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Mercredi 20 février 2002

**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

**SELECT COMMITTEE ON
ALTERNATIVE FUEL SOURCES**

Wednesday 20 February 2002

ASSEMBLÉE LÉGISLATIVE DE L'ONTARIO

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

Mercredi 20 février 2002

The committee met at 1005 in room 151.

CEMENT ASSOCIATION OF CANADA

The Chair (Mr Doug Galt): I call to order the select committee on alternative fuel sources. The first delegation to present this morning is the Cement Association of Canada, Wayne Dawson, vice-president, Ontario region. Mr Dawson, I'll have you introduce the other members of your delegation. Please state your names and positions. There's a total of 20 minutes. What you don't use in presentation will be divided between the caucuses.

Mr Wayne Dawson: I'd like to thank the committee for giving us the opportunity to give this presentation. My name is Wayne Dawson. I'm vice-president of the Cement Association of Canada for the Ontario region.

Mr Ed Orsini: My name is Ed Orsini, vice-president of marketing for St Lawrence Cement, Ontario.

Mr John Evans: My name is John Evans. I'm manager for raw materials and fuels for Lafarge.

Mr Dawson: Finding ways to minimize use of our fossil fuel resources is an extremely important topic, and the cement industry commends this effort. The cement industry association has 100% membership of the cement companies and is the sole voice of Canada's cement industry. We employ about 22,000 people and have \$4 billion of revenue, and Ontario represents about 40% of that total. We export half of our product from Ontario to the US. Of course cement is a basic building block, so the value of the commodity is actually far more than just the value of the production.

Ontario, despite its best efforts to reduce, reuse and recycle, is still a very large waste producer and needs to look at other opportunities to deal with the problem. As you will hear in the presentation, many other jurisdictions around the world are using the cement production process because of its very unique attributes to assist in solving one part of the problem: how to manage the vast number of remaining scrap tires.

In recycling tires through a cement kiln, the following is achieved: tires have about 14,000 BTUs of energy per pound, which is a very high energy value, and that energy is recovered from the rubber, eliminating the need for us to use fossil fuels. And 100% of the remaining waste is also recovered. The steel is recovered as an iron supplement necessary to make cement, while the ash is

recovered and actually becomes part of the cement chemistry.

Cement is formed by heating crushed limestone, clay, iron ore and sand to a white-hot mixture at 1480°C to form clinker, which is then ground into cement. We go to temperatures about a third as high as on the sun, so it's a very, very hot temperature. It's much hotter than any other process that exists. That high temperature also means we use a lot of energy to get there. That's why scrap tires are a good source of energy that can be used and can eliminate a great amount of use of dwindling fossil fuel resources.

I'd like to talk about one big misconception: that if you use tires in a cement kiln, you increase the impact of producing cement on the environment, and that's not true. There is an impact on the environment in producing cement, but using tires does not change that impact. Tires have a high heat value with a low moisture and sulphur content. In fact, research has shown that in some plants NO_x emission can be reduced 10% to 50% by burning tires instead of other fossil fuels. Sulphur emissions are also low, because sulphur is low in tires, and at the burning point there's a lot of limestone, which actually tends to scrub out any remaining sulphur.

Recycling energy from scrap tires is not new. It's been used in Europe and in many North American jurisdictions such as Quebec and several US states. I believe Ontario is now the only province that doesn't have a formalized management program for tires; Newfoundland is just starting a program. Almost all the programs use cement kilns as part of their overall strategy when there's a cement kiln in the area.

We do understand, though, that there have been events in Ontario in the past, such as large tire fires and municipal incinerating controversies, that have maybe sensitized the public, and the cement process may be susceptible to being wrongly painted with the same brush. There are really too few examples right now where we can have win-win situations, where industry can win, the environment can win and the public and public leaders can win. It would be a shame if this opportunity were lost due to this type of misconception.

1010

In the handout, we highlighted the Quebec model, which we feel is working very well. St Lawrence and Lafarge handle about four million tires a year in Quebec. The tire program is funded by a \$3-per-tire levy on the

purchase of new tires, and Recyc-Québec uses the money to collect the tires and distribute them to wherever: to the recycling plant or to our plant. Also, it gives a fee to the designated facilities.

Just for your information, this is not a freebie for us; it's a significant capital cost to change a plant to accept alternative fuels. The monies that Quebec provides help make the economies of the conversion work. We need a management program to ensure a long-term supply of tires, because if you convert and pay the capital to convert the plant to do this, you need to ensure you have a supply to make the economies work out over the long term.

Some positives from the Quebec model: retailer registration in the tire program has gone from 2,000 to 8,500 retailers who are now involved. Twenty million tires have been treated, transformed or recovered through valorization since 1993. Fifteen new recycling companies and 300 new jobs have been created. Seventy per cent of the tires are used in the recycle market. So recycling is the first priority, and what they can't use through recycling, that's when the cement kilns come into use. Quebec signed an agreement with two of our spare plants to clean up a stockpile of old tires. Quebec has about 30 million tires.

The situation in Ontario is that it's legal under part V of the Environmental Protection Act to use cement kilns to recover energy from tires. In fact, one of our members, Essroc, at the Picton plant, received this approval in 1997. It received the two certificates. It did a community outreach program as part of that to get community support, and it also received a certificate to store 50,000 tires on-site and has the endorsement of the local fire department. But it's not burning tires, and the reason for that is that approvals are time-consuming, but public perceptions on burning wastes in general are also an issue with our industry. We want to get along with our local communities. We look to this committee, if this was of interest to the committee, to support the benefits of alternative fuels and to recommend some public education.

The capital cost of upgrading the plants to accept this form of fuel, as I say, can vary significantly from plant to plant, and it is significant. A formalized scrap tire management program is absolutely essential to guarantee a long-term supply of tires. That's a major issue with the Essroc plant in Picton.

Ontario generates 11 million scrap tires a year, which is a huge problem. Until recently, large numbers were exported to jurisdictions such as Michigan and New York. Of course, the borders are closing a bit for some of this. Further use of fossil fuels to transport these tires such long distances with the resulting emissions that take place when you have a very acceptable and readily usable technology locally to deal with the tire issues just seems illogical to the cement industry.

There's a bill that is, I think, at third reading now—Bill 90, the Waste Diversion Act—and there has been a scrap tire stakeholders committee that's had input to that bill. We support the stewardship model of this bill and would like to play a role in the program.

There's one section of the bill that is a bit of a concern to us, and it's section 24(2):

"A waste diversion program developed under this act for a designated waste shall not promote any of the following:

"1. The burning of the designated waste."

As the stakeholder committee is promoting that the first priority be that we recycle, we assume that they're not promoting. But the wording is of concern to us in that it's not misinterpreted by others who wouldn't want this to happen. So the wording is of some concern.

We were willing, when the Waste Diversion Organization formed Bill 90, to work with them and to develop a tire management program. We would encourage the government, particularly the Minister of the Environment, to support tire-derived fuel use, to the extent that there is no demand for recycling, as a critical component of any future management program. A comprehensive program will then provide a reliable tire supply for fuel purposes.

To summarize, scrap tires provide a safe and effective alternative energy source to fossil fuels in cement plants and they do not increase emissions in the regular production of cement. Benefits regarding emissions reductions and less reliance on landfills have been proven in other jurisdictions. Deriving energy from scrap tires instead of fossil fuels actually can reduce NO_x emissions without increasing other greenhouse gas emissions.

The association encourages this committee to reinforce the benefits and use of tire recovery in its future report. We also encourage the committee to make recommendations regarding public education initiatives aimed at understanding the benefits of alternative fuel use and to deal with the misconceptions.

Tire incineration is legal in Ontario under the Environmental Protection Act. The scrap tire program in Quebec demonstrates that we can work with processors and the cement industry to make it work, but part of that is requiring a comprehensive management program for tires.

In current legislation and regulation there is some concern with some of the wording in Bill 90, that it might be misinterpreted down the road, and the regulation process to get approvals is a disincentive.

Thank you very much for the opportunity. We've handed out a more detailed summary report. We'd be happy to answer any questions.

The Chair: Thank you very much for a comprehensive presentation and handout. We have about five minutes per caucus for questions and/or possible comment, beginning with the official opposition.

Mr Ernie Parsons (Prince Edward-Hastings): The issue of tires is I think of grave concern to the public. I have been told—and I'm not in a chemical-related field—that if the tires are not burned but simply lie in a field or are buried, they emit greenhouse gases and they emit pollutants into the ground. So although there may be a perception, which is incorrect, that burning them would do it, in reality not burning them but leaving them in the

field causes emissions or, even worse, society is at a risk of these massive amounts of tires catching fire in an uncontrolled manner.

You burn them at about 3,000 degrees Fahrenheit?

Mr Dawson: Yes. The flame is about 3,000 degrees Fahrenheit. The material has to get up to about—I'll maybe let John answer.

Mr Evans: As we mentioned, we typically burn at temperatures of one third the temperature of the sun. Our flame temperatures are roughly 3,500 degrees Fahrenheit. For the chemical reaction to take place—that means for all the raw materials to transfer into that cement clinker—that meal has to reach temperatures upwards of 2,650 degrees Fahrenheit. So that's the minimum temperature we need to make cement.

Mr Dawson: That's about 1,000 degrees hotter than, say, an incinerator or other types of burning processes, and that's why the results are very different and the resulting emissions are different.

Mr Parsons: Obviously you can't undertake it unless you have a guaranteed regular supply. You can't burn tires one day and not the next day.

Mr Evans: We require capital, and tires are a different kind of fuel than we typically handle. We're set up to process and use coal or coke as our primary fuel source. The coal comes in and it comes in fairly small and then we crush it even further so we get good volatilization. You can't just crush the tires to that size, not economically at least. We have to put in a different kind of fuel handling system, so we require capital to fit our kilns to be able to manage the tires. So a good long-term source of tires that we can spread the capital over to pay it off is important for us.

Mr Parsons: You would need a province-wide program to collect and transport tires?

Mr Evans: Yes, sir.

1020

Mr Parsons: You alluded to it, but what specifically needs to happen to remove the barriers to tire burning now? What can the province do in terms of public education? What are the barriers right now to you firing it up tomorrow?

Mr Dawson: I think if Bill 90 goes through and that tire program gets up and running, we will work with that and that's the thing, except we have some concern with the wording. We've talked to the Ministry of the Environment and certainly the intent is not to prevent this, but we have some concern that the wording could be misinterpreted even though that's not the intent. Sometimes someone else comes new on the scene, or someone who disagrees with it and may be able to use that wording, so that's a main concern. The other issue is the degree of difficulty in getting approvals or whatever. Part of that is the public. We don't want to do this and have a local public—

Mr Parsons: Right.

Mr Dawson: Mr Parsons, you have a plant in your riding. Working and getting that approval in that

particular plant that is in your riding, we need to have good relations with the surrounding public.

Mr Parsons: There's a mental image of black smoke pouring out of the kiln.

Mr Dawson: Yes. It may be incorrect, but it's important that we have a good relationship with the community.

Mr Parsons: You've talked about tires. What about sludge? Can you burn sludge?

Mr Evans: What kind of sludge?

Mr Parsons: Out of a sewage treatment plant. That is also an increasing problem across the province.

Mr Evans: I'd have to look at the chemistry and I'd have to look at the BTU value of the sludge, but that might be a possibility.

Some of the other by-products—cement plants are a great place to recycle energetic by-products or inorganic by-products that have some mineral value. Just quickly, we use calcium, we use silica—sand—we use iron and aluminium to make our cement product. So we can recycle a myriad of products. The sludge that you're referring to probably is a calcium-based lime sludge.

Mr Parsons: Probably, yes.

Mr Evans: If it's a calcium-based lime sludge, that's something that we can certainly take a look at. We're looking at something generated out of the Sarnia area right now that's a lime sludge, and we're looking to see how we can incorporate that into our process. It's a waste water treatment derivative. All the things that we can recycle in a cement kiln setting benefit us both.

Mr John O'Toole (Durham): Good to see you again, Wayne, and thank you for the work you continue to do in trying to be good industrial leaders in terms of looking at options. I think Mr Parsons and I, and Mr Hastings as well, have attended the educational receptions that you've hosted here around this industry, of which there is one in my riding and in Mr Parsons's riding.

I think Mr Parsons has alluded to it. How do we somehow get past the bump in the road in terms of the word "incineration"? My problem is that conceptually it's already happening. It happens when you're burning fossil fuels. It seems to be a culture of acceptance. Not that it's good or bad; I guess we need to weigh the value of quality of life and concrete and how that all fits. But in fact you are only substituting a fuel source, and that's really the quantum leap that has to be made here from what we're traditionally doing and what you might be proposing to do.

It's my understanding that we no longer have the \$5 tire tax in Ontario.

Mr Dawson: That's correct.

Mr O'Toole: I see Quebec has a \$3 tax. Does that go to the industry to help you retool or to deal with the transportation logistics? Is there a subsidy from the Quebec government in the current model?

Mr Dawson: Yes. It's Recycle Quebec, and they use that money to pick up the tires from the retailers that have signed on, because the retailers can get rid of the tires. I was involved with another company before I got

this job that had a lot of land holdings and we had a major problem with illegal dumping of tires. This way, the retailers can get their tires picked up. They pay for picking up the tires, transporting them to the recycling or cement plant. They also pay a little bit to the cement plants for handling and dealing with the tires, which helps cover the capital. So yes, John, a small portion of that does.

Mr O'Toole: I guess really having a stable regulatory climate in terms of making the capital investment necessary to change the processes, then having a potential change in government—now, that would be 10 or 15 years from now.

Interjection.

Mr O'Toole: Unfortunately, Ms Churley—I don't know whether she's boycotting the meetings; there was some stuff in the media about travel and the work of this committee. They have a very adamant position on incineration, as did Ms Grier, the former Minister of the Environment, an all-or-nothing kind of policy.

Do you have any suggestions how the industry itself could do more, not just the government? Your appearing here is one step in trying to educate on the choices we have to make. Is there anything more that you think the industry could do to raise this option as a viable economic sustainability argument?

Mr Dawson: Just to comment on a couple of things: one is that we understand that in the production of cement we need to have the minimum amount of emissions we possibly can. In Ontario, for example, the association has an environment committee from all the plants that meets every month, basically, in our office to coordinate what actions are going to be taken. As you know, you have to do that because one plant doesn't want to do something the other plant doesn't do, because it's a competitive environment. We're doing that to help that along.

We're also trying to market our product so that the end use of the product, the concrete, is used in areas such as R-2000 homes versus the low—so the product itself, cement, is an enabling type of material, and we're trying to give that message to the public as well. There is some issue with the production, some emissions with the production of it, but they can be used in the end product and actually be very much of assistance to the whole greenhouse gas issue that we're facing. So we see ourselves as being part of the solution.

I don't know what else we can do, but we're certainly trying to get the message in the papers about how we're using our product etc. We think this committee could be helpful as well in a recommendation that recognizes that we are not an incinerator, we are a recycler of a product, and that it's a replacement fuel, not a new fuel. It doesn't add to the production of cement; it actually can help us lower emissions, especially NO_x emissions.

Mr O'Toole: Do you have scientific-based reports from Quebec or other jurisdictions that use tires to relate to the NO_x and other types of emission reductions? Those would be very important numbers to fundamentally

underpin why. Those who are opposed to any form of incineration would want us to demonstrate why in policy we are looking at greenhouse gases and other emissions, but we need to have scientific data. Do you have that kind of stuff from other jurisdictions?

Mr Dawson: Yes, we could provide you with that backup data.

Mr Evans: It will show that tires burn cleaner than many types of fossil fuels.

Just going back to your first question, I think we as an industry can do a lot to help propel the recycling of tires in today's society. We work with tire recyclers to let them know what options we have available. We work with the manufacturers—Goodyear, Firestone and others—to come to agreements to help funnel tires our way so that they're properly managed.

At the recycler level—the tire changers where those tires are picked up—when we have these programs in place, they also let the people who are coming in for new tires know what's going on with the old tires, that they are indeed being recycled and not incinerated.

Incineration has this sort of finality to it that, “Jeez, this is the last option.” In the hierarchy of waste management, incineration and landfill are the bottom rungs. What we're doing here is energy recycling. We're not going to incinerate coal; we're going to burn coal for its energy value. We're not going to incinerate tires; we're going to burn tires for their energy value plus the mineral value they bring to our process.

The Chair: Thank you very much. We're over our time. We appreciate the presentation.

CANADIAN AUTO WORKERS WINDSOR REGIONAL ENVIRONMENT COUNCIL

The Chair: We are now moving on to a video conference with Windsor. Is that all set to go? Are you hearing us?

Mr Mark Bartlett: Yes. Hello.

Mr Tom Gelinas: Can you hear us?

The Chair: Good morning. Yes, we can.

Our next presentation is by Ken Bondy. I see there are two people there. Maybe in a moment you can introduce both. They're with the Canadian Auto Workers Windsor Regional Environment Council.

For the sake of Hansard, as you begin, state your name, position and the other member of your delegation. You have a total of 20 minutes. Following your presentation, whatever time is left over will be divided between the two caucuses.

1030

Mr Bartlett: Good morning. I'd like to say hello from Windsor. I'm Mark Bartlett, from the Windsor Regional Environment Council. I'm the recording secretary and I'm here in Ken Bondy's place. The other member of our delegation is Tom Gelinas, who is also a member of the Windsor Regional Environment Council.

I think it's significant that we're here from Windsor. Everyone there has seen the recent reports of the increased health risks of living in Windsor. I think that the work the subcommittee is doing will have a direct impact on the health of people in Canada.

Mr Gelinis: With that, we're going to go into a slide show that we've prepared, Alternative Fuels and Just Transition: A Bridge to the Future.

Mr Bartlett: Who we are: the Canadian Auto Workers Windsor Regional Environment Council represents more than 40,000 active workers from 14 locals in Windsor and Essex county. Our motto is "Labour working towards sustainability." Through education, political action and community involvement, we strive to protect, enhance and restore the quality of our environment while enhancing the job security of our members. This is from the CAW statement of principles: "Workers must have the right to choose both economic security and a healthy environment for ourselves ... and future generations."

Just a brief outline: we're going to talk briefly about alternative fuel technologies, sustainable development, green jobs and Just Transition and end with some conclusions.

I think we may all be familiar with, and you've probably heard a lot about, these different technologies: natural gas vehicles; electric vehicles; full-size; something you may not have heard of is a neighbourhood electric vehicle, which is a limited-use vehicle that's used perhaps in retirement communities or gated communities—they are illegal on certain roads, but they comprise a very small part of the automotive fleet; alcohol vehicles; and flex-fuel vehicles that can use up to 80% ethanol.

Mr Gelinis: The infrastructure: a barrier to alternative fuel vehicles. Some of the problems we face are that we need to have vehicles that utilize our current infrastructure or we need to build a new infrastructure. In current corporate average fuel economy, weak rules allow manufacturers to produce low-fuel-efficiency vehicles, such as SUVs, and offset this by producing a limited number of ultra-low-emission vehicles.

Mr Bartlett: Some of the solutions we see to these barriers, of course, are alternative fuel vehicles, incentives for industries and consumers, regulation to require increased fuel economy to drive innovation toward these, long-term vision to provide a market for alternative fuels—of course, that's new vehicles—infrastructure investment and R&D partnerships with government and industry.

Mr Gelinis: Medium-term hybrid electric vehicles: corporations are prioritizing the hybrid electric vehicle technology on vehicles that customers will accept. There are fuel savings that do not pay back hardware without tax incentives, that is, incentives for advanced technology that would promote initial customer acceptance.

Mr Bartlett: This just gives you a graphic illustration of where we are. The internal combustion engine—there are a number of new developments you probably can't read there, but we'll talk about them. Of course, eventu-

ally—if you look at the timeline along the bottom—by 2020 fuel cells should be pretty pervasive in the industry. The current engines will make a lot of progress to further reduce emissions and improve fuel economy before the fuel cell technology reaches a significant market.

Mr Gelinis: A long-term solution is fuel cell vehicles. While the fuel cell vehicle market entry is anticipated in 2004, volume production is roughly 10 years away. Due to cost complexity and fuel infrastructure, this could happen quicker, with assistance from government. Internal combustion engines are at least 10 years away. A 10-year stopgap solution may coexist with the fuel cell vehicles, long-term.

Mr Bartlett: What's important in this graph is the bottom yellow section that talks about fuels. As you can see, this is from the Canadian Vehicle Manufacturers' Association. They're looking to see that cleaner gas and diesel will be a short-term, near-term solution. Alcohol fuels will increase around 2010, with up to 80% ethanol, and hydrogen fuel cells will be prevalent in the power trains and hydrogen will be the prevalent fuel by 2020.

Of course, they said we wouldn't be building any fuel cell vehicles until probably 2020. The technology has advanced dramatically in the last five years and it's likely this timeline will be shortened.

Mr Gelinis: In summary, hydrogen-powered fuel cells demonstrate ultimate long-term, high-fuel economy and low emissions power plant technology. Conventionally fuelled hybrid electric power trains could provide a solid interim step to eventual all-hydrogen systems. Alcohol fuels may provide the best mid-term transition to hydrogen fuel. Gasoline and diesel fuels will be available in the near term, but environmental and societal pressures will cause a shift to alternative fuels. Conventional internal combustion engine technologies must provide the next short-term steps to improve fuel economy and reduce emissions.

Mr Bartlett: How do we get there from here? I'm sure many of you are familiar with sustainable development, but I think it's important that we frame it in our perspective. Sustainable development is commonly defined as development which meets the needs of the present without compromising the ability of future generations to meet their own needs. While sustainability originally referred to the environment, it clearly has to be a broader concept if it is to be effective as an idea to drive industrial change. Sustainability should be comprised of three pillars: economic growth and prosperity, ecological balance through environmental protection and social progress toward equity.

Mr Gelinis: Sustainable economy versus unsustainable economy: a sustainable economy is one that provides sustainable, that is, continuous employment. For workers, a sustainable economy means sustainable production, quality in jobs, standard of living and durable products. An unsustainable economy is one where we will ultimately have no jobs and no future for our children. Without transition to sustainability, gainful employment will collapse. Workers will be party to, that is,

most effected by, moves to a sustainable economy. Polluting jobs will disappear and new green jobs will appear. However, the new jobs are often in a different place, requiring different skills, with no provision for economic conversion. We must support the transition to quality jobs.

Mr Bartlett: Green jobs and a sustainable economy: green job creation is the essence of labour's environmental policy. We have to have a strategy to secure high-paying, quality jobs for our members. A sustainable economy makes lower demands on natural resources, is energy-efficient and uses energy from renewable sources which does not generate damaging pollution and waste. A sustainable economy is labour-intensive, producing long-lasting, durable jobs.

Mr Gelinas: Future green automotive jobs: jobs in the automotive and transportation industries; building alternative fuel power plants, such as electric and fuel cell engines; building alternative fuel vehicles; and extended producer responsibility.

Mr Bartlett: I'll just expand briefly on extended producer responsibility. You may be familiar with the concept. The idea is that the producer of any particular item, particularly in this case vehicles, is responsible for the vehicle for its entire life. Rather than a cradle-to-grave situation, it's a cradle-to-cradle situation where they reuse the constituents of the vehicle. This is currently legislated in the European Union. By 2015, all the automotive companies in Europe will have to take their cars back, disassemble them and recycle the constituent parts.

The job-creating potential of a sustainable economy is large. A Canadian estimate of the employment impact of effective measures to combat climate change indicates that two million new jobs would be created over 15 years. A good example is that to generate 1,000 gigawatt hours of electricity per year, it takes 100 workers in a nuclear plant, 116 in a coal-fired plant, 248 in a solar-thermal facility and 542 on a wind farm.

Mr Gelinas: How do we get to a green economy? A green industrial strategy; a green screening of industrial projects; pollution prevention; energy efficiency and waste reduction; environmental regulation which creates jobs; environmental protection and public service. Regulation also forces innovation, which gives industrial plants a longer life.

Mr Bartlett: Further, ecological tax reform with high taxes; the abolition of subsidies on unsustainable practices; positive financial incentives to encourage green industries; creation of environmental funds to finance job-creating measures over climate change and global warming; and alliances with youth, environmental movements, labour, industry and government to make green job creation a part of the social agenda for the next generation. Just Transition is an integral part of the move toward such jobs.

Mr Gelinas: What is Just Transition? It's the labour movement's vision of a healthy Canadian environment. Just Transition is about planning for change. Environ-

mental change is occurring. People work in jobs that will become obsolete. Unsustainable production, environmental degradation and resource exhaustion will cause entire polluting and unsustainable industries to disappear.

Sustainability will require change in the entire society: governments, communities, employers and workers. This is a responsibility to put in place programs and policies to treat workers with fairness and economic justice, that is, Just Transition is essential to the process of environmental change.

1040

Mr Bartlett: The objectives of the Just Transition program: to look after needs of communities and workers affected by the move to a sustainable economy, maintain their quality of life and allocate the costs in a fair and equitable manner. Workers have a right to expect that they will not bear the entire burden of the adjustment. Just Transition reflects the political obligation to ensure that society as a whole pays the price for changes from which everyone benefits. Just Transition should be an earned right like a pension or unemployment insurance.

Mr Gelinas: To continue, the main aim of Just Transition is to provide alternative work for displaced workers in sustainable industries. Society must share the burdens of the transition with the workers and the communities which are most directly affected by the changes. All in society benefit from fair and equitable Just Transition programs in terms of reduced health care and social costs and even the survival of communities. Corporations have a responsibility to their workforce and the communities in which they operate. They must be held accountable to assist in the transition for displaced workers.

Mr Bartlett: Why act now? We're facing the most dramatic change to our transportation and energy industries since the invention of the internal combustion engine. Just Transition should be active rather than reactive, anticipating and dealing with crises before they happen. Through active transition policies, with enough lead time to be properly put in place, workers will be able to transfer from unsustainable to sustainable jobs without dislocation or chaos. There must be enough time—in some cases a decade or more—allotted to develop and implement a Just Transition policy. Building autos with low-emission engines, phasing out of chemicals and changing resource extraction practices have already cost jobs.

Mr Gelinas: Who needs to be involved? Just Transition programs must apply to public and service sector work, as well as resource and manufacturing industries affected by changes in environmental standards; that is, unions must be involved in designing and implementing transition programs. Why? Unions can help design strategies to meet the needs of diverse sectors and regions to continue to have a role after the transitions have been made and the programs delivered. Communities must be included in Just Transition programs, especially if they involve economic diversification projects. Often a downturn in a one-industry town affects not only workers and their families but the entire community, including public sector workers.

Mr Bartlett: Elements of the transition program to meet the needs of displaced workers are: support for communities for increased employment in new, diverse industries; support for re-employment; protection of income from one to four years; re-education and retraining; for older workers, an option of bridging to their pension at a full retirement rate; research and development; public and private investment; and, where needed in communities dependent on one industry, economic diversification projects, including value-added local production, worker-based enterprises such as co-ops, and new community-based enterprises.

Mr Gelinis: Just Transition education programs: it is essential that the education and retraining of displaced workers be in the public domain. Programs should be delivered in community colleges in the public education system through adult education programs, by union members and by not-for-profit, community-based organizations wherever possible. The public education system should be a partner with labour and industry to tailor education and training that best fit their workers' needs.

We should develop a national program to identify a wide range of occupational qualifications and provide vocational guidance and assistance to workers seeking to move from one occupation to another.

Funding responsibilities: funding for Just Transition programs should come from a variety of sources, depending on the situation. Governments should create funds for Just Transition programs and impose a levy on unsustainable industrial activities dedicated to a transition fund, not general revenue. Communities, through their municipal governments, could establish local Just Transition funds to support change in their community. Workers themselves could contribute to the funds.

And, most importantly ...

Mr Bartlett: Corporate responsibility: business has a responsibility toward the communities in which it invests. Why? They're allowed to use communal resources and infrastructure to make profits. They do pay wages and taxes, but they should have other responsibilities: to move to sustainable production methods to protect the environment; to co-operate with workers, communities and government in the movement to sustainable production; to ensure that Just Transition programs are properly implemented. Businesses should not be allowed to move elsewhere without aiding communities in their transition to new, sustainable economic activities.

Mr Gelinis: Consider what happens without Just Transition. In the American Pacific northwest, 28,000 workers lost their jobs as a result of measures to protect the spotted owl, where there was no program to pick up the pieces. As a result of the collapse of the northern cod industry, close to 20,000 workers lost their jobs. In that case, the compensation scheme was the TAGS program, but there was no plan for a long-term transition program to protect those workers affected by measures to reduce and sustain the cod fishery.

Employment in the auto industry: employment figures in the thousands. I'm just going to have you take note of

the last one, manufacturing, which defines the majority of manufacturing jobs as automotive—that is, Canada-wide it's 2,274,000 and in Ontario it's 1,870,600. Again, the majority of manufacturing is automotive.

Mr Bartlett: It's important to note that this also depends heavily on energy supplies. That will affect the infrastructure as well. The Canadian Vehicle Manufacturers' Association cites that one in seven Canadians is directly or indirectly employed in the automotive industry. Automotive is Canada's largest manufacturing sector. The Canadian auto industry accounts for over 5% of world production. Total trade surplus in finished vehicles is over \$30 billion. The United Nations estimates that 75% of the world's GNP is linked to the automobile and petroleum industries.

The essence of public policy is timing. The first consideration in creating comprehensive policy to avoid these disasters is foresight. We have to anticipate economic change and plan transition, including the retraining programs needed as an integral part of industrial change. There is clearly time, but we need to start now to structure a Just Transition program, of which the key factor is placing displaced workers in new alternative industries.

Mr Gelinis: There are some examples here—I'm not going to get into them all—with the salmon fisheries and some of the results.

Mr Bartlett: I think this is an important one that we can talk about: the tetraethyl lead situation. When tetraethyl lead was removed from fuel to benefit the community and the environment, there was basically a ban. Over 2,000 Canadian workers lost their jobs. A decade after the ban, 36% of the production workforce was still unemployed, 8% held part-time jobs, 23% had lower-paying jobs and 25% held jobs of equal or higher salaries. All the workers, of course, lost their seniority and they lost their future pensions.

This model, I guess you'd call it, is repeated in a number of industries when changes are made. With an increasing number of changes to benefit our environment and the public good, we'll see that this will happen more often.

Economic adjustment success stories ...

Mr Gelinis: One of the few success stories in Just Transition concerns the US Redwood National Park's expansion in the late 1970s, a rare convergence of labour, environmental and political interests. A plan was worked out to protect the livelihood of timber workers who would lose their jobs as a result of the park expansion, which was 48,000 acres. All timber workers laid off between 1977 and 1980 were guaranteed their wages, benefits and pensions, the last of these paid by the government, for at least four years. They also received training and relocation benefits, again paid for by the government. By 1981, \$41 million had been spent on these measures, which were claimed by over 2,500 workers—\$4,100 per year per worker.

Shortfalls: in the absence of public planning, there was some compensation and then there was transition to

alternative work. In the absence of the longer-term commitment of all concerned, many workers did not find work.

Mr Bartlett: Another success story I'll just briefly touch on is that I'm sure some of you are familiar with when you go to a hotel room and you can leave your towel hanging, rather than having it washed. That's done for an environmental purpose, to save water—

The Chair: If I could interrupt just for a second, you have about one minute left in your presentation.

Mr Bartlett: OK. I guess what we'll do is just go down here and talk about government action. What we would like to see is a Ministry of Just Transition created with adequate funding and regulations that would require corporate social responsibility through Just Transition. We'd like to offer corporations incentives to convert to clean technology and engage in dialogue and analysis of employment adjustment impacts in conjunction with unions, communities and the industry through a Just Transition implementation committee. We'd create a Just Transition funding agency supported by diversified funding, including levies on polluting activities.

Mr Gelinis: The concept is similar to the use of tobacco and alcohol taxes to fund health care. Just Transition planning; providing income guarantees to eligible workers. Again I'm not really going to get too much into that.

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Mr Bartlett: You can just go to the conclusions. Basically, what I'd like to say is that the move toward sustainable production methods must be a high priority for communities. The transition to sustainability will mean a restructuring of the economy. There will be a cost to all in this change, and Just Transition will ensure that the cost of environmental change will be shared fairly.

Mr Gelinis: Further conclusions: a failure to create a Just Transition means that the cost of moves to sustainability will devolve wholly on to the workers in targeted industries and their communities. We want to preserve and enhance the global environment for its own sake and for the sake of our children and the world they will inherit, for the sake of their own productive future. Just Transition is essential for this process, and as such represents the way forward to a sustainable future.

The Chair: Thank you very much for a very extensive presentation, very detailed. It's much appreciated. For the sake of Hansard, you stated your names. They would appreciate it if you would spell them. They don't have it written down, or they're concerned about accuracy.

Mr Bartlett: Certainly; Mark Bartlett.

Mr Gelinis: Tom Gelinis.

The Chair: Thank you very much. Now, I should explain, tomorrow we will be in Windsor touring some of the plants, but Hansard won't be with us. It was important that your testimony be recorded in Hansard, so that's why we're doing it by video conference today. You might wonder, when some of the committee members are there tomorrow, just what is going on. But with the one presentation, we thought it was best in this way.

The other thing is, compliments to staff in setting up the video conferencing so quickly. The switchover was almost instantaneous.

Thank you for your presentation; take care.

Mr Bartlett: Thank you very much. I wonder, sir, are you going to be visiting a DaimlerChrysler or Ford facility?

The Chair: The answer is yes.

Mr Bartlett: Either one or both of us may see you there. I'm at DaimlerChrysler.

Mr Gelinis: And I'm at Ford Motor Co.

Mr Bartlett: Tom's at Ford. We both work on environmental issues.

The Chair: OK, keep your eyes open. We'll be moving through.

Mr Bartlett: We will.

The Chair: Thanks very much; have a good day. Bye-bye now.

Mr Bartlett: You too. Bye now.

CANADIAN NATURAL GAS VEHICLE ALLIANCE

The Chair: Our next delegation is John Finch, marketing manager, Canadian Natural Gas Vehicle Alliance.

Mr John Finch: Good morning.

The Chair: Good morning. As you start your presentation, state your name for Hansard for accuracy. You have a total of 20 minutes. What you don't use in presentation will be divided between the caucuses for questions. It will be necessary once you start speaking to sit down so that when you're speaking, it goes into the microphone for Hansard.

Mr Finch: Thank you very much to the committee for inviting me to speak today. My name is John Finch. Just to let you know who I am, I've got quite a bit of experience in the NGV industry. I'd been working with Consumers' Gas for seven years, from 1990 until 1997, and then as a consultant in natural gas with Mike McNeil at the Canadian Natural Gas Vehicle Alliance, as well as with other people who are interested in transportation fuels.

This morning, I'd like to review the benefits of natural gas, emissions data, the vehicles that are available now and recommendations.

The benefits of natural gas vehicles: I'll just go through these quickly. I think you probably have reviewed these before, but after that I'll get into more detail with the emissions benefits.

Certainly the benefits of natural gas vehicles are less smog-producing emissions; reduced greenhouse gas emissions; reduced risk of soil and water contamination, and by that I mean with gasoline you have the opportunity of underground storage tanks leaking and spills from delivery vehicles; lower operating costs for vehicles, basically the fuel costs. There's job creation that in Ontario works out to just under 2,000 person-years of job creation. There are also reduced health costs resulting from improved air quality. Perhaps one of the most im-

portant benefits of natural gas is that it's a bridge to the cleaner or cleanest fuels of hydrogen and fuel cells. Hydrogen and fuel cells are expected to be here in about 20 years and natural gas provides an opportunity for emissions reductions right now.

This line indicates the amount of emissions reductions. The way we've presented it is in grams per kilometre. That's perhaps a little bit more visually understandable than in percentages. But if you think of it, if you look at climate change pollutants: 68 grams per kilometre reduction by using natural gas as opposed to using gasoline.

I won't go through each of these with you. You've got the idea that it's grams. But to put that into perspective, if there were 1,000 taxis on the road in Ontario, that would mean 11,000 tonnes of emissions reduction per year. Eleven thousand tonnes is an awful lot of emissions reductions, if you can think of it in terms of tonnes. If there were 1,000 couriers or delivery vehicles on the road in Ontario, it would reduce emissions by 6,000 tonnes.

This is an interesting case. The city of Toronto fleet has 96 natural gas vehicles. These 96 vehicles reduce emissions by 400 tonnes per year. Pretty phenomenal, and it's an actual, it's real, it's happening now.

Just a quick look at what vehicles are available: you'll notice that the vehicles that are shown up here are vehicles that are targeted to high-mileage, fleet usage: the Crown Victoria, made right here in Ontario for all of North America; Ford and Dodge vans, the Dodge made in Windsor; the Ford and Chevy pickups and just most recently a Ford E-450. I've shown a picture of this vehicle with a transit body on it simply because it's an ideal vehicle for transit. In and around our city streets, this vehicle can reduce emissions significantly. It was just introduced in 2001 and it's now available through Ford.

Of course, we still have conversions. Conversions are there to meet a need, where people need to be able to have the distance in rural areas to run on natural gas as much as they can but then to switch to gasoline.

Just a quick review of what is available in the way of infrastructure: we have 66 public stations in Ontario—that's in Ottawa and the balance mostly in southern Ontario, from Kingston through to Windsor. There are 50 to 100 private stations. A private station is where a fleet would have a compressor on its own property and refuel from that particular compressor. There are 1,500 refuelling appliances. The refuelling appliance, as you're probably aware, is what's called a VRA. It can sit in your driveway at home or it can sit in the parking lot at your office and refuel your vehicle over time.

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The industry would like to make some recommendations to Ontario. We've broken them down into three sections: the no-cost options, the low-cost options and the cost-savings options. The reason we're asking for or making these recommendations is because people still need to be encouraged to buy natural gas vehicles. A natural gas vehicle has been available since approxi-

mately 1990 as a conversion, but only for the last three years as a factory-built vehicle. People don't like to go and purchase something that they add on to their vehicles. You'll have the odd person who does, of course, and they'll do it for fuel savings, but they want to be able to pick up that vehicle from the factory floor, from the showroom floor, and be able to drive it away knowing they have the full warranty of Ford or GM or Chrysler behind them. Those vehicles really have only been available for the last three years, and there's a fairly significant premium that has to be put on these vehicles until the number of vehicles gets into the numbers that can allow them to reduce the price of the premium that's being added on to these vehicles. So we still need to encourage people to purchase.

Recommendations:

Adopt programs to reward NGV drivers. As an example, allow them to use HOV lanes in Toronto. They do that in Vancouver. It's very simple; there's no cost to that. Let them do it. It's a nice reward for folks who drive natural gas.

Legislate an alternative fuels vehicle procurement act for Ontario fleets; these are fleets that are operated by the province.

Establish a revolving account fund to fully discount the premium cost of an NGV, repayable through the operating cost of the vehicle. In other words, you have a fund that would allow the premium cost to be reduced to that of a normal gasoline vehicle, and then pay it back with the savings that are created by using natural gas.

Alternatively but similarly, create a similar revolving fund to that of the Better Transportation Partnership operating in Toronto. Similar to the Better Transportation Partnership, NGV purchasers would purchase four vehicles but receive five, and the fund would replenish the purchaser from the lower operating cost of the five vehicles.

Low-cost options: as I say, we still need incentives to bring people in to the showroom floor to buy these vehicles. The low-cost option would be to provide full PST rebate for factory-built NGVs. On a Crown Vic, I think that might be in the neighbourhood of some 2,300-odd dollars.

Continue to provide the PST rebate on approved conversion systems, and by approved conversion systems I'm talking about systems that are brand new, new equipment that's added on to vehicles for that particular vehicle. They're approved because they are a closed-loop system.

Provide a PST rebate on infrastructure bills. For the building of a refuelling station, provide the PST rebate on that particular building.

How about toll-free access to the 407, or free access to provincial parks or provincial parking lots—very simple and easy to do—as well as reduced or no-cost licence fees and Drive Clean fees?

Cost savings options: take a leadership position in purchasing and using NGV in all provincial fleets, and stimulate the growth of the NGV industry in Ontario

through economic incentives and tax breaks directly to businesses. Ontario has a fleet of provincial vehicles. It doesn't have a lot of NGV vehicles in it. They're running on gasoline. Why can't they run on natural gas where there's fuelling available or where they can put in a vehicle refuelling appliance?

In my last slide, we just wanted to say thank you. The NGV industry and the CNGVA thank committee members for your resolve in recognizing the benefits of lessening our oil-based transportation fuel dependency and moving to a cleaner, safer and more secure domestically supplied fuel such as natural gas. We believe the leadership taken now by the Ontario government to adopt the recommendations as presented by our industry will be recognized in years to come as insightful and correct. Thank you very much.

The Chair: Thank you for the presentation. We have about one minute or so left, and in rotation, giving one party, one caucus, the time to speak, Mr Hastings has asked for that.

Mr John Hastings (Etobicoke North): Mr Finch, I wonder if you could go into some depth as to why we've heard for the last few months from a number of presenters about the advantages of natural gas and other alternative fuels, and I'm coming fast to the conclusion that a lot of the stuff we're seeing, including yours, about the things government can do—and some of them are good. Why do you think, in your own estimation, from your own experience, the financial services industries and the investment community are failing us in this whole area? You're going to need an enormous amount of capital for the distribution infrastructure of natural gas. I suspect that's one of the reasons, up until now, it's not a procurement item, either in statute or as could be recommended by this committee. Why do you think the investment community has shown—actually, we've invited them here—pretty well a complete indifference to this, not just to this committee, but to a lot of entrepreneurs who would like to get their innovative technologies in place?

Mr Finch: I don't have a lot of experience with the investment community. We have attempted to speak with people like Yorkton financial and they have, I think—I'd be stepping over my experience boundary if I wanted to speak to why they're not getting behind this, so I would appreciate taking that question back with me and getting back to you, Mr Hastings.

Mr Hastings: OK. Thank you.

The Chair: Any other comments? OK. Thank you very much. The time is pretty well used up. We appreciate your thoughts. We did have some concerns by some of the taxi drivers earlier, and then Drive Clean came in and presented, so you're rounding out the concerns about natural gas.

We also saw in Vancouver the use of liquid natural gas and were quite impressed with some of the things they are doing there.

Mr Finch: Yes, indeed. Vancouver is certainly on the leading edge. They've had their problems too, of course.

The Chair: With some of the diesel technology etc, yes. Thank you very much.

Mr Finch: Thank you.

GLOBAL WARMING PREVENTION TECHNOLOGIES

The Chair: Our next presenter is Steve Poulos, senior partner, Global Warming Prevention Technologies.

Mr Ian Hood: My name is Ian Hood.

Mr Steve Poulos: I'm Steve Poulos.

The Chair: You have a total of 20 minutes. What's not used in your presentation will be divided equally among the caucuses. You've already stated your names, and the time is yours.

Mr Hood: How are you doing, Doug?

The Chair: Great. Super.

Mr Hood: You have a copy of this, I presume?

The Chair: Yes.

Mr Hood: As you know, I'm an environmentalist and have been involved with Queen's Park for a number of years on many, many different issues. I'm involved with this because it works. It's the answer to the global warming issues as far as the problems associated with landfill, which, by the way, are very, very serious, to say the least. The amount of emissions coming out of landfill are staggering. The problems associated with landfill and the global warming problems are beyond normal understanding, but they are extremely serious.

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This technology eliminates the need for landfill. It's over. It's no longer required. This will take whatever you want to put in it and after 12 hours it's reduced to its natural state, John, and it works. It's worked in Alaska. It works in Kentucky, Malaysia and so on. It's been out there for about 12 to 14 years. Kentucky is the latest plant. It just passed all the EPA standards. It's good stuff. What goes in comes out back to its natural state. Ash and the recyclables are all there. There's nothing left. It's reduced by 95% to 98%. It's provable because not too far away. There's a plant down in Kentucky. A bunch of people from Peel region have seen it. They know it works. Betty Disero wants to go down.

But I can only say this to you: the answer is before you. All the presentations I've heard here this morning are saying the same thing: we've got to do something about the problems of waste. And this here makes money. You put in 58 tonnes and you get 5,000 bucks in energy back—that's the equivalent—and what's left over you don't have to worry about putting into landfill. You can put it into cement or anything else you want to put it into. The ash—basically the best place to use it is in the production of cement—and the recyclables, just cans and glass, are left over. Everything else is gone.

I say to you that hazardous waste is included, medical waste is included. When they were dealing with this thing in Alaska, that was one of the biggest issues because of the native problems up there. They built it. The first plant was built in Anchorage, Alaska, because of the

problems of getting rid of waste in that climate. It worked for nine years, and it worked very, very well. In fact, this technology was very much a part of the cleanup of the Valdez oil spill.

So, as I suggest and can absolutely clarify and prove, it does work. And if it does work and it is the answer and it's cheap and economic—in fact, it's cheaper than landfill in some cases. Toronto right now is paying \$62 a tonne to send it down to Michigan. You can pretty well get rid of a tonne of this stuff for 32 or 34 bucks. It's not a great science. In a sense it's so basic. You put the stuff in, you starve off the oxygen, you put some heat to it, come back 12 hours later and you've got nothing but the energy left over that you can use in just about anything you want. So I leave it up to you guys. If you want to ask any questions, I'm here.

The Chair: Thank you very much. We have about seven minutes or so per caucus. I guess we'll start with the government side? Maybe we'll start with the opposition then, OK? Mr Parsons.

Mr Parsons: I'm not sure I understand enough yet to ask a question. I guess what I'm trying to picture, and can't quite imagine, is how much garbage comes out of Toronto in a day.

Mr Poulos: It's about 2,000 tonnes.

Mr Hood: It's around 2,500.

Mr Parsons: I can't picture that in terms of how high a mountain it would be.

Mr Hood: Oh, it's huge.

Mr Parsons: I would think so.

Mr Hood: You've got 400 trucks going down to Michigan every day.

Mr Parsons: So you would physically require what volume?

Mr Hood: They can take it all.

Mr Parsons: But you're going to need a plant the size of this building.

Mr Hood: No, these are cells. They can be located right now, as far as the depots are concerned.

Mr Parsons: So there wouldn't be a central one? You would have them in communities?

Mr Hood: We can put them anywhere and, by the way, any size. You can make it for five tonnes, 50 tonnes, 100 tonnes, no matter what. It really is good for hospitals. That's what they were doing in Alaska, because of all the medical waste. Because of the special considerations in it, it separates the nuclear. No nuclear waste can go through this system, because of all the different technologies that are built in to catch it. Right now a lot of the nuclear stuff coming out of hospitals and so on is ending up in landfill—serious stuff. This doesn't happen.

Mr Parsons: This requires recyclables to be skimmed off first?

Mr Hood: If you have anything nuclear going through that, it picks it up just like that.

Mr Parsons: I'm thinking of glass—

Mr Hood: All that, yes. It takes care of the glass, it takes care of aluminium, it takes care of any recyclables.

If you put a pen in, the only thing that's going to come out is the top. Everything else is gone.

Mr Parsons: So the plastic is gone.

Mr Hood: The plastic is dissolved into an energy source, and what you've got left over is a tiny bit of ash. It's composting, but you escalate it. You starve off the oxygen, and you don't create what we call a combustible or incineration process. We don't need that. The last thing we need is that stuff going into the air. The emission standards we can give you—the latest out of the United States with the EPA—met every requirement and beyond.

Mr Parsons: So it's sealed in a chamber, and the oxygen is extracted from it.

Mr Hood: That's correct.

Mr Parsons: And what happens over the next 12 hours?

Mr Hood: It just decays naturally with heat of about 900 to 1,200 degrees.

Mr Parsons: And the source of the heat is?

Mr Hood: The source comes from the actual energy itself. It breaks it down because you add heat to it, but you don't create what we call ignition. It heats it up.

Mr Parsons: But you're adding heat from what?

Mr Hood: You add heat from different sources. You can use natural gas for a short time to heat up the cell. After that, once you starve it off it takes its natural course.

Mr Parsons: Do you have a system working somewhere?

Mr Hood: Yes, there's one in Kentucky.

Mr Parsons: In Canada?

Mr Hood: In Canada, Peel right now wants to build one. Larry Conrad and some others went down to take a look at the new operation in Kentucky. They came back and the only thing they want to do now is get moving. They came back with a bottle of ash and some cans and huge bottles. They couldn't believe what they had seen. Mr Conrad heads up the waste management division of Peel. Right now, their big concern, as you know, is that Britannia is closing in June and the \$62 they're talking about now to send it down to Michigan is unacceptable, so they need something.

Mr Parsons: Do you see this as a viable option for all the garbage, or for things such as hospitals?

Mr Hood: Anything. It doesn't make any difference what goes into it—hazardous waste, medical waste, tires, you name it—it's gone. At the end of the process, it speeds up the natural evolution of composting to a 12-hour period. At the end of the day, it's no longer there. When Larry and some other people from Peel went down there, they could not believe what they saw.

Mr Parsons: What are the barriers to its happening now? Are there legislative barriers?

Mr Hood: No. Right now it's, let's build a plant and then let's start producing them where we need them. You're talking about the Ford Motor Co and Chrysler. They're concerned about the tremendous hazardous problems they have with a lot of their waste. You can

locate one, as I said: two tonnes, 20 tonnes, 50 tonnes, 100 tonnes, whatever you want. At the end of the day, it's the same thing: it produces energy. It's good for greenhouses. Leamington right now is in big trouble.

Mr Parsons: But there are no legislative barriers to its happening?

Mr Hood: We've got to go through the MOE. We were over there talking to them, and as far as the overall results from the air emissions in the United States are concerned, they're all here. Here are the air emission standards from all over the world, from every place they've ever been, all the EPA and so on. It isn't as if it's new; it isn't. The only thing is, we don't have it here and we need it here.

What's it like in the summertime downtown? Right now you've got another large company, EnWave, that wants to turn on 123 huge buildings. Can you imagine stoking up those furnaces? What would it be like down there?

We're in trouble. Right now, natural gas is causing a lot of dilemmas because of the cost factors, and we can only see it going higher. This can take energy. Take the stuff we're throwing away and the methane coming out and just put it back into something we can use and make some money: \$5,000 for 58 tonnes, John. That ain't bad.

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The Chair: OK. We will move on to Mr Ouellette, but just before we move over, we've had presentations, very helpful to the committee, on plasmification; we've had presentations on steam pulse reformation. Is this connected with either of those processes?

Mr Hood: No. I've looked at 242 different technologies. You name it, we can put it forward here. There are many different views and opinions, but the cost factors are very important. We can't get into \$80 or \$90 a tonne. We have to get it down there where it's economically feasible and cheaper than what we're now putting out. It's got to work, and it cannot have the pollutants that some of these other processes produce.

The Chair: Thank you very much. Mr Ouellette?

Mr Jerry J. Ouellette (Oshawa): How long has it been in Alaska? I think you said the first one was in Alaska.

Mr Hood: The first plant was built in 1989 in Anchorage.

Mr Ouellette: In 1989. I don't understand. It seems like, you know, one of the too-good-to-be-true things.

Mr Hood: Oh, it's real.

Mr Ouellette: Toronto is obviously actively looking for methods. How come Toronto is not utilizing it?

Mr Hood: Betty Disero wants to go down. She was going to, but the mayor said because of 9-11 she couldn't go because there was a travel thing.

Mr Ouellette: There must be some other reasons why they're not adopting it, then.

Mr Hood: They are. We've been before them. They're actively pursuing it. It's a part of their report. No, no; it's being actively pursued there, and also in Peel. We've made presentations in—

Mr Ouellette: You said you've had it going—I'm just trying to find out the reasons why. Somebody will come forward at some time and tell us why, but Toronto may have some reasons. You said it's been going since 1989, yet this is 2002. So just because of September of last year, it should not be a deterrent.

Mr Hood: No. The reason Betty didn't want to go is because the mayor said she couldn't go down because of the travel thing. That was right after; there was an appointment down there. But if you want to go down and see it—I mean, it's in many places. They've got Alaska, in Barrow right now and Anchorage. We also have one in Malaysia. In Israel they have a 50-tonne-a-day plant that is absolutely second to none, OK?

Mr Ouellette: Does the cost you mentioned include the set-up costs for the plants, or is that after the plants are established? Is that part of the reasons why?

Mr Hood: The factors that we're talking about as far as costs are concerned, that's the financing of it, the operation. It's so simple because the computer technology is very, very—when I say to you that the average person who runs a computer can run the operation, that is absolutely true. There's no great sophistication involved here. The simplification of it all is you have a cell, you put it in, you starve the oxygen off, you make it airtight and it decays.

Mr Ouellette: You gave us a cost per tonne. Does that include the actual plant cost to establish it?

Mr Hood: Yes, everything, all included—building, everything.

Mr Ouellette: So in order to be cost-effective, what's your break-even point? You mentioned a 50-tonne plant.

Mr Hood: A 58-tonne plant. We've got a 58-tonne plant now being proposed for Peel; that's why it has 58 tonnes. It gives you—hold on a second. Steve, have you got that energy package? Could you give this gentleman—have you got it there?

Mr Ouellette: This one?

Mr Hood: No, there's another one.

Mr Ouellette: In the single sheets?

Mr Hood: Yes. If you take a look at that, sir, that's the energy values. You've got, for instance, 58 tonnes. It gives you about \$5,000 a day in revenue, OK? That is in regard to the energy that can be produced, and the best part about it all is that when you're finished, there's nothing left over. All you've got is some cans, and even the paint on the cans disappears. There's nothing left—cans, ash and glass. The cement companies love the idea. Right now they want to put this one that we're talking about, in Peel, in the pit out there in Caledon, that great big pit where all the aggregates come from.

This really works, and you know something? I wouldn't be here supporting it, I can tell you that, unless it did. I've been involved with the old-growth forests. I go back to many other different issues. As far as environmental concerns, nobody has been dealing with these things over the years more than I have, and many others like me. We care. Right now we need an answer. We've got 1,800 people here dying because of the air, and what

are we going to do after Keele, when Keele landfill closes, and Britannia? We've got to have some answers, and fast. We can't be sending it down there to the States, and you know that the Adams mine issue is dead. So we've got to have answers. That's why it's fine to criticize, but you've got to find solutions. And this one really works. It really does. It's going to work and it's going to make the province money. That's the best part of all this: you're going to make money.

Mr O'Toole: Money. That's music to my ears.

Mr Hood: We're going to make money. We really will. I can assure you, everything in there is 100%, and all of the emissions standards that you need to know are right here, from Alaska, Malaysia, Israel. I'd like to know why it isn't here. I'm hoping we can get to those. Peel is going to go ahead with it quickly and get the first one built. But these things can be built very quickly. There's no great sophistication involved.

Mr Hastings: Could we expect that Toronto will have one up in a year, then, constructed and operating one year from today? There are no problems, you say.

Mr Hood: No, let's get it going.

Mr Hastings: Go ahead. What's missing from your equation here? Capital?

Mr Hood: Well, there's always that little—

Mr Hastings: Capital?

Mr Hood: No, there are no worries about capital. There's a guy down there in Kentucky right now and he's—

Mr Hastings: Just get him right up here and get going.

Mr Hood: If you want to build it, the state can build it or—

Mr Hastings: The state? No, no, no.

Mr Hood: Right now out there, they want—

Mr Hastings: Private enterprise has to do it.

Mr Hood: Yes, sure. Right now—

Mr Hastings: You represent it. You are your solution.

Mr Hood: Right now in Peel, John, they're talking about either they want the manufacturer of this one down in Kentucky or Peel wants to do this themselves, too. They want to build it themselves. So it's sort of back and forth about who wants to do it.

Mr Hastings: Just go ahead and do it.

Mr Hood: You're going to help?

Mr Hastings: What forms of help are you looking for? Financial assistance? Grants? Faster write-offs?

Mr Hood: No, none of that stuff. It's not necessary.

Mr Hastings: Declassification of the fly ash as a hazardous substance?

Mr Hood: It's not hazardous.

Mr Hastings: Yes, but the environmental mindset in this country would suggest that possibly it is.

Mr Hood: When you see the drawings and the backup systems, as far as that particular consideration, no way.

Mr Hastings: Good luck.

The Chair: OK, thank you very much for your presentation. We appreciate you coming forward.

Mr O'Toole, would you take the Chair for the next delegation?

Mr O'Toole: I certainly would be pleased to do that.

PROVINCIAL COUNCIL OF WOMEN OF ONTARIO

The Acting Chair (Mr John O'Toole): The next deputation is Gracia Janes. Welcome to the committee. If you could give your name for Hansard. You have 20 minutes to make your presentation, of which you can use all yourself or leave time for questions from members.

Ms Gracia Janes: Thank you. My name is Gracia Janes and I'm the president of the Provincial Council of Women of Ontario and a vice-president of the National Council of Women of Canada, with responsibility for convenors of environment, public safety and housing. I was also the coordinator of a national council of women energy conservation project for over two years between 1992 and 1995.

I draw your attention to the five enclosures with our package, particularly the brief by Dr John Bacher. He was the researcher in our energy conservation project. As well, he is the author of *Petrotyranny* and the co-author of *Get a Life*, first edition, both green environmental solution-oriented books.

The Provincial Council of Women of Ontario commends the select committee for this long-overdue review of alternative energy sources, seeing it as an ideal opportunity to develop an ambitious and visionary energy strategy. If such a plan were to be completed over the next 30 years, in this the most populous province in Canada and the industrial engine of the country, Ontario would lead the way for other jurisdictions and help ensure an environmentally secure future for all Canadians.

I just want to note here that we're not experts, as a council of women, but we do represent many thousands of women across Ontario from all walks of life, and therefore we could be considered to be somewhat of a public opinion kind of group on these issues—a very broad-based group at that.

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The issues at hand touch upon a host of interrelated areas such as pollution, global warming, urban sprawl, public health and other social and environmental and economic issues of importance to Ontario citizens. The provincial council of women has supported in the past, due to these very concerns, the phase-out of nuclear power, the use of alternative sources of energy and energy conservation, a stop to urban sprawl, preservation of prime farmland, strict regulations to curb the degradation of land, air and water, and initiatives to preserve and enhance our natural resources for future generations. We are concerned that the bulk of Ontario's energy needs are met through the use of non-renewables and environmentally destructive energy sources. We are very concerned about the impacts of oil, gas and nuclear.

The latter is extraordinarily costly, has worrisome health, safety and environmental risks, does not significantly alter our capability to lower greenhouse gas

emissions and has become a sought-after business opportunity for plant renewal and expansion in any privatized energy market. If unchecked, we could soon see the renewal of aging nuclear plants beyond a safe lifespan, the construction of new plants and a growth, rather than a curtailment, of energy use and waste in Ontario and the USA.

All of Ontario's traditional sources of energy have been heavily subsidized for many years. In contrast, renewable energy sources and energy conservation, which have the potential to protect the environment, lower health costs, reduce global warming, advance technological markets and job creation, reduce acid rain and conserve scarce resources, have been neglected for far too long. In light of this, the council of women asks that this committee give renewable energy and energy conservation the green light to move on to a level playing field and into the vanguard of Ontario energy policy and practice.

The council of women has used its policies for many years to act in the renewable energy and conservator mode. For instance, in 1978, we asked the government of Ontario to shift its investment priorities to energy conservation and development of renewable energy sources in lieu of further nuclear development. Following our policy in 1989, the National Council of Women of Canada made a brief to the federal standing committee and noted the benefits of energy efficiency and conservation, such as stretched fuel supplies, decreased automobile pollution, reduced fossil fuel emissions, reduced home and industry heating costs, increased jobs, lower dependence on foreign fuels and a limitless supply of alternative sources, which lessens the threat of failure of supply.

We agree with energy consultant Jeff Passmore that the barriers to energy conservation and alternative energy use are not technical, attitudinal and financial, but purely political. "For instance," he said, "solar fuel goes head to head with diesel fuel in remote communities in northern Canada. Diesel fuel is tax-exempt for the generation of electricity and solar is not. Automatically photovoltaics is 13.5% more expensive." About nuclear power's role in the reduction of CO₂ Mr Passmore said, "Nuclear energy is a non-starter. To offset 5% of 1990 global carbon emissions, world nuclear capacity would have to double."

PCWO has made many presentations to government committees on these issues; for instance, the select committee on Ontario Hydro and nuclear affairs in 1997 and the National Energy Board consultations on Canadian energy supply and demand to 2025 in 1998. As well, we've sent many letters to the government.

In a practical way, from 1992 to 1995, council members across Canada were surveyed on their energy use and habits. Local public forums were held and a quarterly newsletter, *The Conserver*, was published. It is against this lengthy background the council makes its remarks. Our observations may well provide some insight into how the public views the important issues that are being explored, their support of any chosen plan and the ways that they could be part of the solution.

The broad policy objectives for any future framework: we agree wholeheartedly with the general broad public objectives. Nevertheless, the fact that Ontario Power Generation considers nuclear power to be part of the green power mix makes it very clear to us that nuclear could well continue to dominate the energy field. This runs directly counter to the commission's objectives. We cannot state too strongly the need for a provincial policy to support reductions in Ontario's substantive 40% to 60% reliance on nuclear energy.

We are concerned that there appears to be a move provincially and federally, without public discussion, to maintain the existing over-reliance on nuclear power and to enhance and expand its use. For instance, Pickering will be restarted, British Energy is now in charge of the Bruce nuclear plants and has expressed interest in the Pickering plants and British Energy has also, according to the *Toronto Star*, signed partner agreements to develop the next-generation nuclear technology.

PCWO believes the enormous investment in nuclear power has been the most significant factor in the extraordinarily onerous debt for Ontario citizens and the lack of investment in alternative forms of renewable energy. Ontario Hydro has promoted nuclear power as a cheap, safe, clean form of energy and encouraged its inordinate and wasteful use.

Promoting the supply of green renewable energy: PCWO is disturbed that, in its commentary, the committee links the "opening of the market" with the acceptance and support of alternative energy sources. This gives the appearance that the committee is part of a government justification of the opening of the market and the privatization of Ontario's publicly owned generating and transmissions assets. A green renewable energy plan should not rely on an open market, but should rely on a publicly owned system, we feel, which fosters more green energy.

We note that mega-dams and nuclear power are both in decline in most of Europe and that, according to the Royal Society of Canada's greenhouse gas emissions panel, every dollar invested in renewable energy displaces seven times as much CO₂ emissions as the same dollar invested in nuclear power.

Regarding your questions, on provincial strategies we feel that a provincial strategy must be linked to the support of the Kyoto target and be developed right away, and experts should be consulted.

Regarding which fuel to use first, we think each of them will fill a niche, and combined they could well replace our heavy reliance on fossil fuels and nuclear power sooner rather than later, with less threat of interrupted supply.

It is vital that renewable, clean sources of energy be supported as needed, and there is a need to broadly popularize new technologies. We are particularly interested in the green communities program, which was very successful when it was financed by the provincial government early on. I think some of the programs are still in existence.

The total level of assistance to be given should be whatever is needed. We notice that in the UK, a climate change levy is in effect, and the proceeds here, if we were to do such a thing, could well be put toward renewable sources of energy.

The province should also back up its energy-conscious Smart Growth planning policies with strong land preservation policies and a concentrated effort to reduce expenditures on highways. It should develop regulations to limit sulphur levels in gasoline to at least those of other provinces. It should use government buildings and services to pilot and popularize alternatives and place strict emission caps on energy generators.

The green power procurement policies and renewable portfolio standard: we would support that. The key here would seem to be wherever you can get this energy, and to meet certain targets regardless of the source of supply. We note that many American states are setting renewable portfolio standards, and “green” doesn’t always contain hydroelectric projects, large ones or nuclear.

We believe and we agree that there should be a full life cycle accounting for all energy sources to know the true costs and to overcome political barriers. It should include health costs from incidents of low-level ozone; the costs of revamping, reactivation and decommissioning of nuclear wastes and nuclear waste disposal; energy efficiencies; the savings that could be achieved through the use of renewables; employment potential; projected market share and income for new technologies; and costs of waste.

With regard to the latter point, we note that a Toronto Star article of August 26 said, “A US study has predicted that by 2005, Americans will waste almost seven billion hours a year sitting in stopped-up traffic. The cost to the country,” in wasted gasoline, wear and tear on cars and time, “will be \$115 billion a year.”

As well, a January 12 Globe article drew attention to light pollution, which is often wasted energy.

We think the province, its ministries, agencies and boards should determine ambitious procurement targets and programs.

Alternative fuel-energy research and development programs: given Ontario’s economic reliance on a healthy automobile sector, a research and development program could well tap into the hydrogen fuel cell. Ontario could encourage transportation authorities to convert bus fleets and could invest in the technology developed by Niagara Falls native Geoffrey Ballard. It could also renew its sponsorship of the institute of hydrogen studies and assist in the creation and operation of significant fuel cell demonstration projects.

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Energy conservation and efficiency, and education and consumer awareness: we’re very concerned about this. Canadians are energy gluttons. The potential for energy efficiency measures in Canada is enormous, ranging between 30% and 50% over several years. The longer we wait, the less apt we are to meet any kind of projections or targets. As Jeff Passmore noted, “The nice thing about

efficiency is that it is irreversible.” Regardless of what happens to energy prices, after it is done, it’s very rarely undone.

With respect to public involvement in education, we would encourage this government to show the cost-benefit ratio for alternatives to consumers. Make the energy connection for them. Publicize the available technologies, give information and incentives for owners and builders, encourage research and development, and invest in improved transit systems.

We recommend that any energy strategy should include a consumer survey such as that done by the National Council of Women of Canada, which might clearly identify certain niche areas where the public use and acceptance would signal a need to move quickly in this direction.

In the interests of time, I’ll leave the various recommendations about the different sources of energy to the committee to read, and I’d like to sum up.

Overall, we find that the use and waste involved in the older, more pollutant, non-renewable fuel sources is unsustainable. We need to be far less addicted to and reliant on them.

We need to invest in the renewable sources. There are limitless opportunities for savings, job creation and environmental benefits, particularly in solar, cogeneration, energy conservation and wind.

We need an ambitious long-term plan. We should involve the green energy experts. To date, we’ve just seen the old-style experts, and it’s the green ones that you need to know. I’d highly recommend the Hansard report from the 1989 global warming committee at the federal level. They were interviewing various experts at that time. It’s a long time later, but it’s still relevant.

You should continue to investigate—and I really commend you for this—and to observe first-hand the kinds of technologies that are used and what is practical, and to go to places where they are making extraordinary efforts. I would recommend you go to Iceland, which is making an enormous effort, but it’s a bit far and you might get criticized for doing so. They are making every effort to rule out completely the use of the traditional sources of energy. They’re moving to the fuel cells and other methods.

You should involve the general public in a more direct way. Together, we can set the trend for the next generation of energy use, one that is sustainable and protective of the citizens of Ontario and Canada for hundreds of years to come.

The Acting Chair: Thank you for your presentation. That leaves exactly six minutes, three minutes for each side. There are only two caucuses here.

Mr Ouellette: Just two quick questions. You mentioned the north, regarding the solar power being taxed as opposed to the diesel power. What jurisdiction was that in? Is it a provincial or a territorial government that charges, I think you said, 13.5—

Ms Janes: This was in evidence from Mr Passmore at the global warming hearings, and I have that with me. He

didn't say exactly where it was. I just presumed it was in Canada, and probably the territories. But in northern Ontario, is there a level playing field there?

Mr Ouellette: I've been to a number of the northern communities, and I think it's 35 or 38 northern ones that are basically dependent on diesel generation. I have yet to find any in Ontario that are dependent on or utilizing solar power. I have seen some that do use or try to use wind power. I was just trying to find out some of the details about that, because I hadn't heard of anything like that taking place in Ontario.

The standard policy, official, unwritten policy, in my understanding, is that any new powers or generation coming on are basically non-taxed for the first five years in order to allow them to get established. After that, they review the tax implications for that. So I was just trying to find out—

Ms Janes: Is that at the federal level you're talking about?

Mr Ouellette: That was provincial, and the feds more or less follow along that.

Ms Janes: I was thinking about federal, and I'm just taking his word as an expert. It may have changed since he made that statement to the committee. I'd be interested in finding that out.

Mr Ouellette: Yes, I haven't heard of any such jurisdictions.

Ms Janes: Certainly the investment in the renewables took a real nose-dive somewhere around 1984. Once the fuel crisis was over in the 1970s, it really dropped.

Also in that light I just wanted to note, on page 17 of my brief, Mr Passmore indicates that when people complained about the technology and using it in the north, you merely tilt the connector at an equivalent to the latitude you find yourself in. So in Canada, in southern Ontario, you're looking at tilting it at 45 degrees toward the south and you accomplish 80% solar gain of Miami. So the technical things are there and solar could be widely used in the north.

Mr Ouellette: My other question is, you mentioned the sulphur content of gasoline. What do you think is a reduction to equate to the other provinces? What do you think the sulphur content of gasoline should be?

Ms Janes: Well, we're not the experts. That's what I indicated to begin with. We know, though, that the sulphur content is higher in Ontario than elsewhere in the country, in the various provinces. We're not aware of the exact details. I'm sorry.

Mr Ouellette: The feds have brought forward legislation that requires Canada-wide legislation on that in order to reduce it.

Ms Janes: Good.

Mr Ouellette: I know that the province—we had a resolution come forward requesting that, and that came from a lot of the manufacturers as well, because in order to produce cleaner fuels, cleaner vehicles, they require lower sulphur content as well.

Ms Janes: Excellent. That's wonderful.

Mr Parsons: I want to first of all compliment you on this report. A lot of people have put a lot of time into this. Thank you for it.

I have two questions. One is the privatization of Hydro and the breakup of it. Am I interpreting correctly that your concern is not that it will be neutral but in fact may be detrimental to the production of green power?

Ms Janes: Yes.

Mr Parsons: That Ontario Hydro has itself taken a lot of initiatives that could be stopped with the—

Ms Janes: They have taken a number of initiatives, but the track record in England of British Energy, for instance—the regulatory body commented that corners were being cut and they're very concerned about contracting out and layoffs etc. The bottom line is profit.

Mr Parsons: Right.

Ms Janes: And I think this is the overriding theme. I know you can have regulations, and this is supposed to keep everything in line, but we really believe that if Ontario Hydro had been controlled, if it had been regulated more firmly, we wouldn't have had some of the difficulties we've had that led to the shutdowns etc.

We really believe that you're not going to see a move toward more greening through the private sector. We think Ontario Hydro, as we call Ontario Power Generation, has been doing a good job and can move further that way and should be moving into the renewables and into the other technologies.

Mr Parsons: Since I agree with you, you're obviously right, so thank you.

The second question has to do with life cycle costing where green power may not appear to be the most economical, and yet—my background has been in education, the number of children who carry puffers around schoolyards now who didn't 20 years ago, yet everyone says to me that we're not able to actually calculate what producing electricity by coal costs, what is its social effect, what it costs us in the health care system. I appreciate what you're suggesting. Have you seen or had access to or—what is the full cost of electricity produced by coal?

Ms Janes: I don't think anybody has done this. I think it would be an enormous task to do so but I think it's absolutely essential. You take on these tasks. If you're going to do the whole task and do a good job, this is a key thing. It's going to be very difficult to persuade politicians. I don't think you'll have trouble with the public, but you will have trouble with politicians and people in the energy field. You have a lot of them lobbying to keep with what's going on now. It's in their own interest. But in the public interest I think it's very vital that you do such a study and that you gather—a good researcher or 100 researchers could gather those statistics, and in these hearings in front of the standing committee there were data, that's for sure.

Mr Parsons: OK. I'm hearing the obstacles to getting the data, but I think it's vital that we get it.

Ms Janes: Yes.

The Acting Chair: I'd like to thank you, Ms Janes, for your presentation.

Ms Janes: It's very thoroughly referenced, so if you want any of this background, I'd be glad to get it for you.

The Acting Chair: Excellent report. Thank you very much.

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ANDY JANSON

The Acting Chair: The next deputation is Andy Janson. Welcome, Mr Janson. Would you leave your name for Hansard, and you have 10 minutes to use as you wish.

Mr Andy Janson: My name is Andy Janson. I'm coming forward here with a number of things I was originally keeping secret, pending the free market identifying them. If I could, since 9-11, I've decided to come out and suggest a couple of things.

I have a rather odd hobby of collecting obscure and technical books that are long out of print and I've come across a couple of very interesting things that have been long forgotten. If I could put this forward perhaps to Ontario Hydro, this is close to one that I originally came up with.

In 1923, General Electric found a way of doing a 50% increase on the production of electricity by changing the medium that they used to produce steam. Would anyone care to look at this? It goes into a great deal of detail. In Hartford, Connecticut, and later on in Schenectady, New York, they changed the very medium that they used to produce electricity and it went up by 50% immediately. The problem is, it was cancelled in 1925 due to leakage, if you can envision, in 1924, a steam locomotive sitting in a station, leaking from all its joints, all the steam fittings.

But technology is different now and this has long been forgotten. If it were possible to speak to Ontario Hydro or to propose this to Ontario Hydro, I can see a way of making a number of things, perhaps even natural gas, far more efficient in producing electricity, if anyone is at all curious.

A number of other things that I'm working on and have been working on for a number of years are based on oxidization. That's the converting of inert substances that never exist with a particular catalyst. They never occur. If you're at all interested, I have some industrial photographs of what happens when even minute amounts meet together and destroy everything around them. I found a way of producing this on a very small cycle. The scale would be 0.0077 cubic centimetres per cycle, about the size of a grain of salt. This inert substance, actually quite a common substance, can immediately—the condition is called super-decomposition. It immediately expands at several times the speed of sound—I believe it's seven times the speed of sound—to an area of approximately a cubic metre, a huge rate of expansion.

I've done some feasibility studies on radically modified conventional internal combustion engines. My own history with engines is that I have built one that is different from this, but it was 29.41% more efficient and it

actually consumed the fuel at such a rate that even with an open exhaust there was no shock wave from the open exhaust. It was just a quiet roar of heated air escaping, which makes the muffler industry almost redundant. The engine is actually sitting in a shop just outside of London, Ontario. It's very difficult to pursue anything in the free market, because nobody was really prepared to deal with change until 9-11. I think we're seeing some real interest in this.

I am prepared to meet with anybody, publicly or privately, on a number of different things that I have found and have confirmed. If you're at all interested, I can touch on a number of these right now.

The Acting Chair: It's your 10 minutes. You can use it as you wish.

Mr Janson: As I wish. OK.

There are a number of lost technologies that are sitting quite dormant, something as simple as sleeve valves that were replaced, some of the really obscure technologies that at the time never actually could work because the technology wasn't there.

If I dare, I can give you an example: the War of 1812. Even here in Canada we knew enough about glass, we knew enough about lenses, we knew enough about generation, we knew enough about rubies and we knew enough about vacuums. We could have produced lasers in 1812, which would have been a wonderful military application in the War of 1812, but we never got those people together.

There are a number of technologies right now all out wandering around in a variety of fields that have to be brought together, and I think I've touched on some of it here. I can give you an example. It's a substance called calcium permanganate. It's literally concrete and the concrete is mixed, but you can never mix it with water; you have to mix it with another chemical, which I'm a little reluctant to reveal at this point. It is otherwise a household substance. You mix the industrial version with concrete and produce pellets. These pellets are very porous but they're an incredible oxidizer.

You can take another substance, which I should also not reveal, and through a simple length of tube—I actually have the chemical formula for it here—you can go from room temperature to 1,800 degrees, but it does so with no toxic—it produces steam at 1,800 degrees. Steam normally occurs at 100 degrees Celsius at one atmosphere. Even at one atmosphere, it goes to 1,800 degrees immediately. The thinner your atmosphere, the higher the pressure. It is supersonic. Actually, it's hypersonic. You can see shock waves in the cone it produces, multiple shock wave diamonds as it proceeds down.

It is a substance that you would not think of. It's actually quite inert, but any inert substance placed in an extremely hostile environment will react, and they produce heat and pressure. If harnessed correctly and submitted in the correct sequence into the correct medium—and the medium is probably a turbine; turbines are probably the most efficient for this. This particular

one I'm working on cannot be done continuously because it will eventually destroy the device it's working on, not by corrosion but just by sheer heat. I tend to use it in cycles and I go into, unfortunately, a huge amount of detail about that.

But there are other forms of energy whose exhaust is in fact superheated steam and trace amounts of CO₂; you know, soda pop bottles. The original one here from Hartford, Connecticut, if you were to, say, have Ontario Hydro utilize this—my original plan was to run it as a vacuum with the medium, but it seems that even if you don't run it as a vacuum, you're still 50% more efficient. With the new technology for sealing pipes now, leakage is no longer a concern. After all, we are sealing toxic substances, and this is not toxic.

There are a number of lost technologies, a lot of them from the 1930s, if you're at all interested, that were known, including a device that became obsolete—actually, I do have a photograph of it here—that allows water to flow uphill under the weight of its own water. Contrary to what you have been told, water will flow uphill. It's a simple device known as the hydraulic ram. If you can imagine the old train stations with the big water tower, prior to the invention of electricity, this is how they pumped water up these water towers. It's a resource that was long lost and I think forgotten. There may be a few museum pieces, perhaps. But with the new technology and the new understanding, I think this could be developed, if nothing else, to pump water uphill for reservoirs to run turbines. It's simple in remote applications.

There are a number of lost sciences. You look at this today and you go, "What were they thinking at the time?" They couldn't do it because they didn't have the physical technology at that time to do what they were proposing doing here, but today we do—some of them, not all of them. Some of them are still a little bit in the future, including a very interesting one here. I shouldn't go into detail on that one.

As it stands now, the internal combustion engine as we know it, the gasoline version, is about 15% efficient, the diesel about 17% efficient. They are getting progressively better, but that's not enough efficiency. There are alternatives out there. Whether you want to go with the alcohol or you want to go with the propanes or you want to go with any of the compressed gases, that can be done. There are a lot of lost things, such as sleeve valves. They are so simple. In 1945, all the British radial engines were sleeve valves and they became obsolete with the jets. They were the most efficient use of gasoline in aircraft at the time.

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There are a number of ways of taking something which has energy in it and extracting the most out of it. You can never achieve 100% yet—but even a simple one with concrete pellets, if you can envision an engine where you're constantly putting a tube in and reinjecting pellets to produce steam. The concrete industry has probably not even recognized, because it has lost—the

great irony being the fastest manned aircraft in the Second World War was powered by that particular engine. I have some observations on that right here.

The Acting Chair: Thank you very much for bringing your insights and history perspective to the members of the committee. I suspect you've left some address or whatever with the members of the committee or the Chair. If other members wanted to pursue that, we'd make sure that happens.

Mr Janson: I'm willing to meet with anyone publicly or privately and discuss any of these.

The Acting Chair: Thank you very much for your presentation to the committee today.

FUEL CELL TECHNOLOGIES LTD

The Acting Chair: Our next presenter is Barbara Haines from Fuel Cell Technologies Ltd.

The Chair: Thank you very much for coming forward to present. There's a total of 20 minutes for your presentation. Whatever time is left over we'll divide evenly between the caucuses. Please state your name for Hansard and any position. The time is yours.

Ms Barbara Haines: Good morning. My name is Barbara Haines. I look after investor relations for a company called Fuel Cell Technologies. We're based in Kingston, Ontario. We're a publicly traded company. The operating part of the company is Fuel Cell Technologies Ltd. It has a history that goes back into the 1980s. We have a group of really expert engineers and scientists who have worked in the area of fuel cell technologies for decades. We had a technology that was aluminum energy based and it was used for unmanned underwater vehicles and remote communication locations. The aluminum technology is a more limited-market, custom-order, one-off kind of industry. It's for underwater exploration for scientific purposes, for military purposes. Aluminum has huge amounts of energy within itself, so it's ideally suited for these very complex operations.

However, the opportunity to grow a larger company within the energy industry lies with a technology called solid oxide fuel cells. Most of the information in the market on fuel cells stems from the Ballard success in getting the industry known, the technology known. The solid oxide technology is still a fuel cell, it's still an electrochemical reaction without combustion, but it's a much more rugged, robust, versatile technology.

We had looked at and reviewed your report. Certainly, the range of input that you reviewed in that report led us to want to present to you today. Our technology is for distributed generation. This is going to be a term you're going to hear, and I'm sure you've heard it time and again in your hearings. Distributed generation will allow people to put our product in their basement and take out their furnace and disconnect from hydro. We will have our first installation in Stockholm. We will ship two units to be installed at the end of July this year for the celebration of Stockholm's 750th anniversary. We signed the

deal at the end of January this year. It was an international competition and we won it.

We're working with Siemens Westinghouse Power Corp. They have 30 years' experience doing solid oxide fuel cells. They've spent half a billion dollars on the development. We weren't going to reinvent the wheel on that one. We did the design of the unit. It's our concept, our design, our engineering. I guess the easiest way to view it is, we're the General Motors of the fuel cell industry and we buy our engines from Siemens Westinghouse. It's a joint development project and it shows by the fact that we in Kingston are working with a company in Pittsburgh that's based in Germany and have our first installation going in in Stockholm. There is an imperative for Ontario to move to be part of this industry, because it will be huge, it will be billions of dollars.

The demand for power is such that installation of traditional infrastructure just isn't going to meet with the demands of society. Twelve per cent of consumption of electricity now is for computers and computer-assisted machines. This is something we didn't foresee. It has to be reliable, well-conditioned power, and it has to be uninterrupted.

To meet the demands not only in North America but around the world where infrastructure does not exist or is in tatters, this industry will do the cellphone leap right across the infrastructure. We'll have distributed generation around the world, and it will happen very quickly. The ramp-up years are now.

We're also shipping two units to California: one to the Presidio Trust, where it will be part of a competition. The Presidio Trust is the old US Air Force base in San Francisco. There will be lots of units going in there to whomever wins that competition.

We're talking to people around the world. We've signed a distribution agreement with NKK Corp in Japan, which also works with Siemens Westinghouse. We also have an agreement with Kinectrics. Siemens Westinghouse has an agreement with Kinectrics. So there is a whole network that's starting to develop. I think governments that represent citizens should be very aware of these developments, not only for the job opportunities—the job opportunities are part of why you'd want to keep us and companies like us resident in your province. If we're not providing these services to the citizens of Ontario, somebody from some other country is going to move in to do it. It's just going to sweep the globe in a very large way. I keep coming back to that cellphone experience.

The units right now are relatively expensive. They are prohibitively expensive for a homeowner or a subdivision developer. But the payback for somebody in a remote location where it costs you \$7 a litre to fly in diesel fuel—it becomes really attractive in that environment.

In the handout I gave you there is a slide that speaks to the payback periods. We do look at the scenarios. If diesel oil is costing you US\$2 a litre, the payback on a \$10,000 unit, which would make it \$2,000 per kilowatt,

would be one year. So this becomes very attractive down the line.

1210

Right now, we're going to put a plant up beside our R&D facility, and that plant will be our first production plant. We call it plant number 39. Everybody says it's their first plant. Ours is plant number 39. Out of there we will manufacture our first ride up that S-curve, because we see it going out quite gradually and then just doing the vertical, up and over.

What we would like to see—let me back up a bit. We are members of Fuel Cells Canada. We're also members of the United States Fuel Cell Council. We were members of that first. Again, this cross-border network is developing, and I don't mean just Canada-US, I mean around the world.

It's very difficult to keep up with all the developments, but the stationary power, the distributed generation, is going to be first off the block. I think I have to agree with the head of Toyota that the car thing isn't going to happen until 2020 anyway. The reason distributed gen, and especially solid oxide fuel cells are going to go first, in our opinion, is because of their ruggedness, their simplicity.

A PEM system needs a water management system, it needs a complex fuel-reforming system and it needs a pressure system. Ours doesn't need any of that. You feed this thing natural gas right out of an infrastructure that already exists. It's self-reforming. The water forms on the proper side of the cell. This isn't a science class. If anybody is interested, I could give an hour lecture on the difference between PEMs and SOFCs.

Ours loves carbon monoxide. Carbon monoxide will kill a PEM cell. Ours can tolerate some sulphur; a PEM cannot. Ours doesn't need platinum and palladium to be manufactured; a PEM does. We use nickel, and I think we have a bit of that in this province.

It's simple, and it has the potential to be a lot less expensive. It will use an infrastructure that already exists. However, it uses that infrastructure in a very efficient manner, which is pivotal to your mission. We are looking at numbers of 94% efficiency. We get 47% efficiency on the electrical, and in some of our modelling we get 48% efficiency on the thermal. We're pushing that right up to the top. So this becomes extremely attractive. This five-kilowatt unit will provide the electricity, heat and hot water to your average 2,000-square-foot home down to a temperature of minus 20 degrees.

When the product price comes down to US\$1,000, which would be approximately C\$7,500 in today's prices, this unit will become very attractive for retrofitting and to anybody putting up a new house. We see that happening somewhere around 2007. I don't want to start making predictions we can't keep to, but between 2007 and 2011 this is going to happen.

One of the reasons it's going to be driven, too, is that we are part of a Department of Energy grant. Siemens Westinghouse asked us to be on their team. The DOE in the States has a SECA program, and we are receiving

funds from that program. The mission for that program—the goal—is to bring the cost per kilowatt for a solid oxide fuel cell stationary unit down to \$400 a kilowatt by 2011. That's amazing, starting where we are now and watching where they're expecting that technology to go and that they're going to put the money behind it to make it happen. It's a very exciting industry to be part of.

From the Ontario government, we've had our MPP, John Gerretsen, come to visit and he brought Dalton McGuinty. I think that's about all the attraction we've had with the Ontario government. Peter Milliken, who's our MP, is a strong supporter and has been out to visit a number of times. We're just down the road, two hours on the train. It's a great ride. We would certainly be more than happy to have you come visit us and see what we're up to and find out more about how these things work.

Our mock-up right now is down in Tucson. This is the first time it's gone out of the province. We brought it here for our annual general meeting at the TSE Conference Centre last May. Border States Electric has requested that they be able to display it at their booth at the conference in Tucson this week. So lots of exciting things are happening.

In summary, what I'd like to say is that the technology we're working on does not ask for an infrastructure that is hydrogen. In your report, you've talked about fuel cells and hydrogen. There's more to fuel cells than hydrogen. We don't need a hydrogen infrastructure to make these things work. We have research programs going on at RMC, Queen's, McMaster and Waterloo. We support those projects. We put funding into these because we want our company to have new products, cheaper products, better products and we want to make this stuff so that we can take it and build a really viable company. We have enthusiastic people at RMC who are working on a prereformer for this unit so that you'll be able to fuel it with furnace oil and diesel and then you get that efficiency back out of this.

Speaking of fuels, I also want to note that in your report you talk a lot about the biogas. The installation in Stockholm is an urban renewal project with the potential for sales of 8,000 of these units. The two units that are going over there in July for the demo stage of this program will run off biogas off the sewage treatment plant that's been built in this urban renewal enterprise. I could give you the Web site address for that. I hope I don't misspell it, but I can certainly confirm it. It's www.hammarbysjostad.stockholm.se. I think it's Swedish for "city." Anyway, I will confirm that address.

But it's quite exciting to go and get aerial views of this whole thing. The sewage treatment plant will produce the biogas that will run the solid oxide fuel cells that will provide the electricity and heat to these new homes. It's an environmentally neutral installation. Now we just have to work really hard over the next five months to make the first showcase for this product to be an exceptional success.

We look forward to hearing the outcome of your current set of deliberations and how you want to work with industry in this province to make Ontario a key part

in the development of this industry, not only in Canada but around the world. Thank you.

The Chair: Thank you very much for an interesting presentation. Just on a personal note, where would the factory or the plant that you're describing be located in Kingston?

Ms Haines: Right next door to where we are now. Just off the Sir John A. Macdonald exit.

The Chair: OK.

Ms Haines: We had a sod-turning in October. As a public company you have to be pretty circumspect in how you spend your shareholders' money. We had anticipated building in the fall and then determined that we had enough space in our existing building for the units that we'll be putting out in the second half of this year. So the building has to be ready for our production next year, all the systems ready to go.

The Chair: We're down to just about a minute or so, so maybe I'll turn to the Liberals for a question.

1220

Mr Parsons: I was pleased to hear that the next Premier of Ontario toured your plant. That will help.

Ms Haines: I won't get into a political discussion of this.

Mr Parsons: Twenty-some years ago, I bought a VCR for about \$1,100 and I bought an even better one at Christmas this year for \$97. That's the obstacle facing you.

Ms Haines: That's right.

Mr Parsons: Right now, a unit for five kilowatts would cost what?

Ms Haines: It depends on how much support goes with it and all those kinds of things. I wouldn't even venture. It depends on the terms. It could be \$50,000 to \$100,000.

Mr Parsons: What's the role of government? What's the role of Ontario to help you? It has savings and benefits for the general population to get your units on line. What's the role of government to help that?

Ms Haines: Support in demo projects. We are a business and, in the entrepreneurial spirit of business, we try to say that we're going to do this ourselves. Having financial support is always good, no matter what form it comes in. Grants to develop certain aspects, like the DOE grant—that's funding that says you can assign engineers to work on new product. So money is always good, money does help, and the government being aware and championing the cause as well, so that you are aware when you go to do things with installations up north, you know that you have options, that there is a technology out there that will answer the need for efficiency, conservation and environmental neutrality. One of the reasons I'm here is to educate. Another reason is to say that when you do decide on programs, we would certainly like to be part of it.

The Chair: Thank you very much for coming forward. Interesting technology. It's been quite exciting in this committee to hear about some of the various technologies as they're developing.

Ms Haines: If there are any questions on the colour handout, certainly, get in touch with me. There are assorted current press releases that talk to the fact that—

The Chair: And the Web site that you were making reference to, our clerk will make sure that we have the accurate number to put in Hansard.

Ms Haines: Yes. We have a Web site as well, and it's referenced. It's just fct.ca.

SHAN DHINGRA

The Chair: Our next presenter for this morning is Shan Dhingra. Please come forward at this time. Thank you very much for offering to present to the committee. As an individual, there's 10 minutes set aside for you. What you don't use in presentation will be divided between the caucuses for question purposes. For Hansard, please state your name as you begin.

Mr Shan Dhingra: My name is Shan Dhingra. I'm a retiree living in North York. Canada has been my home since 1966.

I feel proud today to share my excitement about the alternate, or shall I say, complementary sources of energy. Ontario generates 24% of its electricity by burning coal, contributing to greenhouse gas emissions the equivalent of 27 megatonnes of carbon dioxide, which is second only to Alberta at 47 megatonnes. Quebec's emissions in this context stand, remarkably, at zero.

The scale tips toward nuclear sources, which already supply 41.7% of Ontario's electricity with no such emissions. They are getting more efficient by the day, except for the accumulated nuclear waste. We have to safely guard this waste for 800 years, or until we find a solution to appease this growing monster. Nuclear and coal sources could be bypassed by wind and solar power. Gaspé in Quebec and Pincher Creek in Alberta are reaping the wind.

What I'd like to share with you today is my rationale for decentralization. In the wake of 9-11, safety, security and protection of what we have is imperative. This gets a more pronounced entry into the equation of energy, environment and economy. I'd like to draw your attention to this resolve. As a society we have come to enshrine this in our thinking and communal behaviour. It is paramount to protect and guard whatever sources of energy we employ. Whether we build dams, erect windmill farms or stay with nuclear temples, we are sitting ducks for the terrorists and their sabotage activities. For a committed saboteur, would it make any difference if the target were to shift from the World Trade Centre to a hydro power dam or a nuclear power plant? Decentralization should be the order of the day so that we are not incapacitated instantly.

We should not just be catching up with other jurisdictions like California. Rather, we should be innovative and lead the pack. Germany is a good example for us to look at. Its nuclear power, at 31% of its total generation of electricity, with 19 reactors, is being phased out within 20 years—a very sensible and proactive move by

Germany that we may follow. But wait until Canada shares our vision with the rest of the world. They'll be looking up to us for our innovative approach to energy renaissance with due consideration for security.

What is that innovative approach? It is the fundamental shift from large-scale, centralized power generation plants to a cottage industry or to work at the grassroots level. I invite you to travel with my idea a little further. Let every household generate green power equivalent to at least one day's worth of consumption per week and one day's worth by employing conservation and efficiency measures. This formula is no different than encouraging people to grow their own produce for one day's worth of consumption and/or fast once a week.

Are the people ready to embark on generating green power for their own use? You bet they are. There are those 10% to 15% eager beavers and there are 10% to 15% at the other end of the scale who will never do it even when you put money in their pocket. It's the middle 70% to 80% of well-meaning folks who are now willing to listen and act their part when there is proper guidance, encouragement, incentive and help. Recycling is an excellent example—the blue box, the green box etc. They accept it and are proudly asking, "What next?" We need to empower Ontarians. A rewarding public program and education by the province will attain this.

How does John Q. Public generate green power, you may ask, in urban and rural areas? In my considered opinion, each household should be encouraged to accommodate a solar panel or two and have one to four mini-windmills the size of an ordinary table fan on the roof and a fuel cell in the garage. After all, a TV antenna on the roof of the house is not that antique. We're used to it. Going on the grid seems feasible in certain areas.

What incentives should Ontario consider? There are federal programs for retrofitting high-rise residential and commercial buildings. I recommend that Ontario work in concert with those national programs, capitalize on them and negotiate extending them to individual homes in addition to high-rise properties. In exchange for conservation measures and investing three years' worth of about 25% savings in power bills, a householder may be awarded, say, an equal amount from public funding for retrofitting—a win-win situation.

What about high-rises and MUSH? The high-rise green retrofit is progressing. One might even envision most south walls covered with solar panels, with a battery of windmills, table-size again, on the roof and a fuel cell in the basement. Corporations would then readily commission artists to come up with mural designs during retrofit, and the urban landscape would change. MUSH properties would strive to be self-supporting energy-wise.

1230

Does this sound like a lofty goal? Not really. I've been volunteering on developing a context plan of Oriole village between the Leslie and Bessarian subway stations in Toronto. There is a school and community centre building, and I'm proposing that this building be self-

supporting energy-wise. To support my idea, I went to the Kortright Centre, Toronto and Region Conservation Authority. There are displays of various windmills and solar panels and one independent structure that is self-supporting energy-wise.

Can we try it on the highway? I'd like to recommend a variation of the above idea: a solar panel or two, plus two to four mini-windmills, again the size of table fans, incorporated along the highways in an urban setting per individual length of noise barrier. The top panel of the barrier could be a solar panel, and the posts could carry the mini-windmills. The 100-foot-high light standards could carry both of these at the top. The Ministry of Transportation already uses solar panels for electronic announcement and caution signs on the 401.

What do you do when there is no breeze or no sun? That is what my wife asked me, and this is my show-and-tell time. As a kid, I had a great time spinning the windmill. It was wonderful when there was a breeze. In the absence of a breeze, I didn't despair, because I soon found out that the windmill spins if I move the apparatus. The discovery gave me the way to have fun every time I wanted to see the spinning windmill in the absence of a breeze. I visualize a cylindrical frame with, say, eight vertical bars with a sleeve at the top and bottom, rotating at 15 kilometres per hour, primed with external energy. The bars carry a battery of windmills, spinning regardless of wind. Usually we find that solar and wind energy complement each other. In the absence of both, rely on fuel cells. Besides, we are still aiming for energy for one day's work per week and to be on the grid.

In conclusion: (1) I have shared with you my rationale for decentralization in the wake of 9-11 and empowering Ontarians to participate and be part of the energy solution; (2) I've recommended consideration of incorporating the use of solar panels and mini-windmills on the

noise barriers and light standards on Ontario highways; (3) I recommend exploring the smaller MUSH properties being self-sufficient energy-wise; (4) I recommend the marriage of art and technology in retrofitting south walls of high-rise buildings with solar panels and murals; (5) I'm a proponent of mini-windmills, solar panels and fuel cells in buildings of all sizes. However, I keep an open mind to other sources of energy; (6) I shared my exploration of moving the apparatus to gain speed, which in turn may generate wind to propel mini-windmills; (7) I propose that an energy secretariat be set up to act as a central clearinghouse for information and guidance; (8) I'm willing to offer to participate in any related think-tank, task force, work group, what have you.

The Chair: Thank you very much for an interesting presentation. We're hearing a lot of the thoughts you have in your conclusions and getting a consistent pattern. Your comments on decentralizing power sources are certainly interesting. Unfortunately, the time has run out. The 10 minutes are over, but we appreciate you coming forward.

Mr O'Toole: I'd just like to follow up on the previous presenter, Fuel Cell Technologies. If we are looking at things within close travel, I would like to recommend that we put that on the list.

The Chair: Actually our clerk was one jump ahead of you, but I appreciate your input.

Mr O'Toole: Great staff we have.

The Chair: We'll be looking at that list tomorrow and hopefully making some decisions on other sites to visit in Ontario.

The select committee on alternative fuel sources now stands adjourned until tomorrow morning at 8 am, Erie Room, Windsor Hilton.

The committee adjourned at 1236.

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