HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Natural Resources

RNNR • NUMBER 072 • 1st SESSION • 41st PARLIAMENT

EVIDENCE

Tuesday, March 19, 2013

Chair

Mr. Leon Benoit

Standing Committee on Natural Resources

Tuesday, March 19, 2013

● (1530)

[*English*]

The Chair (Mr. Leon Benoit (Vegreville—Wainwright, CPC)): Good afternoon, everyone.

We're here today to continue our study on innovation in the energy sector.

We have four witnesses today, and all here in person. That's something this committee doesn't often have. We do a lot of teleconference things, so it's great to have everyone here in person. Thanks to all for coming.

From the Canadian Renewable Fuels Association, we have Scott Thurlow, president; from the Canadian Natural Gas Vehicle Alliance, Alicia Milner, president; from Biothermica, Guy Drouin, president; and as an individual, Warren E. Mabee, a Canada research chair in renewable energy and an assistant professor in both the Department of Geography and the School of Policy Studies at Queen's University.

Welcome.

I want to remind members that we do have a half hour at the end of the meeting today for future business of the committee. We'll deal with future business at that time.

To take maximum advantage of our time, let's start right now with witnesses. Following the order in which witnesses are listed on the agenda, we'll start with Mr. Thurlow, president of the Canadian Renewable Fuels Association.

Welcome again, and thank you for being here. We look forward to your presentation—hopefully of seven minutes or less.

Mr. W. Scott Thurlow (President, Canadian Renewable Fuels Association): Mr. Chairman and the committee members, I would like to thank you very much for the opportunity to discuss innovation in our energy sector, an important issue that is closely linked to biofuels development in Canada.

Domestic renewable fuel production strengthens our economy, protects the air we breathe, and plays a key role in securing and diversifying our energy future. It also speaks directly to the value of continued innovation in Canada, both on the science and technology frontier as well as in modernizing the market options for the products grown on Canadian farms.

CRFA members create a suite of innovative fuels including traditional corn-based ethanol; biodiesel from canola, spent cooking oils, and rendered animal residues; and the next generation of biofuels, notably feedstock agnostic cellulosic ethanol, which can include wood waste, forest biomass, and reclaimed municipal solid waste. At the same time, our members are continuing to improve energy efficiency in the production of first-generation ethanol and biodiesel. This includes developing new processes and value-added co-products to advance Canada's place in the emerging bio-economy.

When looking at innovation in the energy sector, ours is the place where some of the most exciting work in the world is being done right now. We are an industry built by innovators. Our innovation started with the first-generation technology. There is no doubt that ecoENERGY for ethanol was a smashing success. The program allowed for the construction of several new facilities, and, depending on seasonality, we are now able to meet our mandate of 5% renewable content in all gasoline through domestic production. The government also established a 2% mandate for renewable content in diesel. These mandates are the best way to make sure that renewable fuels are part of our transition to Canada's role as a clean energy superpower, and ensure that the significant economic and environmental benefits accrue for Canadians where it matters most, right here at home.

Cornfields are, in essence, nature's solar panels. They not only produce energy, but they can store it to be used when we need it. I have a board member who says that if someone invented corn today, they would be given a Nobel Prize for all the benefits that can be derived from it. In addition to the traditional uses for corn, our industry makes ethanol, which is derived from its starch. Ethanol is not only a fuel, but a natural octane enhancer that reduces GHGs and other harmful emissions, like benzene. The remainder, dried distillers' grains, is a protein-rich feed for Canada's farmers.

As our industry has evolved with the advent of new technologies we are looking to do even more with our crops, including the production of biopolymers, nutraceuticals and other advanced foodstuffs, industrial plastics, and the next generation of biofuels like cellulosic ethanol. Programs like the government's AgriInnovation program, established under Growing Forward 2, are vital to this type of development.

Today, next-generation renewable fuel companies are establishing commercial plants that can produce biofuels from an array of new sources. They are developing cutting-edge technologies and first-of-kind projects that prove the future of fuel is, in many ways, already here.

Reflecting on the importance of these innovators, the CRFA created a new committee and classification of membership specifically for next-generation biofuel producers. You have already heard from one of these companies, Enerkem, earlier in the committee's work. Biofuel plants, like these next-generation pioneers, contribute almost $1.2 billion every year to our economy, and generate almost $240 million a year in federal and provincial tax revenues.

It goes without saying that in addition to the economic advantages, clean burning biofuels are proven to significantly reduce greenhouse gases and other emissions. Depending on the fuel in question, we can reduce our GHGs by up to 99% in the process when compared to traditional fossil fuels. The government's transportation sector strategy for GHG emission reductions, of which biofuels are an integral part, cut carbon emissions by 4.2 megatonnes. This is equal to removing 1 million cars from the roads. These benefits are even greater with next-generation cellulosic ethanol, which requires less energy to produce than traditional gasoline, and can reduce GHGs by as much as 60%.

We also have next-generation biofuels made from non-recyclable and non-compostable municipal solid waste. These carry a dual benefit, in that they reduce GHGs while also recycling waste that would otherwise be dumped into the ground. It is a nice double hit: we reduce waste to landfill while simultaneously creating energy.

However, in order to reach and capitalize on this innovative potential, we must first plan for our success. As was the case with first-generation biofuels, the next generation of biofuels needs both capital and operating support in order to successfully commercialize their technologies. To do this, policy certainty and stability to attract private investment are crucial.

One such program is the NextGen Biofuels Fund administered by Sustainable Development Technology Canada. This important fund attracts private investment needed in the first years of operation.

● (1535)

As I submitted to the House of Commons Standing Committee on Finance, the CRFA supports preserving the current funding available —

The Chair: Excuse me, Mr. Thurlow. Could you speak just a little more slowly? The interpreters are having trouble keeping up.

Mr. W. Scott Thurlow: No problem—

The Chair: But still get done within the seven minutes.

Voices: Oh, oh!

Mr. W. Scott Thurlow: I'm just so excited about the next generation of fuels that I can't contain myself.

As I submitted to the finance committee, the CRFA supports preserving the current funding available and maintaining the existing eligibility criteria for the applicants under this fund.

I was happy to see that as recently as this morning, Minister Kent, the Minister of the Environment, recommitted to SDTC and the next generation for biofuels fund, noting that it is a catalyst for building sustainable development technology infrastructure and is a significant driver of environmental—

Mrs. Carol Hughes (Algoma—Manitoulin—Kapuskasing, NDP): Excuse me. You do have to give them a chance to catch their breath. You're going too quickly.

The Chair: Go ahead, Mr. Thurlow.

Mr. W. Scott Thurlow: It's a significant driver of environmental innovation in Canada.

We would welcome government announcements under the NGBF and look forward to collaborating with the government to make these a reality in the immediate near term.

On the biodiesel side, our industry remains committed to ensuring that the Prime Minister's stated objective of 600 million litres of domestic biodiesel production is met. Our members currently have operating capacity of 110 million litres of production, and we have a new plant coming online this year that will add 250 million litres of production in Lloydminster.

Like ethanol, the most important piece of the puzzle is the mandate. Again, the government has demonstrated a lot of leadership in this regard. These mandates must be maintained and even grown. Our association has been steadfast in its position that mandates drive investment, and the CRFA is calling for progressive increases to the renewable diesel mandate to make it up to 5% by 2020.

Our country is blessed with a bounty of natural resources, but we cannot and should not rely on this wealth alone to meet all of our energy needs. I want to be very clear about our support for oil and gas exploration in Canada. The development of Canada's energy sector will drive consumption of all products, including ours.

I would point out to this committee, however, that every litre of biofuel we make and consume in Canada is one litre of petroleum-based fuel that we can export into the global market and hopefully sell at a global market price. The simple fact is that we, like other countries around the globe, are facing real challenges in terms of our climate and our environment. Diversifying our fuel mix and promoting the development of innovative renewable fuels is the government's single best policy option for addressing all of these environmental and energy challenges.

For your part, ensuring policy stability and maintaining market access through the federal mandate will turn our industry's innovations into Canada's successes.

Thank you. I look forward to answering your questions.

Again, I apologize if I was going too quickly.

● (1540)

The Chair: Thank you very much, Mr. Thurlow.

We'll go now to Alicia Milner, president of the Canadian Natural Gas Vehicle Alliance.

Again, welcome. Go ahead with your presentation, please.

Ms. Alicia Milner (President, Canadian Natural Gas Vehicle Alliance): Thank you, Mr. Benoit, and thank you to all the committee members.

It's a privilege to appear before you today to discuss the innovation within the natural gas vehicle sector and how there is a broader spectrum of opportunities opening up, both on-road and off-road, for natural gas in North America.

Canada has long been recognized as a leading technology innovator when it comes to natural gas for transportation. Canadian companies have achieved several global firsts over the last three decades, in part because of collaboration among the public sector, private sector, and academia.

The track record of our Canadian achievements includes developing the first natural gas transit bus in the world—in the 1980s, in Hamilton. We developed the first home refueller for passenger vehicles. There was significant leadership from Canada in the eighties and the nineties on the development of codes and standards for compressed natural gas use. We developed the first heavy engine to match the efficiency of a diesel engine. We also developed the first heavy engine to meet EPA 2010 emission requirements.

This is a track record that both industry and Canadians can be very proud of. It also provides a solid foundation for our Canadian companies as they look to leverage their advantages in the global marketplace.

With the supply outlook for natural gas starting to change in the last few years, thanks to the unconventional natural gas resources, given this technology head start we are well ahead in terms of other countries and in competing for opportunities in this space. Our companies in Canada are the market leaders when it comes to heavy engines in North America, selling to 20 different truck and bus manufacturers. We own this part of the market. We also have a very strong presence in biogas upgrading to make renewable natural gas or green gas.

When we look back over the last 30 years, while the market development in Canada was not that successful, we actually had an outcome that no one expected, which was to create a number of very strong leading technology innovators in Canada that are very well positioned as we look forward.

With these strong credentials, you can understand why, when the gas supply outlook changed and the industry started to work with Natural Resources Canada, we didn't start with the technology road map, which is a very common starting point. Instead, we started with deployment: how do we actually get this technology used in this country? That was the real question of this work.

The outcome of it was a report that's been very helpful in terms of focusing both government and industry effort. It has also led to the ecoENERGY for alternative fuels program, a $3-million, five-year program, that's really removing barriers—technical barriers and education barriers.

Going back to innovation, which is the focus of the committee's work, I'm pleased to advise that because of these early investments, as mentioned we have a very significant Canadian advantage going forward. First and foremost with respect to innovation is Canada's Westport Innovations. Westport is well known in Canadian clean tech circles. It's the company that developed the first heavy engine to match the efficiency of a diesel engine. This engine is now used in just under 200 natural gas highway tractors in Canada, and in about twice that number in the U.S. We do expect that demand for Westport's products will grow considerably with the build-out of LNG refuelling stations that's now under way in the U.S.

Second, is Cummins Westport. This is a joint venture between Westport and Cummins Diesel, which is a very large American company. This is the company that developed the first engine to meet the EPA 2010 standards, but because of the cleaner burning qualities of natural gas, this technology now has an advantage over diesel. There is no need for a particulate filter and no need for an SCR system, both of which add cost and complexity. All diesel vehicles now need that exhaust after-treatment.

With regard to the type of growth that Cummins Westport has seen for their products over the last few years, there has been more than 50% growth in demand for their engines, primarily into the North American market but some offshore. They've sold more than 10,000 engines into the truck and bus market. They're going to be bringing a larger version of their engine to the market this year, and that is widely anticipated, based on their success to date.

The third company I'd like to highlight in terms of innovation is Xebec Adsorption. They're based in Blainville, Quebec, near Montreal. They manufacture natural gas dryers as well as upgrading equipment for biogas. They have 15 biogas upgrading installations around the world. They essentially take biogas from waste sources—agricultural, municipal, or landfill—upgrade it so that it's renewable or green natural gas, and then it can be used either directly in vehicles or put into the pipeline. Their installations are in Korea, Switzerland, Austria, Canada, and the U.S.

● (1545)

Now, looking forward, there are tremendous opportunities, given the kind of technology portfolio that we do have here in Canada. Where we see new opportunities opening up is off-road. These are in the areas of rail, marine, and heavy horsepower mining trucks.

Westport has a propriety technology, their high-pressure, direct-injection gas technology, and it's the focus of an engineering partnership with Electro-Motive Diesel , as well as with Caterpillar, so two very major players in the heavy, off-road equipment space.

For locomotives, as many of you may know, there's already a pilot project under way between Edmonton and Fort McMurray, with CN and refuelling from Encana, with an LNG locomotive operating on a regular route there. In addition to this pilot, there's some from-the-ground-up technology development work funded by SDTC, involving Westport, Gaz Métro, CN, and Electro-Motive, essentially to develop an LNG, purpose-built locomotive engine.

You may have also seen within the last couple of weeks the announcement that BNS—and that's of course the Warren Buffett-related announcement—is now testing LNG locomotives as well. They're obviously a very major player in this space, so that's also very encouraging to see.

On the heavy horsepower mining trucks, these are probably about three years off from being commercial, but Westport is actively working with Caterpillar on this technology. From Caterpillar's perspective, there's a nice quote that I want to share with you, from their director of strategy, as follows, "...we see a global market long term. Large engines are going gas. It's not debatable; it's our conclusion." Caterpillar has essentially said they're going all-in on natural gas.

So Westport is extremely well positioned to benefit from this new direction, as Caterpillar adds natural gas across its product portfolio. As mentioned, we do expect there'll be some commercial technology there by about 2017, so that's very much of interest to some of our members like Shell, which would like to also use natural gas for the heavy off-road equipment.

Just in closing, as the global transportation sector seeks affordable, lower emission alternatives, there'll continue to be great opportunities for Canada's natural gas vehicle industry, given the kind of expertise and knowledge from the industry. We would very much welcome the opportunity to explore with the federal government how to further leverage our substantial innovation advantage in this area.

Thank you.

The Chair: Thank you, Ms. Milner.

We go now to Guy Drouin, president of Biothermica.

Welcome again, and go ahead with your presentation.

[*Translation*]

Mr. Guy Drouin (President, Biothermica): Thank you for inviting me to give testimony before the Standing Committee on Natural Resources.

My presentation will be very practical in the sense that I am going to tell you about three of our projects. I am also going to conclude by telling you about changes and approaches that I think our legislators should consider in order to improve, increase and speed up the development of technologies with a view to fighting greenhouse gases.

I founded Biothermica 25 years ago to recover methane from landfill sites and, later on, from underground coal mines. Since 1987, our company has invested more than $150 to $200 million in projects. It has developed over 12 active patents linked to those technologies. All the things we do today did not exist 25 years ago.

Today, our company owns infrastructure. We are a private producer of landfill gas power. I set up the first landfill gas power plant in Canada, which is actually the largest. The power plant is called Gazmont and it is in the City of Montreal, on the landfill site formerly known as the Miron quarry. This plant generates 25 MW of electric power.

For four years, we have been connected to TOHU, a Cirque du soleil subsidiary. We bring them hot water so that they can heat all their facilities with green energy. Soon, we will be connected to Cirque du soleil's head office to replace the one million cubic metres of natural gas that their head office is currently using in Montreal. They will simply use the heat generated by our turbine that produces electricity from biogas.

This company that I have created belongs to my family. We were able to develop technologies especially because of the research and development tax credit program. I would really like to thank the Canadian government because our company would not exist if it weren't for this Canadian program that was implemented in the 1980s and followed by Quebec. This program is extremely and fundamentally important for any company that wants to develop green technologies.

Fortunately, last year, the Jenkins report provided some very positive recommendations. There have been some cuts to the program, but the key aspects of the program have been kept. This program is one of a kind in the world.

As an entrepreneur, I encourage you to keep this program and to improve it because it is fundamental. Why? If we compare it to grants, the program has continuity over time. As business people, we are able to create long-term R and D programs because we know that the program will exist in 5 or 10 years. With a grant program, if the government changes, the program can disappear. So we cannot develop a long-term technology. Developing technologies does not happen in a year; it takes 10 years.

We specialize in methane. Last week, I was in Vancouver for the largest conference in the world on the Global Methane Initiative. The conference was sponsored by the Canadian government, Environment Canada and U.S. EPA. Canada's Minister of the Environment opened the conference. The conference brought together 70 countries, the stakeholders of which are all methane emitters, be it methane from coal mines, landfill gas or oil refineries.

At that conference, since we are world-renowned in the field, Biothermica had an opportunity to present two projects that are unique in the world. The first project was in Alabama where we are the first company to recover methane from underground coal mines.

Let me say a few words about methane. Fifteen per cent of the world's greenhouse gases are emitted through methane and the increase rate of methane emissions is twice as high as that of CO_2. Methane has an impact that is 21 times stronger than that of CO_2. In other words, every tonne of methane emissions is equal to 21 tonnes of CO_2.

● (1550)

Canada, with the United States and 30 other countries, launched the Global Methane Initiative in order to help private companies develop technologies to reduce methane emissions, whether from waste, biogas, underground coal mines, manure—animal excrement, that is— or rice plantations, which abound in China.

Still from a practical perspective, Biothermica has developed three methane-related projects. The first one is Gazmont, which I have talked about. We were the first to recover more than 15,000 m^3 of biogas. At the beginning of Gazmont, we were generating 25 MW of electricity, enough to power 30,000 homes. Today, we power 6,000, since the curve is slowly dropping.

That was a pilot project and, since it was our project, we funded it. We are talking about $38 million. We put in $7 million as equity and we had a debt of $30 million. This project became a technology showcase for Biothermica. It allowed us to carry out a similar project in El Salvador that we registered under the Kyoto Protocol in 2006 through the clean development mechanism.

The Canadian government had ratified Kyoto. It gave us a letter of approval, except that, afterwards, since Canada did not create a greenhouse gas registry, we signed an agreement with Luxembourg to be able to sell the carbon credits that we were generating in El Salvador to the Grand Duchy of Luxembourg. As a result, we didn't have to go through Canada's greenhouse gas registries. That project won first prize in infrastructure in Latin America in 2008, for its technical quality and especially for its technological success. Today, we have a 6 MW power plant. The project is still running with revenue from electricity rather than carbon credits, because the price of carbon has dropped tremendously in Europe.

The second project is in Alabama. We were the first to set up a plant using our VAMOX technology that recovers methane from one of the largest underground coal mines. This underground methane creates explosions. The project was registered under the Climate Action Reserve. The state of California is currently telling us that it will recognize those carbon credits in the California carbon market that was created. Quebec has been linked to that market through a liaison initiative since last month. Clearly, we will be able to deploy the VAMOX technology as a result of a regulated carbon market being established between California and Quebec.

To conclude, Biothermica is a company that has always been profitable. The development of green technology is a source of wealth. In addition, we have come to the conclusion that legislators must consider the fact that, every time we use a cubic metre of clean air to create energy, whether it is for cars to move by burning gas or for burning coal and natural gas, we should put a price on this cubic metre that we are taking away from the environment and that becomes “a little dirty”. If we put a price on a cubic metre of clean air, the way we do for each cubic metre of wood or water, we will send a message that it is limited. That is economics 101. As a result, we would pay attention and use clean air rationally. I have always wondered why, politically, we have a hard time putting a price on a cubic metre of clean air.

● (1555)

It is one of our planet's resources, just like a cubic metre of wood, water or gravel. So that is our message to you. As legislators and policy makers, you have a role to play so that we can eventually put a price on it. It is your job to decide whether the price will be added through a carbon market or as a carbon tax. Once there is a price on every cubic metre, we will do our job as technological entrepreneurs. We will develop technologies and, as a result, we will create wealth, a cleaner environment and a sustainable planet.

Thank you.

The Chair: Thank you, Mr. Drouin.

[*English*]

We have, as an individual, Warren Mabee, chairholder of the Canada research chair in renewable energy.

Dr. Warren Mabee (Chairholder, Canada Research Chair in Renewable Energy, Assistant Professor, Department of Geography and School of Policy Studies, Queen's University, As an Individual): Thank you, Mr. Chairman, and my thanks to the members of the committee for allowing me to be here today. It's a real pleasure.

First, I'll try to describe a little bit of the mix of renewables available to us. We have three real sets of needs. We have needs for industrial and home heating. We have a need for personal and mass transit. We have a need for electricity generation. Different renewables match different needs in different ways. Biomass is really the only renewable energy source that can meet all of those needs. It's perhaps for that reason that we haven't taken advantage of it as much as we might, because there are competing interests in using biomass for energy right across Canada.

Currently, biomass for energy only takes up about 2% or 3% of our total primary energy supply. In China, biomass accounts for up to 10% of the total primary energy supply. Even the United States uses more biomass for energy than Canada. That speaks to an opportunity for this country. We have biomass. We have a lot of it. There are opportunities for us to do more with it, to meet our own energy needs and perhaps the energy needs of others.

As for renewable electricity generation, China produces more than any nation right now, about 645 terawatt hours as of 2009. The U.S. is at about 464. Canada is at about 375. It's terrific. We have 35 million people. We are producing more renewable power than any other nation on a per capita basis. That has made us complacent. I think that we can look at ourselves and say it's a job well done. We have done a great job of developing renewables. Almost all of our renewable power is hydroelectric. Very little of it comes from any other source. Compare that with the situation in the United States or any other country, where other forms of renewable power have been developed to a much greater extent. There is a great opportunity here. There are many things that we can do.

Renewable electricity breaks down across Canada without hydro. Every single province, every region, is doing different things. We have a multiplicity of approaches in our country, and that reflects our loose federation. It reflects the power of the provinces to determine how they might put together their electricity portfolio. It means that we might be able to do better by harmonizing our approach to renewable electricity generation.

One place that Canada falls down is in the generation of renewable heat. In this department, Sweden is the big leader with 127 petajoules, followed by Finland, with 54 petajoules. China generates 12 petajoules. Canada generates only 2 petajoules. We are not grabbing everything that we could from the biomass that we're consuming, even for electricity generation. We are losing an opportunity. This is a piece of low-hanging fruit. I know that we have tried in the past to implement programs to support renewable heat or biomass to heat. I think there are more opportunities we could work on in the future.

Biorefining is a complex subject, with many technologies. We've heard a bit about the biorefining approach from some of my colleagues here. We've heard about biomethane and how we might be able to go after different forms of energy.

● (1600)

All I wanted to show you is that this is a really complex area. There are a lot of options, a lot of technologies are being developed —opportunities but also challenges because we are not a big country and everything will be very difficult for us to develop.

I've drawn some little dotted boxes around some of those technologies. They really represent different technology pathways that different Canadian companies are pursuing. We have champions pursuing each of these different boxes. The committee has heard from Enerkem, which is a terrific example of a Canadian company pursuing the gasification catalysis and ultimately liquid fuel pathway with quite a bit of success.

We have some opportunities to work within these different boxes. Canada has a lot to provide on the value chain side of things. We are good at handling biomass. We have a long tradition of it in the forest sector and the agricultural sector. We can capitalize on that.

I'd like to thank the government for the establishment of BioFuelNet, which is a new network of centres of excellence. It was funded last year, and we're now working toward the end of our first year of programs. We have research programs going on in all these areas. Over the next five years we will be identifying some of the real opportunities, and we will be linking them to market opportunities. The technology is moving forward, and we're excited to say that.

As we move forward there are a few places where the government can really play a key role. There are ways we could use heat better, and it is a low-hanging fruit. It is an easy win, so to speak, if we can start to capture some of that, and it will support deployment of the biorefinery because it will add more value to the energy generation/ fuel generation side of things.

We can build on our strengths. We have a number of pulp and paper mills. We have capacity that is underused or is in danger of being shuttered. Certainly we have had lots of capacity shuttered over the past decade or two. We might be able to use that capacity to support new initiatives. We will need help to move from the lab scale, from the pilot scale, into those facilities. We're looking forward to being able to do that.

I'm going to echo something Scott said earlier, which is that we would like to consider new mandates in the future for renewal content in chemicals and fuels. It is not to say that we have to keep ramping up ethanol content in gasoline. We could look at other fuels like aviation fuels.

Lately I have got excited about the idea that we might be able to link mandates to our oil and gas sector. Could we use a mandate that would direct the industry to use a certain proportion of renewable power in the development of conventional energy resources to develop infrastructure and capacity that could help move forward other Canadian sectors as well? I think we could do that without crippling the conventional sector. We could do that and build on some of our strengths.

Something we are going to need—and the last speaker addressed this to some extent—is clarity on metrics of success. Are we aiming for greenhouse gas emission reductions? Are we aiming to create jobs? Is this all coming down to cost? Are we looking for the dollars or the megawatts that are being delivered?

We can optimize systems to do each of these things. It would be good to have a better sense of what our metrics of success should be.

With that I will wrap up. Thank you very much, committee members.

● (1605)

The Chair: Thank you very much for your presentation, Dr. Mabee.

Thank you all.

We'll go now directly to questions and comments from members, starting with Mr. Leef. We also have Mr. Julian and Mr. Hsu in the first round.

Go ahead.

Mr. Ryan Leef (Yukon, CPC): Thank you, Mr. Chair.

Thank you to all our guests today. It's tough when we have four witnesses all at once. It doesn't help us narrow down our range of questioning, but what it does do is highlight what's out there and the options that exist.

That leads me to my question. I'm the member of Parliament for the Yukon so, obviously, the territory is a small market. Canada in some sense—it's reflected in a couple of these presentations—is a small market with 33 million people. How do we go about identifying that product?

As Mr. Mabee pointed out, there are really three areas that we're looking at here but, if we're talking about a transportation sector and a home-heating sector, how does an option rise to the top? It would seem to me, from the Yukon perspective, that the cost of developing this is so intensive that you can't give every option to all the consumers in such a small market. If you do that, then... I can't imagine pulling up to a gas station in the Yukon and having a LNG option, a biomass option, a fuel option, a diesel option, and having any one of those actually be viable, because the costs to implement those are so tremendous. That's at the Yukon scale, and it's probably not a much better picture at the national level.

I don't know if you have an exact answer for that, but maybe you have some comments on how we shape that so that the options can exist but, at the same time, we narrow our focus down so that we actually get a product on the market that's going to achieve the goals that you've set. I think that was a good point. We have to define what our metrics are going to be, and maybe that would partly answer it.

We'll start at your end and work our way down.

● (1610)

Mr. W. Scott Thurlow: Sure, and certainly I'm going to defer to Alicia here because that's part of the mandate of the document that she spoke to.

In Canada we focus on the creation of the fuel as opposed to the delivery to the customer. It's up to the obligated parties to take advantage of their street corner locations and create their own market niches for one another, but what I will tell you is that in the United States, particularly in the Midwest, you have seen tax credits for pump turnover, you have seen drivers of technology that can be easily communicated to consumers at the pump so that they themselves can make those types of fuel choices in the gasoline market.

But you're right on the nose. Ultimately, if we want fuel diversification, there is going to be an upfront capital cost to implement all of these different fuel choices.

Ms. Alicia Milner: Yes, I guess from the natural gas for transportation perspective, what this was really all about was we got a lot of bumps and bruises the first time we tried natural gas because we tried to do it across the spectrum. So let's be smart about it as government and industry and figure out what the right niche is.

The conclusion, of course, was the return to base—medium and heavy vehicles and regional corridors—but there's got to be sort of an ongoing collaboration. Certainly on the natural gas side, we see no role for government spending on infrastructure, but we absolutely see an important role to define, to create a period of certainty, so that we see that private sector investment in Canada.

I think the interesting thing, especially in a jurisdiction like the Yukon, is that we're starting to see more and more off-grid, off-pipe opportunities because of LNG, and that's going to open up. We've got to be very aggressive and opportunistic about it so that, if there is an LNG opportunity, that can then open up both local heat as well as transportation, but more on a one-off basis depending on the nature of the opportunity. Certainly from my comments, it's probably pretty clear that we are very much targeting the high fuel consumption applications—and that's a space too where there really are very few options to reduce emissions—and one of our fastest growing sources, heavy diesel vehicles.

Mr. Guy Drouin: In relation to liquefied natural gas or ethanol from cellulose or corn, it's a different ball game. I was involved in both of these technologies before I founded Biothermica. I was the owner of the alcohol plant in Gatineau on the other side, and we did a lot of R and D on cellulosic ethanol through hydrolysis. There's the other way through gasification like Enerkem.

I think that the option to utilize biogas or natural gas in the transportation system is short term; it's a no-brainer; it will happen. The U.S.A. has an immense reservoir of shale gas. There is more and more shale gas on the market, and you have seen a collapse in the price of natural gas, going from $10 per gigajoule to $3 or $4. That will have two consequences. First of all, that will push natural gas in the transportation sector, and later on push the ethanol from cellulose because it's quite a bit more expensive than natural gas.

So the shale gas paradigm in North America has been changing the ball game for the last two years, but cellulosic ethanol has a role to play, not for tomorrow, but maybe the day after tomorrow.

That is my personal view.

Dr. Warren Mabee: One idea that I would like to put out is that a way to break this problem down is to consider the country by region. In the east we have a lot of people, we have chemical processing capacity, and we have big markets. This might be the place where we work towards a biomass to a liquid fuel or a biomass to chemical option. In the west we have a big conventional energy industry. They have big needs for heat. Maybe that's where we work towards renewable heat. In the north I would argue that electricity—particularly as you move into the off-grid communities—becomes an overriding concern. Maybe we look at different ways of generating renewable electricity in those zones.

So we might end up working on three pathways rather than 50, but it would give us a way to bring things down to a more cohesive form.

● (1615)

Mr. Ryan Leef: Thank you.

The Chair: Thank you, Mr. Leef.

We go now to Mr. Julian, for up to seven minutes.

Go ahead, please.

[*Translation*]

Mr. Peter Julian (Burnaby—New Westminster, NDP): Thank you very much, Mr. Chair.

I would like to thank all the witnesses for joining us. As Mr. Leef said, it is hard to choose who to ask questions because you have all raised many interesting aspects.

I would like to start with you, Mr. Drouin.

In my view, you spoke very passionately about having a long-term vision. That includes having a carbon market. We have often criticized the government for withdrawing from the Kyoto Protocol and for not putting a price on carbon, which is essential according to many people in the industry and according to you as well.

What is the best approach for the government? Of course, we will prepare a report and make recommendations for the government to set a price on carbon so that these types of businesses are profitable and so that we safeguard our environment. In your view, what steps should the government take?

Mr. Guy Drouin: There is a major experiment starting in North America. First, the American state of California, the tenth largest economy in the world, will create a significant carbon market. There will be sufficient liquidity to have a meaningful cap and trade system. Second, in Canada, on December 21, 2012, the Quebec National Assembly passed the latest regulations and laws to establish a regulated carbon market as set out in the Kyoto Protocol.

There is a difference though. My company is very active on the California market. Americans are smart. They took everything that was good from the Kyoto Protocol and left out what was not good. They have set up a very strict market that is already working very well. Two auctions were held, one in November and the other in January. The price per tonne is $12 or $13. It is a very attractive price, which reflects today's reality, in my view.

Likewise, I think Ottawa needs to look at what is happening between Quebec and California. Washington will be doing the same thing. If those two markets are working very well in a year or two, they can become a model for other regions, territories and provinces to enter this market. It is interesting to see who will be the leader. The American states or the provinces? It must also be said that, as part of the Western Climate Initiative, other partners might intend to become plugged into that market. Ontario is one example. There are observers such as Nova Scotia. Off the top of my head, in the U.S., there is Oregon, Utah and New Mexico. Everyone is watching and waiting.

I think the Canadian government decided to watch this experience very closely because, at the Vancouver conference, everyone was talking about the Quebec and California experience. We might say that this is perhaps a stricter model than the Kyoto Protocol, which was heavily criticized. The Canadian government rightly echoed the same criticism, but the Quebec-California market, which is relying on the Kyoto Protocol experience, might be a much more appealing market. That is what I think.

Mr. Peter Julian: Thank you. What you are saying is valid and important. There has been a lot of reluctance on the government's part to assume this responsibility, but we really hope that your involvement will help make the government accountable.

[*English*]

I'd like to continue with you, Mr. Mabee. You mentioned the metrics around jobs or greenhouse gases. Now, we of course know that what Canada's missing, and part of the reason why we've lost half a million manufacturing jobs over the last few years, is that we don't have in place any real green technology, clean technology, strategy, and many other countries are picking up the jobs. Germany is a good example—300,000 jobs that we don't have because our government has really failed in that respect.

Would you not think that we can actually do both, that by putting in place a strategy around renewable energy, green energy, we can actually have the jobs that we're missing out on in that trillion-dollar market and have what most Canadians want, which is having Canada combat climate change?

● (1620)

Dr. Warren Mabee: I think implementing a plan to move one of these technologies forward would help with employment, there's no doubt about that. Once you start to support a technology, support its use, the use of the products, support the rollout of different spinoffs and ancillary services, you start to see this sort of ecosystem develop.

Germany has done that very well around different renewable energy technologies. Ontario has tried to do that within the last few years, with their Green Energy and Green Economy Act, with some success.

I would argue that as a nation we could do it better. We might not be able to have a single strategy that would cover the whole nation, coast to coast to coast, but maybe three strategies, the way I was talking about before, would give us something to work with.

So yes, I think you can have jobs and income. I think if you prioritize jobs, you might end up with a different strategy than if you prioritize income. Again, knowing those metrics and knowing where we want to go is important.

Mr. Peter Julian: Thank you very much.

To Ms. Milner now, you mentioned that the budget for the energy program, and I imagine this is paid for by the natural gas association, is $3 million over five years. That sounds to me like a very small amount.

You mentioned later on that the role of the government is to create certainty. But would it not be also the role of the federal government to show some leadership in this respect?

If we have a $3-million initial contribution from the private sector, would it not be important for Canadians, given the importance of your sector, to have a federal government that's showing leadership and providing some funding?

The Chair: I need a very concise response, Ms. Milner.

Ms. Alicia Milner: Okay.

Just to clarify, that $3-million program is $3 million federal matched by $3 million industry in funds. So it is 50-50 to look at these barriers.

Yes, I would say we have seen leadership on this file, but we think there is so much more potential, and we think increasingly the focus is now about risk and competitiveness in a North American economy.

As mentioned, we are seeing this build-out of stations in the United States. Canada is lagging considerably. We don't see a role for direct investment, we don't see a role for mandate or subsidy, but let's at least create a timeframe of certainty so the private sector can get spending this money and do it on our side of the border, not south.

The Chair: Thank you.

Thank you, Mr. Julian.

Mr. Hsu, up to seven minutes.

Mr. Ted Hsu (Kingston and the Islands, Lib.): Thank you.

I want to thank all the committee members for making it here today, with the snow.

I want to start with biodiesel, and I have a series of questions for Mr. Thurlow.

We're far behind this objective we had for biodiesel production in this country. Why are we not at the objective now? There was a biofuel subsidy, which will terminate and not be renewed. Why did that subsidy not work? Why were refiners complaining that somehow the specifications were not met?

I'm wondering if you could give your point of view on that.

Mr. W. Scott Thurlow: Sure. I think that first of all, as a condition precedent, I would say that what we're doing on biodiesel and what we have succeeded with on ethanol...I mean, we had the same model in place. It was the application of that model that probably didn't work the way it was originally intended.

I want to be really clear that it wasn't the biodiesel industry that failed to meet this build-out. We have two plants that are going right now. We have a third plant coming online for 250 million litres, so that will get us very close. There are a lot of misconceptions about the use of biodiesel that I think are fuelling some of the consternation in government.

I think the first one is that.... The product is being sold to refiners today. There are people who are having trouble selling their product, but that's not because the refiners don't want to use it. It can be because of the amount of production that somebody has and the quality of that production and whether or not it meets specifications under the CGSB or ASTM. It could be the availability of cheaper product from abroad. The ecoENERGY program created for biodiesel didn't have the opportunity to succeed the way that ecoENERGY for ethanol did.

I think it's unfortunate that the government has chosen to not extend the program and to not allow for that build-out to happen, because we know that there are shovel-ready projects today that can meet that obligation of 600 million litres. I can't speak to the full rationale behind it, but I think minor tweaks to the program could have fixed it.

I'm not here to re-litigate decisions that have already been taken. This is the position of the government. I would tell the government that the program could have been even more successful than it was originally intended to be, but the decision has been made and we haven't seen the build-out there.

● (1625)

Mr. Ted Hsu: Thanks.

Mr. Mabee, I have a question about your statement that we're doing poorly in renewable heat generation because policies for heat and electricity have been separated. I was wondering if you could expand on that a bit, with a particular focus on anything federal.

Dr. Warren Mabee: Electricity policy tends to be handled at the provincial level, so we're dealing with provincial utilities and provincial governments that come up with their own targets and their own programs to support renewable electricity. We've seen that in Ontario. We've seen that in other provinces across the country.

Heat is something that we pay much less attention to in the country, with a few exceptions. We have had some federal programs to help with retrofitting recovery boilers in order to generate more heat and electricity and also to get more efficient recovery within the pulp mills. There have been other programs in the past, which are escaping me right now.

Because we treat heat with one hand and electricity with the other, we overlook the opportunity for combined heat and power generation. Combined heat and power generation is the most efficient way and the best way of getting heat out of a solid. Whether we're talking about renewable biomass or coal, it really doesn't matter. If you can do combined heat and power, you get much more efficiency because you're using the heat that's left over, and I think we need to find ways to move more of that technology forward.

Mr. Ted Hsu: Are you saying, for example, that if there's an incentive to produce renewable electricity, you should have some kind of incentive to take advantage of the heat at the same time, and that's not happening? There are two separate programs and they're not coordinated.

Dr. Warren Mabee: That's right. If you look at the way that biomass to electricity is incentivized in Ontario, there is little uptake. It's largely because the heat component doesn't receive a value. People may use it, and people do use it, in certain applications, but there's no value attached to it and there's no real driver, and that's a problem.

Mr. Ted Hsu: What if you had a proper cost on electricity and heat produced from fossil fuels? Would you avoid the problem of having one incentive for one kind of renewable energy and not having it there for the other kind of renewable energy at the same time?

Dr. Warren Mabee: Yes. You could proxy the cost of the heat or the cost of the electricity in terms of the carbon load, for instance, or the environmental impacts, and if there were a carbon price, as we've talked about, that would tilt the balance again. Until a carbon price comes, one of the other ways to move these technologies forward would be to recognize the heat value, as I say.

Mr. Ted Hsu: Okay. Thanks.

On the last statement you made, about providing clarity on the metrics of our success, are we measuring everything we should be measuring, and are we properly measuring it? Would you suggest things that the federal government should measure better, so that we could be more clear on what those are and how close we're getting, and thus manage this?

Dr. Warren Mabee: A really useful measurement is in jobs. But it's not just direct jobs; it's also indirect employment. I know that my colleague from the Canadian Renewable Fuels Association will have some stats on this, but for every ethanol plant that's in place, there are hundreds of farmers, if not thousands, who are supplying corn, and that is their income. So you can work that out. There are thousands of people who are earning their income by providing feedstock. If we're looking for a made-in-Canada solution, growing the biomass and harvesting the biomass provides a lot of input back to the economy, back to communities. This doesn't get captured when you just measure the number of jobs at the refinery or at the mill. There might only be 40 people working at the plant, and that doesn't look like a big win after you've spent half a billion dollars. You have to look at the number of people whose jobs depend on various related industries. I could talk about environmental, too, but I'll stop there.

● (1630)

The Chair: Thank you, Mr. Hsu.

Go ahead, Mr. Anderson.

Mr. David Anderson (Cypress Hills—Grasslands, CPC): Thank you, Mr. Chair, and I'd like to thank our witnesses for coming today.

Mr. Mabee, I'd like to start with you. You're talking about tilting the balance. Which biomass technologies do you think look most promising over the next 10 years? We're talking about innovation in our study here. What are the really innovative technologies that are coming?

Dr. Warren Mabee: We're seeing a lot of promise with thermo-chemical technologies. These are the technologies that companies like Enerkem have moved forward, using gasification. They use heat to break the biomass down. They produce a lot of heat during production, so it's very important for us to find a use for that heat. In our western provinces where we have some industries that use a lot of heat to drive things forward—and I'm thinking of the conventional energy industry—there's a nice match there.

The biochemical approach, on the other hand, has the potential to deliver higher value products, and we're starting to see some of those products emerge. We're trying to link those up to the existing chemical industry.

There's a problem with bio-products in that there is no real incentive for a bio-based component in a plastic, or a bio-based component in a chemical. Using mandates could help us there. It's something that I know they've talked about in the United States—introducing a 5% or 10% renewable content mandate. We could look at something similar here.

Mr. David Anderson: Mr. Thurlow, you talked a bit about cellulosic ethanol. Can you tell us where that technology is right now? We're familiar with some of the companies that have come and have kept coming and kept coming, and I'm just wondering how close to commercial viability we are with some of those technologies.

Mr. W. Scott Thurlow: It's the million-dollar question. If we could see six years into the future, we'd all be bazillionaires, because we'd be able to invest in those companies. I can tell you, based on the support of this government, a company like Enerkem is able to move forward with the plant that it's building in northern Alberta, just north of Edmonton. That's a technology that is going to take trash, turn it into methanol, and then convert that into cellulosic ethanol.

On the SDTC side, there are announcements on the way that will lead to the commercialization of these projects in the very near future. The line that I hear south of the border is that cellulosic is always five years away, but we see it as much, much closer than that. Enerkem could be producing as early as the end of next year.

Mr. David Anderson: Mr. Drouin, I'd like to just talk a bit about this market that you want to set up. When it comes to things like wood or minerals or corn, or whatever, there is a real market there. There's a demand component and a supply component. It seems to me that the reason the carbon market hasn't developed is that there has been no real market for it. What has happened is that proponents of it suggest that governments need to start the market, or control it. The problem is, it ends up being used either to change behaviour or tilt the balance. Industry is allowed to avoid its responsibilities. I'm just wondering, why has it been so difficult for a real market to establish itself if this product is a real product with a supply and demand side to it? We've talked quite a bit about not wanting to choose winners and losers, but that's exactly what something like this sets up. I understand that your profitability is tied to this. But tell us, why has it been so difficult for that market to be established?

Mr. Guy Drouin: First of all, in order to establish such a market we should have a regulated market. We need legislation like that in Quebec and California in order to create this market.

Mr. David Anderson: The only way to start it, in your opinion, is to have the government start it. There is not a real market there that will establish itself?

Mr. Guy Drouin: We need to have penalties for the large emitters that are not meeting their objectives. For instance, in the European market there is a penalty of €100 per tonne for those that cannot achieve their commitment to reduce greenhouse gas. The problem with the European market, as you know, is that they decided to go ahead with new allowances without any control over the supply and demand. With the financial crisis there were a lot of industries closing; the demand went down and the supply was going up so the price collapsed.

Looking at the experience of the European market, regulators in California hope to avoid such a situation. The carbon market is actually a commodity market. A very good experience with such a market was the SO_2 market. If you remember, in the nineties they decided to decrease the acid emissions coming from coal-fired power plants and they created an SO_2 market, the SOx market, in order to diminish the importance of the emissions of acid rain and so on. This market worked wonderfully because it was well designed.

In the end, I think we should look at the experience of California and Quebec, and we will eventually conclude whether we can keep at it.

● (1635)

Mr. David Anderson: Again, there is no real market without governments establishing it?

Mr. Guy Drouin: Yes.

The Chair: Thank you, Mr. Anderson.

We'll go now to Mr. Allen.

You have up to five minutes.

Mr. Mike Allen (Tobique—Mactaquac, CPC): Thank you, Mr. Chair.

Thank you to our witnesses for being here.

Ms. Milner, I'd like to start with you.

When you were talking about no direct investment by the government, you said "timeframe of certainty". To give me some certainty, what do you mean by timeframe of certainty for the government? Are you actually referring to a regulatory process? What does that actually mean?

Ms. Alicia Milner: It's actually locking down an existing benefit for a clear timeframe. Right now, there's no federal excise tax on natural gas as a transportation fuel. Coincidentally, there's no motor or road fuel tax on natural gas in most provinces. This is sort of a silent benefit, so that right now, when we're at maybe 1% of energy use in transportation, who cares? But as major fleets are making investments here in the multimillion-dollar levels, they want some certainty.

We are finding there's a lot of nervousness. Right now we're fighting a fire within one province that's decided—and we're talking about innovation here, but attitude is also important—based on literally one project in that province to apply fuel tax to natural gas for transportation. The short-sightedness regarding the benefits.... We understand that governments are strapped for revenues.

This is a very modest action. We did present this to the federal finance committee and we had all-party support around the concept of creating that period of investment certainty so that we wouldn't fall behind the Americans and then have to spend a huge amount of government money that really wouldn't be necessary if we got ahead of the game. That's really been our key message.

Mr. Mike Allen: How long is that timeline?

Ms. Alicia Milner: It's 2020.

Mr. Mike Allen: Okay.

Thank you.

There are just a couple of other things. When you talk about Caterpillar in 2017 bringing in heavy engines to market, what is the traditional timeline from innovation of these engines until they come to market? Can you comment specifically on that timeline in terms of the performance and power as well as how that compares to gas and diesel? When we're driving our cars, we tend to look at litres per 100 kilometres and we're watching that thing and panicking as it goes up or down.

Can you talk a little bit about the cost of these technologies?

Ms. Alicia Milner: In terms of technology advances what we're seeing is that we had the basic curve that started back in the 1980s, and that was the first dedicated natural gas engine. We're now on the fourth generation. That took 25-plus years. That fourth-generation engine matches the power, torque, and performance of a diesel engine. How do we go further? For Westport their particular technology came out of UBC about 20 years ago. Again, they now have the core technology and they're really branching off that—they have an agreement with General Motors on light-duty application, and Cat on the very heavy electromotive, etc.

In terms of costs to the technology, what we see is that the price point in terms of the premium is anywhere from about 10% at the low end to about 60% at the high end. The 10% would be, say, on a garbage truck or a transit bus where the technology has been out there for a long time. As we see more of the American fleets go there, a lot of the costs are coming out of the supply chain. On the Westport technology, that's still relatively new in the market. But, for instance, there was just an announcement in the last week that Lockheed Martin is now going to come into this space and make LNG tanks for vehicles. This is exactly what is needed to drive costs out of the supply chain. That can collapse that 20-plus years into more like under 10 years to really get into that space to be competitive price point to price point with the incumbent.

● (1640)

Mr. Mike Allen: Thank you very much.

Mr. Mabee, I just want to ask you a clarifying question. You talk about a lot of focus being on electricity as opposed to heat. I just want to know in what context do you mean that? Do you mean it at an overall community energy level or do you mean it at the company level, because as you're probably aware in the last budget or so there have been some additions to capital cost allowance 43.2, which is actually heat for use in an industrial process and that's the 50% writeoff class 43.2. I'm just trying to understand exactly, do you mean in the context of these industrial processes or do you mean in something broader for heat?

Dr. Warren Mabee: If you can find an industrial process to use the heat, then I think that's great and we do have some programs to support that. For community heat, for district heating, we don't have a national system in place. There are some opportunities for that. Using heat in extraction of oil or of gas, that's also a place where I'm not sure if the writedown would apply. It might. I'd have to look.

The Chair: Thank you, Mr. Allen.

We go now to Mr. Nicholls, followed by Ms. Crockatt and Ms. Liu.

Mr. Jamie Nicholls (Vaudreuil-Soulanges, NDP): Thank you, Mr. Chair, and thanks to our witnesses.

Mr. Thurlow, we've been talking with some young people in the Toronto area who had some questions about the Oshawa ethanol plant. Young people and innovation are intricately linked because innovation will bring that economy of tomorrow and those are the people who will be dealing with the economic decisions we make. They asked me a few questions. One would be what is the 30-year energy balance for corn as an ethanol fuel source? In essence, what's the energy return on the energy investment, and furthermore, what guarantee is there that this product will continue to sell over a long-term period?

Mr. W. Scott Thurlow: There are a lot of underpinning assumptions in those questions that I'd like to deal with.

The first one is the notion that ethanol doesn't have a good energy return. This is something that we've heard for quite some time. At the advent of ethanol when it was first considered for the Model T, there was a concern with the energy return that you would get, but you no longer see that. You do see a significant energy boost for the energy that we invest into it. It's going to be different based on your process. As I noted in my remarks on cellulosic ethanol, which is something that can be bolted onto a traditional ethanol facility, you get a much better return. But it is an energy positive balance. It's going to depend on your facility. I don't know what kind of facility is going to go into Oshawa. I've seen some of the discussion in the media. I don't have a position on it one way or another.

The second question is a much more interesting one. If you had asked the same question about gasoline in 1945 what would your answer be? We wouldn't necessarily know. I would tell you that separate and apart from the fuel aspects of ethanol, which are mandated—and those mandates are incredibly important and you see them everywhere in the world—the octane enhancement of ethanol is very valuable in terms of getting performance out of the fuel. It's an octane performance that exists without some toxic substances, like things that are listed under CEPA as toxic, benzene for example. I think the answer to your second question is the more interesting one in that it is a very nice way to enhance the performance of fuel and as such oil and gas companies should use it in the future as an octane enhancer as well as a fuel.

Mr. Jamie Nicholls: Thank you for your answer.

This next question goes to all panel members. It's quite simple in its formulation, but I'm sure it will generate complex responses.

Do you believe that a price on carbon can be a driver for innovation?

Mr. Mabee.

● (1645)

Dr. Warren Mabee: The quick answer is yes. A price on carbon can drive innovation because it creates new opportunities. It makes processes that today don't look viable suddenly look viable because there's an additional revenue stream, an additional way to balance the books and to turn your IRR, your internal rate of return, to something that's attractive to finance.

How the price of carbon is introduced is probably important. If you're going to put a price on some carbon but not all of it, if you're going to apply a tax selectively, or apply a cap and trade system in a way that favours one industry over another, you may end up with unintended consequences, but in general, yes.

Mr. Jamie Nicholls: Thank you.

Monsieur Drouin.

[*Translation*]

Mr. Guy Drouin: I think so too.

For instance, why did a small Quebec business decide to invest in El Salvador? It was to solve an environmental problem, because there was a price on carbon. We went to a country where a civil war lasted 15 years and we took a risk because it was worth it. There was a rate of return. Furthermore, it was a win-win situation for everyone. The country ended up with a Canadian technology that has helped make the environment cleaner.

As you know, when biogas is not controlled, it not only represents a source of greenhouse gas, but also a source of odours and carcinogenic compounds such as vinyl chloride, benzene and all the organochlorines. Also, it is a source of environmental damage. It creates photochemical smog.

Controlling those gases is a win-win situation for everyone. First, a Canadian company takes a risk because there is a price on carbon. Second, a country inherits a technology that it would have never had. That is what the price of carbon does.

[*English*]

The Chair: Unfortunately, Mr. Nicholls' time is up. I guess we'll have to see if we can have somebody else ask the question, if you'd like.

We'll go now to Ms. Crockatt, for up to five minutes.

Ms. Joan Crockatt (Calgary Centre, CPC): Thank you very much, Mr. Chair. Thank you, also, to our guests today.

It's really fascinating to see the variety of ideas that we hear around this table. I want to thank you for coming and offering them.

I have a follow-up question, of a sort, to my colleague's question. I'd like each of you to answer, can putting a price on carbon be used to kill an industry? I'd like to start with Warren, please.

Dr. Warren Mabee: As I was saying before, if the price of carbon is applied in such a way that it penalizes an industry, it could kill the industry. If the industry is characterized by very, very high emissions, introducing a price on carbon, particularly if it's introduced fast, without any warning, could kill the industry.

What we've heard from our conventional energy players across the country is that they would like some certainty on a price for carbon. I'm sure that every major and probably every minor energy company runs a set of books where they apply different prices on carbon, and they try to make sure they're working on the positive side of the equation.

To answer your question, yes, it could happen, and it has to be done carefully if we're going to apply a price, that we don't penalize one industry unintentionally.

[*Translation*]

Ms. Joan Crockatt: Mr. Drouin, what do you think about that?

Mr. Guy Drouin: If the policy that sets the price on carbon applied to all countries at the same time, there would not be a problem. That was the goal of the Kyoto Protocol. There was a

[*English*]

common ground for all the countries with a price on carbon.

[*Translation*]

In my view, it is a question of international political cooperation. This is necessary so that the industry of one country is not more penalized than the industry of another country. It is an issue of international cooperation and it is very important.

Furthermore, economies, like those of California and Quebec, decided to move forward. It is a decision that can be a model. However, clearly, in each economy—Quebec's as much as California's—there was an opposition from large emitters. But the politicians in each of those places,…

● (1650)

[*English*]

Ms. Joan Crockatt: I'm not really looking for your political views. Could you just answer my question? Can putting a price on carbon be used to kill an industry?

Mr. Guy Drouin: No.

Ms. Joan Crockatt: In your view, no.

Ms. Milner, thank you.

Ms. Alicia Milner: I can only speak to the transportation space, obviously, but there, a price on carbon—I would say no. It's marginal in the whole scheme of it, to be honest. You look at a project like Robert with their LNG highway tractors. They get a 70-tonne reduction per tractor, per year. Even with the price on carbon, for that fleet to adopt and pick that lower carbon option, that's a really small factor, really small driver for them. I don't see a price on carbon being material in terms of adoption at the market level.

Typically, when we talk about carbon we often talk about large point sources, but if we go back to innovation and transportation, this is the least innovative part of our economy, reliant on one energy source. I don't think carbon pricing will change that.

Ms. Joan Crockatt: Okay, I'll come back to that, thanks.

Scott.

Mr. W. Scott Thurlow: I like your question better. Absolutely, I think the answer is yes. It will depend, of course, on what that price is, and the market drivers will make sure there is some type of universal application.

For some of the questions I've heard other panellists answer, I didn't like the underlying assumptions that they were based on. I think it's very dangerous to look at the California carbon market and the Quebec carbon market, because both of those markets were designed in a way that they could benefit Quebeckers and Californians. And that's what we have to be looking at when we look at the monetization of carbon. The first person out of the gate is going to design the program that best suits their jurisdiction. I can assure you that the people of Quebec and the people of Ontario have very different interests from the people of Alberta and the people of California when it comes to this type of industry.

I want to be really clear: the government's sectoral approach on reducing anthropogenic gases is a very good approach to take. It has been proven to work in the transportation sector, and it is definitely driving the creation of a renewable fuels industry in this country. The sectoral approach—which looks at each industry individually and the deeds of that individual industry—is the absolute, appropriate way to move forward because it looks at the industries from what they're facing in terms of competition as energy-intensive, trade-exposed sectors. That sectoral approach is the best way to move forward.

The Chair: Sorry, Ms. Crockatt, your time is up.

We go to Ms. Liu for up to five minutes. Go ahead, please.

[*Translation*]

Ms. Laurin Liu (Rivière-des-Mille-Îles, NDP): Thank you, Mr. Chair.

This is a very interesting discussion. In my view, the "polluter pays" principle makes a lot of sense economically. I hope that we will be able to continue that discussion later.

Mr. Drouin, you talked about the importance of the scientific research and experimental development tax credit. Your suggestion was to improve that program, which helps small- and medium-sized businesses in your sector a great deal. However, we also know that, in the last budget, the Conservatives reduced the funding for that program by $500 million. What are your best arguments to convince the government to reverse course?

Mr. Guy Drouin: We have tried.

I am also the founder of Écotech Québec. We made representations last year, before the decisions were made. However, what we are currently proposing to the federal government and the provincial government is to change their income tax legislation so that commercialization costs will be credited for technologies that previously received research and development tax credits or for those that were either patented or protected as intellectual property. In other words, we don't want it to become an open bar.

As you know, there are a lot of reports, including the Jenkins report, that have confirmed that Canada is in a good position to improve those technologies as a result of its tax credits and grants, but that the major challenge, since our market is small, is to export. Developing technology is expensive. We need a sustainable program for the commercialization of technologies. As the manager of Écotech Québec, I am asking the two levels of government to plan for a commercialization tax credit in their next budgets just for the salaries of technical sales engineers. We are not there to have an open bar or to get plane tickets, and so on.

This problem has been well defined. And in our view, the tax credit will make it possible to develop long-term commercialization strategies for Canadian technologies. That would help us a great deal.

Thank you.

● (1655)

Ms. Laurin Liu: Thank you.

Last week, I had an opportunity to visit an innovative company in my riding, Galex Systems Inc. The company makes photovoltaic solar collectors. They have spent almost a decade doing the research for developing the technologies. The tax credit for commercialization that you are proposing can also help those small companies. Thank you for your proposal.

Have you looked at how much this tax credit would cost Canada?

Mr. Guy Drouin: That is a good question. We did it for Quebec. Every year, Quebec has $800 million in R and D tax credits. That amount has dropped slightly in the last budget, by roughly $75 million. Not all the companies that do research necessarily export.

Take Cascades for example. They do research to improve the process, but not to sell the technology. It is to improve productivity. The companies that benefit from R and D tax credits are not necessarily those that export. We estimate the cost of the measure at approximately $20 to $25 million per year for Quebec.

Ms. Laurin Liu: Thank you.

My next question is for Scott Thurlow.

Some environmental groups have expressed some concerns about the use of forest bioenergy. I can cite Greenpeace that says that it is wrong to claim that forest bioenergy is carbon neutral when, according to that group, the burning of biomass emitted about 40 megatonnes of CO_2 in 2009 in Canada, more than all the vehicles in Canada for that same year. Do you have any comments about that?

[*English*]

Mr. W. Scott Thurlow: There is truth to that. I mean, there are CO_2 emissions that come from forestry and from forestry waste, but these are different emissions than you would get from traditional fossil fuels. These are emissions that are, what I will call, above crust. By being above crust they're part of the natural carbon cycle.

As I mentioned in my testimony, we have a new group of members in our association who can now convert that forest waste, that forest byproduct, into an ethanol blend, a cellulosic product, a bioheat, a nutraceutical, or any one of these other products.

While I agree that this is a sector that emits, all sectors emit. What we want to do is to find a way to capture those emissions into a functional part of the economy as quickly as we possibly can.

The Chair: Thank you.

Thank you, Ms. Liu.

Finally, Mr. Calkins.

Mr. Blaine Calkins (Wetaskiwin, CPC): Finally. Thank you, Chair. You're the one in charge of the speaking order, so finally it got to me.

The Chair: Your time is up.

Some hon. members: Oh, Oh!

Mr. Blaine Calkins: Mr. Thurlow, in your comments you talked about certainty and predictability in the industry, and the mandate.

For the benefit of the committee, could you give us some clarification on what specifically you meant? What are the threats of a mandate change to the industry, and what recommendations do you think this committee should be putting forward to the government to ensure the certainty that I believe your industry is looking for?

Mr. W. Scott Thurlow: Absolutely. I want to be really clear. On the ethanol side and the creation of the mandate, our industry is working towards meeting that mandate. We don't have any advice in terms of increasing the mandate on the ethanol side.

On the biodiesel side, we've seen some questions about removing bioheat from the current renewable fuel standard. The gazetting process for that is ongoing and we will be commenting on that. I share Mr. Mabee's concerns in this regard. I think that bioheat is actually the best place for some of the biodiesel product to go. It is a very good place for renewable diesel to be used to create that heat.

The removal of bioheat from the renewable diesel mandate right now would be approximately 12% to 15% of a decrease of biodiesel that's required. That is going to be a 12% to 15% reduction in the GHG benefit. It's going to be a 12% to 15% reduction in the mandate that's required for the generation of biofuels here in Canada. Also, and interestingly, from a Foreign Affairs and International Trade perspective, it will bifurcate the Canadian renewable fuel standard from the one found in the United States. In the United States, bioheat is required as part of the mandate for renewable fuels.

I understand there are some concerns about the renewable fuels mandate, but our position as it relates specifically to bioheat is that the mandate should be growing; it shouldn't be shrinking. Removing this from the mandate is of great concern to our members.

● (1700)

Mr. Blaine Calkins: Okay. Thank you, Mr. Thurlow.

Ms. Milner, in your presentation you talked about the performance measures and the standards among the natural gas motors and diesels and so on. I've been driving diesel tractors in the field since I was 10 years old and I've been driving diesel pickups ever since I can remember. Friends and neighbours are all truckers. I know darn well that a diesel truck I used to drive 15 years ago had more power than the one today, and it used less fuel to get that power, because the fuel efficiency standards have made the diesel engine less efficient. They have to build a bigger motor now to give me the same torque and consume more fuel to meet a performance standard. That's the way I see it. I go to the pump. I remember. Been there, done that—

Ms. Alicia Milner: We heard the same from Robert Transport.

Mr. Blaine Calkins: As far as performance metrics are concerned, are we talking about the current diesel motors with the fuel efficiency standards? Are we talking about what a diesel motor can do when it's allowed to do what it can do best? Are you talking about diesel electrics, in which case the natural gas is used to charge the electrical system, which provides the electrical torque? Because at that particular point it doesn't matter what energy source is creating the electricity because the electricity creates the torque.

So can you give me some clarification on these performance measures?

Ms. Alicia Milner: Sure I can.

Performance is up against current-generation diesel. Diesel without all those encumbrances is not an option anymore. That's a non-compliant vehicle. With the new heavy-duty vehicle regulations in Canada and the U.S., the first section is the next four years, and we know that off-the-shelf technologies will do it, in terms of compliance. It's going to get a lot uglier for the manufacturers beyond four years because they are going to have to develop the technologies to comply with diesel. Natural gas right now already gives you an almost 20% benefit on GHGs, which are now regulated.

So, no, all those comparisons are head to head. In terms of the power and torque lines, they totally map where a diesel truck is at this point, understanding where we do have gaps with natural gas. We don't have as many engines, we don't have as many models, so there are gaps in the power spectrum. You can't get anything above 475 horsepower right now with natural gas. This new engine coming in is going to plug one gap in the spectrum, but you can't go below 250 either for more of a medium duty.

So those things are going to be plugged. But head to head, if you take an ISL diesel versus an ISL G natural gas, you're going to find the same lines, in terms of power and performance.

The Chair: Thank you.

And thank you, Mr. Calkins.

I thank you all very much for what has been another fascinating meeting. I do appreciate all of you coming today, from the Canadian Renewable Fuels Association, Scott Thurlow, president; from the Canadian Natural Gas Vehicle Alliance, Alicia Milner, president; from Biothermica, Guy Drouin, president; and as an individual, Warren Mabee, chairholder, Canada research chair in renewable energy development, and assistant professor, Department of Geography, School of Policy Studies, Queen's University. You have quite a handle.

Thank you all very much, it's much appreciated.

Some hon. members: Hear, hear!

The Chair: We're going to suspend the meeting to go in camera, and we'll come back with a study of future business for this committee.

[*Proceedings continue in camera*]