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Chair

Mr. Leon Benoit

Standing Committee on Natural Resources

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● (1100)

[*English*]

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

We're here to resume our study on innovation in the energy sector. We have with us today—or at least hope to have with us—three groups of witnesses. The witness from the Canadian Solar Industries Association isn't connected yet, but we'll work on that.

We will start this morning with presentations.

We have a point of order from Mr. Calkins.

Mr. Blaine Calkins (Wetaskiwin, CPC): Thank you, Chair.

I don't mean to delay the issue at hand today any longer than absolutely necessary. I'd like to welcome Ms. Bennett to the committee today. Her presence obviously indicates the absence of our previous Liberal critic, who made some regrettable comments and has subsequently resigned his position from this committee.

As an Albertan and as the only Albertan on this committee—notwithstanding your excellent chairmanship of this committee as a member of Parliament from Alberta—I was deeply offended to a certain degree, but also discouraged, by the nature of the comments that were made. As an Albertan, I am seized with all of the issues that affect my province and my constituents, whether it's reducing taxes, keeping economic growth and activity growing for our economy, or whether it's dealing with veterans' issues, defence issues, or what have you, as are all members of Parliament who are seized with these issues at the national level.

But it seemed to me that the comments were so stark and so jaded towards a particular sector of our economy.... I think all members of this particular committee understand the true value of that particular industry. Of course, this being the committee that would have a lot of interest in exploring that, I think that for the edification or re-edification of some committee members, to make sure that such comments aren't made again, I just want to advise members of the committee that it's very likely that I'll be bringing a motion forward in the very near future that this committee study and understand the economic benefits and impacts on the broader economy in general of our oil and gas sector, in particular the oil sands in Alberta and Saskatchewan. I'm just letting folks know that.

I welcome Ms. Bennett today and look forward to her positive and constructive comments. I know that we're going to have a permanent assignment of a different critic. I don't believe that it's going to be Ms. Bennett, but I'm looking forward to having a discussion and debate so we can make sure we don't have these kinds of unfortunate comments made by members—particularly members who should know better, who sit on this kind of committee—about a particular sector of our economy.

Thank you, Mr. Chair.

The Chair: Thank you, Mr. Calkins. I am not sure that was a point of order, but we have heard you.

I see the first group of witnesses arriving.

I think I'll start, witnesses, with Mr. Chrapko. He's here and ready. Then we'll go back to the witnesses from the Canadian Solar Industries Association. As well, we have with us today, by video conference from Calgary, from Laricina Energy Ltd., Glen Schmidt, president and chief executive officer. We will start our hearings today with Mr. Chrapko from Himark bioGas Inc.

Mr. Chrapko, you have appeared before our committee in the past on a couple of occasions. It's great to see you here again to give us your information on innovation in the energy sector.

Go ahead, please.

● (1105)

Mr. Evan Chrapko (Co-Chief Executive Officer, Himark bioGas Inc.): Thank you, Mr. Chairman.

I'm here representing a renewable energy company that takes waste and converts it to energy. It was started in Alberta, thanks to the Alberta Research Council in 1999 and the work that was being done there in conjunction with my business partners.

This work would have stayed in the province were it not for an acknowledgement by the province that it warranted being commercialized and taken to the rest of the world. Where my brethren in wind, solar, hydro, geothermal, and nuclear all get to energy, so do we, but in the waste-to-energy space we're also taking care of some significant negatives. We destroy disease, and we take noxious elements out of the environment in cases where they are choking water supplies or threatening the water table and so on.

I understand that at this moment the committee is looking specifically at innovation in this sector. My main comment or take-away, if you remember nothing else from what I say, is that in the renewable sector and in innovation in general you're talking about a knowledge-based activity that is infinitely renewable and perpetual or is going to be reliable as long as there are humans on earth.

As long as there are humans on earth, there will be innovations and advances in science. The same cannot necessarily be said for quantities or fixed stocks of such things as petroleum or hydrocarbons. That's not to disparage those. I'm just saying that any help or incentives towards renewables or that form of energy is a bet on the future and on human ingenuity. As a technology investment executive, I think that's always a good place to place your money or your hopes for a better future.

I've just returned from a trip through Saudi Arabia and Southeast Asia. Even in those jurisdictions that, by some standards or impressions, are awash in energy and have very low energy costs as a result, you have those jurisdictions now acknowledging that such things as the hydrocarbons—gas and oil—will end up being swing supplies of energy that address the margins or peak loads, while renewables will end up in the position of supplying the baseload power. That steady power that we all rely on and that our infrastructure relies on 24 hours a day, seven days a week, will end up being the conventional source of energy. Less and less conventional, or more and more precious, you might say, as stocks dwindle on the hydrocarbon side, you'll have those very valuable and easily deployed sources in gas and oil being saved or preserved for the more precious uses, and we'll find ourselves relying on renewables for our baseload power, as it's known.

You have jurisdictions such as Saudi Arabia itself now predicting that they will themselves cannibalize for their own economic activities the oil that they produce and sell to the rest of the world. Now two-thirds of their oil goes to exports, but they're predicting that in the not too distant future they themselves will be consuming the equivalent of what they produce today. So in regions on the other side of the world from us there's a call to arms that says renewables are the way of the future. They have to be because, as I mentioned at the outset, my take-away for you is that anything based on human ingenuity or anything based on science and actual knowledge or developments in the state of the art is a good place to place your bets.

You have the Emirate of Abu Dhabi in the United Arab Emirates, having established their sovereign wealth fund, modelled after the Alberta Heritage Savings Trust Fund, now being capable of running that whole country just on the interest alone, the interest on growth in their sovereign wealth fund. But you have them, who people might forgive for focusing completely on hydrocarbons, lobbying hard and succeeding at bringing in IRENA, the new renewable energy association equivalent of OPEC, to house and establish itself in Abu Dhabi. Why? Because with the characteristic vision there on this subject of energy, they've said that they want to be on top of and understand or be at the forefront of any of the innovations going on in renewables.

● (1110)

I'll make my closing comments to the committee.

The innovation that we enjoy in Canada—specifically, I can talk of the Province of Alberta—is second to none. Not only are we are a global energy superpower on the conventional side—hydrocarbons and petroleum—but we can be for renewables. We have started to show our chops or credentials globally, and in our case, for waste to energy, as I said, started by the Alberta Research Council and generously and fortunately supported by SDTC, based here in Ottawa, with the fantastic work they've done along the way in taking an early position in our developments and scale-ups.

Without the Alberta government, with programs such as BCMDP and PCP, the producer credit program, we would not be able to add to the fuel pool in a way that we're now doing with our Growing Power Hairy Hill project. Also, Himark, as a technology provider in waste to energy, could not itself go around the world, as we are now, building some of the biggest biogas plants in existence. There's one being constructed in Kansas as we speak, and another under development in Karachi, a city of 18 million people with only 60% to 70% of the electric power it needs and a lot of waste.

Again, without the support of programs and institutions that this government has been responsible for forming—I'm referring to the SDTC again—we wouldn't be where we are, and Canada wouldn't be in the enviable position of being an example to the rest of the world as to what's possible with energy writ large.

Thank you, Mr. Chairman.

The Chair: Thank you, Mr. Chrapko, for your presentation.

As I indicated, we'll go now to the Canadian Solar Industries Association and the two witnesses from that association, John Gorman, president, and Ian MacLellan, president and chief executive officer of Ubiquity Solar Incorporated.

Gentlemen, go ahead with your presentation, please. Thank you very much for coming today as well.

Mr. John Gorman (President, Canadian Solar Industries Association): Thank you very much.

[*Translation*]

Hello. My name is John Gorman and I am the president of the Canadian Solar Industries Association, also known as CanSIA. We are a national trade association that represents approximately 650 solar energy companies throughout Canada. Since 1992, CanSIA has worked to develop a strong, efficient, ethical and professional Canadian solar energy industry with the capacity to provide innovative solar energy solutions and to play a major role in the global transition to a sustainable, clean energy future.

[*English*]

On behalf of the Canadian solar energy industry, I would like to thank the clerks of the committee for coordinating our participation today and the chair and members of the committee for inviting CanSIA to provide you with an overview of the current Canadian innovation system in the generation, transmission, and use of solar energy.

If I may, I'm going to be reading from some written remarks for the allotted time here, and then we'll hopefully be getting into questions and answers later.

The major points I'm going to be making through these several pages are as follows. Simply, solar is happening and is being adopted and deployed globally very quickly, more rapidly than we would have thought possible even four or five years ago, and Canada, especially because of the activity we've had here in Ontario and because of the support of the federal government in select ways, is positioned right now to be a world player in select areas in solar energy. What we need in this country is an approach to energy that factors in all technologies and an evolution towards I think an inevitable state wherein renewable energies have a very significant part to play.

Our two recommendations are going to ask that the federal government help support our solar future and help support our innovation future in Canada.

Solar energy is Canada's largest proven energy resource. It's abundant in each and every Canadian community. The deployment of solar energy technology enjoys more support and creates more local jobs and economic opportunity than any other energy resource. As you will hear later today, the world is rapidly moving along towards a reality in which solar and distributed energy is a mainstream, widespread, and cost-effective energy choice.

An anecdote that I enjoy sharing to explain the growth in activity that we have experienced here in Canada with solar energy in the past few years is this sort of practical example. Five years ago, our annual conference took place in a hotel basement in Toronto. It had fewer than 20 exhibitors and fewer than 250 attendees. That was five years ago, but in two weeks' time, this same conference, which I will be hosting, is expected to attract 5,000 attendees from across Canada and the world and will feature more than 300 corporate exhibitors, making it one of the largest energy conferences in Canada. The point is that over the past five years we have had a greater-than-ten-times growth in participation in this show.

This growth illustrates the significant opportunity that innovative technology and industries can generate in a short amount of time. Commercializing innovative technologies being developed today through ongoing Canadian fundamental and applied research, development, and demonstration could catapult Canada into the role of clean energy superpower that it seeks.

I'm very pleased to share with you today some very exciting made-in-Canada opportunities and success stories. I'm going to do that with the assistance of Ian MacLellan, president and CEO of Ubiquity Solar and chair of CanSIA's solar electricity innovation working group.

Mr. MacLellan is the lead author for a solar electricity innovation white paper that CanSIA is currently developing in consultation with key representatives from industry, academia, and government. I might add that Ian is one of Canada's most experienced and leading authorities on the subject.

● (1115)

I'd like to take a moment to provide some global context around the scale of the opportunity that solar energy technology presents. Global energy market growth is taking place at an astounding rate and is forecast to triple in 2035 from what it is today. Renewable energy is playing an important role in providing this excess energy demand, with solar growing more rapidly than any other renewable energy technology, and more rapidly than experts could have predicted.

Renewable energy will become the second-largest source of power generation globally by 2015, and renewable energy will have tripled its 2010 level by 2035, with 15% of that coming from solar. Notably, 60% of global energy market growth is to be concentrated in China, India, and the Middle East, each a jurisdiction with significant ambitions for solar energy in their energy supply, and a massive opportunity for Canadian solar energy technology.

One of the most exciting developments in the renewable energy sector in recent years has been the decline in cost to the point at which renewable energy sources have accelerated the evolution away from historical alternatives. Most notably, the selling prices of PV cells fell by over 50%, from $1.50 per watt in September 2010, to under 65¢ per watt today. The reason for this significant downward cost trend includes innovation and over-investment in the global solar manufacturing sector. However, the downward cost trend experienced over the past five years and more is similar to what we have experienced with technologies such as desktop computing and wireless devices.

Canadian solar energy technology does and will compete globally in the highly competitive solar energy market with new, superior, and differentiated technologies. Our innovation system now features well-developed technology clusters, where key private and institutional research partners collaborate with companies of global significance. I'd like to give you a few Canadian examples.

One is Schneider Electric, whose facility in Burnaby, B.C., has an annual R and D budget for solar energy power electronics of $20 million and employs 200 individuals, In a recent news release, it was announced that Schneider Electric will be supplying 95 inverters to 72 megawatts of solar projects in Puerto Rico. The reason for the selection of this Canadian technology is that it's one of the only products in the market that meets the very stringent performance requirements set by the Puerto Rico Electric Power Authority.

Additional exciting Canadian success stories in solar energy power electronics include microinverter manufacturer SPARQ Systems, here in Kingston, Ontario, and Solantro Semiconductor Corp. in Ottawa, whose technology can significantly improve the performance of solar technology in urban areas.

More exciting innovation success stories include Morgan Solar, an Ontario-based company whose proprietary technology has significant potential to slash the cost of solar energy by using inexpensive materials to focus and concentrate sunlight onto solar cells. There are also many Canadian success stories in solar heating technology, including the SolarWall air-heating system that has seen considerable success globally, and more emerging smart grid technologies, electrical storage, and building-integrated PV, not to mention electric car charging systems.

With over 100 researchers in universities across Canada working on PV-related research at the cell level alone, and with an estimated 385 patents for solar energy and photovoltaics registered by Canada between 2003 and 2011 to the U.S. Patent and Trademark Office, more successes can certainly be expected.

I'd like to note that each of these success stories featured here got support from the Government of Canada in a variety of ways. While opportunities and successes for solar energy innovation in Canada are growing, strong and targeted action is required to ensure we can maximize the benefit to Canada and to Canadians.

I'd now like to conclude my opening remarks by providing some recommendations as to how the role of the federal government in supporting solar innovation could be bolstered by two clear actions. Our first recommendation relates to the market for solar and distributed energy technology in Canada. It's small and has been slow to develop in global terms, largely due to the fact that our policy and regulatory framework for the acceleration of the deployment of renewable energy technology is inadequate and significantly behind that of the United States, Europe, and other key trading partners.

● (1120)

The innovative FIT program in Ontario has developed significant industry capacity in Canada; however, it comprises over 95% of the Canadian market at this time, while the remaining market activity is taking place in a fragmented fashion across the country.

New targeted stimuli and mechanisms such as the U.S. federal investment tax credit, and other non-financial mechanisms such as those through building codes or environmental performance standards, could, at very little cost, keep Canada in step with the rest of the world.

The Chair: Mr. Gorman, your time for your presentation is up. We're really under a tight timeline today because the bells have started ringing.

If you could close in 30 seconds, we'll then get to the final witnesses.

Mr. John Gorman: Thank you for pointing that out.

Therefore, our first recommendation is that the federal government support Canada's solar future. The Government of Canada should establish a clear federal voice for solar and distributed energy technology and engage in a dialogue with the provinces to improve coordination and impact through innovative and smart policies, which can include financial and non-financial.

The second recommendation is that the federal government support solar innovation in Canada through continued strong funding from key innovation facilities and enabling programs such as those developed by NRCan's Canmet and NSERC networks, and through Sustainable Development Technology Canada.

We have additional information for you, of course, and will leave it behind. I thank you very much for your attention.

The Chair: Thank you very much for your presentation.

We go now to the final presentation for today. It's from Laricina Energy Limited. Glen Schmidt is the president and chief executive officer.

Go ahead, please, sir, with your presentation. Thank you for being here today.

Mr. Glen Schmidt (President and Chief Executive Officer, Laricina Energy Ltd.): Good afternoon, Mr. Chairman and members of the committee.

Thank you for the opportunity to share, and I think with some pride, what I believe is a great news story. Laricina is an example of a Canadian-founded in situ oil sands company leading in innovation to support the goals of all Canadians, responsibly developing the valuable resources of Canada while contributing needed energy, and providing positive economic impacts balanced with environmental performance.

In situ oil sands, which will produce for centuries, are the future for oil production in Canada. The International Energy Agency, the IEA, identifies these resources as the largest oil deposit outside of OPEC countries and considers it necessary to meet the world's energy demand for oil. Think of in situ as drillable oil sands, and the cousin of conventional oil. The footprint of a horizontal well in drillable oil sands is very similar to that for a conventional horizontal well. For example, the same land surface is required as a resource; however, in return, up to 10 times more energy will be produced.

Unlike many conventional oil and gas projects, we operate commercially with non-potable water, but what is really exciting is not what we have done but where we are going. We're working as an industry in the field today at testing the combination of steam and solvent for enhanced recovery that would decrease the carbon footprint per barrel on a full-cycle basis to less than that of much of the crude imported into the United States. You may have seen or heard about various documentaries, such as the CBC documentary on oil sands. What this program did not discuss is what drillable oil sands are doing to meet the needs for economic prosperity, energy supply, and responsible environmental performance through continuing innovation in our industry.

Canadian companies, including Laricina, are giving the government and Canadians many reasons to be proud. Included in those are the quality of the work and the quality of production compared to that of alternative oil producers, as well as the economic participation in this Canadian resource. The October Conference Board of Canada report shows that one third of the economic benefits of meeting the needs of this development extend beyond the province. In 2011 alone, $300 million in labour income was invested in workers from Newfoundland, B.C., and Saskatchewan. In this world of economic uncertainty, energy is providing strong support across the country.

Laricina is a private company founded by Albertans. I was born in Calgary and educated at the University of Calgary in chemistry, engineering, and business. Laricina, in a little more than seven years, has positioned projects for development to recover more than five billion barrels of oil over more than 30 years. While this is a part of the larger in situ oil sands development, we are leading in the understanding and recovery of a new geologic resource, the Grosmont, and innovating to improve both the economic and environmental performance. We are doing this while contributing to our communities through more than just jobs.

Laricina began steaming at the first steam-assisted gravity drainage—or SAGD—pilot in the Grosmont carbonate at Saleski in December 2010, after nearly five years of delineation, studies, research, and testing. The Grosmont formation is a carbonate reservoir that is dolomitic rock, like what is quarried in Manitoba, and has been used in buildings like the Banff Springs hotel.

This is unlike the sand reservoirs mined in Fort McMurray and more like the large carbonate oil reservoirs in the Middle East. The Energy Resources Conservation Board, the ERCB, has identified that more than 400 billion barrels of bitumen-in-place—or 25% of the bitumen potential in Canada—is contained in this formation, representing a material growth opportunity for Alberta and Canada.

We estimate that the project area contains approximately 150 billion barrels of recoverable bitumen. Carbonate reservoirs have yielded the world's largest conventional light oil fields, and the Grosmont could be a carbonate reservoir nearly as big as Ghawhar, Saudi Arabia's largest giant oil field. Laricina, one of your Canadian companies, is the frontier to opening up this valuable resource for the benefit of all Canadians. Positive results will launch a new development area for oil resource development for Canada.

● (1125)

Recently we advanced the first commercial-scale development for regulatory filing, based on our pilot results. We expect approval in 2013, with an on-stream date in the third quarter of 2015.

The oil sands are changing. More than 50% of production is from in situ or drillable techniques and, as stated, this is the growth area for the future. This is even before unlocking the carbonates. At Laricina, we are not satisfied to just utilize existing techniques. We believe it is possible to balance the economic benefits of developing the oil sands with environmental management. We also believe that technology provides the way for us to improve our environmental management and still generate attractive economic investments.

For example, we have developed a method for the combination of light hydrocarbons and steam to potentially reduce the steam requirements in half, as well as halving the water utilized and carbon emissions. These enhancements are aimed at reducing energy needs and, thereby, production costs, on a per barrel basis. These designs will be tested in both our Saleski pilot and our second and adjacent project at Germain, in the Grand Rapids formation, which is now under construction.

A technology and energy production consortium that includes Laricina, Nexen, Suncor, and Harris Corporation in the U.S. has successfully completed initial proof-of-concept testing of a unique oil sands extraction method that has the potential to improve environmental performance and reduce development costs. This group is looking at the delivery of energy without steam or burning of natural gas.

Our initial testing confirms the ability to successfully generate, propagate, and distribute electromagnetic heat in the oil sands formation. This technology reduces the energy required and potentially eliminates the need for water during in situ recovery of bitumen by using radio waves to heat the oil sands electronically. We believe this has the potential to be a next-generation extraction technique. Similar to the well-publicized shale plays, technology has opened up previously inaccessible resources. In situ technology is evolving and is only at a starting point.

Laricina has partnered extensively with the University of Calgary as part of our fundamental approach to research and innovation. The technology for drillable oil sands was initially established by Dr. Butler at the U of C in the 1980s. He is the father of SAGD.

We're pushing this further. Laricina chairs a consortium of 16 companies doing fundamental research on solvent-enhanced recovery and adding a natural part of oil, the light hydrocarbons, to steam. For example, propane and butane, which we use for cooking or heating, as well as the light condensate that we use for fuel, can be returned into the reservoirs they came from to enhance recovery.

Nearly 30 years ago, Alberta was the leading enhanced-recovery jurisdiction in conventional oil pools, using propane and other light hydrocarbons in these reservoirs. We are continuing this innovation leadership in drillable oil sands. Laricina's focus has been to sponsor research and scholarships. Notwithstanding our size, we have invested or committed nearly a million dollars to the University of Calgary. In each of the last three summers, we have employed more than 15 co-op and summer engineering students, or approximately 10% of our staff complement.

In Wabasca, where are operations are located, we play a positive role in the community, providing opportunities for local businesses and contributing to community well-being through donations, staff time, volunteerism, the recording of traditional values and land use, and employment. This has been our commitment since we began operations in the area in 2006. In 2008, we established our local office, which has been staffed from the community. When field operations commenced—

● (1130)

The Chair: Excuse me, Mr. Schmidt.

You have less than a minute left. Could you do a quick wrap-up of your presentation? We do have to go to votes right away.

Mr. Glen Schmidt: Okay. I will do so.

The Chair: You have one minute.

Mr. Glen Schmidt: The in situ sector is advanced technology and has a material impact on the economy. We are asking how we can work with you to have effective regulation, not more regulation, and how we can have access to capital. As a company, we have raised approximately $1.3 billion. CPP is our largest shareholder. Free flow of capital allows us as a company to do what we've just discussed. Contributions include nearly 1,000 companies in B.C., Ontario, and Quebec, as an industry.

I think what we're looking for and asking for is to contribute to the conversations, as we're doing this morning, so we can not only illustrate to you but demonstrate to you that technology benefits are flowing across the country, and there is considerable progress from where we are as an industry to where we're going. Laricina is committed to doing our part.

Thank you.

The Chair: Thank you very much.

● (1135)

Mr. David Anderson (Cypress Hills—Grasslands, CPC): Excuse me, Mr. Chair. I was just wondering why we didn't have the lights in the room here. We need that. Maybe we should look into that.

The Chair: Yes, I noticed that as well.

We have to suspend the meeting. It will probably be somewhere between half and three-quarters of an hour before we return. We can return for an abbreviated question and comment period.

Thanks very much to all of you for your presentations. I apologize for this inconvenience. That's the way things work around here all too often.

● (1135)

(Pause)

● (1210)

The Chair: Good afternoon again. We will resume the meeting. Barring another vote, we have about 50 minutes left for questions and comments.

We'll start with the government side for up to seven minutes.

Mr. Trost.

Mr. Brad Trost (Saskatoon—Humboldt, CPC): Thank you, Mr. Chair. I will start with Mr. Schmidt.

Mr. Schmidt, as we were finishing up before the vote, you were talking about a few issues and making recommendations, such as effective regulation and the free flow of capital. You were cut off a little bit early, so I'm going to give you two minutes to finish up what you were saying.

The Chair: Go ahead, Mr. Schmidt.

Mr. Glen Schmidt: Thank you, Mr. Chairman.

Thank you.

The two comments on effective regulation were an acknowledgment on our company's part, and certainly on the part of the industry, that we do need to not only improve it, but that in making it effective, it's not about more regulation. It's about having a joint commitment to make it effective; whether it's the now joint environmental monitoring program between the federal and provincial government in Alberta, there is commitment to it. As those evolve, having the recognition that we're not simply adding but we're being more effective in the outcome is really just making visible that goal.

With respect to capital, we're a company that has no cashflow, notwithstanding the fact that we've raised $1.3 billion. To get to our commercial-scale development, as a company we will raise another $2 billion. The economics underlying the industry do not mean that we cannot attract that capital, but the free flow of capital dictates two things, really. One, is it available? Two, what's its price? As there's consideration of investment by foreign entities, whether those foreign entities are from France, Norway, the United States, or China, that free flow of capital goes a long way to addressing the gap we have.

In the energy sector that gap can be up to $50 billion a year: a shortfall between what could be funded domestically and what's needed, whether that comes from the U.S.—as about 40% of our shareholders do—or from overseas. There is a direct impact not only on our company, but also on other companies like ours with aspirations to do the job we are discussing. Free flow of capital is a very important part of that.

● (1215)

Mr. Brad Trost: If I could continue in the same vein with our other witnesses, perhaps because it's this time of year when we're in our pre-budget consultations and everyone comes around asking for money, tax credits, and direct subsidies, etc., I'm looking for something other than direct money, because that we're going to get in various requests over the years. We get that all the time.

To get your innovation, you need capital, you need personnel, and you need the ability to do something. Other than government giving you direct money one way or another, what are the sorts of things that help you to be innovative, that attract the innovative people who have an idea for building a solar mousetrap that the whole world will beat a path to their door to get? What recommendations do you have that do not involve money to attract the people, the capital, etc.?

The Chair: Mr. Gorman, and then Mr. MacLellan, go ahead.

Mr. John Gorman: Thank you.

I would just like to say that what we have accomplished here in Canada—in particular, over these last four or five years as a result of the Ontario program—has resulted in a great degree of activity, including the education of a legal system, a financing system, and an overnight explosive growth of industry, with a very big industry base and expertise, and with institutions starting to study solar PV. When you talk about non-financial things, I think there's a role for the federal government to play in making sure that the expertise we're starting here goes across Canada.

Mr. Ian MacLellan (President and Chief Executive Officer, Ubiquity Solar Inc., Canadian Solar Industries Association): I think one has to take a look at what's really going on in solar worldwide. We're in a race with the Germans, the Americans, and the Chinese. For example, in 2010, the Chinese government made available $41 billion to stimulate the solar industry.

One of the reasons I took on chairing the innovation committee is I that think this is where Canada can compete on the world stage. I don't think Canada is necessarily going to create a huge global company, but we can create the Magnas and the Linamars of the solar world.

In terms of innovation, we have some really smart people. I've been directly involved in about $50 million of R and D investment in Canada in solar. We have some really good people and we have some really great institutions like NSERC and SDTC to support that activity.

In terms of non-money, I would make solar a key part of the energy strategy, because solar is the fastest-growing mainstream energy on the planet. If we want to be involved with the fastest-growing thing creating the most jobs, then maybe we should do that.

Mr. Brad Trost: Mr. Chrapko, do you have any comments, to be fair?

Mr. Evan Chrapko: Number one would be immigration that's a little more responsive to the knowledge worker or the needs of knowledge industries. We've had our struggles in that respect.

Number two, which is already being done and which we're grateful for, would be that the trade missions or the overseas efforts by DFAIT and others are of immeasurable value to companies, especially small ones that don't have the billions of dollars behind them to go out and spread their message to customers around the world.

Number three would be tightening up the environmental regulations. There's a signal or a market and pricing consequence one way or another, depending on whether you make it easier or harder to put carbon into the atmosphere. You don't have to get into cap and trade or taxes or anything like that with some sensible signals to the marketplace, the domestic marketplace. You end up motivating local players and encouraging alternatives.

The last one might be a money savings issue, although I don't have the data or know the specifics, so I'm giving you some money here. The IEA reports that globally—I don't know Canada's portion—the direct and indirect subsidies on the hydrocarbon side are at somewhere over $500 billion per year. If there's any amount of that that doesn't make sense anymore, then maybe taking a look at carving back on those things would be of some use in this respect, not only for the renewable sector, but also directly, I think, incenting more of the Laricina kinds of success stories that are out there.

● (1220)

The Chair: Thank you, Mr. Trost.

We go now to the official opposition, to Mr. Julian for seven minutes, please.

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

Thanks to our witnesses.

I'd like to start with Mr. Gorman and Mr. MacLellan.

Thank you very much for being here today.

A report released today from the Blue Green Canada alliance of leading environmental and economic organizations says the following about the job creation potential right now of the $1.3 billion that is currently invested in subsidies to the oil and gas industry. We have $1.3 billion invested in oil and gas, and they've done a calculation that this has resulted in 2,860 jobs. That's $1.3 billion: 2,860 jobs.

They then did a study of where a similar investment would lead to far more jobs. An investment in energy efficiency—again, it's $1.3 billion—would actually lead to 18,296 jobs in energy efficiency, and investments in solar, as you've mentioned, and a number of other green energy alternatives, would actually result in nearly 10 times more jobs—over 20,113. That's the estimate from the study that was released today.

So we're spending $1.3 billion with the oil and gas industry to actually give us the least bang for the buck. In a sense, we're getting 10% of the return that as Canadians we could expect from investments in renewable energy.

I'd like you to comment on that. Do you think the current federal government's approach of investing in the oil and gas industry, where you get a 10% return, rather than investing in renewables or energy efficiency, where you get a 100% return, makes sense?

Mr. Ian MacLellan: Let me start off by saying that in my opinion what is driving solar energy worldwide is all about job creation. That's what's driving it. There have been about a million jobs created in China in the last decade in solar.

On May 10, 2006, I was at a solar conference and was approached by the German government. They had heard about our innovative technology, in which my previous company had invested several million dollars at the University of Toronto. They said they'd like us to build our solar factory in Germany. I said that was really nice, but Germany was a bit of a distance. They said, “No, you don't understand: we'll give you half the money”. I asked how much half the money was. They said that up to 50 million euros they'd give me half the money, and after that they'd back it off a bit. I said, “You mean you're going to give a little Canadian company, with 10 employees, 25 million euros to come over to Germany and create 200 jobs?” Yes, they said.

Guess what we did. We did that. I created 200 jobs in Germany and raised over $100 million on the stock market. One of the big problems that I had is that I didn't think big enough, because this industry is going faster than even the experts believe. For example, in 2005, I was at a solar conference, and the consensus in 2005 was that the market in 2010 would be 3.3 to 3.9 gigawatts of power installed, in 2010. One of the big analysts said, “No, I think it's 6 gigawatts”. In the Q and A, Winfried Hoffmann, who I know—I know both these people—got into a big argument with Mike Rogol, saying: “How could you say that? That's not credible. The politicians won't believe us. We have to be conservative. We think we should be in the 3 to 4 gigawatts”. So they had a big argument.

Mr. Peter Julian: We never believe you should be conservative, Mr. MacLellan.

Voices: Oh, oh!

Mr. Ian MacLellan: Well, they're actually just being really liberal with the environment, but that's beside the point.

The answer in 2010 was 16.7 gigawatts, so this is growing faster. The reason it's growing so much faster is that the German government, the Chinese government, and the U.S. government have discovered an elegant off-balance-sheet job creation machine, and they're creating millions of jobs.

Now, I know a little bit about job creation, because as an entrepreneur I have created several hundred jobs. It's about job creation. Now, that happens to be great for the environment, it happens to be a great source of distributed energy, we're using the largest form of energy on the planet, and it's also going to be the lowest cost, and it's about job creation—

● (1225)

Mr. Peter Julian: Yes. I'm sorry, but I'm going to cut you off.

Mr. Ian MacLellan: Sure.

Mr. Peter Julian: It's very interesting. I appreciate it, but I just wanted to give Mr. Gorman a chance to respond as well.

Very briefly, if you could, Mr. Gorman.

Mr. John Gorman: If I could, I'll just take a little bit of a separate tack to that, not having the same direct industry experience but having spent a fair bit of time in Alberta over these last three months. We just came from holding our Solar West conference and trade show on November 1, which turned out to be the largest conference and trade show of its kind in western Canada. It was attended by 400 Albertans—many MLAs—and there was great participation by the provincial government.

In my time in Alberta, I'm discovering the amount of misunderstanding there is about all energy sources, be they oil, gas, solar, or any sort of renewable. I guess my point here regarding your question is that it's hard to compare. First of all, solar demonstrably creates the most jobs per dollar invested.

Mr. Peter Julian: Absolutely.

Mr. John Gorman: That's important, but oil does not compete with solar. Oil is primarily about transportation, and solar is about electricity. Of course you know that, but Canadians don't know that.

Mr. Peter Julian: I understand and I appreciate your point. At the same time, of course, when you have $1 billion to invest, why would you invest it and create fewer jobs than you can if you invest in solar power?

I'd like to come back to that, because we do lamentably poorly. In terms of the International Energy Agency's latest report, public investment in solar power—PV—places us 16th of the 17 IEA reporting nations. We're the second to last. We're the cellar-dwellers of the world in terms of solar power, which doesn't make any sense when we see the government spending a whole bunch of money that has very little impact.

I'm wondering if, in the couple of minutes I have left, you could talk very specifically to the importance of investing in renewable green energies. It's not just the job creation benefits, of course; it's the environment. Could you address Canada trailing the world in renewables? Whether we talk about geothermal, tidal, or solar, we're cellar-dwellers. We're last or second-to-last, and the government provides virtually no support. How do we change that situation so that Canada can actually be a green energy leader in the world rather than a green energy laggard?

The Chair: Could we have a 30-second response, please?

Mr. Ian MacLellan: I think it's about the solar future and about changing the mindset. John touched a bit on that. In the U.S. we're seeing that over 90% of the population supports solar as being by far the....They're keen in Germany, where there's very strong public support, especially in the agricultural area with farmers. When solar took off in 2004 in Germany, 50% of the new installations were on farmers' barns.

Just think about it: farmers take sunlight and water and turn them into money. Well, we just turn it into electricity, which is money.

I think the government can lead by changing the mindset. I think the reason why Canada is number 16 is that we're slow to catch up to where the world is going—mindset.

The Chair: Thank you, Mr. Julian.

Now we go to the five-minute round, starting with Mr. Anderson for up to five minutes.

Please go ahead.

Oh, I'm sorry. Excuse me.

Welcome to our committee, Ms. Bennett. I apologize for that. Please go ahead with questions and comments for up to seven minutes.

Hon. Carolyn Bennett (St. Paul's, Lib.): I'm pleased to be here, and I wish I could spend more time here, because I am the critic for aboriginal affairs and this is a very important area.

In that vein, I want to introduce to the committee our job-shadow from McGill Women in House program today, Tanya Gill, who is actually from Alberta and is from the Buffalo Lake Métis community. We are very pleased to have her with us in her job-shadowing today.

● (1230)

Mr. David Anderson: You should have introduced her to Mr. McGuinty earlier.

Voices: Oh, oh!

Hon. Carolyn Bennett: I knew that I'd left an opening.

I would like to focus on the partnerships that are possible with first nations, Inuit, and Métis, particularly on solar, in terms of jobs without people and people without jobs and how we go forward. Maybe the panellists could tell us about any activity or partnerships they participate in or about how they see that going forward in the future. I know that when Mr. Etcheverry from the Suzuki Foundation came and spoke in our riding, he talked about some of the policies in Germany around solar; you can't build a school unless it has solar panels on the roof.

The government makes a lot of decisions about how they build things, and obviously we build schools on reserves. There are a lot of things that are in the provincial system. We build a lot of government buildings. I wonder if you would tell me a bit about the partnerships and just a little about how innovation in energy can help close the gap for first peoples of Canada.

Mr. John Gorman: I'd like Ian to talk about the innovation aspect, but I will say that a truly remarkable thing about solar is its ability to be distributed. We're seeing partnerships and applications in these northern communities in particular. They have so much difficulty connecting to the larger grids and often need to fly in diesel at very high costs. They are the earliest adopters of distributed generation through solar. It's a solution for them.

Ian.

Mr. Ian MacLellan: Also, I think, because you're dealing with natural elements, our aboriginal people I think are more sensitive to nature and to using it, and this is a very elegant way to get energy from the sun. But also, I think, they typically are in more remote areas. When I lived in West Vancouver, there was a reserve right by Lions Gate. That's not exactly remote, but there are many places that are remote. We could be providing energy at point of use, and solar is an elegant way of doing it.

Interestingly enough, a common misconception about solar is that the farther north you get, the less solar energy you get. You do get less sunlight, but with solar cells, we aim them at the sun, and the colder it is, the more efficient it is. You actually harvest more solar energy in Iqaluit than you do in Vancouver. So there's some innovation in how we can use that. Canada could really contribute to using solar in northern climates, because we're in a northern climate.

Hon. Carolyn Bennett: We saw the solar greenhouse in Iqaluit. You can grow a zucchini in seven days there when it's 24-hour daylight.

Voices: Oh, oh!

Hon. Carolyn Bennett: Evan?

The Chair: Go ahead, Mr. Chrapko.

Mr. Evan Chrapko: As a waste-to-energy solution, we are finding ourselves in numerous jurisdictions—not just in Canada, but around the world—in underserved, disadvantaged communities or in communities that lack infrastructure. What we're doing is inherently smaller-scale; it means that we do not depend on a smart grid or a transmission and distribution infrastructure that has to be built in advance.

The answer to the question goes beyond the communities that you're specifically asking about to anywhere in the world that's more remote or that has people. They have waste and they need power. Converting their waste to energy can be done on both a small scale and a large scale.

To the earlier question from Member Trost on what we can do that doesn't involve spending money, the answer in part is that we can re-emphasize Canada's long-standing reputation or commitment to humanitarianism and development in the third world by looking at using the renewable sector as a vehicle for delivering some of this aid, essentially to power societies or to power communities all over the place, including in our own backyard.

The Chair: Thank you, Mr. Chrapko.

Mr. Schmidt.

Mr. Glen Schmidt: Thank you.

I think the words you used, Ms. Bennett, were bang on: the partnership that you would have with the community. We're a participant in the Wabasca community. We have an office within the community and it is staffed from the community, which puts us in a position where we can communicate. In 2011 we had $50-million worth of contracts within the community. We chair an industry group, so there's your sense of partnership.

How do we build capacity? It's a great question. We do it by asking the community. Our involvement with the other industry members in answering that question is called “managing growth”. We work with chief and council. We work with the social institutions and the schools within the community of Wabasca, not just to ask the question about training—which we're looking for, and I'll come back to the potential impact on training within the Wabasca community—but to ask where we could or should make a difference in the donations or the contributions with the community, and where it's viewed that it has the greatest effect. We've had great success with the community in directing those investments to where they identify the need, rather than us assuming what it is.

With respect to jobs, the metaphor I used is Calgary. I was born in Calgary. One member of our board of directors described Calgary in the 1960s and 1970s as being full of Texas and Oklahoma accents, because the geologists and engineers did come from the U.S. Today, we come from Calgary, from Kingston, Ontario, or from Halifax. It's the same thing in the community. People flying in are currently more dominant in our workforce, but our commitments are to train in the local community. Our incentive to do that is not only the retention, but also the direct impact on the community from really good-paying jobs. At an operating level, I'm talking about jobs that are in the six figures.

Our direct commitment isn't just partnership and participation. It's capacity building with the local industry and it's listening to the community, not only in how we participate in meeting needs, but in how we can jointly work together to meet mutual needs between jobs and a long-term sustainable workforce—and jobs of quality.

● (1235)

The Chair: Thank you, Mr. Schmidt.

Thank you, Ms. Bennett.

We'll now start the five-minute round with Mr. Anderson, for up to five minutes, please.

Go ahead.

Mr. David Anderson: Thank you, Mr. Chair, for the time. I wish I had a little bit more because I have a lot of things that I would like to talk about.

I want to ask each of you a question.

My first question will be to the solar industry.

For the other two, Mr. Chrapko, I would like you to talk to us when we get to you about the technology and innovation involved in your process.

I want to ask the same question of Mr. Schmidt. I understand that you spoke about using propane and butane to enhance recovery of the oil sands. Can you talk about the innovation involved there? I understand that you're using a technology involving radio frequency. Could you be prepared to talk about that technique and the innovation involved in it?

I want to start with solar. Mr. MacLellan, I have just a couple of observations. When you talk about the subsidization from Germany, if my math is right, it costs them about $125,000 per job in direct subsidization. A few years ago, I looked at putting some solar panels on my property. I live on a farm towards the end of the grid. One of the issues—and I see that from the subsidization—is the cost. There's a high cost involved if people are going to participate in solar. Also, there has been a short lifespan for the product.

Can you tell us what you have done in the last five years that has changed either the length of time that the technology can be used or the cost of the technology? You showed us a very innovative product here this morning. What are some of those things that you've been doing?

Mr. Ian MacLellan: Let me address, first of all, the longevity. Next time, call us, and we'll give you a solar system that will last a long, long, time.

● (1240)

Mr. David Anderson: Perfect.

Mr. Ian MacLellan: When the Russians sent up Sputnik, it had a battery that lasted for two weeks. When the Americans sent up Vanguard, it had a solar cell from Bell labs on it, and it lasted for six years. Solar works in outer space. It's extremely reliable.

I was at a conference recently talking to an expert scientist from the NREL. I was saying that I wanted a really good date, and I asked how long these things really last. If they're built properly, he said that they don't know, but it's probably at least 40 or 50 years. In fact, to use an example, and I'll touch a bit on innovation shortly—

Mr. David Anderson: I don't have too much time.

Mr. Ian MacLellan: Okay. To use an example, this is a kilogram of silicon, and that's the main thing used to make solar cells. One kilogram of silicon, over its useful life, will produce about 10,000 kilowatt hours or about 5,000 litres of gasoline in an electric car. There are 5,000 litres of gasoline right there. The innovation is driving this very, very quickly.

I want to touch on your cost situation. When we opened up in Germany and started producing solar cells, we were selling them for about $12. Now they sell for $1. It kind of hurt our business model because we didn't build a big enough factory, but the costs have come down dramatically in the last five years.

Mr. David Anderson: We'll give the other two a chance to answer, and then I'll come back to you if we have time. I appreciate that response.

Go ahead.

Mr. Evan Chrapko: Thank you, Mr. Anderson.

Our process involves essentially what's happening in everybody's stomachs in this room now: digestion. We combine that with patent-pending algae technology to take care of—like your own digestion, there are byproducts—the byproducts we have, which can be further enhanced with algae, one of the most ancient organisms on the planet. We're harnessing natural, highly-evolved processes and bacteria to create energy from waste. It ends up being combined with some other technologies to produce a liquid biofuel that's zero, or negative, in its carbon impacts. Believe it or not, this is counter-intuitive, which is the nature of research and renewables. We're producing essentially the carbon capture and sequestration answer via liquid biofuels.

As you're taking advantage of what's out there in the natural world, you end up leaving the planet a better place. Dr. Steven Chu, the U.S. Secretary of Energy, is rumoured to be stamping from foot to foot wanting to do the sod-turning on that big plant that I described in Kansas. Our owners are staunch Republicans, so they weren't going to have any of that kind of ceremony, but it does speak to the immense interest that we are now raising at utility-class scales.

We're not talking about doing little stuff. We're doing things on a global basis that are getting attention at the highest levels. Your support through Western Economic Diversification for a not-for-profit that we started to help our brother and sister companies in waste and in algae technology under BECii.ca will further enhance the processes that you're asking about as we bring little companies together and integrate their offerings.

Mr. David Anderson: Thank you.

Mr. Schmidt, could you answer the question, please? I think we're almost out of time.

The Chair: You are.

But we'll have a short answer, please.

Mr. Glen Schmidt: On your first question on solvents, this is learning from the past. In the late 1970s and early 1980s, Alberta led the world in the recovery of light oil, using propane or ethane in natural gas. Recovery factors in reservoirs—I first started doing this out of school in 1981—went from 50% to 70%. So it's taking a natural constituent, mobilizing the oil more effectively, and leaving less behind.

Those same principles can be applied to in situ or thermal recovery. You don't have to mobilize bitumen just with heat. You can do it with natural constituents from oil. Propane and butane are part of that process.

Your question on radio-frequency heating comes back to the early stage that we're in. Can we take a different form of energy to mobilize bitumen? We're quite excited about radio-frequency heating because, based on the work we have done to date with our partners, we can deliver more energy faster. We've tested the antennas. We have been at the Suncor mine face to put in a horizontal well to demonstrate that we can propagate the energy, that we can heat the oil, and we are now moving to doing it underground. We're probably five to seven years away.

But the "can you imagine?" component is this: what if we went to the limit, that is, no steam, no water, electrical energy driving radio frequency to mobilize bitumen in the reservoir and supplement that with a natural constituent such as propane or butane? It would be a very elegant answer.

The Chair: Thank you, Mr. Schmidt.

Thank you, Mr. Anderson.

Mr. Calkins.

Mr. Blaine Calkins: I'm just going to continue on that vein.

Mr. Schmidt, are you talking about a microwave application? Is that what we're talking about here with the radio frequency?

Mr. Glen Schmidt: Radio frequency isn't a microwave. It's part of the electromagnetic spectrum, like the light in the room. It's just a different portion. It delivers heat as microwaves do for water. It's a similar idea.

Mr. Blaine Calkins: I have constituents who use a similar technology for cleaning up spillage or ground contamination from various sources, such as an old gasoline or petroleum station. The probe that is put in the ground attracts the hydrocarbons through the structure. Is that the same technology you're talking about? Are you talking about applying the electromagnetic or the microwave and using a similar type of gravity drain collection mechanism?

● (1245)

Mr. Glen Schmidt: You are right in the last sentence. We mobilize the oil and then we collect it in a well by gravity drainage. The science in that part is simple. Make it mobile, let it drain to the bottom, and then pump it to the surface.

Mr. Blaine Calkins: If you don't add a diluent, if you're not adding propane or butane, if you simply apply the heat that way, obviously the carbon footprint on that would be low and the use of water would be virtually zero. In a what-if scenario, when that product gets back to surface, could you not put it into a container where it would re-solidify for shipping?

Mr. Glen Schmidt: You would have to dilute it for shipping. You would require a diluent for transportation.

Mr. Blaine Calkins: Only if you wanted to transport it in the liquid form. Is that right?

Mr. Glen Schmidt: More likely.... Notwithstanding that it's a heavy oil, it retains a liquid form. It's not a solid at surface.

Mr. Blaine Calkins: So it's not going to re-solidify? That's really handy to know.

The diluents you are using right now are extracted primarily out of the natural gas streams and sources we have in Alberta, through the mid-stream processors and so on. As far as innovation goes on that front, how much further can we go?

Mr. Glen Schmidt: Are you referring to the...?

Mr. Blaine Calkins: I'm talking about the diluents. We know the chemical compositions. Is there much more that we can do from that perspective to make the process easier? How far are we down the path of knowing...? In pumping butane or anything else downhole, with the heat for enhanced recovery, where are we in the process of knowing the impacts?

Mr. Glen Schmidt: There are different companies that are already commercial. Esso at Cold Lake has a project called LASER—liquid addition to steam to enhance recovery. It's commercial. At the University of Calgary, we chair a consortium of 16 companies to address the questions you just asked. What are the fundamental issues in mixing light hydrocarbons and oils? How do we describe it mathematically? We're at a reasonably advanced stage, but to answer your question, it's what we can see today—there is always more tomorrow.

Mr. Blaine Calkins: How much time do I have left, Chair?

The Chair: You have two and a half minutes.

Mr. Blaine Calkins: Thank you very much.

I'm going to talk to my friends in the solar industry just for a second.

I represent the riding of Wetaskiwin, so I'm fairly familiar with what's happening on the biodigestion side. I don't mean to leave Mr. Chrapko out of this. I'll let my other colleagues pursue some questioning there.

I'm excited about the solar opportunities we have, particularly in Alberta. I have constituents who live in a large rural area. Mr. Anderson alluded to the fact that we have people who now have to make choices on whether they are going to go on grid or stay off the grid. The price point on getting a completely off-grid solar solution for a home, a small farm, or a small business operation in a remote rural area is getting to the point where it's almost economically feasible to do that.

I'm just curious. How much more can we expect the economics of solar to come down and make it more affordable? We have power companies in Alberta, like ENMAX, that are offering solar solutions for individuals who could become more self-sufficient with it, helping on the investment side, because the price point or the entry point into the market is so high. How much cheaper can it get?

● (1250)

The Chair: We need another 30-second answer, please, Mr. MacLellan.

Mr. Ian MacLellan: First of all, read the white paper we are coming out with next month. We have a very detailed graph, but if you take a look at where the experience curve ends and how it's coming down in price, and you extrapolate the growth of solar, if solar were to power the entire planet over the next number of years, where would we go in terms of the price? Well, the price would be at 35¢ per watt, installed. That's where we're going, which is about an order of magnitude less costly than it is now. What will happen is that solar will become the lowest-cost form of energy on the planet. That's because we're powered by silicon, which makes up 25.7% of the earth's crust.

The Chair: Thank you, Mr. MacLellan.

Thank you, Mr. Calkins.

We go now to Ms. Liu. You have up to seven minutes either for you or for your colleagues.

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

Thanks to our witnesses for coming by.

You mentioned a white paper will be coming out next month. If you could table it the committee, that would appreciated. I think it would benefit our study.

You touched on how important research and development are to the development of our solar industry. It is an industry that's in constant development, and it's one that's very dependent on innovation. We know that in the last budget recently the government has cut funding to certain research councils, and I'm thinking particularly of NSERC. As well, they have cut the SR and ED tax credit. I am wondering if you know of any projects relative to solar energy that will be affected by these cuts. Can you explain in more detail the importance of federal support for R and D for solar energy?

Mr. Ian MacLellan: Canada has three real gems: SDTC, NSERC, and Canmet. I've had in-depth involvement with all three organizations over the years. I believe that innovation is the core competency of Canada. We can't necessarily compete with cheap manufacturing, so we have to be innovative.

We talked earlier about how the costs are going to come down by, say, another order of magnitude over the next several decades. We know technically how to do that, but it's going to require a tremendous amount of innovation, so strategically it's a huge mistake to be cutting funding in the fastest growing-energy industry on the planet, which is creating more jobs faster than any other energy industry.

Canada is already substantially behind in the deployment of the technology. We've had a lot of excitement in Ontario over the last couple of years because of that, but innovation is profoundly important to this, and the returns are quite substantial. This is what we've seen in Europe. It was mentioned that $125,000 per job.... We went through the math with the German government. In three years, they got their money back in terms of spin-offs and a whole bunch of other stuff. Innovation I think is key.

Ms. Laurin Liu: Thanks.

I was also reading with great interest your recommendations for the pre-budget consultations of 2012. Actually, you came out with three recommendations that you didn't mention this afternoon. I wonder if you could touch on those recommendations that you presented before the finance committee.

Mr. John Gorman: I'm sorry, Ms. Liu. I don't have those recommendations in front of me right now.

Ms. Laurin Liu: Would you mind tabling them with the committee?

Mr. John Gorman: We will table them.

Ms. Laurin Liu: Thanks.

In our last committee meeting, we spoke a lot about the United States. We've also spoken about it today. We know that the United States is the main direct competitor of Canada for investments in solar energy. You talked about the two things that the United States has done that Canada could learn from. You talked about the availability of tax credits, as well as building codes and environmental standards. Could you elaborate on the fiscal measures that we could use here in Canada to stimulate investment?

Mr. John Gorman: Yes. Thank you.

I could put that into context as well, because one of the earlier questions was about Canada lagging behind other nations in terms of solar. Bringing up the United States, North America as a whole is playing catch-up right now. That being said, North America is making rapid progress. Ontario is the fourth-largest jurisdiction for solar in North America right now. We have created very significant momentum and expertise. That includes the research that's being done by academics all over the country right now as a result of the fact that we have a promising market here that's growing very quickly.

Whether you are a fan or a critic of the type of program they've introduced in Ontario to start this growth, the fact is that there are many other ways, such as the tax credits and rapid amortization of capital equipment, etc., to incent and get solar going. I'm thinking in particular now of the Alberta market, which has announced that it's introducing a renewable energy framework. We just came back from getting an absolutely incredible reception from the government decision-makers there. There's a great deal of excitement about how to deal with solar, and it's going to be a made-in-Alberta solution.

It'll look nothing like a FIT program, no doubt. It might use some of these other mechanisms we're talking about, but the beauty of this is that you can use this variety of different mechanisms. When Mr. Calkins was talking about the fact that some of the places in Alberta now can install solar almost at cost parity with other more traditional technologies, that's true. It's true because Alberta and Saskatchewan have the best solar resources in the country, and that means you can produce more from what you put down.

As someone who's running the trade association representing these companies across Canada, what keeps me awake at night is the idea that the momentum we now have in Ontario is not going to spread quickly enough through the other provinces to be able to catch up to the other nations and keep us competitive globally. I think that's where the federal government has to show some leadership and some direction in terms of getting the other provinces to take advantage of the momentum we have—

● (1255)

Ms. Laurin Liu: I'm sorry to cut you off. I'm going to give my last minute to Mr. Nicholls.

The Chair: You have about half a minute.

Mr. Jamie Nicholls (Vaudreuil-Soulanges, NDP): Mr. Schmidt, innovation is the idea of improving an existing market need in a new way and the creation of new value through solutions that meet new market needs in new ways. There's nothing new about shale extraction; it has been around since the 1920s. Laricina's idea doesn't sound particularly new to me either. In the 1970s, the Illinois Institute of Technology was working on this idea, so it has been in the works for about 40 years.

My question is more specific to the electrical demand of your process versus, say, the geothermic fuel cells process of shale extraction that uses waste heat. Do you have figures comparing your process and the geothermic fuel cells process?

Mr. Glen Schmidt: No, I do not.

Mr. Jamie Nicholls: Okay.

How would you compare your process with the geothermic fuel cells process?

Mr. Glen Schmidt: I'm not familiar with the geothermic fuel cells process for shale extraction.

Mr. Jamie Nicholls: Therefore, how can you present your idea as innovative if you don't know the other innovative players in your own market?

Mr. Glen Schmidt: When you are referring to our own market—

Mr. Jamie Nicholls: That's the shale oil extraction market.

Mr. Glen Schmidt: —I assume you're referring.... We're not recovering oil from shale oil. We're recovering oil from conventional reservoirs that contain bitumen. They're not the same thing.

Mr. Jamie Nicholls: What is the difference? Could you elucidate?

Mr. Glen Schmidt: I'll give you an example.

One of the largest shale plays in the U.S. that's been under development or active research for a number of years is in the Dakotas. Shell has had an active program of deriving kerogen from shale with hot rods, surrounded by a freezing structure to drive liquid hydrocarbon, which you're referring to, from shales to producing wells. That occurs in a reservoir that doesn't really produce oil very easily.

The difference with our reservoirs is that they're quite conventional in character. The Grosmont formation in particular is almost the same size as Ghawar and has a permeability that would be as large as the best conventional reservoirs, which would be about 100,000 times more capable of flowing oil than a shale reservoir would be. So they're not the same thing.

The innovation we're applying is to deliver energy specific to this type of reservoir to mobilize the bitumen and then to drain it. It's a recovery scheme specific to the characteristics of this geology, which is not the same as shale.

The Chair: Thank you.

Thank you very much, Mr. Nicholls.

Our time for questions is over. We have votes coming again, unfortunately, so we will end now.

I'd like to thank all of the witnesses from the Canadian Solar Industries Association, Himark bioGas Inc., and Laricina Energy Ltd. Thank you very much for your input. It is indeed helpful to the committee.

The meeting is adjourned.

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