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Chair

Mr. Leon Benoit

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● (1530)

[*English*]

The Chair (Mr. Leon Benoit (Vegreville—Wainwright, CPC)): Good afternoon, everyone. We're here today to continue our study of innovation in the energy sector.

We have three groups of witnesses today.

Here with us in the committee room from the Canadian Electricity Association is Francis Bradley, vice-president, policy development. Welcome to you, sir.

With us by video conference from Surrey, British Columbia, from the City of Surrey, is Robert Costanzo, deputy manager, operations; Vincent Lalonde, general manager, engineering department; and Bruce Hayne, councillor. Welcome to all three of you.

By video conference from Chatham, Ontario, from Spectra Energy is David Simpson, general manager, in-franchise sales and marketing and customer care for Union Gas Limited. Welcome to you, sir.

Mr. David Simpson (General Manager, In-Franchise Sales and Marketing and Customer Care, Union Gas Limited, Spectra Energy): Thank you very much.

The Chair: We'll have the presentations today in the order listed on the agenda.

First of all, thank you all very much for being with us today.

We'll start here in the room with Mr. Bradley from the Canadian Electricity Association.

Go ahead, please, with your presentation.

[*Translation*]

Mr. Francis Bradley (Vice-President, Policy Development, Canadian Electricity Association): Thank you, Mr. Chair.

The Canadian Electricity Association is the voice of Canada's electricity industry. Its members represent the entire electricity value chain, from producers and distributors to residential and industrial customers across the country.

[*English*]

The electricity grid is the largest and most complex and interconnected machine in North America. It's safe, solid, and well maintained, but it is starting to show its age. Much of Canada's power generation and transmission infrastructure was built more than 50 years ago, when Canada's population stood at 20 million. Today, with more than 34 million Canadians, per-household energy consumption is often double, or triple, what it was in the 1960s.

A recent Conference Board of Canada study entitled, “Shedding Light on the Economic Impact of Investing in Electricity Infrastructure”, projects that an investment of $347.5 billion from 2011 to 2030 is required to meet electricity demand and to power Canada's future.

[*Translation*]

Increasing the grid's capacity by renewing and expanding infrastructure to meet our customers' power needs is a tremendous challenge. But there is more. Despite the fact that aggressive energy-efficiency programs exist all over the country, a fundamental renewal of infrastructure is needed.

[*English*]

Compounding the challenge, but also providing a great opportunity, is the need to improve both environmental performance and operational efficiency by replacing analog equipment with new cutting-edge technologies. In short, our existing electricity infrastructure must not only be renewed, but the system itself must be transformed. This is where innovation comes in.

We recognize that innovation in the electricity sector is essential for developing a safe, reliable, and sustainable energy future for Canadians. As we turn over our aging infrastructure, innovation provides an opportunity for us to replace assets with newer and better versions.

[*Translation*]

The electricity sector is stepping up the pace of its innovative process. Innovation is defined in a number of ways, but for us, it means, quite simply, creating and putting to use smarter or more efficient products, processes, services, technologies or ideas that yield environmental, societal and financial benefits.

[*English*]

Some Canadian electric utilities are implementing innovation directly related to operations on the ground, such as SaskPower's demonstration project near Estevan, Saskatchewan, that will capture and store a million tonnes of carbon dioxide a year. That's the equivalent of taking more than 250,000 cars off the roads.

Others are innovating through the development of processes and services, such as electric vehicle charging stations, infrastructure, or new conservation programs that require collaboration behind the meter.

● (1535)

[*Translation*]

Innovation is not limited to technological advancements. For an electric company, innovation can mean introducing an internal program for employees to dramatically reduce health and safety risks, or identifying new ways to reach customers and communicate with them. From an electric company's perspective, what matters is being able to either directly or indirectly use innovation to meet new challenges posed by environmental, social and economic sustainability.

[*English*]

In 2012, CEA's sustainable electricity awards recognized several companies that were working on innovative approaches to project financing, effective engagement of stakeholders, and the optimization of wind generation.

Let me elaborate a bit more on the wind power optimization project, given it's unique approach and the amount of cooperation shown by governments and industry alike.

The wind power optimization project, PowerShift Atlantic, is a four-year clean energy fund project funded through Natural Resources Canada. It's a collaborative research project by New Brunswick Power, in partnership with Saint John Energy, Maritime Electric, Nova Scotia Power, New Brunswick System Operator, the University of New Brunswick, and the governments of New Brunswick and Prince Edward Island.

The program will run until 2014, piloting technology that allows utilities to remotely shift energy usage to specific appliances in homes and commercial buildings in order to optimize wind generation. While current research is focused on wind energy, the learnings may be relevant for optimizing other sources of renewable energy generation in the future.

Innovation is always a work in progress, and we must continue to find new and better ways of delivering our products to the customers.

[*Translation*]

As far as the main thrust of your study goes, over the past few years, only innovations involving our sector have led to major changes, not only in how we use electricity, but also in how we think about it.

[*English*]

Not very long ago, fixed to the side of your house was an electric meter with moving dials and mechanical parts. While it's possible, depending upon your home province, that some of you may still have electromechanical meters, odds are that for most of us those old meters reside in the same part of our memories now occupied by rotary-dial telephones and eight-track tapes.

[*Translation*]

Customers can now access the data they need to actively manage their electricity consumption. They have gone from passive consumers to active participants in the market. They understand the value of every kilowatt-hour of electricity used in their home.

[*English*]

For example, time-of-use rate pricing introduces market signals that shift electricity usage to off-peak hours, which can lower customer bills while alleviating system constraints. Also, smart meters have enabled the two-way flow of both electricity and information between electricity producers and customers. This is a fundamental shift from that one-way grid, a shift that allows the integration of both distributed power generation and advanced energy management tools.

Real-time system operating information results in distribution networks that are used and expanded more efficiently. Smarter distribution networks and dispersed energy storage devices allow utilities to reduce and respond more quickly to outages. Automated switching devices also make this system more responsive to outages, and limit the impacts to fewer customers.

The net result is significant improvements in the frequency and duration of outages. Modernized customer service systems allow customers to interact with their electric utilities in a way that best suits their lifestyles in real time using customers' preferred means of communication.

While utilities are pushing the innovation agenda across the country, significant barriers to integrating innovative technologies and innovative approaches to customer service remain. The most prominent barriers experienced in our sector are higher costs for new technologies relative to the incumbent technologies and the high standards for technology reliability and certainty.

Reliability, of course, is essential for the electricity sector. In fact, it is a regulatory requirement. This requires that new technology be grid ready.

[*Translation*]

Transforming Canada's electricity sector and achieving our social, environmental and economic targets hinges on a lot more than just the industry's plans and actions.

[*English*]

Governments, regulators, civil society, and the broader public must be involved in the conversation if we're to be successful in transforming Canada's electricity system. Our industry has made significant progress in implementing innovative technologies and approaches across the electricity production and delivery system, but significant challenges remain, particularly in regard to large-scale renewal of infrastructure across this country.

Because of infrastructure investment requirements—this is actually a global trend, not strictly a Canadian phenomenon—there is upward pressure on electricity prices across the country. While innovation cannot fully alleviate that pressure, because there's simply no avoiding the fact that our infrastructure is aging, it's doing three things that are very important.

First, innovation is ensuring that tomorrow's technologies are considered when building today. Over time this will lower operating costs, improve asset management, and reduce societal impacts from power interruptions.

● (1540)

[*Translation*]

Second, innovation is making the grid more dynamic and more flexible in terms of its capacity to adapt to change. That change could last a few minutes, as with outage situations, or a few years, as with the integration of electric vehicles or distributed power generation.

Innovation by power companies is bounded by time, as little as a few nanoseconds to as much as a few generations. And as far as the amount of investment goes, time considerations must weigh heavily in determining what customers are charged.

[*English*]

Fortunately however, innovation is providing a third benefit, and I have tried to give you a sense of that today.

The relationship between the utility and the customer is changing. Communicating by mail six times a year when the bill comes in is no longer sufficient. The reliable and efficient production, delivery, and use of electricity is too important to be left to a passive utility-customer relationship. Therefore, innovation for our industry goes beyond technology and speaks directly to the need to engage customers in the discussion, understand their preferences, and assure alignment across the entire value chain.

Both industry and customers are already seeing value from this innovation.

[*Translation*]

Thank you. I would be happy to answer your questions.

[*English*]

The Chair: Thank you very much for your presentation, Mr. Bradley, from the Canadian Electricity Association.

We go now to the second presentation, which is by video conference from Surrey.

I'm not sure, gentlemen, how you're going to handle the presentation from the City of Surrey. Is one person making the presentation, and if so who is that?

Mr. Bruce Hayne (Councillor, City of Surrey): Thank you very much, Mr. Chair.

It's Councillor Bruce Hayne here. I'll be giving a brief overview of the project. Then I'll be handing it over to Mr. Vince Lalonde and Mr. Rob Costanzo to give technical details on the project.

The Chair: Okay. Please give your name before you start speaking, so your comments can be attributed appropriately. Thank you.

Mr. Bruce Hayne: Certainly.

The Chair: Go ahead, please, with your presentations.

Mr. Bruce Hayne: Thank you, Mr. Chair. Thank you for inviting us to testify today to the Standing Committee on Natural Resources.

We'd like to start off with a brief overview of the project for the organic waste and biofuel facility.

The catalyst for this was really two overriding documents. I'll be brief here.

The first one was the City of Surrey's sustainability charter. This was a document that the City of Surrey put into place starting in 2008. It's a comprehensive document that is sort of an overriding policy document that guides our decision-making in all areas of social, environmental, and economic factors, with the addition of sustainability over the next 50 years.

The second document that played into the decision to move to this biofuel facility was the Metro Vancouver integrated solid waste and resource management plan. This plan mirrors many of the City of Surrey's sustainability goals, but it also has some very specific waste diversion targets, for example, 70% waste diversion by the year 2015.

With those two documents, the city decided to move toward a more integrated form of waste collection and waste diversion, and also decided at that point to look at a biofuel facility through our waste collection. The idea is that we would collect kitchen scraps and kitchen waste, add that to yard waste, collect them curbside, and take it to a biofuel facility. The biofuel facility would turn that into a natural gas, and we would use compressed natural gas trucks to collect the curbside waste, thereby creating a closed-loop system. We're well on our way to doing that.

At this time, I'd like to turn it over to Mr. Rob Costanzo, our operations manager, to give you some of the details on that.

● (1545)

Mr. Robert Costanzo (Deputy Manager, Operations, City of Surrey): Thank you, Councillor Hayne.

Thank you, Mr. Chair and committee members. I'm Rob Costanzo. I'm the deputy manager of operations for the City of Surrey.

You have in front of you a PowerPoint presentation. I'm going to reference each slide as I go through it.

Slide 4 illustrates the high-level four-phase approach the city engaged to implement its system. I'm going to speak to each of those phases in turn.

Slide 5 shows how one of the initial studies we engaged in was to determine whether the city had enough feedstock within its own curbside material to justify the implementation of a biogas facility.

To that end we looked very closely at the garbage collected from residential waste, and we conducted a series of seasonal composition studies to determine how much of that garbage comprised organic material such as food waste and kitchen scraps. We found on a consistent basis that approximately 65% of that material comprised organic waste. So on that basis, we determined that would be enough to move forward into a further study to determine the size of facility we would need to develop and what additional materials would need to be brought into that facility to increase the capacity. In our case, we were looking at a facility that would process both residential waste from the Surrey residential curbside program and also waste from the institutional, commercial, and industrial sectors.

If you turn to slide 6, you'll see that one of the challenges we had back in 2010 when we initiated our study was that there were very few municipalities in Canada that had initiated or engaged in waste collection using compressed natural gas garbage trucks. The industry traditionally has used diesel vehicles, and there seemed to be a movement in the United States, particularly within the waste management industry, to leverage the CNG vehicles, particularly now when compressed natural gas costs are very low relative to diesel costs.

We found that globally the uptake is significant in countries outside of North America. The United States, for example, as you see in slide six, has possibly 110,000 CNG vehicles, which represents only 1% of all CNG vehicles. Canada is much lower at 12,000 vehicles. But if you look at slide 7, we have found that the uptake in the last six to seven years has been quite significant. So we know that the uptake is growing substantially. Waste collection transfer vehicles account for about 12% of total vehicular natural gas use at present, and they represent a fast-growing segment in the natural gas vehicle industry.

The International Association for Natural Gas Vehicles estimates that there will be more than 50 million natural gas vehicles worldwide, or about 9% of the world transportation fleets, within the next 10 years.

On that basis we felt our risk was relatively low and through additional market sounding we found that the industry was ready to move in that direction but they were really waiting for a municipality to move forward with this kind of requirement. The City of Surrey mandated natural gas vehicles. Otherwise there are very few government incentives to move in that direction for a private entity.

Slide 8 simply reflects one of the environmental benefits of the CNG vehicle, which is that it produces 23% less in carbon emissions and 90% less in particulate emissions than does a vehicle powered by diesel.

Slide 9 describes the approach we took to maximize output from organic waste. We implemented a system two years ago, which we piloted over the course of a year and a half, to determine how we could leverage and maximize that organic waste output. We engaged a three-cart system. Residents are required to place organic waste in one cart, and this waste is collected every week. Their garbage and recycling carts are emptied on a bi-weekly basis. It's forcing residents to remove the odorous waste on a weekly basis.

Through that process, we found that after a year, that waste, the garbage tonnage, dropped by approximately 50%. Conversely we saw a significant increase on the organic waste side. There was almost an equal increase on the organic waste side.

● (1550)

More important is customer satisfaction. The customer's acceptance of this sort of program is very high at 90%. On this basis, we initiated a request for proposal in 2011 and awarded that request for proposal in late 2011 to BFI Canada, or Progressive Waste Solutions, and initiated our program on October 1, 2012. It was four months ago that we initiated the program city-wide to 100,000 households across the city.

Slide 10 talks at a very high level about some of the benefits we found through our process.

The process we engaged not only has economic benefits, on which I'll get into more detail further on in the presentation, but it also has significant financial benefits. Moving toward the CNG system and the type of system that the city engaged resulted in a $3 million a year savings for the city. Those savings were based on the change in waste collection frequency, having a fully automated collection system, fuel savings with natural gas approximately 50% lower than diesel costs, and lower disposal costs associated with organic waste.

Currently in this region, the cost of garbage disposal is very high. It's at $107 a tonne and the region will increase that rate to $180 a tonne by 2015. Organic waste disposal is at less than $50 a tonne.

Slide 11 shows that already in the first three months of the program, from October 1 to December 31, we realized a waste diversion increase from approximately 15% to almost 70%. We've almost met our goal. We anticipated that it was going to take at least two years to reach that 70% diversion, but we're already there.

As far as public consent goes, there's a very high desire to move toward greater waste diversion, and we were able to gauge that through significant public consultation. We're seeing that success now at curbside. This means the facility we're now proposing to develop will already have a significant amount of material ready to be delivered once it's developed.

Mr. Bruce Hayne: I just want to speak for a moment about the citizen and community engagement that it took to create this very speedy reach of those diversion targets.

We engaged an outside media and public relations firm to develop a rethink waste program in the city. It was a multimedia campaign that heavily used an outdoor campaign with transit advertising, community prints, and a significant online component as well to engage the community. We also created an app in the city that allows citizens to see a number of frequently asked questions about waste diversion and that sort of thing, and it provides a schedule for which bins go out on which week and so on. During the beginning of the program, we also put up moving billboard signs in communities of when waste was to be collected that week to get people into the habit of getting their garbage cans out on time and on the right weeks.

This significant communication plan with the community meant that we quickly reached a 69% diversion target with our waste and are already meeting that 2015 goal from the region. It's proving very successful so far, but it's extremely important to the success of the program to have that kind of citizen engagement program and to get buy-in from the community in order to move forward successfully with it.

Mr. Robert Costanzo: I'll conclude the presentation. There are three slides left with respect to what's left in our plan.

We are about to embark on a request for qualification process to attract a partner to develop the biofuel facility. The city is very grateful to have received funding from the P3 Canada Fund, late in 2012. P3 Canada will provide up to 25% of the capital cost of the facility. The facility's cost is estimated to be $68 million, so that's approximately a $17-million contribution from the federal government in that regard.

Following the request for qualification, there will be a request for proposals in mid-2013, the selection of a partner late this year, and then move toward construction of the facility, which we expect to be operational by 2015.

As far as the system-wide benefits are concerned, I'll refer you to slide 13. The environmental benefits are that 80,000 tonnes of organic waste will be diverted from landfill annually. Currently much of the waste within this region is trucked on a daily basis to a landfill that is 350 kilometres northeast of the region. This will effectively cut off the transition of that waste from this region to a distant landfill. The future facility is estimated to produce approximately 320,000 gigajoules of natural gas, which equates to approximately 6.9 million litres of diesel annually. It's quite significant. We estimate that would fuel approximately four times the fleet size that it takes to collect waste in the city of Surrey. That gas will not only be used by the city, but it will be placed on the market. It's a carbon neutral gas, given that it's stemming from organic waste—food waste and yard waste—versus a gas stemming from the grid.

The CO_2 equivalent reduction is estimated to be approximately 23,000 tonnes.The significance is that it will offset the City of Surrey's corporate emissions, which are estimated to be 16,000 tonnes per year. As far as the economic benefits are concerned, as I mentioned earlier, our annual saving in waste collection is approximately $3 million per year. Annual fuel savings, alone, are $1.2 million, which is incorporated within that $3 million savings.

The cost of the CNG vehicles is approximately 20% higher than traditional diesel vehicles, but the return on investment is very fast, at two years. The typical life of these vehicles is approximately 10 years. Annual savings of organic waste versus garbage disposal will be approximately $600,000 per year. The sale of the renewable gas is estimated to be between $4 million and $5 million.

What's very important is that there's a real made-in-Canada story here. The CNG trucks used by the city are comprised of Cummins Westport CNG engines. The head office for research and development for that engine is in Vancouver, B.C. The bodies of the trucks are from Mack, which is a U.S.-based production, but the truck is assembled in Quebec, in the city of Saint-Nicolas.

With that, we thank you again for allowing us to provide our presentation, and we look forward to your questions.

● (1555)

The Chair: Thank you to all of you from the City of Surrey for your presentation.

We'll go to the final presenter now, by video conference from Chatham, Ontario. On behalf of Spectra Energy, we have David Simpson, general manager, in-franchise sales and marketing and customer care with Union Gas Limited.

Sir, please go ahead with your presentation.

Mr. David Simpson: Thank you very much, Mr. Chairman and honourable members.

As mentioned, my name is Dave Simpson, and I'm the general manager of sales and marketing and customer care for Union Gas, which is based in Chatham, Ontario. On behalf of Union Gas, I would initially like to thank the committee for inviting us to present our perspective on technological innovation in the natural gas sector.

Over the next few minutes, l'm going to touch on a few key innovations that have helped us move our product more efficiently and others that are helping our customers use it more efficiently. I'm also going to talk about a few of the most promising areas we see for future innovation.

I did provide a few slides.

If you would turn to slide 2, I would point out that Union Gas is owned and operated by Spectra Energy. Spectra Energy operates a diversified portfolio among four different business lines: western Canada transmission and processing; Union Gas; DCP Midstream, which is a natural gas liquids joint venture with ConocoPhillips; and Spectra Energy Transmission.

As you can see from the bullets on the slides, Spectra Energy is deeply invested in Canada. In fact, the majority of our employees are here. We have made significant investments, paid millions in federal taxes every year, and our Spectra CEO, Mr. Greg Ebel, a former president of Union Gas, is a Canadian. Greg was actually born in Ottawa and worked for a time as a senior adviser on Parliament Hill.

I draw your attention to the third slide just to call out that Union Gas is essentially two businesses in one. We are a distribution company delivering natural gas to about 1.4 million homes and businesses across Ontario. We have more than 67,000 kilometres of pipeline in the ground, and we deliver not just to residential customers but also to industrial and power generation customers. As well, Union Gas is a storage and transmission company. We own and operate the largest underground storage facility in Canada, one of the largest in North America, at Dawn, which is a town just southwest of Sarnia, Ontario.

Natural gas already makes an important contribution to Canada and Ontario. It's plentiful and affordable, cleaner, and we believe with new technology applications, it will play an increasingly important role in the future of the Canadian and global energy supply mix.

One important note is that natural gas is filling the gap as the province of Ontario closes its remaining coal-fired power plants. As Ontario moves toward more renewables such as wind and solar, which represent about 4.8% of our energy needs, natural gas is the on-demand power source that is responding when the wind isn't blowing or the sun isn't shining. My point is that natural gas has a foundational role to play in any energy plan.

The last slide, slide 4, shows that we've seen some innovations in the natural gas sector that have definitely moved us along. For example, on the transmission side, over the past two decades we've seen compressor improvements in the stations that compress and move the gas through our pipeline system—noise reduction, efficiency improvements, pipeline coatings, and the use of plastic pipe.

From an end-use perspective, we've seen tremendous innovations to the residential building envelope—insulation, windows, and high-efficiency furnaces and water heaters—driven in part by a steady evolution in building codes and standards. This is reflected in lower average gas consumption. For example, consumption for our residential customers has dropped by 30% in the last 20 years. This reflects not only the significant improvements in building envelope and space heating efficiencies, but also customers' continuing energy conservation activities.

Union Gas has played a significant role in driving energy conservation and market transformation in all of our customer market segments through our demand side management, DSM, programs.

● (1600)

Union's programs span all of our customer segments, from the smallest low-income residential applications to the very largest industrial process improvements.

Since 1997, when we first began offering demand side management programs, Union Gas has helped deliver more than 5.5-billion cubic metres of natural gas savings, and reduced carbon emissions by the equivalent of removing effectively two million cars from Ontario's roads for a year.

In other words, gas utilities like ours are key players in the continuing drive to use energy more efficiently and deliver better environmental outcomes, higher productivity, and affordability for Canadians.

I'd like to spend my last few minutes talking about what we see as some prime areas for innovation. In a side note, I am going to focus on taking a few technological innovations more deeply into the implementation and commercialization phase. These specific applications have made some early technological progress; however, they have not migrated to full-scale application.

Much of the innovation that I'll mention revolves around LNG, or liquefied natural gas, and CNG, which we've heard mention of, which is compressed natural gas.

LNG is natural gas that is supercooled to extreme, extreme low temperatures and then stored in a highly concentrated liquid form. It takes considerable energy to manufacture LNG, but the versatility and the possible applications of this fuel are quite diverse.

Compressed natural gas, as the name implies, is compressed through the compression process under higher pressures and stored in cylinders.

There are three main items I'd like to mention.

The first is LNG for heavy trucks. Canada was an early leader in natural gas vehicles, or NGV, developing innovative vehicles and station technology, as well as codes and standards. Today, with the lowest natural gas prices in a decade, LNG is more economical, at about 40% to 50% cheaper than diesel, and has up to 30% fewer emissions than diesel.

We're seeing a growing trend toward LNG for heavy trucks in the United States. You may have heard of America's natural gas highway initiative. This is where more than 100 fuelling stations are already in place or under way across the country. Here in Canada, we're seeing pilot projects in Quebec, Alberta, and British Columbia start to emerge.

Areas ripe for continued innovation include technologies that enable traditional diesel-powered engines to run on liquefied natural gas, incorporating LNG technology into transport truck manufacturing, and updating vehicle standards, siting of LNG plants, and refuelling depots.

The second item I will mention is LNG or CNG for communities that are difficult to reach by traditional pipelines. These communities are what we call “off pipe”. They are typically remote applications that it would be cost prohibitive to connect by pipeline, but LNG and CNG are now giving us new ways to think about fuelling these communities, which are often located near or right next to such industrial sites as mining operations, which also require heating and power generation.

Currently Union and other utilities across Canada are working with the Canadian Gas Association to identify some pilot projects to utilize these applications. The federal government in fact spends a significant amount of money to aid in the transport of diesel fuel up to many of these communities.

● (1605)

We believe CNG and LNG could be more cost-effective and better for the environment. The Canadian Gas Association is pursuing efforts to better define this opportunity. We believe there's merit in having government engaged in such efforts to help identify the economic, environmental, and social benefits that might be realized.

To put the savings opportunity into perspective, in 2012 Union Gas was able to successfully construct and run a pipeline to a rather remote community in Red Lake, Ontario. This community is located closest to, but fairly far north still, of Thunder Bay, Ontario. The potential savings for residential customers who are converting their equipment to natural gas could be upwards of $2,000 to $3,000 per year. This project of running the gas distribution system to the municipality and the mine in the area was supported by Union Gas, the municipal, provincial, and federal governments, and the Goldcorp mine itself. It's a great success story for a northern community that's been trying to get clean and affordable natural gas to their town for over 25 years.

The third and last technology I would mention is combined heat and power. This technology exists and there are small applications where it typically ranges from 500 kilowatts to about 5 megawatts of power production. Combined heat and power refers to the process that utilizes fuels like natural gas to generate electricity through a turbine or a reciprocating engine. Now the waste heat that is a byproduct of the power generation process is captured and used as useful energy for heating applications. The result is higher energy efficiency and lower emissions. There are several applications that can leverage this technology, including commercial and industrial processes, greenhouse operations, and, even at the local level, models for district heating and cooling systems.

Those are my comments, and again I would like to thank you for your attention and your interest.

● (1610)

The Chair: Thank you, Mr. Simpson, from Union Gas, and to all of the witnesses for your presentations. We'll go now to questions and comments

I just want to inform members of the committee that Ms. Liu wants to have her motion discussed. We'll end this part of the meeting at 5:15, so we have an hour and five minutes or so, and then we will go to Ms. Liu's motion.

We'll start questions and comments with Mr. Trost, for up to seven minutes.

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

I'll start with my comments to the gentlemen from Surrey, but I have a bit of a story to tell, first.

A few years ago I had someone from the natural gas industry in my office. They were talking to me about how they had approached the City of Ottawa to convert its bus fleet over to natural gas. This person had offered an eight- or ten-year guaranteed contract on prices on everything and had worked out the economics. Without federal or provincial funding, it would have worked for Ottawa, saved it money, saved it all sorts of things and it would be environmentally friendly. The city council here in Ottawa dismissed it after a few minutes to an hour of discussion on it. This brings me to the projects you have.

We often have heard about people who have been promoting new ideas or new technology, but you guys are the customers effectively here. What made you adopt a new technology? What was it about innovation that made you say, “Okay, we think we can change this”? Other people I've talked to said that often inventors, new people with their technology, are enamoured with it but they don't quite realize that the marginal benefit that the customer, be it a government entity or a larger corporation or somebody, will get isn't worth what it is.

What was it that caused you guys to say that this project makes sense on the bottom line for the taxpayers of Surrey, it makes sense for us? What were the elements that were important in the innovative technology for you?

The Chair: Go ahead, please, gentlemen.

Mr. Vincent Lalonde (General Manager, Engineering Department, City of Surrey): For us, the decision to go to the CNG trucks was fundamental to the premise of having a closed loop system. We believe it was important to remove the organic fractions from the garbage. To motivate people to do that, we thought that the notion of adding value to what people do would then make them adopters of the system. I think an integral part of the success of our system, why so many people caught on to what we're trying to do with the organics, had to do with their understanding that we could turn around used organics to create methane, and then power the trucks that pick up the garbage. That was a value proposition that people could sink their teeth into.

To do that, we needed trucks that could run on CNG. There were some concerns at the time, so we took a pragmatic approach whereby we piloted the collection for a year, but we also piloted an actual new CNG OEM truck to also gauge the satisfaction of the performance of the vehicle, which turned out to be very satisfactory. That gave us the confidence to move on to do our entire fleet with it.

● (1615)

Mr. Brad Trost: Okay.

Your numbers seem to indicate you're getting about a $7 million a year return. They're various, and we're trying to piece them together, listening to your report. If this were a private entity and you were looking at return on investment and you put together the City of Surrey's money and the federal government money, this would still be a pretty decent return on investment. Is that correct? Putting everyone's money together, you'd be getting 10%, 15%, I don't know what percentage per year. Is this profitable for you?

Mr. Vincent Lalonde: Right now, it saves us $3 million a year, compared to our previous costs. One of the important things to consider is—

Mr. Brad Trost: On top of that you gained revenue, and it was about a $50 million project?

Mr. Vincent Lalonde: There's $3 million in savings on our waste collection side; you're correct. That is based on the frequency of collection, the automation, the trucks that use fuel that costs less. On the biofuel side, yes, $4 million to $5 million of sales are projected from the biofuel plant, but we also have to pay a tipping fee for the green waste we're going to put in. To answer your question, you couldn't do a plant and accept free green waste and make a profit at it. You could accept green waste at a competitive tipping rate, which is a lot less than garbage rates, but you would still have to charge for people to dump there to produce the fuel.

You can't produce enough fuel to pay for the plant unless you get some revenue from the organic waste being dumped there. We have two sides to the equation. How much money can the plant make? How much can the city save from dumping at $50 a tonne versus dumping at $107 a tonne? But we still have to pay the $50 a tonne, if you understand.

Mr. Brad Trost: Okay.

I'll put a quick question to the Canadian Electricity Association.

One of the frustrations I sometimes hear about is that in Canada, with our monopolies in most provinces, people who have new, innovative ideas for the electrical grid, the electrical system, have frustrations getting through. It may just be inventors not quite realizing their products.

What recommendations would you give to this committee that we could pass along so the system could be more open to new innovators, the engineer, the scientist who's got a great idea that could be helpful on efficiency, production, distribution of power? What are the sort of things you're looking for so your industry can cooperate more fully with the people who are new and innovative?

Mr. Francis Bradley: That's an excellent question. It's certainly something we think about and are concerned about.

A couple of weeks ago I spent a day with a number of people across the country in the utilities distribution business and with Sustainable Development Technology Canada. They brought us together to look at 10 potential pilot projects that are being developed through SDTC's SD Tech Fund virtual incubator. I would suggest that we do have processes, thanks to organizations such as SDTC, that are bringing forward those new technologies. I would suggest that the government continue to support Sustainable Development Technology Canada, because it is playing an active role as an incubator.

The Chair: You are out of time, Mr. Trost.

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

[*Translation*]

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

I want to thank all the witnesses. Your statements were very informative.

Mr. Bradley, I'd like to start with you.

Yesterday, in Sydney, Nova Scotia, your president said that it would take $350 billion, if I'm not mistaken, over the next 20 years to renew existing infrastructure. That's a huge amount, but it lines up with other figures we have seen when it comes to other aspects, such as physical infrastructure.

What kind of a renewal are we talking about? When you get into a smart grid and all the high-tech advancements that entails, especially with respect to renewable energy, how much has to be invested over the next 20 or 30 years?

● (1620)

Mr. Francis Bradley: Thank you for your question.

You are correct. For a while now, ever since the Conference Board of Canada report, the amount needed to cover the next 20 years has been pegged at $350 billion.

[*English*]

While that may sound like a large number, I have just a couple of comments. We're essentially talking about, and I alluded to this in my opening comments, a system that was built a generation ago.

If you think of the Canadian economy as a house and think of the electricity system as the roof, we built that roof 40 years ago. We got a mortgage on it and we built it. We're saying that it's now time to put a new roof on the house, and let's do it before it starts leaking. Also, that roof is going to cost more today than the roof we bought 40 years ago did, just as anything we bought 40 years ago was a lot less expensive than it is today. The $350 billion that we're looking at is in real dollars.

The other thing is, and I want to emphasize this, this was based on a study done by the Conference Board of Canada that was talking about business as usual. As I've said to a couple of your colleagues in the past, one thing we do know about the future is that it will not be business as usual.

Personally, I would expect that the dollar figure will probably be more than that when we look at the new technologies we'll be moving towards in the future with a smarter grid, with the electrification of transportation, and so on. We don't even know what the future's going to look like 10 years from now much less 40 years from now, but we do know that from 40 years ago to today we've built a system that now needs that reinvestment.

Mr. Peter Julian: So the $350 billion over the next 20 years is to renovate the existing system and repair the roof, but when we talk about national grid and smart grids, the cost could be higher than that. Am I correct?

Mr. Francis Bradley: Yes, it's distinctly possible.

As I said, the work done by the Conference Board was for a business as usual case, for sure.

Mr. Peter Julian: What would be your expectations from the federal government over the next couple of decades?

Mr. Francis Bradley: In terms of our expectations from the federal government, it often comes down to ensuring that the conditions for investment are in place.

We've often made suggestions with respect to capital cost allowance and tax treatment of assets. We continue at times to run into issues with respect to getting plants approved and plans approved on a go-forward basis.

There's clearly a role for the federal government to play in terms of assisting and funding on the innovation side through things like Sustainable Development Technology Canada.

Mr. Peter Julian: Okay, thank you very much.

I would like to go to our friends from Surrey, Mr. Hayne, Mr. Lalonde, and Mr. Costanzo. It's good to have you with us.

I'm on the other side of the Fraser in Burnaby—New Westminster. I'm very interested in the rethink waste collection program you have put into place.

You compared quarter four in 2011 with quarter four in 2012, but actually, on a month-to-month basis, I'm sure you've seen an even larger increase in the waste diversion. Do you have figures you could share with us for November and December, 2012, and for January 2013?

Mr. Robert Costanzo: Off the top of my head, that is the average for the three months; that's correct. For the month of October we were approximately at 68% diversion. For the month of November we were at 74.5% diversion. Then in December, we dropped back to 68.2% diversion, in and around there. The basis for the drop in December is that generally we produce much less yard waste in the month of December.

For example, let's look at December and January last year. Typically we generate approximately 500 tonnes of yard waste each year in those months, because yard waste of course is very low during that time of the year; on average it's typically around 2,500 tonnes per month during the summer and the spring season. But in December our organic waste, which was mostly food waste, was at 2,300 tonnes, and it was at 2,500 tonnes in January. So that organic cart, which contains both the yard waste and organic waste is generally very high. We think the organic waste rate will be sustained throughout the year, because that was material that was previously discarded with the garbage waste and now it's going exclusively into the organics waste cart.

● (1625)

Mr. Peter Julian: Thank you very much.

I'd also be interested in the capital costs of setting up the program. It's not in your figures and you may not have them handy, but if you could provide them to the committee, I think that would be extremely interesting.

You have a whole bunch of neighbouring municipalities in the Lower Mainland that are also doing good things, such as the City of Burnaby, the City of New Westminster, and a number of others. I'm wondering what role the federal government can play in bringing together neighbouring municipalities that have these innovative programs, so that innovation stretches across entire regions. Do you see a role for the federal government?

The Chair: I'll ask you to give a short answer, please, quickly.

Mr. Vincent Lalonde: I think it's a continuation of programs, such as supporting our application for the P3 Canada funding. Our plant will be sized for about double our needs, so we can take in organic waste from adjoining municipalities in the ICI sector. Again, I think those kinds of program allow the city to build an optimally sized plant for the region.

The Chair: Thank you, Mr. Julian.

Mr. Hsu, you have up to seven minutes. Please go ahead.

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

Actually I'd like to take some of my time, as a courtesy to the committee, to read out a motion I tabled today, that pursuant to Standing Order 108(2)—

The Chair: Mr. Hsu, if you just tabled the motion today, we can't discuss it.

Mr. Ted Hsu: We're not going to discuss it. I'm just going to read it out as a courtesy. I'm giving up my time to do it.

The Chair: Go ahead; it's your time.

Mr. Ted Hsu: Thanks. Perhaps I could have my time back for that.

I think it will be of interest to the committee, and I think you'll actually support it:

> That, pursuant to Standing Order 108(2), given the concerns raised in the 2012 Fall Report of the Commissioner of the Environment and Sustainable Development, the Committee further study the issues raised in Chapter 1; that the respective Chairs and officials of the two Atlantic offshore petroleum boards (Canada-Nova Scotia Offshore Petroleum Board and Canada-Newfoundland and Labrador Offshore Petroleum Board) be invited to appear before the Committee; and that the Committee report its findings to the House by June 2013.

I know we're not going to discuss that today, but I just wanted to let the committee know as a courtesy.

[*Translation*]

My first question is for Mr. Bradley.

The reason the price of electricity varies throughout the day is to encourage customers to respond accordingly. What technological innovations influence customers' behaviour, so they use the tool to improve their consumption?

Mr. Francis Bradley: Thank you for your question.

[*English*]

Yes, we're just starting to get a sense of what the impact is of time-of-use pricing. This is really very new in terms of how customers are going to respond to begin with, in terms of what kind of price differential is required to actually effect change.

There are two sides to it. One is the behavioural, just based upon pricing, and that's something people are trying to get a sense of. The other side of it is the technology side, what kind of tools can be put into the hands of customers and what kind of tools can be put in the hands of companies to be able to affect the load within the households.

We are seeing some interesting things taking place. I mentioned the Atlantic shift project that had nothing to do with time-of-use pricing and everything to do with wind. What in fact it deals with, though, is the ability to control demand and to shape demand. You can shape demand centrally with respect to wind, but you can also shape it, using the same sorts of tools, to match time-of-use pricing.

At the same time, we see a lot of people outside of our industry, in the IT community, in the IP space, who are looking at developing what they call the “Internet of things”, the web 3.0, so that your fridge and your other appliances will be addressable by IP. Well, when those sorts of innovations actually come into play, the end customer will have even more tools to be able to shape their use of electricity.

The innovation in some cases will come from within the industry. In some cases it will come from the Googles of the world. It will be interesting, though, to see how that plays out.

● (1630)

Mr. Ted Hsu: Okay.

My other question is also kind of open-ended. It's about what kind of skills training needs to occur when the electricity distribution system changes. If you have a smart grid, if you have distributed generation, presumably some retraining needs to be done for people who work with the local distribution companies, for example.

I also understand that there will be a big gap in the electrical power industry as people retire over the next 10 years, that there will be a lack—or a potential lack, because of course we could do something about it now—of workers.

Would you like to make some comments about that?

Mr. Francis Bradley: Absolutely.

It's been a principal preoccupation of the Electricity Association for seven or eight years; that's when we began doing some significant studies on this. With the assistance of the federal government, we established the human resources sector council for electricity a number of years ago.

The changes are not insignificant, and they're coming from two sides.

On one side there's the issue that you referenced, which is an aging workforce where a significant number of our key people are going to be retiring. Already that's taking place. We're seeing a generational change. So there is a gap, which generally companies are dealing with at this stage.

The other side of it is that the skill sets are absolutely going to change. We're already seeing that today. In jurisdictions where you have smart meters, you don't have meter readers anymore, but you will always have, for example, power-line technicians. Certain traditional areas of utility operations will remain, and remain unchanged.

But yes, with the increase of technology and the smart grid—I think I've mentioned this previously to the committee—we're concerned that 10 years from now, when we'll want the best and the brightest on the IT side.....

Today we compete with other people who are trying to build infrastructure. As we move into smart grid, we'll be competing with the Ciscos and the Googles of the world for the best and the brightest, because so much of our operations will be in the smart electron business and not the old world of the dumb electron business.

Mr. Ted Hsu: Thank you.

I have a question for you, Mr. Simpson, but let me preface it by thanking Union Gas for helping the City of Kingston, in my riding, a number of years ago with collecting data on natural gas use for the city's greenhouse gas inventory project. I want to thank Union Gas for being a great corporate citizen in helping out with that.

You talked about your demand side management work and how residential improvements, because of building codes and standards, have resulted in a decrease in use of natural gas. I'm wondering about retrofitting older buildings and whether you would say there's a lot more work to be done, or a lot of progress that you can make, in your demand side management for getting your customers to retrofit their older buildings.

The Chair: Unfortunately, Mr. Hsu, you're out of time.

If you want, Mr. Simpson, you can give a very short answer.

Mr. David Simpson: I certainly can, and I will keep it brief.

With regard to our program that we have approved with the Ontario Energy Board, we are now in year two of a three-year program. We've been doing this since 1997. Elements of our program touch every component of the makeup of our distribution system in Ontario. We have programs for low-income households, for commercial applications, and programs for industrial applications. I do think that whatever comes our way would fit within the umbrella of those applications, but it perhaps does lead to the point you're making. I do think many opportunities lie ahead in specialized niche areas, in terms of improvements of building structures like you've mentioned.

I think they're all covered, but it is a continuation of the program and working together that will yield the results.

● (1635)

The Chair: Thank you.

We'll go to the five-minute round now.

We'll start with Mr. Allen, for up to five minutes.

Go ahead, please.

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

Thank you to our witnesses for being here.

I have a couple of quick questions for the folks from Surrey.

When you did your phase one, you talked about being able to assess the numbers. Did you come up with a number, a cut-off in terms of the number of households' waste it was going to take to make your overall project economic?

You said in response to one of the questions from Mr. Julian that you've optimized your plant for double the needs. Did you go into this with an idea of the minimum optimal size to even run it in the first place?

Mr. Robert Costanzo: If your question is relative to the size of the facility, we determined that 80,000 tonnes a year based on the size of the land. We have city-owned property where the facility will be established. With that, we then looked at our entire customer base to determine what kind of feedstock we could generate to deliver to an 80,000 tonnes a year facility.

Mr. Mike Allen: What percentage is Surrey going to contribute to this?

Mr. Robert Costanzo: We're going to contribute 50% of feedstock to the facility. Based on the results to date, it appears we'll likely be running 40,000 tonnes a year. It will be closer to 50,000 tonnes a year, based on high participation from 100% of our customer base.

Mr. Mike Allen: You said there'd be $16.9 million from P3.

What is the total cost of the project?

Mr. Robert Costanzo: It's approximately $68 million.

Mr. Mike Allen: Did you say you expect to have your facility up and running in 2015?

Mr. Robert Costanzo: Correct. By mid-2015.

Mr. Mike Allen: The sale of renewable gas is a projection based on where you can sell this to. Is that because of the mandatory use of natural gas vehicles in the area?

Do you anticipate being able to sell all of this output into Surrey and the adjoining areas, or are there other markets you're considering?

Mr. Vincent Lalonde: I'll answer the question.

We've determined that the volume of gas we'll create is probably about four times what we can use in the waste collection trucks. That's the first place we will use it, again, to offer the value proposition to our customers. The other two-thirds of the gas can be used by other vehicles in our fleet. At our central works yard, we have a natural gas fuelling station. We anticipate putting some of that gas into the grid and then being able to extract it at our operations plant.

After we meet our own needs, we will then sell it off to either industry, or through FortisBC, our local gas provider, as a green gas component that they can offer to their clients.

Mr. Mike Allen: Thank you very much.

I'm going to turn to Mr. Bradley now.

You talked about the investment that's going to be required over the next 20 years. Given that the utility business, as you've identified, is a significantly capital-intensive business, how have your utilities been able to capitalize on partnerships they've created so we don't have what we'll call wasted and stranded investment?

Mr. Francis Bradley: That's an interesting question.

Certainly all of the utility companies are subject to regulation, principally those that are in transmission distribution. Some of the generators, depending upon the province, of course, fall under provincial regulatory authorities. Their decisions that are made with respect to investments are reviewed by regulatory authorities. Whether an investment is made or not made is something that first and foremost is reviewed by an independent regulatory authority, in every jurisdiction in this country.

In some jurisdictions, on the generation side, there is wholesale competition. In those instances, the determination on whether or not investments get made is purely on a business basis.

● (1640)

Mr. Mike Allen: You talked about the new demands on electricity services like plug-in services. Can you tell me how much of the innovation in the last five or ten years has been driven by that and by policy decisions on feed-in tariffs and things of that nature?

Mr. Francis Bradley: Feed-in tariffs are a very interesting policy instrument. We see the feed-in tariff in Ontario. Feed-in tariffs of course have been used in other jurisdictions, in Europe for example. They do tend to push changes more rapidly in the marketplace. They tend to push innovation into the marketplace as well. That's one of a number of policy instruments that will spur further innovation, because they create further opportunities in the market.

The Chair: Thank you, Mr. Allen.

We will go now to Mr. Leef, for up to five minutes.

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

Thank you to all our witnesses.

I have gotten rid of my eight-tracks and rotary phone, but I'm afraid I still do have the meter rocking around my cabin up north. In that vein, for the $347 billion investment required, can you give me a picture? Is that a compilation of every jurisdiction's infrastructure input needs over that time? You noted that it's for a replacement of analog. Is this the Cadillac investment version to get everything perfect? What would the dollar value investment look like if you just moved it to the locations where it was required most? Are there places in this country where analog is still sufficient, still delivers the client services needed, and still meets all our energy needs? Can you give us a sense of that?

Mr. Francis Bradley: Sure. We partnered with the Conference Board of Canada when it was working on this study, so we have a fair amount of familiarity with the details. They in fact did a province by province and territory by territory look at what the requirements were going to be for generation, transmission, and distribution. In fact, the bulk of that investment, more than two-thirds of the dollars, is for generation. Roughly 10% is going into transmission, and roughly 20% is going into distribution.

While the distribution system that will be built in the future will be a smarter distribution system, a smaller portion of the investment is required for that than, for example, for the generation side.

Mr. Ryan Leef: Does the generation-side requirement have to do with population growth or industry development? What's the rationale?

Mr. Francis Bradley: It's driven principally by two things. One is certainly population growth and changing energy demand. For the other side of it, I'll go back to my earlier analogy of the roof. These assets do not last forever. It doesn't matter what kind of asset you're talking about. If it's a thermal asset, a nuclear asset, or even a hydraulic asset, a hydro plant, investment is required to bring it up to speed. So the largest portion of that investment, over $200 billion, is going to go into either upgrading existing generating facilities or building new generating facilities to meet the increasing demand.

In terms of that increasing demand, if you think back even 10 years ago about how many screens you typically had in one house, it was typically two. There'd be a computer and a television. Today in most houses there are sometimes a dozen.

Mr. Ryan Leef: It has a lot to do with household use as well, and consumer use of the products.

Mr. Francis Bradley: Absolutely.

Mr. Ryan Leef: Thanks. That was helpful.

To the gentlemen in Surrey, I have a quick question. You noted in your presentation that you have a 90% customer satisfaction rate, obviously related to the use of the natural gas vehicles. What kinds of things are you hearing that aren't positive around this project? What accounts for the 10% dissatisfaction?

● (1645)

Mr. Vincent Lalonde: I'll answer the question.

The 90% satisfaction rate was not so much regarding the trucks but the whole rethink waste program. The main thing in what we were doing is getting.... We're only picking up garbage now every two weeks versus before when we used to pick it up every week. However, organic we pick up every week. So from a customer perspective, what was changing was the calendar and the frequency of when they could put out garbage, organics, and recycling.

The other one was really the cart system. We introduced the cart system for full automation of the pickup. A big part of it had to do with customers accepting having three city-issued carts versus having the myriad different garbage cans they had. I would say that it's a 90% satisfaction rate. A lot of it is driven from doing the right thing with the waste.

On the negative side, the main complaints revolved around some of the carts being too big. They couldn't be stored in a garage, things like that. So we have introduced four different sizes and people can choose from small to large. There is customer satisfaction around the selection of the size of carts and how fast we can change them if they're not happy with their carts.

I would say from a general—

Mr. Ryan Leef: Just this essentially [*Inaudible—Editor*]

Mr. Vincent Lalonde: That is correct.

Actually one thing that surprised us both as a result of the pilot and now the city wide is the issue of going to garbage being picked up every two weeks. We thought there would be more people concerned about that. When we did our pilot, it turned out that people were not concerned once they did it. There was certainly some apprehension before we did it, but now that we've rolled it out, there have been very few complaints regarding that.

Mr. Ryan Leef: How much interest in information sharing are you seeing from neighbouring municipalities? How much information sharing are you providing whenever you find yourself in the position to provide to them more about what the prospects look like for Lower Mainland municipalities to pick up on this concept?

Mr. Vincent Lalonde: Basically there's a lot of interest in this region. We get together, the solid waste managers such as Rob get together and talk at a regional forum. There were other smaller municipalities that took steps that we've taken which we've learned from them. Now in turn there are other larger municipalities such as Vancouver, which I believe is now going to go to a two-week garbage pickup.

I would say there's a lot of sharing of information. Everyone looks at what everyone else is doing and tries to build on the successes.

The Chair: Thank you, Mr. Leef.

We go now to Mr. Nicholls, who will be followed by Mr. Hsu.

Go ahead, Mr. Nicholls.

[*Translation*]

Mr. Jamie Nicholls (Vaudreuil-Soulanges, NDP): Thank you, Mr. Chair.

Mr. Bradley are you familiar with the work of Pierre-Olivier Pineau? He's a professor at HEC Montréal.

Mr. Francis Bradley: No.

Mr. Jamie Nicholls: He wrote a report on integrating Canada's electricity sectors.

What is your take on that? What do you think of integrating the various electricity markets across the country?

Mr. Francis Bradley: It's certainly a fascinating proposition. There are opportunities in certain regions.

[*English*]

In certain regions, depending upon what the mix is and what the current interconnection is, there might be the possibility of looking at greater integration on a region-by-region basis. Of course, the biggest barrier will be the eternal Canadian barrier and that is electricity markets. The electricity industry generally falls under the jurisdiction of the provincial governments. It's not something that

[*Translation*]

someone from a national association

[*English*]

would be providing you an opinion on.

[*Translation*]

Mr. Jamie Nicholls: Professor Pineau makes a compelling point, saying that the agreement on health could serve as a model. Health comes under provincial jurisdiction, but a national agreement governs fees and standards. Applying a similar model could prove very effective in bypassing the usual jurisdictional squabbles.

Is that a good idea, in your view? Professor Pineau mentions a wide range of benefits, and the idea appears to have not just economic merit, but also environmental appeal.

Do you agree that it would be a good way to go if we could get past the jurisdictional issues?

● (1650)

[*English*]

Mr. Francis Bradley: Not having read the report, I couldn't provide you my opinion on the views he's expressing. While they are separate jurisdictions and distinct jurisdictions with respect to electricity, we do have a lot of collaboration, at least on the industry side. There's a fair amount of trade that occurs already among the provinces themselves, and of course north-south. Our association is a manifestation of the active collaboration currently within the industry. But in terms of being able to provide you a view on this particular report, not having read it, I wouldn't be able to.

Mr. Jamie Nicholls: It just seems to me it's sort of like the analogy of going to Mars. Why invest all this money to go to another planet when we have to fix the problems here? In the energy sector it seems the same way. Why put all our investments toward export of our product when we should be fixing the problems we have internally in the country? That's why I brought up integration.

To talk about perhaps some of the lost opportunities, you mentioned before that there were initiatives that had started, but because of political problems, roadblocks sort of got in the way. Could you elaborate on things in the past where integration has been tried but hasn't worked?

Mr. Francis Bradley: I would like to pick up on one of your comments with respect to exports before getting into this issue.

Generally, with the electricity exported from Canada into the United States—and there's also a fair amount of electricity that is imported from the United States into Canada—the facilities in Canada are principally for Canadians. When there's excess electricity available, it is exported to the United States.

In fact, we're lucky that those markets exist because, one, we can do something with our surplus power; two, it results in a more stable electricity system in North America because we have those exchanges on both sides of the border; and three, every time there's surplus of hydro power that is exported to the United States, it displaces thermal generation in the U.S. We are living in a shared airshed, so there are significant, very positive results because of the electricity trade between Canada and the U.S.

The Chair: Thank you, Mr. Nicholls.

We will go now to Mr. O'Toole, for up to five minutes. Welcome to our committee.

Mr. Erin O'Toole (Durham, CPC): Thank you, Mr. Chair.

Thank you to my colleagues for allowing me to join you today.

Thank you to all the witnesses for your very interesting contribution to this dialogue.

Since my background is that I have done some energy regulation as a lawyer and, until my election, sat on a board of a local distribution company in Ontario, my questions will be reserved for Mr. Bradley.

I think you said the largest barrier to innovation and electricity is the cost of the technology. At the distribution level as apart from generation, with a regulated industry, with rate basing every four years, how seriously can distributors innovate, because they're essentially setting prices based on what happened four years ago? Do you see any innovation in the regulatory sense for the sector?

Mr. Francis Bradley: Yes, we're starting to see some interesting new approaches to regulation. We're seeing some jurisdictions that are using different forms of performance-based regulation, PBR. But the key in all of this, of course, particularly with respect to distribution, is the regulator.

When we talk about concerns with respect to the cost of that new technology, those costs ultimately will be borne by the ratepayer, but before you even get to that point, the regulator has to be convinced that those investments are indeed prudent. That's the first step before we even get out of the gate, to be able to make the case that those investments in infrastructure and in newer, smarter infrastructure are indeed prudent.

In some jurisdictions elsewhere in the world, when proposals have come forward to, for example, move toward smart meters, regulators haven't always said yes.

● (1655)

Mr. Erin O'Toole: I know that Toronto Hydro has been pushing this issue because of its challenges with infrastructure over the next 10 years, but it doesn't seem as if the provincial minister has been heeding its warnings. Do you have any comment on that, or might you not want to comment on that?

Mr. Francis Bradley: I wouldn't comment on the relationship between Toronto Hydro and either its shareholder or the province, but I have been following media reports as they have been making infrastructure investments in Toronto and seeing them change. I was talking earlier about 40-year-old assets. There are media reports of some large transformers that are a lot older than that. On the one hand, we should be concerned that there are assets that are that old in any of the systems in this country. On the other hand, the fact that they've been able to maintain some of this equipment and keep it operating for 50, 60, 70 years, I think is a credit to the people who are operating those utility companies.

Mr. Erin O'Toole: Quickly, Mr. Bradley, I want to explore something Mr. Hsu said in his questions about a lack of workers. The recent LDC review by the wise persons' committee—Elston, McFadden, and Laughren; all our parties were represented in those three esteemed gentlemen—says there are a lot of inefficiencies because of the number of local distributors, at least in Ontario. They recommended amalgamation within that sector to the province to not only make it more efficient but to save ratepayers money. Don't you see that skills shortage being addressed through amalgamation?

Mr. Francis Bradley: The skills shortage isn't just in Ontario and it isn't just with the LDCs. Even in places where you've got one integrated utility company, in British Columbia, in Manitoba, in Saskatchewan, they are facing the same challenges with respect to skill sets.

I've read the report that you referenced and they do make a compelling argument, but the skills challenge faced by the industry is far greater than the efficiencies that would result from amalgamation in Ontario. This is an issue not just for Canadian utility companies, it is a global issue. We see it as a North American issue because there have been a number of incidents whereby utility companies in the United States have come here to recruit personnel. When it's minus 40 degrees and they're knocking on the door of a power line technician and offering him a job in Florida or Texas, it sometimes makes it difficult for us to try to compete with that.

The Chair: Thank you, Mr. O'Toole. We go now to Ms. Liu, followed by Mr. Anderson.

Go ahead, please, Ms. Liu.

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

If you would allow me, I'll extend the same courtesy that Mr. Hsu did. I would like to read aloud the motion I submitted last week, which we will be discussing later today. It states:

> That, pursuant to Standing Order 108(2), and given the repercussions of the 2012 Fall Report of the Commissioner of the Environment and Sustainable Development on the natural resources sector, the Committee postpone its current study and undertake a study of chapters 1, 2, 3, 4 and 5 of the report, beginning on February 26, 2013 and reporting to the House of Commons no later than June 7, 2013.

I'm moving on to my questions.

[*Translation*]

My questions are mostly for Mr. Bradley.

Thank you for your presentation. I want to pick up on Mr. Julian's questions about the smart grid. You touched on a few recommendations and things the government could do to help it along.

I don't have a lot of time. If you could provide the committee with more detailed recommendations on what the federal government can do to help establish a smart grid, we would certainly be very keen to review them and possibly include them in our final report.

You mentioned some barriers as well. I would like you to expand a little on what you said. You talked about the high cost of new technologies. What do you recommend in terms of addressing that challenge?

● (1700)

Mr. Francis Bradley: The high cost of new technologies is simply the reality. We aren't asking the government to do anything, just stating a fact.

[*English*]

An analogy would be with the first car I bought. I paid $1,800 for it. When we built the system so many years ago, as I said, there were 20 million Canadians. Now there are 34 million Canadians. By the same token, I can't get away with a coupe anymore; I need a minivan because I've got to haul the kids around. The reality is that a car today costs more than it did 10 years ago.

With respect to the cost of new technologies, I don't think we would be asking anything specific for government to do. It is really just a statement of the reality we are facing. Again, it isn't terribly surprising: one, things today are more expensive than they were previously; and, two, the new technology itself is more expensive initially.

At the same time, some of this new technology will probably go on the same sort of trajectory as other new technology, so that over time the price will decrease. We've seen a significant reduction in the cost of all kinds of consumer electronics that were outrageously expensive when they were first introduced. Frankly, we've seen the same thing with respect to wind generation and turbines. Turbines were prohibitively expensive a dozen years ago, and in some jurisdictions they are very cost competitive today. We're probably on that trajectory, as well, with respect to solar power.

Ms. Laurin Liu: I'll stop you there because my time is limited.

I'd like to hear what you have to say about changes in the last federal budget to the scientific research and experimental development tax credit. What kind of effect do you think this will have on the sector?

Mr. Francis Bradley: We've had some concerns about the SR and ED program, but most of our concerns have been with respect to how the SR and ED program was being implemented and the administration of the program.

If the committee is interested, we have submissions that we've provided to the finance committee in previous years. We certainly would be prepared to forward them to the committee, or to individual members, if they'd like to see what we've had to say on SR and ED in the past.

Ms. Laurin Liu: Sure. If you could table those with the committee, that would be great.

You mentioned SDTC. That was a focal point of your recommendation as well.

Do you have any comments concerning the efficacy of the ecoENERGY program?

Mr. Francis Bradley: I have not personally been directly involved with that particular program. Most recently, as I said, my involvement has been with SDTC.

The Chair: Thank you, Ms. Liu.

Mr. Anderson, go ahead.

You have up to five minutes, and you'll be followed by Mr. Gravelle and Mr. Calkins.

Mr. David Anderson (Cypress Hills—Grasslands, CPC): Thank you, Mr. Chair. I wish we had more time with the witnesses today. We've heard some good testimony.

Mr. Simpson, the president of your Canadian LNG business, Doug Bloom, recently said:

> We are going to need to diversify our market. Even if they foresee it wrong, and it wouldn't be the first time, growth in North America will be modest. The reality is rapid long term growth is in Asia. We need to be there.

Can you speak to us today about the importance of diversifying our markets beyond the United States?

Mr. David Simpson: Thank you for your question, and I'll probably have to be brief with my response.

Mr. Bloom is the president of the LNG portion of our business, which is exploring the opportunity on the west coast. I'm most familiar with the distribution company in Ontario.

But to the point of diversity, whether he was making the comment abroad or with respect to Spectra, I think that sort of pipeline business would be a new element of business stream for us. In regard to diversity, as a shareholder, I see that as very positive. With respect to the energy portfolio, whether it be within Canada, North America, or abroad, again, the diversity is alive and well. The role that gas will play both in North America and abroad is going to be significant.

● (1705)

Mr. David Anderson: Thank you.

Mr. Lalonde, earlier you talked about the fact that the tipping rate was affecting the competitiveness or commercialization of the project you're doing.

Can you explain how the tipping rate plays into this particular project? Who's paying it to whom, and how does it impact your bottom line? I want to talk about that for a minute.

Mr. Vincent Lalonde: Basically, the tipping rate is paid by us, the municipality, when we dispose of either garbage or organic waste.

As Mr. Costanzo stated, when we dispose of garbage and we truck it to a landfill, it's $107 a tonne. Right now, because our facility is not built, we're disposing it to a facility that composts the material. That's roughly half the tipping rate. In terms of any organic waste that we divert from garbage, or, for that matter, recyclables from garbage, the tipping rates for those materials are a lot less than for garbage. There's a savings there.

In the case of our biofuel plant, I was attempting to explain that our business case for the biofuel plant that we forwarded to P3 Canada, after quite a bit of research, was that you can't make enough money just from converting organics to fuel to pay for the capital investment and the operation of the plant. There has to be an input. In other words, when you're accepting organic waste, you have to charge people to dump at your facility. That becomes part of the business case.

The municipality is going to have a contractual relationship with a proponent that's going to build the plant. Our solid waste division, if you will, will pay the tipping fee, but then the city, because we're a partner in the whole development of the actual plant through P3, will be receiving part of the profits of the sale of the green gas.

It would further offset our—

Mr. David Anderson: I guess my confusion there is that the city is delivering the garbage to their own facility. I'm just wondering why the fee is in there. You're talking about your private partner who, I assume, needs part of that. If you're dealing with other municipalities, they will be paying you that tipping fee as well. Is that an opportunity to be able to make money on that project?

Mr. Vincent Lalonde: Yes. We kind of created, if you will, a separate entity to run the plant. So you're correct. The city doesn't pay itself, but it pays the partnership for the plant.

Similarly, other municipalities would basically pay our same tipping rate into the plant, but then the city would receive a portion of the profit derived from converting that fuel. We would receive a portion of profit—so the more volume we have, the more profit—from some of the tipping from other municipalities.

Mr. David Anderson: If that were removed, would you be commercially viable?

Mr. Vincent Lalonde: No. We did the business case. To the best of our knowledge, there's no other facility certainly in North America where you could open a biofuel facility, accept free waste from anyone to dump, and then make a profit just on your fuel. The numbers don't quite work out. They work out quite well, however, when you consider the value of what it costs to dispose of organic waste.

The Chair: Thank you, Mr. Anderson.

We now go to Monsieur Gravelle for five minutes.

Mr. Claude Gravelle (Nickel Belt, NDP): Thank you, Mr. Chair.

My questions are for the City of Surrey.

I'm looking at slide 6, and I can see that Canada has 12,000 of these trucks behind such countries as Pakistan, Iran, India, Myanmar, countries which, some of them, may be third world countries. What's holding us back? Why so few?

● (1710)

Mr. Robert Costanzo: I think part of the problem in Canada, and in North America in general, is the lack of faith in CNG in general. CNG technology took off in the late 1980s and the 1990s, but the technology at that time wasn't quite where it is today. The cost of natural gas back then was on par with the cost of gasoline and diesel. Because of the lower efficiencies of using that technology, we started seeing in this region, and likely across Canada and the U.S., CNG disappearing from the marketplace.

CNG didn't stop developing, however. While in North America traditionally we've paid low fees for gasoline and diesel, around the globe the technology has continued to improve. In continents like Europe, for example, there's always been a disparity in the cost of diesel and gasoline compared with CNG. The technology that we're leveraging with respect to biofuel really stems from the European model, where they looked to develop this gas because of economic reasons. They started running bus fleets, garbage fleets, and taxi fleets using CNG versus gasoline and diesel. Only now are we starting to realize the benefit of doing the same here in North America.

More importantly, though, to answer your question, we're also realizing that the technology is such a dramatic improvement over what we used to have years ago that it's becoming quite viable. Again, the cost difference is really marginal. When we look at a 20% difference over a 10-year period, with the cost of gas being less than half the cost of diesel, that's quite a significant change from what we used to have 20 years ago.

Mr. Claude Gravelle: Thank you.

Your slide 8 says that natural gas vehicles emit 23% less carbon emissions and 90% less particulates compared to diesel trucks

We've heard that liquefied natural gas vehicles have an issue with fuel evaporating in storage tanks in the vehicles after a few days before it can be combusted. When we hear that LNG vehicles have lower GHG emissions, we're usually talking just about the combustion of the fuel. But fuel is also lost due to evaporation and that loss is often not calculated by analysts comparing conventional gas to LNG.

Have you experienced any of these issues? Have there been any advancements to address this problem, and what is needed for infrastructure to make sure LNG is used before it evaporates?

Mr. Robert Costanzo: To answer your question from an operator's perspective, these vehicles are operated by a city contractor. They have not experienced any such issues.

To clarify, we're using compressed natural gas and not liquefied natural gas, so some of the problems you are asking about are with respect to LNG and not CNG.

I can't answer your question relative to LNG as we don't have that experience here at the City of Surrey. We don't have LNG-operated vehicles.

Mr. Claude Gravelle: All right. Thank you.

Slide 9 indicates, “Pilot results: 50% drop in garbage tonnage”. What kind of savings is that for the taxpayers, in real dollars? How much does a taxpayer save?

Mr. Robert Costanzo: I'll refer you to slide 14. If you look at the fourth bullet, we're estimating a cost savings of approximately $600,000 a year.

Actually, at this time it's going to be slightly higher than that given that it's going to a facility that's basically taking the material and composting it into a mulch or nutrient-rich compost. Eventually the facility we establish will have a higher tipping rate than the one we're presently taking it to has, but the rate will be lower than the current tipping rate for garbage.

If the garbage tipping rate remains at $107 per tonne, by the time the facility is established we'll see at least $600,000 a year in savings. If it increases to $108 per tonne, there will be significantly more savings for the taxpayer.

Mr. Claude Gravelle: Are you taking into account the savings at the municipal dump? The more you recycle and the more you use for the natural gas, the longer the municipal dump is going to last. Have you taken those savings into consideration?

● (1715)

Mr. Vincent Lalonde: No, this is excluding those kinds of savings and without an analysis of how long the existing facilities may continue to operate. That is definitely an issue that could be of importance, especially in other regions.

The Chair: Thank you.

Mr. Robert Costanzo: I should also clarify—

The Chair: Keep it very brief.

Mr. Robert Costanzo: The cost of $107 a tonne is a regional cost. The region manages all the waste garbage transfer stations and the landfill. It is the city's responsibility to collect the waste. Our savings are entirely on our waste collection system, which is on the backs of the taxpayers.

The regional system is also on the backs of the taxpayers, but it's dispersed among 22 municipalities versus waste collection in Surrey, which is dispersed just through our own customer base.

The Chair: Thank you.

Thank you, Mr. Gravelle.

Mr. Calkins, go ahead please, for one question.

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

I have a question for Mr. Bradley. Unfortunately, it has three parts, but that's okay.

Mr. Bradley, as an Albertan I struggle with the issue, and you're probably aware of some of the issues surrounding the grid changes there. What can you tell this committee about innovation and technological advancements, looking at alternate current versus direct current transmission? What are some of the issues we have there?

What are some of the innovations that need to happen to go from localized generation to distributed generation?

Also, in the photovoltaic area, what can we expect in innovations for battery storage, and where is that part of the industry moving to?

Mr. Francis Bradley: It's a three-part question, and I have just a little bit of time.

Innovation in DC-AC is certainly something companies are looking at. Of course, DC transmission is something we're likely going to see an increased use of simply because of the reduction in line losses and other efficiencies you can achieve.

Moving to distributed generation, that's really one of the central issues with respect to smart grid, ensuring we have the technology in place to be able to fully maximize the ability to move into a world of distributed generation. It's absolutely central to where we want to get to.

I had mentioned that incubator project, that incubator initiative in the tech fund of SDTC. A number of the companies that we're pitching and individuals who we're pitching were specifically pitching things that related to how we can in fact increase, and maximize, and control that.

Finally, on the final part of your question with respect to photovoltaics and storage, storage is going to be the Holy Grail for electricity renewables simply because when we look at both photovoltaics and wind, the challenge for both of those technologies is they are intermittent and they are non-dispatchable. The only way you can really maximize them is either you back them up, and as was mentioned previously, there's an increase certainly of natural gas that's being used for those purposes, but if you can find technology to back up through storage, it certainly increases that.

We have seen some innovation that has taken place. Previously before this committee I mentioned the Ramea project, which is a pilot project in Newfoundland where they're looking at twinning wind with hydrogen production and using that really as the storage medium. I think there's going to be a lot more research that's going to be done with respect to storage because once we are able to crack that nut, it gives us the ability to really maximize those intermittent renewables.

The Chair: Thank you, Mr. Calkins.

I thank all of the witnesses today for your very helpful presentations. From the Canadian Electricity Association, Mr. Bradley; from the City of Surrey, Mr. Costanzo, Vincent Lalonde, and Bruce Hayne; and from Spectra Energy, David Simpson from Union Gas.

Thank you all very much.

I will suspend the meeting as we go in camera, and then we'll get to Ms. Liu's motion.

[*Proceedings continue in camera*]