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Chair

Mr. Lee Richardson

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● (1110)

[*English*]

The Clerk of the Committee (Mr. Chad Mariage): Honourable members, based on the report of the Standing Committee on Procedure and House Affairs that was tabled in the House, which was also concurred with on Friday, we have a membership change—Mr. Todd Russell for Mr. McGuinty—and as Mr. McGuinty was vice-chair, we have to proceed to the election of a vice-chair.

I will receive motions to that effect right now.

Mr. Cullen.

Hon. Roy Cullen (Etobicoke North, Lib.): I'd like to nominate my colleague, Lloyd St. Amand, eminently qualified former chair of the aboriginal affairs committee. I think he'd do a great job as vice-chair of this committee.

Mr. Christian Ouellet (Brome—Missisquoi, BQ): I second that.

The Clerk: Are there any other nominations?

Is it the pleasure of the committee to adopt the motion?

(Motion agreed to)

The Clerk: Congratulations, Mr. St. Amand. I'll invite Mr. Richardson to retake the chair.

Mr. Lloyd St. Amand (Brant, Lib.): Thanks very much.

The Chair: We have another motion with regard to speaking and timing. Rather than keep the witnesses today, we'll proceed with that at the end of the meeting.

So without further ado, let me introduce our guests today. From the Department of Natural Resources, we have Director General Tom Wallace, electricity resources branch, and Christopher Johnstone, chief, fuels policy and programs. From the Canadian Solar Industries Association, we have Rob McMonagle and Christian Vachon. And we also have Robert Hornung, of course, from the Canadian Wind Energy Association, who's familiar to the committee.

I have a question from Mr. Ouellet.

Mr. Christian Ouellet (Brome—Missisquoi, BQ): Mr. Chairman, when we proposed the witnesses for today, everybody around the table was interested to hear, first, about the solar industry. I would suggest that Mr. Rob McMonagle and Christian Vachon speak first, because I think it is the subject of the day to start with.

The Chair: Okay. That was I think our intent, but it seems to me as well that we have had the practice of maybe giving a broad overview of alternatives in general from the department, and then we'll move to start the session with the solar people.

Perhaps I could ask Mr. Wallace to begin, and we'll try to keep the presentations to 10 minutes each for each of the groups. Then we'll proceed with questioning at the end of all of the presentations.

Mr. Wallace.

Mr. Tom Wallace (Director General, Electricity Resources Branch, Energy Policy Sector, Department of Natural Resources): *Merci.*

Bonjour, mesdames et messieurs. Good morning, ladies and gentlemen.

I believe everybody has a copy of the deck that was circulated in advance. I'd like to just take you through a broad overview of renewable energy, the role it plays in Canadian energy supply, and the array of federal and provincial programming that has been in place to support it. Then I'll turn it over, at the end of the presentation, to my colleague, who's more of an expert on the renewable fuels component, to speak before I offer some concluding remarks.

If we turn to slide 4 of the presentation, the definition of renewable energy is energy produced without depleting resources, and the three main sectors in which it's used are electricity, thermal energy, and transportation fuels. The availability of the resource varies widely across Canada, and there's a wide range of technologies that produce renewable energy in different stages of development.

In slide 5, we're tried to give you a schematic that illustrates the various technologies that people are talking about, broken down between electricity, thermal, and fuels. As you go to the right-hand side of the schematic, there are the technologies that are in the most advanced stages of development. So if we're talking about the electricity side, of course, the furthest to the right is large-scale hydro. Biomass, wind, and landfill gases are increasingly competitive with conventional generating sources. Solar and geothermal are a little bit further behind, and then tidal and energy crops are in the very early stages of development.

A similar array is on the thermal side, where you have firewood—as we'll see later—being one of the most widely used sources of thermal renewable energy. Solar air heating and ground-source heat pumps I'm sure we'll discuss later. Solar hot water and deep water cooling are a little bit earlier in the chain. There's a similar array that you see on the renewable fuel side.

Together, all renewable energy technologies make up about 17% of Canadian energy supply, and you can see that's dominated, really, by hydro, large hydro and biomass. People burn firewood, but also it's in large part biomass used in the pulp and paper industry. About 50% of the energy needs of the pulp and paper industry are met through biomass.

So you can see that the technologies that are increasingly the focus of attention—tidal, solar, wind, and everything—represent currently quite a small slice of the total energy supply. However, as we'll see later, they are technologies that are growing rapidly.

Regarding just electricity and thermal renewable energy first, on the next graph, on page 8, you can see within the electricity sector again that large hydro is about 60% of Canadian generating capacity, with renewables making up about 3%. “Emerging renewables” is the phrase we use to refer to the suite of technologies—wind, solar, geothermal, biomass, but not large hydro.

Chart 9 gives some 2003 figures for capacity additions, and I'm sure my colleagues will have more up-to-date statistics and additional information to provide to you.

While renewables are currently a small slice of our total electricity supply, a number of them—small hydro, solar, and wind—are growing very rapidly, although solar doesn't turn up in this graph as much because the graph is looking at just the electricity side.

● (1115)

The federal government has traditionally supported renewable energies through three broad arrays of policies. The first is on the research and development side. For example, there's the Canadian Wind Energy Institute in Atlantic Canada. There's the National Solar Test Facility. Should you have additional questions on our technology dimension, we have some experts from the department here who can respond to any questions.

The next block of support is tax measures. There's quite an attractive tax regime for an array of renewable energy technologies. Class 43.1 is essentially a writeoff at the rate of 50%. You can depreciate your investment over two years or two and a half years, subject to some of the tax rules. The Canadian renewable and conservation expense gives a 100% writeoff on test turbines for wind farms and the like. It's analogous to the kind of exploration tax credit that we have in the oil and gas industry, although it's not a 100% writeoff for exploration expenditures.

There were an array of programs providing direct support, which we'll hear about later. The two of most interest to this table are: the renewable energy deployment initiative, which among other things provided incentives for solar at the rate of 25% for certain applications, thermal applications in the commercial and industrial sector; and the wind power production incentive, which provided a subsidy of one cent per kilowatt hour over ten years for new wind farms. Both programs are now under review as part of the new government's reconsideration of its approach to energy and climate change more generally.

The array of federal initiatives has really stimulated or helped to stimulate a broad variety of complementary provincial initiatives. Each province has different ways of supporting them. In the annex to the presentation, you'll see a detailed list of what the targets are for each province and the array of measures in place for support.

A wide variety of instruments are used in the provinces to support renewable energy. Most do it through requests for proposals operated by the utility or, in Ontario's case, by the Ontario Power Authority. In other cases, they have renewable portfolio standards, where there's an obligation on electricity suppliers to source *x* percentage from renewable energy. In Ontario we increasingly see standing offer contracts, where you set a price to pay *x* cents per kilowatt hour for any eligible technology that comes in under that price. It's designed to reduce the administrative costs for some of the small producers. Direct government procurement of renewable energy is another way.

I'll stop there. I'll have some concluding remarks, but I'd turn it over to Chris, if I could, to take you briefly through the renewable fuel story.

● (1120)

Mr. Christopher Johnstone (Chief, Fuels Policy and Programs, Office of Energy Efficiency, Energy Technology and Programs Sector, Department of Natural Resources): Thanks, Tom.

With respect to renewable fuels specifically, we're currently behind the U.S. and Europe in the production and use of these fuels. These are fuels such as ethanol and biodiesel. On average, only about 0.5%, half a percent of our transportation fuels, is renewable at this time, although this is expected to increase to about 2% on average over the next year. Other jurisdictions, such as the U.S. and European Union, have set aggressive targets in this regard—5.75% for the European Union by 2010 and approximately 4% for the U.S. by 2012.

The government has announced its intention to require a 5% average renewable content in our fuels by 2010. This would represent a tenfold increase over the current level of 0.5%. Natural Resources Canada, Environment Canada, and Agriculture and Agri-Food Canada are working closely on this initiative.

Work is under way with the provinces as well. In late May, federal, provincial, and territorial ministers met to discuss this subject in a dedicated meeting and to discuss the path forward. The interdepartmental and intergovernmental approach is critical, because of the complexity of this file. The work is looking at considerations that span the value chain from the feedstock production, the production of the inputs—the grain or other inputs to the renewable fuels—to the biofuel production itself, to the fuel distribution and the changes to the fuel distribution network that will be required, and the end use or the interaction with vehicles, and to the environmental impacts on a life-cycle basis. Stakeholders from across this value chain are being consulted in this process.

With respect to next steps, further consultations with stakeholders will be taking place over the course of the summer. In addition, federal-provincial-territorial meetings with respect to agriculture, energy, and environment are scheduled for June, August, and September respectively. In addition, another dedicated meeting of federal, provincial, and territorial ministers is envisioned for November.

Mr. Tom Wallace: Thank you, Chris.

Let me just conclude, Mr. Chairman.

Large hydro and biomass now are making the most important contributions to Canadian energy supply. However, attention is increasingly focused on an array of emerging renewable energy technologies. While they're making a small contribution now, that contribution is rapidly growing.

The future pace of development will be determined in large part by market forces and the pace of technology development, but also, federal and provincial policies will continue to be an important determinant of growth. All over the world, you see that generally, to compete in the market, these technologies continue to require some degree of support from government, so policy is important. Some of the major federal expenditure policies are under review. The tax policies aren't, and I anticipate that in the coming weeks or months the government will be making announcements in this regard.

I believe when our minister was here last week—and I read some of the transcripts—he mentioned his personal support for wind and solar. Exactly what form that will take will be up to the government to determine, of course. I think, as Chris said, we're well advanced on a national plan to achieve 5% renewable content in Canadian fuels.

Thank you very much.

The Chair: Thank you, Mr. Wallace and Mr. Johnstone.

We'll reserve questions until we've heard from all of the witnesses today.

We'll move now to solar and to Rob McMonagle.

Mr. Rob McMonagle (Executive Director, Canadian Solar Industries Associations): Thank you, Mr. Chairman.

I would also like to introduce Mr. Christian Vachon, a past president of CanSIA, who is here to assist in answering the committee's questions. I would also like to point out that we have briefing notes that I believe have been passed around. They provide some background information on solar energy.

The Canadian Solar Industry Association, CanSIA, represents the solar industry in Canada. We are a small industry, both in the context of Canadian society and in relation to the solar industries of other nations. In Canada, the solar industry employs about 700 people, while Germany's solar industry employs 50,000, and in China it is estimated that the solar industry now employs over 200,000 workers.

Canada is an energy-rich nation. We are fortunate to have a bountiful supply of energy resources, both renewable and non-renewable. Canada has invested and taken advantage of our non-renewable resources, and as a result our oil and natural gas reserves have contributed significantly to our high-level standing that we all enjoy. But these energy resources are finite. At some point—20, 30, or 100 years from now—they will not be able to meet all the energy needs of Canadians. Just like the sands in an hourglass, our carbon fuels are slowly running down. If we add more sand or restrict the flow, they still run down.

There are three questions this committee should consider in pondering the future energy policy of Canada. Over the next two decades, will energy prices go up or down? Do nations want to import more of our energy or less? Is the world getting more concerned about climate change or less?

We must look outside of Canada's borders to see what countries are doing that are not blessed with Canada's rich but finite non-renewable energy resources. These countries are facing now what Canada must face in the future. What we find is that solar energy is playing a major role in the energy policy of other countries.

Solar energy is now a $15-billion-a-year industry worldwide and is growing by 35% annually. The price of solar energy is dropping. It is the only energy source that has seen its price drop consistently over the last 20 years, and it will continue to drop. Our great neighbour to the south has recently announced a target of installing 10,000 megawatts of solar electricity over the next decade. Canada has no plans and no targets for solar electricity.

Germany, the world leader for solar electricity, installed over 600 megawatts last year. Canada installed less than two. In Austria, one out of every seven homeowners now uses solar to heat their hot water. The village of Bliesdorf in southern Austria, with 35,000 people, has a greater installed capacity for solar heating than all of Canada. China has a renewable energy law that requires every new building to use solar water heaters. As a result, China is the largest solar market in the world, with over 10,000 solar manufacturers. Canada has two.

The major solar firms now include names like Sharp, Sanyo, BP, Shell, and General Electric. Recently, the National Bank of Canada issued a report on our solar industry and recommended the solar industry as a major investment opportunity. Globally, solar energy is becoming big business.

What is Canada doing to prepare for the day when the price of solar will be cheaper than other energy supplies, when other nations don't need or want our energy, and when other countries are reaping their investments now in climate change technologies? In Ottawa, you cannot legally install a solar water heater in your home. In Calgary, you cannot send your solar electrons into the grid. In Vancouver, you do not have the right to the sunlight falling on your roof.

My message today is that Canada is not looking to the future of its energy supply, but rather is stuck in the past. The lack of government and political leadership in the past is creating serious problems for our children, who will have to compete with nations who have taken their energy future into their hands today.

While in the 1980s Canada was a world leader in solar, Canada now lags every one of our trading partners in our support of solar energy. While other nations have moved forward steadily, there have been 20 years of inaction in Canada. Now even many third world countries are surpassing us with their level of support.

There is no support for solar PV by the Canadian government. Canada invests only 14% of what other industrialized nations invest in solar electricity, and this is spent on R and D. So while other countries are investing money in building industry capacity and bringing proven solar products to market, NRCan continues to study solar as something for the future. As a result, sales in Canada are less than 20% of the international average.

● (1125)

Ontario is the shining light in Canada for solar, with a recently announced program that will see sales grow from 0.1 megawatts to 15 megawatts in five or ten years. But remember, Germany is installing 40 megawatts a month now.

NRCan officials continue to say that PV is not cost-effective for Canadians and not ready for the market in Canada, so what does NRCan know that the rest of the world seems to be missing?

Solar is supposedly included in class 43.1 of the Income Tax Act. It is a tax measure that allows renewable energy technology to be written off faster by companies, yet solar is the only renewable energy technology that has restrictions placed on its participation. Over 95% of solar applications are excluded from class 43.1. For the solar industry, class 43.1 is all about smoke and mirrors. Major changes are needed before class 43.1 is of benefit to the solar industry. We have been lobbying for those changes for ten years, so why is solar listed as being in class 43.1 when in fact it's not?

Finally I turn to REDI, the renewable energy deployment initiative. It is the only support for deployment that the solar industry has seen from the federal government since the mid-1980s. It is a small program with a budget of about $5 million this fiscal year. It's small compared to the support in other countries, but nevertheless it's all we've got.

The funds for REDI have been frozen since March by the government, under a review of all climate change programs. However, solar applications for industrial and commercial buildings, which REDI supports, are closely tied to the building industry's construction cycle. Sales are made in the spring for installation in the summer. What good is it if REDI funds are available this fall or winter, when the industry can't install its products at that time? Further, the freeze is creating uncertainty in the market, with potential buyers holding off making decisions. As a result, sales of solar thermal projects, though meagre by international standards, have plummeted this year.

If the government is committed to developing Canada's renewable energy resources, this freeze needs to be lifted before it does further irreparable damage to the solar thermal industry. If the government is truly committed to supporting renewable energies, then allow the REDI program to act as a transition program to these new support mechanisms that NRCan says it's working on and the government says it's intending to announce this fall. Currently there is little or no support for solar by the federal government, and the only program we have, REDI, is frozen and slated to end in March 2007.

What can the Government of Canada do to ensure that solar energy plays a role in the future energy supplies of Canadians? Renewable energy sources like solar are not just about cleaner air and climate change. Yes, solar has a major benefit for the environment, but it is also about energy security, providing a cheap source of energy in the future and providing jobs and wealth for Canadians.

There are four key recommendations I would like to share with you today.

One, solar is not just a clean air issue. It must be included in energy policy discussions. We cannot be left out again. Solar and all renewables must have a major role in the development of a national energy framework. We should be planning for 20 or 30 years into the future for Canada's energy. We must look to the future, and not just to the day after tomorrow.

Two, we need a firm commitment from government and consistent policies. The government needs to live up to the fine words and often-stated aspirations it expresses for renewable energies. Recently there have been encouraging words of support for solar from the minister and the deputy minister of NRCan, but we have two decades to catch up on. We now need real, not token, action.

Three, Canada needs to build solar capacity today so we'll be ready tomorrow when Canada will need new energy options. As a start, the budget for solar needs to be increased so it is comparable to that of our trading partners. While the actual federal budget for support for solar is unknown, we estimate it is less than $12 million annually. To put us in the middle of the pack of other nations, this needs to be increased to $75 million.

Finally, government support needs to go into getting solar into the hands of technicians. We do not need more study, more R and D, more technology development. I cannot stress this enough. The technology is here and proven now.

● (1130)

We need to follow the footsteps of other nations, who are 20 years ahead of us in their use of solar energy. We need help in developing the market for solar products. We need help in building industry capacity. We need help in getting Canadians to understand the advantages of our products.

As Canada's current energy resources run down, we must have other energy sources ready to replace them. Like every other energy source—like water power, like oil, like nuclear in the past—it will take decades for solar to become a major source of energy for Canadians, but this cannot be an excuse for inaction now.

I hope for the sake of my son, and the children and the grandchildren of the committee members in this room, that Canada does not let the sands of time run out on Canada's energy future.

Thank you.

● (1135)

The Chair: Thanks very much, Mr. McMonagle.

Mr. Hornung, please go ahead.

Dr. Robert Hornung (President, Canadian Wind Energy Association): Thank you, Mr. Chairman and committee members, for the opportunity to be here today.

I expect you have a copy of the presentation I'll be giving. It's a little long, so I'm going to be going through some slides rather quickly, but I'll cover all the topics within.

My key messages for you today are that, first, wind energy has moved from the margin to the mainstream. Second, while Canada is currently far behind other countries in terms of deployment of wind energy, we have tremendous opportunities in this country. Third, we have made some good progress and we've started to create a policy framework that can help Canada, over time, become a leader in this sector, but that requires a stable policy framework. Right now the current uncertainty that exists over wind energy policy at the federal level can potentially have some very serious implications for the wind energy industry going forward.

Here is the first slide. I want to talk a little bit first about moving from the margin to the mainstream. Wind energy worldwide now provides enough power to meet the needs of 17 million homes. That's 59,000 megawatts of capacity. Wind energy meets 20% of electricity demand in Denmark, 5% in Germany, and 8% in Spain, starting from very low numbers at the start of this decade.

In 2005, the total value of installed wind energy capacity in the world was $14 billion U.S. in that year. There were 100,000 people employed in Spain, Denmark, and Germany alone. The growth is expected to continue, moving from today's 59,000 megawatts to 149,000 megawatts by 2010. That's an estimate from the World Energy Council.

The industry is increasingly characterized by major energy players. In the last five years we've seen General Electric and Siemens become leading wind turbine manufacturers. Within Canada, when we look at who are developing wind energy projects, it's a lot of the cream of the crop of Canada's energy industry. It's Suncor, it's Nexen, it's TransCanada, it's Enbridge, it's TransAlta, and it's EPCOR, all wanting to get involved in this industry.

Now why is that? There are a number of reasons. Some are economic. Technological evolution has led to declines in the cost of wind energy, and it's becoming increasingly cost-competitive with conventional power. If you look forward, you can have a high degree of certainty that wind energy's costs are going to continue to go down. You have less certainty of that with other technologies. The gap will continue to close.

Wind energy provides significant economic benefits in terms of investment and job creation, but I also want to highlight that it particularly provides benefits to rural communities. Canada's best wind resource is in rural areas. These areas have often been hard hit by declines in other sectors, such as agriculture, forestry, or mining. Wind energy provides land-lease payments to farmers of several thousand dollars a year per turbine and contributes significantly to the rural tax base.

In fact, in the United States, John Deere, the farm tractor and farm equipment manufacturer, has actually set up a program to provide funding to farmers to support the deployment of wind energy on their properties, because they see wind energy as a way to keep the family farm going in the U.S.

On the environmental side, wind energy provides a broad range of environmental benefits. I won't go over them here; they're fairly well understood.

I do want to spend a second talking about Canada's wind energy opportunity. We have probably the best wind resource in the world. We have the world's longest coastline and the world's second-largest land mass. Our wind resource is well distributed in all regions of the country; every jurisdiction has some opportunities with respect to wind energy development. Because our country on a national scale gets most of its electricity from hydroelectricity, we have opportunities that other countries do not have to integrate wind energy into our system, because hydroelectricity is a very good partner for wind energy in terms of helping to manage the variability of wind when it's integrated into the system.

Here is the current status of wind energy: we have an installed capacity today of 944 megawatts. This provides enough electricity for a little over 300,000 homes. It's only 0.4% of total electricity demand in this country, but it's growing rapidly.

If you look a little further in the presentation, you'll see that between 2002 and 2005, installed capacity of wind energy in Canada has increased by 38% a year. Last year it increased by 54%. This year we started with 683 megawatts; we're going to be at close to 1,200 megawatts by the end of the year.

● (1140)

Currently, either under construction or with signed power purchase agreements—so with contractual agreements that will lead to construction going forward—we have almost 3,000 additional megawatts of wind energy, moving forward, in Canada. So the growth is real and significant.

That growth has been stimulated by an emerging policy framework in Canada. This isn't really unusual. I mean, Canada's federal and provincial governments have traditionally played a role in creating policy frameworks to facilitate the development of new energy sources, be they the oil sands, nuclear technology, or offshore petroleum technology, and this is now beginning to emerge for wind energy.

At the federal level, the key initiative has been the wind power production incentive. This program was created in 2001 as an industrial development measure with a goal of having 1,000 megawatts of wind energy in place by the year 2007. We will pass 1,000 megawatts this year. The funding for this program was fully committed in the summer of 2005.

In the 2005 budget, an expansion of the program to a new target of 4,000 megawatts by 2010 was announced. That expansion has not yet been implemented. The funds are frozen.

What the wind power production incentive does is provide an incentive payment to producers of wind energy of 1¢ per kilowatt hour for a 10-year period. Again, this is not unusual if you look at what other countries are doing. The United States has a similar program, the production tax credit, which provides 1.9¢ U.S. per kilowatt hour for a 10-year period for wind energy production.

We also have, as Tom Wallace mentioned, a supportive tax policy initiative, the Canadian renewable conservation expense in class 43.1.

The wind power production incentive, as I said earlier, has been critical in kick-starting the industry in Canada. The fact that the funds associated with that program are frozen at this time is problematic for the industry. This uncertainty has real-world implications.

First, it sends a signal to the investment community that maybe Canada's wind energy market is going to be characterized by boom and bust. Maybe it isn't going to be stable. Maybe it isn't going to be sustainable or constant. That is something that has plagued U.S. wind energy policy going forward. In the U.S., we've seen years when you have 1,600 megawatts of wind energy installed and then years when you have 200 megawatts of wind energy installed because of the vagaries associated with the production tax credit.

The result is that investors decide not to invest. Given the size of the U.S. market for wind energy, it's woefully under-invested in terms of manufacturing capacity, because manufacturers have said that they don't want to invest there if they can't have any certainty that they're going to have a market for five years that's fairly constant. If they are going to have a good year and then a bad year, they're going to go somewhere else where they will have five good years. We're worried that the current status of WPPI is sending that signal to investors who are looking at Canada.

The second problem arising from the freezing of WPPI funds at this time is that we have a number of projects in Canada that participated in provincial procurement processes for wind energy after the 2005 budget, and participated in those processes with the expectation that the expansion of the wind power production incentive would be going forward. Therefore, when they bid into those processes and said they would like to compete in those processes and provide you with wind power, they assumed that they would be able to draw on those funds from the wind power production incentive.

There are eight projects in Ontario, representing about $2 billion of investment, that are in this situation right now. Under the contractual terms of those agreements, those projects are now in a position where they have to start building. They have to start delivering power in 2007, or at the latest by early 2008, or they will be penalized under the terms of the contracts.

It's a very difficult decision to go ahead with this investment when a source of revenue for the project, like the wind power production incentive, which for many of these projects would amount to about 10% of the revenue for the project for the first 10 years, is uncertain. It completely changes the project economics. It makes them much more marginal, and it has really put these companies in a very difficult position. Timing matters.

Frozen funds also means that there are limited resources within government to actually continue to process wind power production incentive projects.

● (1145)

We have about 40 projects right now that are in the process of undergoing a federal environmental assessment in the hopes of being able to secure the wind power production incentive. To secure WPPI funds, you have to have a federal environmental assessment. Those environmental assessment processes have slowed down enormously because of the uncertainty associated with WPPI, delaying future projects in terms of when they may be able to go forward.

Finally, the uncertain status of WPPI sends a signal to provincial governments that maybe the federal government isn't willing to be a partner going forward, as it has been to this point. That's problematic, because provincial governments have gone forward setting increasingly aggressive targets for wind energy, expecting the federal government to be there as well.

If you go to the next slide, you'll see a sense of what some of those targets are. Quebec recently announced in its energy strategy that it's going to seek 4,000 megawatts of wind energy by 2015; Ontario wants 2,700 megawatts of renewables by 2010; Manitoba, 1,000 megawatts of wind energy by 2014. I won't go through the whole list, but if you add all of those things together, provincial aspirations at this time total a little over 9,000 megawatts of wind energy by 2015. Remember that we're at 944 right now, so that's a minimum going-forward objective of 8,000 megawatts of new capacity over the next decade.

What would that mean for Canada if we actually proceeded with it? Well, by 2015, it would mean that wind energy was providing a little over 3% of Canada's total electricity demand. Now, 3% still sounds pretty small, but recognize that natural gas today provides only about 4% of Canada's electricity. Recognize as well that between 2005 and 2015, of all the new electricity generation currently planned to be built in this country, wind energy would be responsible for about 17% of that electricity.

It's clear that governments and utilities at the provincial level are looking for wind energy to play an important role in their future supply and they're looking for the federal government to be a partner in it.

I will note that even the level of growth we're talking about won't make Canada a world leader; it will move us to the middle of the pack. Already we have countries such as Denmark, Germany, and Spain that are using much more wind energy than we are. But if you also look at some of the objectives countries have set, the United States is putting in 10,000 megawatts of wind energy in the next three years; China wants 30,000 megawatts of wind energy by 2020.

Spain is an interesting example. Spain in the year 2000 was essentially where Canada is today. Spain had about 1,000 megawatts of wind energy capacity. In the year 2000, Spain adopted a target of 13,000 megawatts of wind energy by 2010. It seemed extremely ambitious at the time. Last year, Spain dropped that target and replaced it with a new target of 20,000 megawatts by 2010, and they're on track to meet that target.

Looking forward, our first priority is to proceed with the 2005 budget commitment to expand the wind power production incentive, and looking further forward, we'd like to see the development of a comprehensive wind energy strategy to support the deployment of wind energy in Canada.

Let's make efforts to attract domestic manufacturing capability. Let's do things with respect to streamlining environmental assessment processes. Let's focus on human resource development. This is a rapidly growing sector, and we have at this time little in the way of training for potential employees in this sector.

I've added a couple of slides at the end that I won't touch on now but would be happy to touch on in questions concerning what I call non-barriers to future wind energy development, some of the common myths related to wind energy involving sound, birds, and land use. I've also talked about some of the issues that are real issues for wind energy—for example, visual impacts, decisions about future transmission, and how far we can go in terms of ensuring a stable and sustainable policy framework.

The last point I'll mention, Mr. Chairman, is just to say that while we're poised right now for significant growth in Canada's wind energy sector of large, grid-scale electricity, Canada also has an emerging opportunity with respect to small wind energy systems, systems a farmer might use on his property, systems someone at a cottage might use, or someone at a home or a school or a small business or facility.

● (1150)

Canada actually has some of the leading manufacturers of some of these technologies in the world, but right now those manufacturers export essentially all their product. They survive by exporting their material to other countries because we don't have a policy and framework in place with respect to smaller wind energy systems. We have a couple of proposals in that regard that we'd be happy to forward to the committee and have further discussions about it at some point in the future.

Thank you very much for your time.

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

Thank you for all the presentations. They were quite provocative. I think we're going to have lots of good questions. I appreciate your coming, and again, I wish we had more time. So let's get right on with it.

Mr. Cullen, would you like to begin? It's going to be five minutes for questions and answers on the first round.

Hon. Roy Cullen: Thank you. I have a 12 o'clock meeting. Unfortunately, I'm going to have to skip out.

The Chair: Well, you might stay within time then.

Hon. Roy Cullen: Yes, that's right. So it might work.

Thank you very much to all the witnesses for being here.

I can understand why the new government wants to put its stamp on things and bring out its own approach to energy policy, but the freezing of these programs—the WPPI, the wind power production incentive, and now the renewable energy deployment initiative—seem to run counter to what we should be doing as a nation to encourage wind power and other types of renewable energy.

So I'll put it out to the departmental people and also to the solar group and the wind power. Is it frozen just because the government wants to review everything, or are there concerns about the effectiveness and the efficiencies of these programs? Has there been any evaluative work done in terms of whether they're meeting their objectives and how they stack up against other alternatives in terms of programs the government might want to look at or deliver?

What is the status? Is it just frozen because the government wants to review everything, or are there some concerns?

Mr. Tom Wallace: Maybe I could begin.

There are really two blocks of programs we're talking about. First, as far as the solar program is concerned, the renewable energy deployment initiative, the previous government announced a review of a number of climate change programs. The WPPI program was not included as part of that review, but the REDI program was.

If my memory is correct, there was something in the order of 100 programs that were subject to a fairly comprehensive review process initially by Treasury Board, and the Privy Council Office was involved. The results of that review were presented to the new government, and decisions are, in some sense, working their way through the system.

Robert McMonagle was in to meet us a couple of weeks ago. In the case of solar, I mentioned at the time that we were hoping to see a situation where we could unblock the solar program, with a decision at least one way or the other, but hopefully a positive decision, by the end of this month. I'm still hopeful that will occur, but I can't get ahead of the various government decision-making processes.

Hon. Roy Cullen: I want to interrupt you just for a moment. Is NRCan privy to all the evaluative work that has been done by, is it Treasury Board and the Privy Council Office?

Mr. Tom Wallace: People in our department would be. I'm privy to the results of our programs, the programs that I'm responsible for.

Hon. Roy Cullen: Okay, but regarding these programs that are frozen, have there been any concerns raised in terms of their efficiency or effectiveness?

Mr. Tom Wallace: I think of the hundred programs, there were some that were dropped. Indeed, the government I think has announced that there are about 15 or 17 programs that will not proceed. The REDI program is not on that list.

In response to your question about evaluation, we did have a comprehensive evaluation of the REDI program about three or four years ago, I think it was. Funds were frozen for a while. There was some controversy about the ratio of the support we were giving for incentives versus training, certification, building up the industry. We did a review and made some adjustments. We've been increasing the proportion of incentives over time.

By and large—and I think Rob might have some statistics on this—we have seen a real increase in the market for solar over the past couple of years. It was pretty slow in the early years as we were trying to build the infrastructure; now it's starting to really take off in a couple of sectors.

So I guess on the solar side I could say I'm hopeful, and that's all I can say. I can't really speak for the government, but I think I said a couple of weeks ago that we were hopeful about getting an answer on the solar side before the end of the month. That continues to be our hope.

In the meantime, we've done what we could as a department to relax one of our terms and conditions to ensure that you don't necessarily have to have your contribution in place by the time construction starts. We realize the difficult position the solar industry has.

● (1155)

Hon. Roy Cullen: I'm going to have to interrupt, because my time is running out.

I hope someone at the political level and the departmental level is hearing that this is creating a lot of uncertainty. Investments are getting parked. We could lose some momentum, and we're just trying to catch up.

On the program with respect to ethanol, the government recently announced this commitment to ethanol content and almost simultaneously said that the funds were frozen for the ethanol expansion program. This seems to run counter to what the government announced. I wonder if you could comment on that. What was actually agreed upon or discussed at this meeting with the minister and the provincial counterparts? The two actions seem to be inconsistent.

Secondly, you've probably heard about different standards, provincially, for interprovincial trade, and that if different provinces have different targets, it's going to create good opportunities perhaps for some, but for Canadians generally, it could create problems.

Could you comment on these questions, please?

Mr. Christopher Johnstone: With respect to your question about what was discussed at the May 23 meeting, the ministers discussed the path forward in terms of obtaining that level of 5% renewable content by 2010 and the existing measures that were in place.

As you mentioned, this need to look at a national strategy is very important. We're hearing from industry that a national approach is required, that this patchwork of provincial programs is causing inefficiencies, and it is causing trade barriers, as you mentioned. So the fuel distribution industry, the renewable fuels producers, agricultural producers, vehicle manufacturers, all these stakeholders are calling for a national approach.

This strategy towards obtaining that national approach was discussed at the May 23 meeting. It will be the subject of further stakeholder consultations and meetings throughout the summer.

Hon. Roy Cullen: What about the first question, the seeming contradiction between announcing this commitment and yet freezing or scrapping this other program that encourages that type of development?

Mr. Christopher Johnstone: I understand. The ethanol expansion program is awaiting the same decision as some of these other programs. It's in the exact same boat.

Hon. Roy Cullen: To conclude, we heard at another meeting that the Treasury Board and the Privy Council Office do these evaluations. I hope the department is plugged into that and has some sense of what is being evaluated, what the results are, and that there's a way to enter into that discussion. Because if you kill or freeze something, then you either replace it with something that's better or you say you're not committed to that any more.

I don't know where that sits. Are these political decisions? What role is NRCan as a department playing in that kind of consideration?

● (1200)

Mr. Tom Wallace: As a department, we've been participating in the decision-making process. There is a decision-making process in government that involves cabinet and Treasury Board approval before announcements can finally be made. As I say, for that set of programs that were subject to the climate change review initiated by the previous government, and then presented to the current government, I think we're ending the end stage of that process. I'm hopeful that we'll see some decisions emerge very shortly. I really can't get into cabinet committee schedules and stuff like that.

When those decisions come out for most programs they will be to provide another year of funding. For some of the technology ones it will be another two years of funding. The logic has been to give the new government time. Really I think it relates to what you're saying to give the new government time to figure out the approach it wants to take without unduly disrupting the industry. For those programs that were subject to the...and that includes the ethanol program, but it also includes the REDI program, all I can say is I think we're very close to getting some decisions that will unblock the situation and respond to some of the legitimate concerns that have been raised by my colleagues.

In the case of the wind program, it is much larger program. The expansion was something in the order of $900 million over 15 years. That's a bigger decision the government will make. Certainly a decision will be made, I would think, one way or the other by the fall. I know the minister was here last week and was reading the transcripts, and he has clearly indicated his support for wind and how he sees wind as part of the government's broader energy strategy.

I'm not in a position really to predict timing on this, but I can indicate that I think some of the very legitimate concerns that Robert and his colleagues have raised regarding the implications of an extended delay are resonating and are being heard. I'm not just really in a position today to talk about timing vis-à-vis the wind program and whether this would happen early or it might have to be delayed until September. I just can't predict that.

The Chair: Thank you, Mr. Wallace.

Thank you, Mr. Cullen. I appreciate that.

We'll move on now to Monsieur Cardin.

[*Translation*]

Mr. Serge Cardin (Sherbrooke, BQ): Thank you, Mr. Chairman.

Good morning, gentlemen. I'm pleased to meet you, especially since we're discussing a subject of the greatest interest to me, renewable energy.

You've told us about the various classes of renewable energy. What reassures me, in a certain way, is the public opinion poll that was outlined to us in the solar energy document. That reassures me about citizen perceptions. I believe we should follow its example. In particular, it refers to solar energy, wind energy and hydroelectricity, and states that 92 per cent of people accept solar energy, 90 per cent accept wind energy and 82 per cent accept hydroelectricity. Those are the three classes people turn to first of all and where they find "renewable" energy in the real sense of that word. You also told us about renewable fuels. I'm a bit more reluctant when I hear about ethanol, however. You seem to say that the government should normally make efforts of that size with renewable.

Of course, the government no doubt has a promising plan that we'll be able to see at some point and to assess its merits. For my part, I would focus my efforts on solar and wind energy.

Can you tell us what kind of actual incentives there are in the research and development and program sectors? These energies permit more innovation than others. What kind of research is being done on renewable fuels in the transportation industry, since transportation is the main sector responsible for climate change, and what are the programs in that area?

I'm a neophyte, but I feel the solution lies in electrical energy accumulators, for example, regardless of how that energy is produced. Electricity could even play a greater role in transportation.

What orientations are there in that area? I don't want you to immediately tell me about a plan. Governments come and go, but senior public servants remain and have influence. So I'd like to know where we're headed.

We've come a long way. When we started talking about wind energy, I sometimes got the impression that the Liberal government at the time didn't know whether the wind turned the blades or the blades produced the wind. Matters have settled down since then, and increasingly large investments are being made. As you know, however, the Bloc advocates a doubling of investment in wind energy and perhaps in solar energy as well.

I'd like you to tell us about the government's orientations. I'd also like to hear the comments of the representatives of the wind and solar energy industries.

● (1205)

Mr. Christian Vachon (Former President, Canadian Solar Industries Associations): Thank you for your question, Mr. Cardin.

I want to note one point with regard to renewable energies. What is interesting is that many problems specific to wind energy that were raised by Mr. Hornung also apply to solar energy problems. Renewable energies aren't competing energies. Ethanol drives vehicles, wind energy produces electricity, and thermal solar energy, which moreover is quite widespread in our region, heats water and air.

There is a program, the REDI program, or PENSER in French, which has done its job very well since 1998. Mr. Goodale, the Minister of Natural Resources at the time, and Minister of Finance in the last government, established the first facility under this program in 1998. That was at Farnham, in southern Quebec. Since then, the REDI program has done a very good job.

I say it's doing a very good job because it pays 25 per cent of the total capital expenditure incurred for a project in non-residential sectors, that is in the commercial, industrial and institutional sectors. People have benefitted from this program, and I believe the federal government has made a good investment. Adjustments may have to be made to the program as it progresses, and that's normal. However, we see that, in certain other countries that have very good subsidy programs—moreover, I met with people from Austria on this subject last November—there is stability. As Mr. Hornung mentioned, stability is extremely important for investment and for the signals that are sent to the market, both for clients and for the industry that develops as a result of the incentives in place.

So stability is very important. We can understand that the present government has other priorities than the previous government and that it wants to change matters. That's not a problem for us. What hurts is mainly the break between the two. There should be a transition period. What I would like is for some stability to be maintained, even if arrangements are changed, if, for example, the government drops the arrangement whereby it pays 25 per cent of the capital cost for a thermal solar system and decides instead to provide assistance on a per-kilowatt or per-square-meter-installed basis. Regardless of the form that might take, I would definitely encourage it to maintain stability. It can introduce another program, based on its priorities, but it must at all costs continue in the wake of what is already in place and not interfere with the progress that has been made.

● (1210)

[*English*]

Mr. Tom Wallace: We could look at this in two phases. The first priority is if we could unblock next year's funding in the REDI program and continue, we would go a long way toward meeting the immediate needs of Rob and his constituencies. However, there's the issue of what comes after the previous program that was going to expire at the end of 2006-07.

The program to date on the solar side has been providing a 25% capital subsidy for investments in solar technologies used in the commercial and industrial sectors. It has not been available for programs in the residential sector. We are undertaking a number of pilot projects. The technology that's closer to being economic is solar hot water heating. We are evaluating the results of those pilot projects, and that is one area as we look toward the future.

Certainly, in letters to the minister, we receive a lot of interest from individuals and homeowners. We are working within the program on some of the other barriers to residential hot water heating. I think Rob mentioned a difficult problem in Ottawa, where it's still not legal, and we're working with the standards people to get certified hot water standards. I think that whole area of the residential sector is something we're not really active in now and it could be something we should take a look at on the basis of our pilot projects.

In a sense, on the solar side, our deployment incentives go toward those technologies that are closest to being commercial. They've tended to be the thermal technologies in the commercial and industrial sectors. Photovoltaics, which Rob spoke about, are supported and delivered more through R and D. Discussion and maybe differences of opinion continue as to whether we've got the balance right, and that continues to be an element of debate. There certainly have been jurisdictions, such as California and most recently Ontario, that have adopted programs for the production of electricity from photovoltaics. Currently, the Canadian market for those technologies is largely an off-grid applications niche.

The question of whether that is or is not good public policy.... To some extent, these issues are addressed at the state level in the United States and the provincial level in Canada. It's really a question of how much you want to force your consumers to pay higher prices for electricity to support an industry whose cost of production now is quite high but coming down rapidly. Different jurisdictions reach different decisions on that. Certainly the Government of Ontario is moving much more aggressively than it had previously.

[*Translation*]

Mr. Serge Cardin: Time is passing quickly. I'd like to make a brief comment and ask a brief question.

May I take the liberty of strongly suggesting that we move toward wind and solar energy in the residential sector? A lot of people would be prepared to invest in these energy forms to produce energy for themselves and perhaps even trade it when they have too much. I think these are very promising avenues.

You said we shouldn't set ethanol aside, and I know it can help reduce greenhouse gases, but, in a context in which oil prices are rising sharply, wouldn't adopting ethanol as an alternative fuel encourage people to replace current crops with corn to manufacture renewable fuels? In some countries, they grow coco because it's more profitable than growing tomatoes or other things. Don't you think there'd be a risk that everyone would start growing corn in order to produce ethanol, which will always represent only a small percentage of fuels used? Aren't you afraid high oil prices will become an incentive to transform agriculture in Canada?

● (1215)

[*English*]

The Chair: I think we'll have to wait until the next round to get the answer to that question. We're way over time.

Ms. Bell.

Ms. Catherine Bell (Vancouver Island North, NDP): Thank you

And thank you for your excellent presentations.

I have just a few questions around public acceptance, and I think it's pretty high from what I've seen—and I'm from British Columbia, where we don't have any wind power. I think there are problems with connections. I don't think those are from provincial rules, but from hydro policies and their rules. I think we need to overcome some of those hurdles, because there are people in British Columbia who are ready to go. They've done a lot of work in securing the land and the technology, and there's a great need for increased wind production. Maybe you can talk a little bit about that.

Also, there was some talk about small wind energy production or manufacturing. Is that for individual homes? Maybe you can explain a bit more about that.

On solar energy, you said the Canadian government has no targets for solar energy at this time. If we did, what would they be?

And maybe on the framework of a national energy policy, could you give me a vision of what that would look like with regard to wind power and solar? I think those are important.

Also, there are investment tax credits to the tune of about $1.4 billion for the oil and gas sector in Canada. If those investment tax credits were equal for the renewable sector, what would the sector look like? How would that change the shape of what you're trying to achieve?

Mr. Rob McMonagle: With regard to targets, in the briefing notes I've given, we've suggested some appropriate targets for solar through to 2025. Particularly when we're dealing with solar, we're looking at very segmented markets, so we've broken it down, depending on the technology and depending on whether you're talking about new buildings or current buildings. With new buildings, we have a tremendous opportunity in Canada. CMHC has started an initiative called net zero energy healthy housing, with a target of making all new homes by 2030 net zero energy users, so they would basically consume no energy. That is quite feasible, and it's already being done around the world. There's a possibility of Canada taking very much of a leadership role in this, because of the large number of new buildings that we're building.

For photovoltaics and solar thermal, hot water, we feel that a target of about 10,000 megawatts, typically, is appropriate in those areas.

Dr. Robert Hornung: You raise a lot of things in those questions.

First, you asked a question about public opinion. The experience in Canada for wind energy has been that the overwhelming majority of wind energy projects have actually encountered very little in the way of public opposition. There have been instances where there has been public opposition, primarily over visual impacts associated with wind energy.

From the perspective of the wind energy industry, it's a difficult issue to deal with because it's completely subjective. What we try to do as an industry is to ensure that we have proper engagement with communities, to work with them early enough to identify such concerns, such that you can take steps to try to mitigate those concerns going forward.

You talked about the fact that British Columbia does not have any wind energy at this time. That's correct. There are two main reasons for that. One is that British Columbia has had still an ample amount—although it's now running out—of small hydro developments that they could pursue, which could still come in more cost competitively than wind. And that's why this is going forward. But it's also a bit of institutional culture in terms of the utility and a lack of leadership I think from the provincial government in that regard.

I presented a set of targets earlier that provincial governments had adopted. Those are almost second-stage targets. There were initial targets. Provincial governments and utilities got more comfortable with it; they said, we can go further. They have adopted new targets. Almost every jurisdiction in Canada is now studying how they can go beyond those targets. So, for example, in the Quebec energy strategy, there was a commitment to provide funding to do a series of studies to look at how much further than 4,000 megawatts you could go. In Ontario, the Ontario Power Authority is now looking at what are the implications of integrating 8,000 megawatts of wind into the Ontario grid. So there's a level of comfort, and B.C. is at the back of the train in terms of starting to move through those various stages.

For small wind turbines, we're referring to primarily turbines that, yes, you use within the context of a residence or a cottage, or a remote community, or a small business, or a farm or a school—products like that. As I said earlier, we do have within one size, between 20-kilowatt and 100-kilowatt wind turbines, three of the five leading manufacturers in Canada. But again, that is mainly going overseas to developing countries.

With respect to targets and objectives going forward, the Canadian Wind Energy Association has long had a target of 10,000 megawatts by 2010. We're confident we will meet this target at least in terms of contracted power, even if it's not all power that's in the ground yet at that point. We're currently talking about targets that go beyond that, and we're doing this in conjunction with some of the utilities and others, in terms of the various integration studies that are going on. I can tell you that in February, President Bush in the U.S. did a major energy policy speech where he indicated that he thought wind energy could meet 20% of the U.S. electricity needs going forward.

The last point in terms of subsidies and tax instruments and things like that is that I think it's quite clear that historically there has been an under-investment in renewable energy relative to other energy sources. I think governments have started to take steps in the last few years to begin to address that. I would say it's still far from a level playing field. But one thing I would point out is that the types of instruments matter and make a difference. So, for example, when we talk about tax incentives, it's important to recognize that it's very hard to design tax incentives so that they treat everybody equally because everybody has a different kind of tax appetite, tax situation. Therefore, for example, it may be harder for a small company to benefit from a tax incentive than a large one. We've always been very supportive of the wind power production incentive, and the Department of Finance has been supportive of the wind power production incentive, as a relatively simple and straightforward program where funds are provided only when you actually demonstrate that you've generated electricity. I think it's been quite accountable that way.

● (1220)

Ms. Catherine Bell: Is there any time left? Can I share it with Dennis?

The Chair: No, I'm sorry.

Ms. Catherine Bell: Okay. I wasn't sure how that worked.

Thanks for your answers. I wonder, NRCan, if you have anything to add to that.

Mr. Tom Wallace: The federal government hasn't adopted any specific targets for renewable energy in any of these sectors.

The question of targets comes up all the time in debates on renewable energy. Some people argue that it's important to have targets because you need to have a vision that can portray a sense of direction for all the various federal, provincial, and industry stakeholders. The reality is that your ability to realize those targets depends on market forces, technology developments, and provincial policies, as well as federal policies. Many of these levers are beyond your control.

There's always a concern, on the other hand, that if you're too ambitious in developing targets, how does that square with a market-oriented system for producing energy? Does it then simply become a vehicle to criticize governments for not providing sufficient money down the road to realize those targets? People will land on different sides of that debate.

The only other comment I would have is on manufacturing. I don't think Robert had time to really address that.

Right now, for most of the wind side, major manufacturers of turbines are located in Europe. At some point a few years ago, the hope was that with the appreciating dollar, the very large size of the blades—they're half the size of a football field—and the heavy transportation costs, there would be a facility located in North America. We were kind of in competition with the United States and hoped we could attract it to Canada. I guess that hope remains, although my understanding is that firms have recently been looking more at the Chinese market as the location for investment.

On the Canadian side, it may be that we should be looking at some niche technologies that we could specialize in to increase the Canadian content in manufacturing above where it exists now. There has also been an array of provincial policies, particularly in Quebec, that have tried to encourage assembly and some manufacturing in Quebec.

Robert, you may have more to say on the manufacturing side. I think it's an important dimension as we go forward.

● (1225)

The Chair: Mr. Hornung, briefly.

Dr. Robert Hornung: I only have a quick comment.

Historically, manufacturers didn't look at Canada because it didn't have a market of adequate size. Clearly, having a market of adequate size for your product is a necessary pre-condition to attract manufacturing. But it's not necessarily a sufficient pre-condition to attract manufacturing, particularly in an era when we're talking about large multinational companies that can decide to make those investments anywhere.

It speaks to the need to have a more comprehensive strategy in place, which sends a clear signal that not only are we creating market conditions, but we're actually interested in having manufacturers come here. We're interested in working with them on research and development and other issues. It's what other countries have done to try to bring in manufacturers.

The Chair: Thank you.

Thank you, Ms. Bell.

Monsieur Paradis.

[*Translation*]

Mr. Christian Paradis (Mégantic—L'Érable, CPC): Thank you, Mr. Chairman.

I'll start by asking questions on solar energy, which I'm less familiar with.

Does the Canadian climate lend itself to solar energy production? You say the technology exists, but are there enough hours of sunlight. We know that the light isn't the same in winter.

Mr. Christian Vachon: That's a good question.

We're truly privileged in Canada.

[*English*]

We're blessed in Canada.

[*Translation*]

Compared to the bigger countries currently using solar heating, Canada is the best place in the world for solar heating. In Germany, for example, they can generate approximately 400 kilowatt hours per square meter per year to heat a house. In Canada, we can generate twice as much. Why? Because we have more hours of sunlight here than in that country. We have one and a half times as much sunlight as Berlin. We also have a long heating season. Earlier Mr. Wallace mentioned niche markets. We're the best place in the world for solar heating. In that respect, we could be the Hong Kong of the North. We have the longest heating season and the most sunlight.

Mr. Christian Paradis: You said that class 43.1 wasn't a crutch, but hurt you. I'd like to have some clarification on provincial policies on incentives. Is there already something in this regard?

[*English*]

Mr. Rob McMonagle: We are starting to get provincial governments involved in solar. In Ontario, the provincial government has targeted photovoltaics, with a feed-in tariff rate of about 42¢ per kilowatt hour. In British Columbia the provincial government has set a target of 100,000 solar domestic hot water systems. There are no programs there yet, but they have a target, which is always the first step. We also have support in Prince Edward Island, for example. They're offering low-interest loans for solar hot water heating systems. Nova Scotia has just announced a 10% subsidy for residential solar DHW. So it's starting, but we're roughly 15 or 20 years behind the support other countries have offered.

● (1230)

[*Translation*]

Mr. Christian Paradis: Thank you.

I understand from your presentation that we are far behind the leaders in wind energy. We're talking about 9,000 megawatts for 2015.

Can you give me some clarification so I can understand your statement? What is the relationship between energy production and consumption? For example, for a country like the United States, there is an estimated increase of 10,000 megawatts. I just want to understand the connection you're making so I can follow you in all this.

[*English*]

Dr. Robert Hornung: There are different ways you can measure penetration of wind energy. One is in terms of absolute megawatts. If you look at it in that way you can see countries such as Germany that have 18,000 megawatts of installed wind energy capacity. Right now we have 900 megawatts. Spain has over 10,000 megawatts. The U.S. will be at 12,000 by the end of the year.

You're right that if you look at this, I have to say the U.S. still doesn't really qualify as a world leader in wind energy either. They have big numbers because they're a big country, in that sense. If you look at the other measure, which is what percentage of electricity is coming from wind, the U.S. is still ahead of Canada, but it's a small number: they're still at less than 1%. It's the European countries that are leading in actually integrating wind in their systems.

[*Translation*]

Mr. Christian Paradis: My next question is for the representatives of both sectors. I know that, in general, we'd like growth to be faster since we know the benefits of this.

To what extent do we want to integrate wind energy? You're conducting studies to determine the maximum energy integration capacity relative to supply in general. The same is true for solar energy. I believe talks are currently underway as well, but do we know how far we can go? Do we have realistic targets?

You could say that we have to speed things up, because these are good forms of energy, but do we know the limits of each sector? I imagine there have been comparative studies on the subject, and that it can be said that we'll be more efficient in one sector than in another. Are there any intersectoral strategies yet?

[*English*]

Dr. Robert Hornung: I can take a first crack at that.

In terms of the levels of wind penetration, the answer will be different in every country. It will differ depending on the quality of your wind resource and it will differ in terms of what you can have to complement wind going forward.

You're absolutely right that Canada, because of its large hydroelectric capacity, has actually a higher potential in terms of integrating wind energy than other countries. That's because wind energy and hydro are a good mix for a couple of reasons. Wind is a variable energy source. A wind turbine will produce electricity about 80% of the time, but the amount it produces will vary with the wind. When wind is integrated into the system, you need to have a partner technology that can actually respond to those variations.

Hydro is very good from that perspective, because if the wind is not blowing, you let water flow through a dam; if the wind is blowing, you close the gates and you essentially store energy in the reservoir, going forward. Wind is also a good partner with hydro because wind energy production peaks in the wintertime. The air is densest in the winter and winds just naturally blow stronger at that time. For a hydro utility, hydro resources are hardest to accumulate in the wintertime. So there's a benefit there.

Finally, the third benefit is that although wind is more variable than hydro on a day-to-day basis going forward, on an annual basis, wind is actually less variable than hydro. So when you hear about a large hydro utility that has a dry year or a wet year and that affects their production, wind actually helps in that regard because its variability from year to year is actually less.

So in terms of how far you can go, we're quite confident that you can hit 20% of electricity production for wind energy in Canada. We recognize that wind cannot be and will not be the source of all electricity in the country. It needs to be partnered with other technologies, but we think it can make a substantial contribution.

As I pointed out earlier, if you look at the decisions that utilities and governments are trying to move forward with at this time, they see wind playing a major role in terms of the investment decisions they want to make going forward.

● (1235)

Mr. Rob McMonagle: I want to highlight what Robert was saying. The renewable energy technologies really do complement each other. We don't compete. We have a tendency in Canada to put things into different silos. By using the various technologies, you get a much greater benefit as a whole. You have to look at the different sectors. For example, it doesn't make a lot of sense using a large wind generator to provide electricity for heating up hot water when you're better perhaps to use solar hot water heating systems. It's much more cost-effective.

So it's looking at an overall package. That tends to be what we have focused on in Canada.

The Chair: Thank you for your time as well, Mr. Paradis.

Mr. St. Amand.

Mr. Lloyd St. Amand: Thank you, Mr. Chair.

Mr. McMonagle, your tone was moderate and respectful, but your message was pretty direct. Twenty years of inaction—it's a pretty clear statement.

Two questions. Number one, how did Germany, Japan, and Austria do it? I presume their solar energy usage has not been simply incremental over the last 15 or 20 years but has been quite dramatic in its rise. So how did they do it?

Number two, on page 6 of your handout, on the recommendations at the bottom of the page, removing requirements, removing restrictions, etc., what level of resistance would you anticipate meeting vis-à-vis those recommendations?

Mr. Rob McMonagle: With regard to how other countries have done it, we found that normally there have been targets that have been set, first of all, and then an overall strategy has been developed so that you see what the barriers are, what the obstacles are, and then you work towards overcoming those. You need a consistent policy framework, which we have been lacking in Canada.

For example, REDI has been very good for the solar thermal industry. It has to be kept in mind that in the last five years we ran out of funds for actual deployment three times during the busy solar industry system. So you go up and down, up and down. You end up going nowhere.

With regard to recommendations for class 43.1, we've been working on this portfolio for 10 years. We know we have support from specific departments. We're not convinced we have support from NRCan, and to us that is a big issue. Why are we put in there, in class 43.1, when, in reality, and everyone acknowledges, we're not really there?

Mr. Lloyd St. Amand: I have a follow-up question.

You identified $75 million annually as a meaningful investment in solar energy. You know that as a country, the federal government spends approximately $195 billion annually. So $75 million would seem to be not quite the proverbial drop in the bucket, but affordable in a day of $12 billion surpluses.

How was that $75 million figure reached?

Mr. Rob McMonagle: There are about 30 countries that supply their budgets to the International Energy Agency for renewable energy. So we looked at what the per capita basis was in their investment.

We found that in Canada, we were typically running about 20% of what other countries do, on a per capita basis. So we said, to get the average, what do we need? It works out that we need a budget about five times what we have now.

Mr. Lloyd St. Amand: Thank you, Mr. Chair.

● (1240)

The Chair: Thank you, Mr. St. Amand.

Monsieur Ouellet.

[*Translation*]

Mr. Christian Ouellet: I'd like to provide a brief history of solar and wind energy, which were originally grouped together. At that time, we defended the same energy forms.

I started in 1973. It isn't just recently that we've had trouble having renewable energies adopted. In 1973, knowledge was in the embryonic stage. At that time, Mr. Trudeau of the Liberal Party, who was perhaps somewhat of a visionary, began to put very promising research agencies in place. Then, when Mr. Mulroney came to power, he got rid of all those agencies. So this may be the second time we suffer cutbacks in energy sectors of the future under a Conservative government.

Canada has been lagging behind for a long time. I'll give you an idea of what was going on elsewhere in the world in 1981. I visited 17 European countries in 1981 to determine where research stood on solar energy, and the 17 countries were well ahead of us.

In 1992, I was Canada's representative in Rio on solar energy. At that time, we were nearly embarrassed to speak with the representatives of other countries because we were doing nothing about solar energy.

In 2006, we want to eliminate what little we have. The other day, the minister came to tell us that solar energy was expensive. That's what he said. We were here and we all heard him. That's false: it's not expensive. You can't say we shouldn't invest in something that seems to be slightly more costly for the moment, but that will provide us with really cheap energy. Naturally, when you cut Enersave, the recovery period of which is two years, you obviously have a short-term vision.

Why has Canada never been able to develop wind and solar energy? I get the impression, and I'm not the only one, that it's because the oil lobby is far too strong. It's managed to convince senior public servants. I apologize to senior public servants, but during all the years when I worked in the solar energy field, I always had trouble with senior public servants, because they somewhat reflect the government's attitude. Furthermore, governments haven't had long-term vision and don't have it now either.

However, the failure to have long-term vision is much more dramatic in 2006. I find that incredible because all other countries are now passing us. We say we want to build a Canadian plan. A Canadian plan means building things here at home, and not building wind energy facilities elsewhere, in other countries. That's the Canadian plan: it's building a major solar and wind energy industry here at home.

I very much appreciated Mr. Paradis' question. Mr. Vachon has already answered it, but I'd like to give you another example, Mr. Paradis.

For a number of years, Montreal had more sunlight in January and February than Miami. The fact that we have extraordinary sunlight is unknown. So we have fantastic solar energy, but we're stuck in neutral. When I say there are 10,000 solar businesses in China, when we only have two in Canada, I frankly find that appalling.

My question is for Mr. Vachon, who works in the industry and development. I'd like him to tell us what we should do immediately to start back up with confidence, with a plan and a project that are immediately applicable so that Canada is no longer lagging behind the other countries in 10 years.

Mr. Christian Vachon: Thank you.

All I can do is tell you about my experience when I lived in Austria for a number of years in the early 1990s.

I was a beginner in solar energy. There was already an environmental awareness at that time which still doesn't exist here, even in 2006. There was already talk of setting national objectives in Austria. The Germans fell in step a few years later; they were behind, but they've caught up today.

As I told you, the reason this works there is that government support is stable. They've set objectives; they've talked about 10,000 megawatts of wind energy, 10,000 thermal or electric megawatts of solar energy before a given year. We should set objectives like those for all the right reasons, which are not the same as theirs, decide to go ahead with something stable, regardless of the government in power, and if we change governments along the way, we must at least retain what we already have during the transition. I think that's the recipe for success. That's what has developed over there.

Today, as an industrialist, I import collectors from Germany. Why couldn't I build them here? We've even discussed that with our German partners. It's because there's no market here right now. So I'm better off operating on a small scale, importing by ship and by air, rather than building a plant in Canada. The market is still too unsteady here. However, the Europeans acknowledge that we could easily do better than them, given our climatic conditions.

We just need to set objectives and maintain stability. Those are the two winning formulas.

● (1245)

[*English*]

Dr. Robert Hornung: Canada is an energy super power, and that's because we've been blessed with a lot of tremendous natural resources, including renewable resources. But it's an energy super power because we've actually developed strategies to develop those resources, whether it's the oil sands, nuclear power, or something else. We have that opportunity now with renewables.

You will find universal consensus. You might disagree on what the final number is going to be, but everyone everywhere expects that the contribution of renewable energy to global energy systems is going to increase enormously going forward. If Canada wants to continue to be an energy super power in the energy technologies of the 21st century, it needs to get involved and develop a strategic approach on these issues.

We talked a little bit earlier about where Canada stands relative to other countries. In absolute megawatt terms, you might scratch your head a little bit about the fact that Canada is behind the Netherlands, Denmark, and Portugal—countries you wouldn't expect to be perceived as stronger than Canada in an energy source when we're so blessed with a tremendous resource. So there are tremendous opportunities, but we have to think strategically to try to tackle them.

The Chair: Thank you very much.

Mr. Trost.

Mr. Bradley Trost (Saskatoon—Humboldt, CPC): Thank you, Mr. Chair.

My first question is on a specific remark made by Rob. He listed three different cities—Calgary, Ottawa, and I forget the other one—and noted reasons why solar power couldn't be used. It struck me that those were regulatory reasons. Maybe I'm wrong, but what sorts of regulatory restraints, be they municipal, provincial, or federal, are out there? How can we effectively, at least from our position here on the federal committee, start to deal with those non-financial difficulties you seem to have alluded to?

The question is for everyone here, but since you provoked my interest in that, you may as well start.

Mr. Rob McMonagle: Federally we have the National Building Code, and code regulations can have a major impact upon on-site generation. A lot of other countries are starting to adopt energy regulations. They're regulating the use of energy efficiency in buildings and putting in requirements on the use of solar in their buildings.

The net zero energy initiative is an example. Right now it's at the pilot stage, but start pushing toward making that a regulation so you get away from this subsidy issue. When I was in Spain two weeks ago they said, “Well, we just did it. We levelled the playing field by requiring everyone to do the same thing.”

Dr. Robert Hornung: Clearly, federal, provincial, and municipal governments all have a role to play in terms of regulating and permitting wind energy projects. A recent project in Ontario calculated that it required 77 different permits in order to proceed.

There is a problem in the number of permits, but the other issue is that because of the structure of our federation, we have a situation where we have different sets of rules in different jurisdictions and different sets of rules across municipalities within a jurisdiction, leading to duplication of effort and increased costs going forward.

One thing we think the federal government could do that would be very useful is to parallel something that we've seen in the United States. In the United States the Department of Energy funds something called the National Wind Coordinating Committee, which brings together the wind energy industry, state governments, the federal government, municipal governments, and other stakeholders. They sit down together and ask, "What are the key issues where we're running into trouble? Where is treatment most inconsistent? What are the key areas of research that we need?" They agree on a joint research program that goes forward.

The idea is not to develop out of that exercise a national standard that gets imposed on everybody; the idea is to develop a common knowledge base from which everybody can develop their own standards. The assumption is that, first off, if you do it that way, then not everybody has to do it and you don't have to waste a lot of resources, with every jurisdiction trying to figure out the same problem. Secondly, you develop your responses based on a common set of information, which should at least ensure that there's more similarity in the responses taken than might be the case if everybody were sitting in their own black box and trying to do it.

In the U.S., that exercise is funded by the Department of Energy to the tune of, I believe, $5 million a year.

● (1250)

Mr. Tom Wallace: I'm glad you raised the question, because often when we're discussing renewable energy, we just focus on the financial side. It's easy to lose sight I think of other dimensions that are important.

Certainly, in some of these technologies, getting proper standards developed so that they can be certified can be very important. I know through the REDI program.... We haven't talked much about geothermal; I'll give an example of the geothermal industry today.

We have a partnership arrangement with the Canadian Geo-Exchange Coalition, which is an organization of five utilities. Actually, this is an industry that had large subsidies thrown at it by provincial governments in the 1980s in Ontario. There was a very bad experience with some shoddy systems being installed and poorly trained individuals, so the organization is determined to do it right this time. With help from the federal government, I think we invested about $4 million and the utilities invested $7 million. We've been working on trying to develop proper training programs and a system of certification so that consumers will have confidence that the systems they install will work properly.

So I think it's important as we consider various barriers in the way of renewable energy technology that we don't lose sight of some of the non-financial barriers that really have to be addressed. We need properly trained people. We need consumers to have confidence in the technologies, and they need to work well.

The worst thing we could do is throw a bunch of money at technologies and then have them.... Particularly, we're talking about the residential sector for solar. If you have a bunch of homeowners who are encouraged by government incentives to install systems that don't work that well, it would create some real problems down the road. So I think it's important that we continue to work on some of those institutional, training, and standards barriers.

Mr. Bradley Trost: My time is very limited, so I'll just say one thing to everyone here, particularly to the industry groups.

One of the things I find frustrating is we have 10 or 20 different little technologies. Maybe I'm exaggerating slightly, but geothermal was mentioned here, and tidal, wind power, etc. As a policy maker, I'd like to do one thing that's fair overall to everyone. I know you say you're complementary to each other, but still, when you make a decision for one, you're cutting off another.

So I would just encourage, whenever you become lobbyists in the future, policy ideas that would help all new industries, even ones you don't...that would be appreciated.

That's my last general comment. I think I'll let the chair take it from there, unless someone wants to respond.

● (1255)

The Chair: I think since it is a comment, we don't need to have you respond.

I do want to thank you very much for coming. Again, we're always sorry about the time.

Alan, did you want to get in a quick one?

I'll let Mr. Tonks get in a quick one, and then we have to wrap it up.

Mr. Alan Tonks (York South—Weston, Lib.): Thanks, Mr. Chairman.

Mr. Chairman, I apologize again for being late. I cover another committee, but I'm very much interested.

At the risk of going over some of the material that has been the source and subject of questioning, my question is sort of in the spirit of Mr. Trost's question with respect to macro-planning the larger entity. It seems to me that as a result of the ice storm and as a result of the blackout that affected the eastern seaboard, and because of the north-south orientation of our primary grid—the distribution grid—there's an opportunity to evaluate the integrated capacity of hydro and wind as we start to readjust from a north-south grid to an east-west grid, particularly regionally, in the eastern part of the country. And I know this is a kind of superficial take on a very complex issue.

Where does the planning with respect to that kind of macro-adjustment take place? It's a provincial, federal, and even a state issue. It's not so much with respect to the legislative architecture; it's a whole combination of issues. Is there some approach that's being taken, as we speak, with respect to the strategic repositioning of our grid and the role that hydro and wind can play? How is that all being dynamically brought together?

Dr. Robert Hornung: A lot of the issues you're touching on are dealt with at the level of the system operators, the people who manage the electrical grid. And one of the areas where we're starting to see a tremendous amount of cooperation is in Atlantic Canada. The New Brunswick system operator is undertaking work, on behalf of all the utilities in Atlantic Canada, to look at what further integration of the electrical grids throughout Atlantic Canada means in terms of the capacity to enhance wind integration going forward. In fact, as an association, we're holding a conference in Charlottetown this Friday on expanding markets for Atlantic Canadian wind energy, which will focus specifically on these issues.

There is also work being done in other jurisdictions. For example, discussions have gone on between Manitoba and Ontario about a new transmission line linking some of the hydro resources in Manitoba with Ontario to provide more flexibility there in terms of Ontario being able to access its own wind resource. And it's interesting; if that line comes down through northern Ontario, that's where Ontario's wind resource is strongest, and it will actually open the opportunity to capture more of it.

But in many ways, this still tends to be an issue that jurisdictions deal with in their own black boxes. We just held a meeting, actually, last Friday, with the system operators from all provinces in Canada, to sit down and talk about trying to create a national grid code for wind energy. So instead of having different interconnection standards in each province to which manufacturers have to adapt their technology to go forward, which increases costs and everything else, can we all agree on one standard for everywhere? We're hoping that getting this process started can help to facilitate wind integration going forward.

It's not something that comes naturally in Canada. It's something we have to work at. Again, I think that's where the federal government may have a very useful role to play in terms of facilitating those sorts of discussions.

Mr. Christian Vachon: Very briefly, if I may add, one of the advantages of solar energy, either to produce electricity or to produce thermal energy, is that it is decentralized. So you don't have a grid. That's probably the best thing you can have, in terms of being decentralized and also in alleviating the grid that's already there. That's one of the things that they find is working superbly in Germany. Plus, if you look at defence and energy security, both of these aspects are covered by the absence of a grid.

The Chair: Thank you.

It is now past one o'clock, so I'm going to have to adjourn.

Thank you very much for coming.

My sense is that you've aroused significant interest in the committee. It's likely that we'll want you back for more depth.

Thank you very much also for the decks. For those who haven't had an opportunity to go through them all, there is some great information there that they weren't able to get to in the presentations today. I'd recommend to all the members that they have another look at the information provided to us in hard copy.

Again, thank you very much for the time you've given us today. We appreciate it.

We do have some committee business, but I think that as it is after one o'clock, it's probably best to roll it over. I sent out a request for discussion on the questioning times for the committee members because we were having a tendency to go over our times. In any event, I got lots of input, but only one notice of motion. That is from Ms. Bell. We could deal with it right now, but my sense is that there is enough interest in it that we may want to spend more time on it. Since it's after one o'clock, I'd like to roll it over to the next meeting, if that's agreeable to the group.

Some hon. members: Agreed.

The Chair: With that, then, I will adjourn to the call of the chair.

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