until 2 o'clock this morning.

I live in the middle of a farm community in Hastings county and it totally surprised me that the farming community hasn't made a large effort to make presentations here. Every farm could be fuel energy self-sufficient, whether to manure and/or trash.

On a personal basis, I need help. Any farm or business needs tax incentives, more quickly accelerated write-offs. I don't believe in targets. I don't believe in any further government tests. These things are coming on fast and I think the marketplace will determine that they want alternative fuels, not the existing fossil fuels, given the opportunity. So tax incentives would be a major effort by the government to reflect that.

One of the questions was, who should look after this in the government? I think for ease of doing it, a special secretariat overseeing the different ministries would be the answer.

I'm not going to cover all the answers that I made there. That can be done by combining everybody's. I think big business has been well represented and the individuals should be reflected.

I hope you'll excuse me while I go through this.

The Vice-Chair: I want to put on the record that Mr Watson answered every single question and obviously went through the report very thoroughly. I just want to tell you, on behalf of the committee, that we really appreciate the time and effort. We wish every citizen were as involved as you are, sir. Thanks. Continue now.

1600

Mr Watson: OK, thank you. I think with deregulation I can only use my phone bill, it tripled with deregulation, and Hydro is going to go up. It doesn't matter what the weather is, it's going to go up. Some good friends wanted to put hydro into their property, four poles from the end of the existing line, and Hydro wanted $10,000. Ten thousand dollars would put a reasonably good solar energy system in any house. So as far as competing, I think the alternatives can compete.

Wind power: I hate seeing references to the utilities being given complete access to building wind power. I think these need public process and that should be a major item in the government's policy.

Switching to alternative energies should only be done on, say, a retrofit, if it's going to be done, not just say, "Oh, we're going to do this, that and the next thing."

The Vice-Chair: Mr Watson, while you're skimming through this, could you let us know which questions you're on as well?

Mr Watson: I'm sorry. I'm heading toward 52.

I think right now I don't want to debate aluminum or hydrogen fuel cells. They are there, they are working and they're in homes in the United States at a price of US$10,000. Once they're manufactured, whether it's hydrogen and/or aluminum, these prices will drop amazingly. I think targets aren't needed. We need exemptions on taxes, and these alternatives will become the common means of fuel and energy.

I really don't need to go through all the individual issues as well.

Page 34 of the report, the role of the Ontario Energy Board: I think there should still be responsibility handed to this board. I don't know the background of why that question would be asked.

Anyway, I'll be heading home and think of all the questions or statements I should have made, but I think that should pretty well do for what I have to say. I would like this committee to recommend to the government that the individual be reflected in whatever policies are made. Thank you.

The Vice-Chair: Thank you very much. We have two minutes per caucus.

Mr Gilchrist: Let me just say that you are, to the best of my knowledge, the only person out of 12 million in Ontario who has written back to us and come and made an oral presentation. You really are to be congratulated. I don't say that just to puff you up; just the opposite.

The government and members of all parties are committed to this committee achieving the most realistic but at the same time the most visionary possible movement when it comes to how we derive our energy and then how we use it. It seems to be something that touches everyone's life. So while time is now becoming limited as we move toward preparing our final report and incorporating your thoughts and those from others who have taken the time to write to us, please engage your friends and your neighbours and your relatives and anyone else you think of. They don't have to be as thorough as you have. Even if they only want to pick one topic, it's critically important that we hear back because this could very well set the stage for the next 10, 20, 30 years in terms of how energy is developed in this province. So I really want to thank you very much. I can't think of a single question, because you already answered them all, but I appreciate particularly your coming all the way down from Hastings county and I wish you a safe drive back. Thank you again.

The Vice-Chair: Thank you, Mr Gilchrist. Ms Churley, would you have a question?

Ms Churley: We all appreciate your thorough presentation. It's great. I look forward to matching some of your answers with the questions more thoroughly.

You mentioned the possibility—well, you didn't say possibility; for sure—of hydro prices going up when the deregulation comes. I certainly agree with that and am very concerned about it. In fact, our party is trying to stop it. What's interesting is the intersection between what we're doing here on this committee and that happening at the same time, and I haven't quite figured out, because that's intersecting, how each is going to impact on the other.

One of the questions I had, and I wanted to have this clarified perhaps by you and then the Chair: you mentioned that you don't have a Web site, and that's true of lots of people who may have an interest in this. I take it you had no trouble getting the information once you asked for it, and I'm wondering what the process is for people, if they can write in and if everything can be sent by mail, and if that's what's happening.

Clerk of the Committee: It's available at our government of Ontario bookstore, but if people call in to my office and they've expressed some difficulty, we will mail them out a copy.

Ms Churley: So they see it on TV—I presume that's how you found out, in the paper or on TV—and you can call the number or write in, and any submissions that you request can be sent by mail or they can pick it up at the library.

Clerk of the Committee: Yes.

The Vice-Chair: As well, Mr Watson, public libraries across the province will have copies.

Interjection.

Ms Churley: Is there a deadline? Yes, that's a good question.

Mr Watson: The trouble is, if you're not aware of it, you don't know.

The Vice-Chair: Yes. Good point, sir. As Mr Gilchrist said, let people know, and we will all let people know that—

Ms Churley: Is there a deadline for getting information?

Mr Gilchrist: The middle of March.

The Vice-Chair: The middle of March is our deadline.

Mr Watson: The Belleville paper—

Mr Gilchrist: Every newspaper in the province has it.

The Vice-Chair: Thank you very much, Mr Watson.

BRUCE LOURIE

The Vice-Chair: I'd like to call the next presenters, LourieLove Inc, Mr Lourie. You have 20 minutes, and that would include any time for questions.

Mr Bruce Lourie: I could actually begin while this is warming up.

My name is Bruce Lourie and I'm with a firm in Toronto called LourieLove Inc, but through that I'm involved in a number of organizations and initiatives, some of which I've listed at the top of my presentation. But just for your information, I'm a member of the electricity transition committee that Minister Wilson set up and I've been heavily involved in a group called the Canadian Energy Efficiency Alliance. I'm also working with a collection of industry organizations right now in Ontario and across the country looking at the certification of green electricity.

I want to thank the select committee for offering me this opportunity. I've got a fair bit prepared. I'm going to run through it reasonably quickly, but I hope you'll be able to see the notes and note any questions that you may have for the end. I hope to leave five or six minutes for questions.

1610

I'm attempting to represent the interests of for-profit and non-profit organizations that wish to see the government play a responsible role in the setting of policies that promote energy efficiency, renewable energy and emission reductions. We call these the three Es of wise energy policy. The views expressed here, though, are my own. I'm going to focus my comments on four areas that the committee identified in the last report: promoting the supply of renewable energy, the role of the Ontario Energy Board, energy conservation efficiency measures, and education and consumer awareness. I'll address each of those in that order.

Before I do, I just want to note that I do have some concern regarding the lack of serious attention that the Ontario government has paid to the development of policies that support energy efficiency and renewables in a competitive electricity market. I spoke before the standing committee on resources development in August 1998. I think, Marilyn, you were in the room at that time. I noted then the need to begin the development of policies in conjunction with the development of market rules. These aren't something that you develop after the market rules are created. I noted the declining investments in energy efficiency by Ontario's utilities. At that time, I predicted that electricity rates would increase with competition. I think I might have been the only person three years ago predicting that. I explained that consumers' bills could be reduced through investments in energy efficiency, and I made one recommendation to the committee, namely, that a fund be created to invest in cost-effective energy efficiency. This was a recommendation supported by many other industry, non-government and labour organizations.

Here we are, three and half years later, and the trends identified continue, but I think at even more alarming a rate. We have little support for energy efficiency. We have our major electric distribution utility, Hydro One, admitting that it has not interest to support any programs that do not contribute directly to its own bottom line. It is now generally accepted, I think, that electricity prices will increase. Our regulator, the OEB, is overburdened, placing energy efficiency on the back burner, and OPG last week dismantled the last remnants of its energy efficiency capacity internally. The Ontario government has not introduced any new measures to address the well-known failure of competitive markets to protect customer interests related to energy efficiency and increasing rates.

Despite this gloomy picture, there is an upside. There are simple, low-cost ways of improving the situation, and there are hundreds of committed companies, organizations and individuals ready and waiting to help Ontario become a strategic, knowledge-based leader in the adoption of efficient technology. We work with dozens of manufacturers, utilities, with consumer groups and small generators, all looking for a supportive policy environment in which to do their good work.

My first two recommendations to the committee are therefore these: first, to recognize that energy efficiency measures are the top priority for cost-effective reductions in emissions, reducing reliance on fossil fuels and creating jobs in Ontario. I think, conservatively, Ontario could be using 25% less energy, while saving customers money and making the economy more competitive. Energy efficiency investments, in my view, should therefore supersede any new supply investments.

Standard setting through the Energy Efficiency Act, the Ontario building code and the Ontario Energy Board are the most important activities for the Ontario government to pursue. The broad range of customer, small business, job creation and competitive environmental benefits that derive from investments in energy efficiency are too dispersed for any one entity to aggregate the value. This is one of the real challenges of energy efficiency that I don't think is well understood. It's for precisely this reason that governments are required to intervene and set standards that capture and distribute these benefits. These are low-cost measures to government, with millions of dollars in benefits to customers.

I think there are three principles that should guide the government in the consideration of a strategy for alternative energy. One, government should not be in the business of direct consumer education, customer communications or industry training. They should, however, provide financial support, leveraged with the private sector—when I say "the private sector," I mean non-profit organizations as well—to educate consumers, support training and recognize certification programs. This funding should be seen as an investment in competitiveness, customer bill savings, health care cost reductions and avoided environmental liabilities.

The second principle: government should not provide direct subsidies to companies. They should, however, develop policies and regulations that create frameworks for competitive activities to deliver energy efficiency and develop renewable energy sources.

Third, government should not interfere in competitive markets. They should, however, set standards that protect consumers and the environment. Voluntary approaches that request companies to make investments that do not contribute to their own bottom line do not work. Alterna-

tive service delivery within a regulated policy framework with clearly articulated performance objectives is the way the Ontario government ought to conduct business. It is with these ideas in mind that I will proceed with my specific points to address the committee's questions.

First, promoting the supply of renewable energy: low-impact renewable energy currently contributes less than 1% of Canada's electricity supply. I have also included in here an Environics poll. When asked, "What should the major priority of electricity suppliers be?," 51% of people in Ontario said, "More renewable energy resources," and 47% of people across Canada did. You will note that only 4% of people in Ontario suggested that increasing reliability should be the number one priority. I think what we hear from companies are those statistics turned the other way around.

To the question, "Should a provincial strategy on alternative energy and fuel sources be developed?," yes, certainly it should be. This strategy should be demand driven and based on the principles of market transformation whereby information, institutional capacity, market credibility and policy measures are adopted to overcome the barriers to market adoption.

The strategy consists of four pillars:

First, communication support to inform consumers of the consequences or benefits of their electricity choices.

Second, access to emissions and electricity supply tracking data for verification of clean energy claims. I'm recommending through here that third party certifiers of clean retail electricity be developed to support verification in the province. Ontario is in the enviable position of having a sophisticated tracking system to verify claims, and I think we should take advantage of this to provide that information to customers who want to be confident that when they're told they're buying green or clean energy, that's truly what it is.

Third, I think the province should consider financial support toward the establishment of an independent, multi-stakeholder body that can provide this third party certification. I have attached to this document the first attachment which on the top says, "Green Energy Ontario/Clean Energy Offerings," which is a document that was produced by this nascent multi-stakeholder group in the province.

Finally, a performance target of 50% clean electricity generation should be set for the province by 2010. If this target is not met, a regulated mechanism should be developed.

I know you've debated the terms "green" and "clean" and it's a little complicated. I make reference to "clean energy," which essentially is in the definition used by the clean energy group and excludes fossil fuel generation, with the exception of high-efficiency gas cogeneration. It excludes nuclear power but includes almost everything else. I meant to attach one more document on that.

The specific source of energy, though, may be less relevant than the nature of the development. I think first and foremost the province should be supporting distributed sources of energy. Our previous speaker from Hastings county making reference to farms is a perfect example of that. Those kinds of energy sources should be developed. Barriers to the expansion of small regional energy projects and commercial building-size systems need to be lifted and market rules that discourage creativity in the development, marketing, distribution and sale of electricity from these facilities need to be adjusted.

I'm going to skip down to the next question, "Should Ontario develop alternative fuel/energy procurement targets and requirements" for the provincial government, and should they also be applied to the "municipal, university, school and hospital sector?" I think Ontario should make a firm commitment with a target and I'm proposing a 50% provincial procurement target for clean energy and alternatively fuelled vehicles by 2010. This procurement policy should be promoted for the municipal, university, school and hospital sector, and a funding formula for government-funded bodies such as those should include incentives for meeting those targets.

The next area is the role of the Ontario Energy Board. Demand side management includes any measure that modifies the demand for energy. In its broadest definition it can include load displacement, fuel switching, load shifting, peak shaving, load reduction and strategic load growth. These are all definitions under demand-side management. I'm going to focus primarily on energy efficiency and energy conservation within that.

The concept of DSM was developed by utilities that owned the generation, transmission and distribution, like the old Ontario Hydro, and therefore they had a strong business incentive to manage the entire electricity system, with a goal of avoiding the costs of having to build new power plants. With the advent of competition and the break-up of the monopoly, this economic incentive no longer exists. It is for this reason that most competitive jurisdictions in the world mandate energy efficiency in restructured electricity markets. These are mandated through charges, set funding allocations or the establishment of a fund set-aside requirement on the sale of generation assets.

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I don't know if this committee has explored those kinds of mechanisms in the United States, Australia, the UK and Scandinavia, but you'll be hard-pressed to find a jurisdiction that isn't doing something like that with respect to energy efficiency, with the exception perhaps of Alberta.

"Should the OEB require electricity distributors to pursue demand-side management programs to deliver energy efficiency as it currently does in the gas distribution sector?" Yes, and this measure, if implemented correctly, may be the single, most important measure for the Ontario government to introduce to reduce emissions and reliance on fossil fuels. I should note too that I have been working very closely with the Ministry of Energy, Science and Technology and the Ontario Energy Board on this issue and I believe there is interest in developing this. I think what's needed is a recommendation from the

committee to have this activity pursued aggressively and at a greater pace than it currently is. There are four components to my recommendation:

That the Minister of Energy, Science and Technology require, through appropriate regulations and oversight by the Ontario Energy Board, that all electricity distribution companies invest either 0.4% of their total revenue on their own energy efficiency programs or 0.35% of total revenue on programs undertaken for them by other utilities or a designated third party multi-stakeholder organization. The reason we're suggesting this is because, unlike the gas sector with two utilities, we still have about 90 utilities in Ontario. Many of them won't have the capacity to deliver programs on their own. They should be given the option to have those programs delivered on their behalf, either by other utilities or a third party body.

Second, that the OEB regulations ensure that the funding for investments in energy efficiency be bundled into the distribution rates and be in excess of the rate of return on the regulated rate base and be administered in a separate account.

Third, that the OEB regulations regarding energy efficiency provide for a mechanism such as the lost revenue adjustment mechanism and also the shared savings mechanism. These are the two mechanisms that the OEB uses right now for the gas utilities that have resulted in the great success we've seen from companies like Enbridge in exceeding their energy efficiency targets and returning significant value to the shareholders of those companies.

Fourth, that the OEB convene a generic hearing on energy efficiency activities to develop an agreement on issues such as planning, reporting, measuring the effecttiveness of energy efficiency delivery, evaluation, lost revenue and clearing of deferral accounts.

These are all quite specific, detailed recommendations, but I noted in your comments that you were looking for specific detail. If there is anything that needs further clarification, I'd be happy to provide that at a later date.

If we do all this, an amount of no less than $40 million per year, which is 0.4% of revenues, would be allocated for electricity DSM programs. If we were doing this on par with many US states, we would be investing closer to $250 million, but I've put here a very conservative estimate, recognizing the climate in Ontario. Ontario already has a well-run DSM program in place for its gas utilities. A level playing field is required so that the electric distribution companies are doing the same as the gas distribution companies.

The next point: energy conservation and energy efficiency measures. In addition to the important role of the OEB I just described, the Ontario government must also play a leadership role in setting targets and standards for the adoption of energy efficiency measures.

You've asked, "Should the Ontario government establish energy savings targets for its own operations?" I say yes, the Ontario government should adopt a house-in-order retrofit program for existing and all new buildings, with a goal of an overall reduction in energy consumption from buildings of 20% by 2010.

There are two components supporting this recommendation. First, establishing facility audits for all existing buildings. Second, any new buildings receiving provincial funding or for provincial use should be designed to use 75% of the energy that's currently in the Ontario building code requirements. I can mention here that that's very doable. You could build a building today using 50% of the energy of the current building code requirements.

Ontario has a long history of being a leader in the development of codes and standards. I've noted here some of the history that you can look at. We've also noted here the 700 buildings the government occupies and the close to 10,000 vehicles. I know the government has commissioned reports on how they can improve the efficiency of those and I think they should move forward. There are opportunities for very significant cost savings within the government's own budget by retrofitting their buildings.

You've asked, "Should a renewed energy efficiency and conservation program be part of the electricity market opening in Ontario?" Yes, certainly this should be. I've identified several components.

First, I think the province should allocate $1 million per year for five years to support the establishment of an energy efficiency centre for training, education and technology demonstration, as described in detail by the Canadian Energy Efficiency Alliance. Funding from combined gas and electricity DSM activities should be allocated to this initiative. I think you'll find too, when you look at the activities in other jurisdictions, that one of the most common elements in competitive electricity markets is the establishment of a centre to undertake technical training, demonstration and education for people to assist and support energy efficiency.

Second, all housing receiving provincial funding should be energy efficient and certified to R-2000 building standards. This was with respect to public housing. The Ontario building code should be updated to make R-2000 building standards a requirement for all new homes built in Ontario. Again, an R-2000 home can be built very easily today. The cost saving over time is very significant. My company actually runs the R-2000 home program in Ontario. We register over half of the homes in the country right now. We train builders. It's a very successful program. Customers like it because they save money and they get a better-built home. There's no reason why every home in Ontario should not be built to that standard. It would save people money, it would save fuel and I think it would meet all of the objectives your committee has set out for itself.

The range of products regulated under the Energy Efficiency Act should be expanded and the minimum energy efficiency of these products should be raised. The Ontario Energy Efficiency Act is actually a tremendous piece of legislation. I think it's something the province should be proud of, and they've been continuing to increase the standards under that act. I think ministry

resources should be allocated to support these efforts to an even greater extent. It's perhaps one of the most cost-effective ways to save money and energy.

Finally under this category, I think the province should develop a comprehensive strategy for setting and meeting energy efficiency targets for specific sectors using a market transformation approach. I think there needs to be, as some other jurisdictions in the country have done, a comprehensive overall program that includes all of these things: well-thought-out funding allocations and policy requirements. If you're looking for a template, the Yukon government has an excellent one.

Finally, on education and consumer awareness, to what degree should the government be involved? I've noted here that the government should not be directly involved in the dissemination of public information but they should encourage and fund partnerships and participate in those partnerships with organizations that already focus on the communication of alternative energy and fuel sources and energy efficiency.

I think I'll just conclude there and thank you.

The Vice-Chair: Thank you very much. You've done a lot of work. We really appreciate it. Thank you for your presentation. We have time for a quick question from the NDP and the government.

Ms Churley: Thank you for this. You said there was another document that you had meant to provide to us.

Mr Lourie: Yes. The Green Energy group has prepared a definition of green energy which I could forward to you.

Ms Churley: Could you forward that to the clerk? I would be interested in seeing that.

Mr Lourie: Certainly.

Ms Churley: I had mentioned earlier the intersection between the work this committee is doing and the plan to deregulate energy by May. Is it May 1?

Mr Lourie: Yes.

Ms Churley: That's very little time. Some of us are fighting it, and hopefully we'll succeed at that, because we have real concerns about all kinds of elements of that, including high rates and these things not being included. You touched on that a bit. What would you recommend this committee do in the meantime, out of all these things you write about, to try to get these things included in the deregulation?

Mr Lourie: From my perspective, energy efficiency is where the greatest cost-effective opportunities rest.

Ms Churley: If I can interrupt, if rates are going to go up, that's something we should be looking at aggressively, because it will at least help people save money.

Mr Lourie: Right. Supporting wind power isn't going to help reduce rates but supporting energy efficiency will. It's really the only thing that will buffer customers against increasing rates. It's also probably one of the most cost-effective things for the government to do, through setting standards and having the utilities required under the Ontario Energy Board. So I would say the single most important thing would be to have the Ontario Energy Board instigate as quickly as possible the same kind of energy efficiency DSM programs as the gas utilities have. It's been a slow process and we're sort of looking at it in terms of a per cent revenue basis and that should be the ballpark in terms of half a per cent of—

The Vice-Chair: Thank you for that answer. Mr Hastings?

Mr Hastings: I'd like to ask you why you focus merely on energy conservation, demand management and all that. In your mind or your thinking, is there a decent infrastructure already of companies that can take on the renewables challenge and be nearly ready for job creation, export development? Because while I tend to agree with you on some of these proposals, I think we're missing the boat in terms of job creation. Our focus is so much on Ontario by adopting and bringing in efficiency standards. Are you advocating that we pretty well be the importers of all these new techniques in wind power, importers of consulting—be an importer of renewables instead of an exporter?

Mr Lourie: No. If you're looking at the goal of job creation and focusing on Ontario technologies, I would say energy efficiency is where we've historically had a real strength. In fact, the whole purpose would be to not import fuels but to use our domestic Ontario expertise to save energy and create jobs. If you look at successful energy conservation programs, far more jobs are created that way than through building new energy supply. The jobs are actually created in the communities, because we're talking about contractors going into homes and doing retrofits and we're talking about builders who get trained to use technologies. A lot of the technologies are manufactured here in Ontario.

Mr Hastings: Is there a sufficient critical mass of companies and organizations right now for export of some of this expertise in renewables?

Mr Lourie: I believe there is.

Mr Hastings: Renewables, not energy efficiency, although I'm not rejecting that out of hand.

Mr Lourie: I'm less familiar with Ontario's renewables capacity. It seems to me, at least on the wind side of things, that most of that technology is imported from other countries. Small hydro and biomass perhaps were stronger.

The Vice-Chair: Thank you very much for your presentation. I apologize to the committee for having run a half-hour late on the meeting, but we also had that young girl from St Catharines, and it was well worth listening to her as well.

Interjection.

The Vice-Chair: It's too bad Mr Bradley wasn't here. Unless there is any further business, I call this meeting to an end.

The committee adjourned at 1633.

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