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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 are here today to hold our last meeting with witnesses for our study on the renewal of Canada's forest industry. All of the meetings have been very informative. I think we've had very effective witnesses, and the members have participated in a very effective way as well.

Just before we get to today's meeting, I want to read a short note I got. I don't do this kind of thing very often, but I thought I would do it. It's a note to the committee from Derek Gray, one of our witnesses.

I thought it was nice that he recognized the committee. He said:

I want you to know that appearing as a witness yesterday before the Standing Committee on Natural Resources was a great experience! I was apprehensive, and trying to summarize complex matters in a short time was really challenging, but I liked the straightforward way that you chaired the meeting—

That's not why I am reading this.

—and the friendly interest shown by the questions from the members of your committee was most encouraging.

There is a little more there, but it is nice to receive that acknowledgement, and I want to commend the members of the committee for the way you handle yourselves and conduct yourselves at this committee. It is very much appreciated and much more productive.

Today we have as a witness, from Domtar Inc., Dr. Bruno Marcoccia, director of research and development, pulp and paper division. From the Wood Pellet Association of Canada, we have John Arsenault, director of market access. Welcome to you. We also have, as an individual, Dr. Patrice Mangin, professor, Lignocellulosic Materials Research Centre, University of Quebec at Trois-Rivières. Welcome to you. By video conference from Montreal, we have Dr. Robert Beauregard, dean of the Faculty of Forestry, Geography and Geomatics at the University of Laval. Welcome to you, sir. Thank you for being with us, all of you.

We'll have the presentations in the order you are listed on the agenda. We'll start with Dr. Bruno Marcoccia from Domtar Inc. Please go ahead with your presentation, for up to seven minutes.

Dr. Bruno Marcoccia (Director of Research and Development, Pulp and Paper Division, Domtar Inc.): Thank you, right honourable chairman and honourable members of Parliament.

As you may know, Domtar is a publicly traded company with global operations that directly employ approximately 10,000 persons and generate annual revenues of over \$5 billion. We operate under two divisions, both tied to the forest products industry: the personal care division and the pulp and paper division. I represent the pulp and paper division.

This division has a primary manufacturing system which is exclusively based in North America. It consists of 13 pulp and paper mills across Canada and the United States. Four of these are in Canada and nine of them are in the United States. Our system in North America produces over 4.5 million tons of pulp per year and over 3.5 million tons of commodity and specialty paper grades. Domtar is North America's largest supplier of uncoated free sheet and is one of its largest suppliers of specialty paper grades in market pulp.

Again, as you may know our origins lie deep in Canada, reaching back to the 19th century, and we continue to have a major focus in Canada. When everything is said and done, approximately 25% of Domtar's manufacturing footprint is based in Canada, to this day. In all, Domtar's Canadian pulp and paper operations directly employ over 2,500 individuals and produce and market over 1.4 million tons of pulp and over 750,000 tons of paper annually.

I'd like to discuss the need and motivation for Domtar's intense interest in renewal. There have been two macroeconomic themes that we've been working under, as has the whole forest products industry, but particularly those of us who are connected to communication grade papers. These two themes are secular decline in core product demand and international competitive forces. Specifically, we in North America, in general, and Canada, in particular, operate under structural cost disadvantages. This is especially prevalent in market hardwood pulp grades and very relevant when it comes to fine paper and uncoated free sheet.

With respect to the uncoated free sheet, we again have been operating with a long-term decline of between 2% to 3% in our core product every year for the last 10 years. Notwithstanding strong operating performance since the formation of the new Domtar in 2006, this secular decline has taken its toll. Without going into too much detail, the combination of these macroeconomic factors has resulted in significant industry-wide pulp and paper capacity removal and re-purposing. In several cases, it has resulted in total facility closures. We at Domtar have not been immune to that. We have closed numerous facilities both in Canada and the United States and have been very busy in the process of re-purposing them to other grades.

Importantly, at least to those of us in the R and D community, the decline in manufacturing capacity has also been accompanied by a marked decline in industry's internal R and D. In spite of these challenges, and in some cases significant setbacks, Domtar perceives great opportunity for renewal through innovation and we are committed to developing and maintaining a world-leading role in fibre-based innovation. Specifically, we feel our opportunity lies in leveraging our core competencies, assets, and product offerings to allow us to develop a portfolio of new, valued-added fibre-based products and businesses.

This core competency we refer to is in the operation and management of our forest-based supply chain and the primary manufacturing system for conversion and valorization of over 12 million dry tons of wood per year. A fact that I'd like to really underline is that while we bring in 12 million dry tons of wood per year—I mention that because wood comes in wet—we actually process 24 million tons of wood a year.

Less than 40% of the solid wood material is used to produce pulp and paper products, which we take to market. The rest of it, over 55%, is burned for internal process fuel. This is not waste. It has value, but it has a very low value. Relative to the products we bring to market, the value of the burned or combusted material is typically 5% to 10%.

Our approach in the development of this renewal is to focus on the integrated biorefinery. Here the term “integration” refers to integration with our existing supply chain and primary conversion systems, that is, our pulp mills and our paper mills. The term “biorefinery” refers to a manufacturing system capable of producing a portfolio of products, not just fibre and paper products that we believe will be there over the long run, but a portfolio of products that maximizes overall value from the wood feedstock.

• (1535)

Before concluding, I'd like to hit on some committee themes, namely sector and market diversification, including plans, strategies, and best practices in that regard.

Sector and market diversification is something that is a daily part of life at Domtar and other mill manufacturing companies. Every one of our 13 mills has undergone significant repurposing in the last 10 years. The transition to value-added specialty paper and specialty pulp grades in order to re-purpose commodity production facilities will be a major and ongoing theme going into the future.

Across our system we are also working on the development of value-added co-products and their applications and markets. Our program is organized along five product platforms: advanced fibres and fibre derivatives; lignin and lignin derivatives; convertible saccharides, or what we often call the sugar platform; thermal chemical conversion products, such as pyrolysis and gasification products, which are generally for fuel purposes; and a smaller platform, which is volatiles, saponifiables, and other extractives and their derivatives.

The key elements of our strategy and practices are as follows.

We employ an open innovation approach and actively develop collaborative partnerships that include end users, technology

suppliers, universities and research institutions, and government agencies and sponsors.

We seek to position ourselves as an enabler of choice in order to attract best-in-class partners and gain competitive advantage. The way we make ourselves the preferred enabler is by being quick and ready to engage: we are open to discussions with all types of technology providers and in many cases start-up companies; we are quick to make decisions on projects; and we have a reputation for effective innovation leadership and project execution.

Another key element of our approach is that we identify and leverage site-specific synergies within our existing manufacturing base. Having a large and diverse manufacturing system and a deep pool of talent at individual sites facilitates the identification of a good fit, and a good fit is really important in many of these technology demonstration development projects, in order to mitigate risk and cost and ensure success.

Finally, we engage through several small bets, although the bets aren't that small, depending on your perspective. The basic idea is to operate with parallel efforts, which limit risk and exposure, but to move quickly to create platforms that we can launch major new initiatives from and build up organically from there.

There are two examples of this that I'd like to underline, which were recent and I believe are world-leading and transformative in their nature.

The first is the NCC commercial demonstration plant at our Windsor, Quebec mill, the first of its kind in the world. It was built and commissioned in partnership with FPInnovations to form the CelluForce JD. This was built with the strong support of the NRCan IFIT program and also of the Quebec provincial government.

A second example I'd like to point out is our lignin extraction project at our Plymouth, North Carolina mill. This was supported by the United States Department of Energy and the USDA BRDI program in collaboration with multiple partners. If we include our customers, the number of partners and collaborators we have in that area exceeds 100.

Relative to strategic innovation and improving existing products, the continued redeployment of our assets towards new specialty paper and specialty pulp grades will, as I mentioned before, be a major theme going forward.

A good example of a strategic innovation that commenced with improvement of existing products would be our recent development of a proprietary and potentially transformative specialty fibre. Vertical integration into existing products de-risks and accelerates commercialization. In this case it created a path to market for this important technology, which in turn has created a platform for the development and demonstration of this material in new external markets. Specialty pulps are the external markets I'm referring to. This is a soon-to-be announced demonstration project that is sponsored in part, again, by NRCan's IFIT program.

Developing high-value products is a fundamental objective of our program and something we occupy ourselves with daily. Our approach is to start by developing higher-value products from the fibres we already produce but also from the large component of wood feedstock, which I mentioned earlier, that we are presently burning. Over 50% of all the woody biomass material, we burn for internal process fuel.

Another example of this is the extraction and purification of lignin from black liquor. It is the first of several valorization steps, and it creates for us a platform for future value-added derivatives of this lignin.

• (1540)

The development of higher-value derivatives and end uses is the ultimate objective and a key success factor here. It will depend very much on effective collaboration with technology suppliers and end users of these derivative products.

A key challenge that we have is in identifying the appropriate hand-off stage and mechanism. When do we stop upgrading the material and hand it over to a customer who will take it from there?

So far as better use of forest residuals is concerned, in most cases pulp mills already use residuals as feedstock for pulp and biomass boiler fuel. As lignin extraction and valorization takes hold—and we believe it will be a several-million-ton-per-year market within a five to ten-year timeframe, depending on how things unfold—the need for replacement of this internal fuel with relatively lower-value biomass, or what we used to call hog fuel, will increase. That's the first line of sight for better use of forest residuals.

Perhaps more importantly, for what we refer to as our sugar platform or saccharide platform our approach will be to develop it using low-quality forest residuals that are presently unsuitable for pulping operations. A good starting point for this would be the material that we routinely reject from our pulp mills through the chip-size screening process. Every pulp mill in Canada—and in the world, for that matter—will reject about 5% of all the wood that comes to it and burn it for low-valued fuel.

The last theme I'd like to speak to is continued development of the innovation system. This is something that is very close to my heart.

One thing I'd like to point out is that while slightly more than 25% of Domtar's footprint resides in Canada, 50% to 75% of our innovative technology development and innovation activity occurs in Canada. So we do a disproportionately large amount of R and D, commercial demonstration, and market development in Canada.

We don't do this for sentimental reasons. We do it because what we find is that strategic innovation in Canada provides us better access to and availability of requisite innovation systems and of resources, including people and research facilities, and better access to infrastructures, public policy, and sponsorship programs. Domtar supports, has been supported by, and makes extensive use of both provincial and federal programs for activities across the innovation spectrum, ranging all the way from fundamental research at universities through to proof of concept and commercial development and demonstration.

Examples of the types of programs that we have leveraged on the federal level include NSERC Engage and the NSERC CRD for the initiation and support of university collaborations; partnerships with federal laboratories, such as NRC and CANMET; partnerships with federally sponsored research consortia and institutions, such as FPInnovations; programs in support of forest industry renewal, such as NRCan's PPGTP and IFIT.

Allow me to say that in my career the PPGTP program is probably the single most successful program and implementation of policy I've ever been associated with, in terms of being impactful and quick to have impact.

There are also, of course, programs in support of strategic bio-based technology development, such as SDTC, and programs in support of recruitment of highly qualified technical professionals—formerly the NSERC industrial postdoc program, presently MITACS. It is a burning need that we have, to bring young technical people of high skill into our industry. This is one area in which Canada has an extreme advantage over the environment in the United States.

We believe this trend of Canadian-based leadership in Domtar's innovation will continue for the foreseeable future due to the pending announcement of two exciting, new commercial demonstration initiatives, both of which will be sponsored by the NRCan IFIT program, namely the first project, which is the manufacture of ultra-high-performance specialty pulps at our Dryden, Ontario mill, and the second project, which would see the conversion of isolated lignin for use in thermal plastic films, which will happen at the Windsor, Quebec mill in partnership with NRC.

With that, I'd like to conclude.

• (1545)

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

We go now to John Arsenault, director of market access for the Wood Pellet Association of Canada.

Go ahead, please, with your presentation for up to seven minutes.

Mr. John Arsenault (Director, Market Access, Wood Pellet Association of Canada): Thank you, Mr. Chair.

I represent the Wood Pellet Association of Canada, and we manufacture wood pellets. I have samples here that I'd like to circulate so that you know what we're talking about. I understand that Mr. Regan already knows about this.

Hon. Geoff Regan (Halifax West, Lib.): They look familiar.

The Chair: Are these wood pellets in both official languages?

Some hon. members: Oh, oh!

Mr. John Arsenault: I'm sure they are, but you'll have to call them “*granules*” in French—*granules de bois*.

You probably have copies of my presentation, which was distributed. I'm going to give you a small course on pellets, starting with the samples here, and give you some information on production statistics and export markets; on sustainability, which is a main issue for our producers; and on some market opportunities in Canada that we'd like to talk about—and also NRCan support, which is critical to our organization right now.

Wood pellets are renewable fuel. They're made out of forest residues, mostly sawdust from sawmills. You can press them. The lignin binds the fibre.

Just to give you an idea of the pressures we're working with, we compress the wood hard enough that if you can imagine the fibre as a piece of sponge... When you squeeze a piece of sponge, the water comes out of it. Well, we do that to the fibre. You can try to do it on the corner of your table and you'll see that it takes a lot of pressure to squeeze the juice out of a piece of wood. That is the kind of pressure we're putting into this.

No additives are needed, because the glue comes out of the wood naturally and binds.

We use mostly sawmill residues. We also have access to logging residues—the forest residues that were mentioned previously—but right now most of the markets are looking for the cleanest fibre possible, and we're using sawdust. There is a lot of logging residue available, and the pellet industry has become over the years a complementary industry to the forest industry, using up some of the fibre that has been left behind traditionally and also unfortunately by the paper industry's receding slightly.

We basically compress the fibre into dies, and the product comes out hot and compressed, as you've seen here.

There are two main uses for pellets currently in the world. A large proportion of pellets is used to produce electricity, in replacement of coal. Wood pellets are one of the easiest ways to replace coal in the production of electricity, in large industrial boilers. We've seen several conversions, in Europe originally, and now we're starting to see conversions in Canada. Ontario has converted two power plants over the last few years, in Atikokan in western Ontario and most recently in the Thunder Bay plant, which has been converted to being able to use wood pellets as they phase out the use of coal in the province.

The second aspect is for heating, cooling, and hot water in residential and industrial applications. This is what Mr. Regan does—he heats his house with pellets. He has a pellet stove, and it replaces any other form of energy that can be used for heating in the house.

Now, producing electricity with this type of product is not the most efficient way of using the energy. You only get 35% efficiency when you make electricity. You get 90% efficiency when you heat the house. Ideally you do both. They call these cogeneration systems. We see them in the paper industry, for instance; it has promoted them over the years. They produce electricity and steam for the process, and there you go back up to 90% efficiency and get a form of energy that is more valuable, with electricity.

The global demand for pellets will make the paper industry jealous. It's going up by 2 million tonnes a year, basically. It has been doing so for the last 10 years and it keeps on growing. It's powered by both markets, the heat market and the electrical generation market. We've seen recently, for instance, that the U.K. has considerably increased their intake of pellets, and Korea has also started to become a major player.

We get the opportunity to serve all of these markets through overseas shipments. Europe is still the biggest player, as you see in my graph. More than half of the consumption takes place in Europe, and Europe has both of the markets that are pulling here.

We ship a lot pellets overseas, mostly from B.C. right now. There's a bit of product coming out of Halifax and Belledune, in New Brunswick, and shortly there will be some pellets coming out of Quebec City, from Ontario, being shipped through the Port of Quebec to the U.K. But historically most of the export pellets have been shipped out of B.C. through the Panama Canal to Europe. Now we're seeing more activity into Asia. We're hoping that the Asian market's opening up will free up some markets for the eastern producers to ship to Europe.

● (1550)

The main reason the B.C. players manage to ship more volumes to Europe than the eastern players is the cost of fibre. There's an abundant supply of low-cost fibre in British Columbia. The Prince George valley is home to about 25% of all the sawmilling activity in Canada, and there are fewer buyers of the secondary products, such as sawdust, so pellets have grown there into a huge industry. They are exporting close to two million tonnes a year just out of that segment.

In the east we have a more diversified market for the use of the secondary fibre. They use it to make cardboard, they use it to make panelboard for making furniture, they use it for heating the plants themselves, for drying the kiln-dried wood or operating the paper mills. So the fibre in the east is more expensive, and therefore there are fewer exports to overseas markets. We prefer to serve the local heating market in the east.

Most of the volumes going overseas right now are going to the United Kingdom, which has put in an incentive program for replacing electricity production with renewables. It extends from wind farms to solar, and to biomass in power plants. It's had considerable success. The U.K. had basically zero production or imports of pellets five years ago, and they've become the biggest destination for export pellets from Canada and from the U.S. south, which is also serving them.

In contrast, the Netherlands used to be one of the biggest destinations and has dropped off, because the support schemes for replacing pellets went through some changes. For a period there was no incentive program to encourage the use of pellets, and so we saw the volumes considerably reduced.

One of the big issues with using biomass to replace fossil fuels involves the notion of sustainability. Many people have come up with the idea that burning biomass is worse than burning coal, for instance, which doesn't make any sense to me. There have been several big users of biomass, and producers and associations such as ours have come together to put in criteria to determine the sustainability of biomass for uses such as these. It's called the Sustainable Biomass Partnership. We worked with partners in Europe to get this going.

There's opportunity in Canada to use the fuel right now. Most of the pellets are being used to replace heating fuel. We see that natural gas has most of the pie for heating in homes and that pellets are a very small part of it—you can barely see the slice there. I guess it's part of keeping thin, and that may be the way to go right now.

But even though pellets are cheaper than most other forms of energy except natural gas in most regions, we are still not penetrating as much as we want. We aim to multiply by ten the use of pellets. Right now, that would mean that all of you would be heating with pellets rather than just one of you heating with them.

I guess there are two of us, because I heat with pellets also.

That would create a huge market for the producers, and with small incentive programs such as we have seen in the United States, where they subsidize the conversion by tax reductions to high-efficiency appliances in the homes.... We've seen considerable success for that.

It would also create a whole line of economic activity. It's not just the pellet producers who would gain, but the installers of equipment, the manufacturers of equipment. And there's the maintenance of equipment, the design of equipment—there's a whole chain that would be helped along by encouraging this renewable energy. We have some nice examples of this being done in the Northwest Territories.

I thought there was a member from Yukon here. He may not be today.

• (1555)

The Chair: He's not here today.

Mr. John Arsenault: Okay.

Well, the Northwest Territories started by converting a prison block to heating with pellets five years ago, and they now have the highest concentration of pellet use in Canada, with a population of 40,000 consuming around 20,000 tonnes of pellets a year, replacing oil and creating a local market. The pellets are coming mostly out of Alberta, which has a hard time finding markets right now.

There are also industrial applications, for carbon reduction that can benefit mining, oil extraction....

There's one that probably doesn't catch the eye, but rather than using oil to extract oil, heat it, and refine it, if they were to use biomass it would clean up their act a bit and they might not be targeted so much for being "dirty oil", for instance, out west.

There's coal replacement also. We've had the example in Ontario to show that it can be done successfully, and there are significant volumes of coal that could be replaced there. Any policies that would encourage that would help sustain our industry.

The general outlook is positive for our industry. Europe will continue to dominate, with heat and power.

In terms of certification of forestry, we're getting lots of help from the Canadian representatives abroad passing along the message that Canada is a certifiable and reliable partner for forestry. It's essential to develop those markets. There's a significant potential in the domestic market that can be developed and that will help the whole industry. NRCan helps us promote and document this and participates in diffusing this information. We're thankful for that.

Thank you.

• (1600)

The Chair: Thank you very much, Mr. Arsenault, for your presentation.

We go now to Dr. Patrice Mangin, a professor at the Lignocellulosic Materials Research Centre, University of Quebec at Trois-Rivières.

Go ahead with your presentation, please. You have up to seven minutes.

[*Translation*]

Dr. Patrice Mangin (Professor, Lignocellulosic Materials Research Centre, Université du Québec à Trois-Rivières, As an Individual): Thank you, Mr. Chair. Honourable members of Parliament, ladies and gentlemen, thank you for the invitation.

I would like to start by delivering my main message: the federal government should consider the potential of developing an industry based on forest biomass, including specifically forest residues and unmerchantable wood that has been affected by infestations or forest fires, by putting in place policies to promote the sustainable use of natural resources to produce renewable energy and bioproducts, for example.

That being said, it is possible to see the potential of Canada's forest products industry, which by 2035 could become a source of shared prosperity, perform better economically than today, be innovative, attractive and socially responsible and create stable, well-paid jobs, with a growing emphasis on skilled labour. It could also play a key role in greening Canada's economy and become a model of sustainable development practices, with a positive impact on greenhouse gas emissions, climate change, carbon sequestration, aquifers and water in general.

However, this will not happen overnight. It will have to be put in place gradually. We can envision the development of this industry in four phases.

We are already hearing about one phase, which involves cogeneration units and projects like those being carried out by Domtar, Cascades and other companies, based on existing pulp and paper or forestry facilities. That is the focus of much of FPInnovations' research. There are also pellet units. However, I feel that right now they are essentially geared to the export market.

In the longer term, if we look 10, 15 or 20 years down the road, we start to talk about biorefining, which would produce biofuels and even biooils such as diesel or pyrolysis oil, as in Finland; that remains open right now. That has not yet been put in place. Later, in 15 to 20 years' time, biorefineries would produce not only biofuels, which are commodities, but also chemical molecules. We can envision about 4% replacement of petrochemicals such as phenols.

We can do this kind of thing by diversifying, but on the basis of the traditional niches that already exist, and by developing new industries based on bioenergies and, eventually, bioproducts and nanotechnologies. Remember that nanotechnology is a strength. We also need to position ourselves as a world leader in R&D and innovation, based on networks of researchers who are recognized—chairs should be more highly valued—and cross-sectoral and multidisciplinary skills. We should do more to develop interprovincial cooperation and international cooperation with the United States, our neighbours to the south, and especially Europe.

As for my proposals, I would like to present 10 points that explain how this could be done.

First, Canada should set up a national research program that reflects provincial and regional specificities and involves the universities, provincial research centres, technology transfer centres—where there is a need—industry players and the economic and financial community. We do not have anything like this now.

Second, FPInnovations, our national laboratory, must be sustainable in the long term. Right now, funding is established every two years, which is similar to what happens with federal government budgets. This funding must be secured and the organization's connection with the universities optimized.

Third, there needs to be an ad hoc positioning of the universities, which, while maintaining their ability to innovate independently, should be coordinated with FPInnovations through an official connection between the FIBRE network, the paper associations, FPInnovations and the new Innovation Framework, where academics are notably absent.

Fourth, appropriate funding should be guaranteed for demonstration projects, which are critical to techno-economic validations in biotechnology and nanotechnology but are often prohibitively expensive. The idea is to reassess the notions of managing and sharing risk between governments and industry. This would be something progressive. We could think about making innovative use of existing facilities, given the decline in publication papers. How can we use the equipment of plants that are closing?

Fifth, we need to build bridges between the various agricultural, forestry and other sectors, even the fisheries sector, with regard to converting biomass into energy and bioproducts as an integral part of the bioeconomy. I imagine that this has already been defined for the committee.

Sixth, we need to promote provincial and regional cooperation through incentive programs. It should be specified that regions must join together to receive funding.

Seventh, we need to increase international cooperation by taking part in international networks, promoting exchanges of researchers in leading-edge technology and keeping international researchers who come to Canada to do a doctorate or post-doctorate.

● (1605)

I believe that this is a way to optimize Canada's financial resources, which are limited compared to those of the United States, China and Europe. It is a way to get a good return on our investment.

Eighth, we have to market new technologies and new products faster by promoting connections between businesses and universities and expanding the model of technology transfer centres. All our current networks have difficulty with this. We have great projects, but we do not do a good job of transferring the results. Transtech Innovations in Quebec is an extremely interesting example. It is collegial, but that can be beneficial.

Ninth, we need to attract the most promising young people—as my friend Bruno said—by promoting the forest industry as an industry of the future, not the past, an industry that uses renewable natural resources and leading-edge technologies with a view to sustainable development with a significant positive impact on climate change, both to the general public, which is not well informed, and to the international community for the sake of Canada's image.

Lastly, we need to develop sustainable forest use in a world that is hungry for renewable energy and bioproducts, and therefore biomass—which is increasingly rare—by ensuring that forest resources are processed as much as possible in Canada and used in Canada. Energy and bioenergy give the highest return on investment at the local level.

In conclusion, my proposal gives you an idea of some of what is needed for Canada to develop a strategy and a policy that would promote the development of this industry. It would do a great deal to help transform the forest products industry, and it would have a very positive impact on greenhouse gas emissions. It is also in line with the current vision of the provincial and federal governments.

There is still a great deal I could say. I did not want to talk numbers, but in the discussions that follow, we can give you all the numbers you want, such as the costs associated with biomass and energy. What we lack right now are the financial resources to be able to build long-term projects.

Thank you for your attention.

[English]

The Chair: Thank you very much to Dr. Mangin from Université du Québec à Trois-Rivières.

We now go by video-conference to Université Laval in Montreal for Dr. Beauregard, dean of the Faculty of Forestry, Geography and Geomatics.

Go ahead please with your presentation. You have up to seven minutes.

[Translation]

Mr. Robert Beauregard (Dean, Faculty of Forestry, Geography and Geomatics, Université Laval): Good afternoon and thank you, Mr. Chair and committee members.

Université Laval, the first francophone university in North America, currently has 48,000 students, including 6,600 international students. The Faculty of Forestry, Geography and Geomatics trains specialists, such as forest engineers, in forest management and environment and in forest operations, as well as engineers specializing in wood engineering and the use of wood in construction.

We also have graduate programs to train researchers and highly skilled personnel in these areas, namely forestry and wood science. We are proud to manage the largest university teaching and research forest in the world, the Montmorency forest, with an area of 412,000 hectares.

Our research focuses on areas ranging from tree genetics to eco-friendly building in wood, including remote sensing, hydrology, ecology, silviculture, forest operations, wood processing and the lumber industry. Collaborative research is our preferred approach and method of inquiry. I intend to give you an overview during my presentation.

In Canada, the forest sector is facing a double challenge, including that of balancing the value creation network in the forest industry. This is a short-term challenge that is strategically important. This network is in the process of permanently losing its printing paper component, including newsprint, of which we are the top producers in the world. This product is end of life and it currently consumes a large proportion of the wood fibre harvested in Canada, in this case more than 30%. If we stop producing this high-value-added product, we will have to replace it with products of at least equivalent added value, to ensure the survival of other segments of our forestry sector, that is, forest management industries. We are talking about planning, silviculture, harvesting and transportation of wood and the wood products processing industries, including lumber and panel production industries.

The forest, wood and pulp and paper components are highly interdependent. The paper component, including printing paper, is undergoing a structural crisis that threatens the entire industry. Ultimately, if we fail to meet this strategic challenge, 230,000 direct jobs will be threatened in more than 200 communities in Canada, mainly in rural areas where there are few employment options.

This industry's sales total \$58 billion, representing a contribution of \$19 billion to Canada's trade balance. Therefore, what is at stake here is the survival of entire regions, our ability to live on the land, a way of life and the economic health of the country. As my colleagues mentioned earlier, the solutions to this problem rely on bio-refinery, green chemistry and certain emerging sectors that will form the

backbone of the green economy of the future. This will, of course, include an energy component.

Positive examples of this type of development include the nanocrystalline cellulose plant CelluForce, a partnership between Domtar and FPIInnovations, in Windsor; the Kruger cellulose filament plant, in Trois-Rivières; and Cascades' hemicellulose extraction process to produce sugar, in Cabano. The challenge is to ensure that bio-refining, which currently yields tens or thousands of tons of products, will generate hundreds or hundreds of thousands or millions of tonnes of those same products, or a level of production on the scale of our printing paper and newsprint industries.

As the newsprint segment decreases, we must increase the bio-refinery, chemistry and energy components at a such rate and in such a manner as to maintain the value added and ensure the survival of the whole industry.

We will have to meet this challenge in the short term, or in the next 5 to 10 years, but at the same time we will also have to meet a strategically important challenge in the longer term, namely improving the competitiveness of forestry companies in the lumber and primary manufacturing sectors and developing value-added industries, including providing for larger amounts of finished products, especially from secondary wood processing.

● (1610)

Even if we solve our short-term problems, sectors that in principle are not in mortal danger still have a competitiveness problem. Therefore, we have to improve our performance by reducing our supply and processing costs, generating greater added value and diversifying our markets.

Let me tell you a success story that, for me, is emblematic. It involves Chantiers Chibougamau, whose subsidiary is Nordic Bois d'ingénierie, now Nordic Structures. Over the past 15 years, this company has grown from 300 to 600 employees in the town of Chibougamau, in a remote region of Quebec, while, during the same period, the forest industry in the province lost 30,000 jobs.

These people definitely do things right. Instead of selling softwood lumber, they have developed and now sell turnkey wood structure solutions. These are complete solutions. They improved material performance in their primary processing plant to decrease levels of by-products, including wood chips, and to produce more wood of very small size that they glue afterwards to make very large beams, large enough to make indoor soccer stadiums. In doing so, they simultaneously improved the competitiveness of their processing plant, dramatically increased the value added by the business and doubled the level of employment in a small-sized city like Chibougamau.

Our challenge is figuring out how to develop such strategies across the entire forest industry.

Canadian universities are helping us meet these challenges. For example, Laval University developed the FORAC research consortium, whose work in industrial engineering focuses on the design of value creation networks for the forest industry. It develops decision support tools to optimize the industry and make it more competitive by helping reduce costs, improve revenues and generate better margins.

FORAC partners include Domtar, Kruger, Resolute, Maibec, the Quebec federation of forestry cooperatives, the Quebec Ministère des Forêts, de la Faune et des Parcs and FPInnovations. The consortium receives major funding from the Natural Sciences and Engineering Research Council of Canada, NSERC. Currently, the consortium has 26 students at the master's and doctoral levels. These future highly skilled specialists will conduct research on these strategic issues with our partners from the industry, from the institutional or private research communities.

The establishment of FORAC made it possible to create the national Value Chain Optimization, or VCO, network. This is a Canada-wide network of researchers working on the optimization of processes and value creation networks that includes 15 universities and is now training over 30 research students at the master's, doctoral and post-doctoral levels. We are talking about highly skilled personnel, again, in this area of strategic importance.

Another example is the NSERC Industrial Research Chair on Eco-responsible Wood Construction, which mobilizes researchers in architecture, in wood, civil and industrial engineering and in business administration to develop prefabricated wood construction systems that are highly performing, environmentally and economically. This makes it possible to set up the value creation network for wood construction involving the following industrial partners: Kruger, Maibec, Chantiers Chibougamau, FPInnovations and WoodPlus Coatings, as well as consulting engineering firms such as Roche, architectural firms like Coarchitecture and Provencher Roy, general contractor Pomerleau, and institutional actors such as the Quebec Ministère des Forêts, de la Faune et des Parcs, the Société d'habitation du Québec and FPInnovations. Under this initiative, 15 students are currently being trained to research these issues, which are also of strategic importance for the development of the Canadian value-added forest industry.

• (1615)

Behind this research chair there is also a Canada-wide network, NEWBuildS, a network of researchers from 12 universities. At this time, it is also training 30 research graduate students in the area of eco-responsible wood construction. Both VCO and NEWBuildS are part of a network of seven networks that is known as FIBRE.

FIBRE is the network of networks that train graduate students and highly skilled personnel in seven areas that are strategic to the future of the forest sector. FIBRE's seven member networks are VCO; NEWBuildS; ForValueNet, which studies the relationship between silviculture, wood quality and the value of forest-based products; the NSERC strategic Bioconversion Network, which studies the conversion of lignocellulosic material—wood—into ethanol and green chemistry products; Lignoworks, a network that studies the conversion of lignin, one of the three main components of wood, into chemistry products and materials of the future; the NSERC strategic Green Wood Fibre Network, which studies the modification of wood fibre into eco-responsible materials and products; and the Sentinel Bioactive Paper Network, which studies the development of new bioactive paper.

Those seven networks were created under the forest sector initiative in response to the 2008 federal budget. They were funded by NSERC and they all required the active participation and

leadership of FPInnovations. We thank NSERC, FPInnovations and industrial partners for all the support they provided to this initiative.

Over the past five years, these networks have helped train over 450 students to research the most strategic issues facing the Canadian forest industry. We need highly qualified personnel to facilitate the strategic evolution of the industry and meet the challenges of today.

The Forest Products Association of Canada—FPAC—and FPInnovations have come forward in recent months to support the idea that this effort to build a Canada-wide network in more than 30 universities should continue in the future. Currently, we are up against the end of funding for these seven networks. Canadian universities are eager to continue mobilizing to meet the strategic challenges facing the forestry sector. We would like to work with you to determine the next steps we should take to ensure that the forest sector and our forestry regions have a future, and thus contribute to Canada's economic future.

We believe that universities are part of the solution for a sustainable future for the forest sector, rural areas and employment in all regions of Canada.

Thank you.

• (1620)

[English]

The Chair: Thank you, Dean Beaugard of the Faculty of Forestry, Geography, and Geomatics.

Committee, we have almost three-quarters of an hour for questioning. We have to suspend at 5 o'clock, and then we have a half hour to talk about our report on this study.

Let's go to the seven-minute round first, starting with Ms. Crockatt, followed by Monsieur Aubin and Mr. Regan.

Go ahead, Ms. Crockatt, for up to seven minutes.

Ms. Joan Crockatt (Calgary Centre, CPC): Thank you to all the witnesses. We're nearing the end of this now, and I get more excited the more I hear from all of the people who are involved in this sector. It really does sound as though there has been a tremendous resurgence because of technology and innovative minds, such as we have here today, who are transforming our forest industry into producing new, exciting products.

I'd like to know where we are in the arc from originally developing the technology.

I'm going to direct this first question to Mr. Marcoccia.

Are we economic yet in any of these products? I'm wondering where our competitive advantage is and what products we are most competitive in now.

I appreciate that several of you have mentioned FPInnovations and said that you're appreciative of the coordination and funding through our government. We'd like to know where we go now.

Dr. Bruno Marcoccia: What I would say is that relative to the commercialization arc, or the path of commercialization, on these new and value-added products from the forest sector, it really depends on the platform or the nature of the product.

Today we would say that fibre and fibre-based materials are the most commercially developed, most value-added product. Behind that, we would rank lignin. As I mentioned earlier, I would say that lignin in significant volumes and value-add, and the applications for lignin, are potentially in the two-to-eight-year timeframe.

For what we refer to as a “convertible saccharide”, or the sugars platform, where you deconstruct the cellulose in the woods to organic acids or to material that can be fermented, that's a little further out. It's also economically more challenging, because in that case you're competing against dextrose. Particularly in the United States, where dextrose from corn is subsidized, it's an extremely challenging environment, particularly in the capital-intensive approach, to try to go into.

The extractives, saponifiables, and volatiles are a relatively small component. It's highly developed, but not big enough to move the needle, as it were.

One of our philosophies is that what we need to do is take advantage of the uniqueness and the competitive advantages that our platforms offer us. If you look at the forest, the thing that is truly unique is the ultrastructure and the functionality of the fibre, so it makes sense that it's the most developed. The next area where we have competitive advantages is in the poly-aromaticity and the green properties of the lignin. The sugar is going to be a little more challenging. But the issue we have is that the wood all comes in together. All of these components come in together. In order to be successful, you have to valorize all of them in the true concept of the refinery.

The last thing I would say is that, as I mentioned earlier, there are structural cost disadvantages in North America in general and in Canada specifically. When you have a cost disadvantage, the only way you can succeed and be sustainable is to have a performance competitive advantage, a better product. In fact, if you look at the mills that have been left standing, that's exactly what they have. They have a superior fibre that allows them to overcome other cost disadvantages.

In order to keep emphasizing better performance, we need to innovate. In order to innovate, we need to sponsor, first, fundamental research, and then this path to commercialization.

• (1625)

Ms. Joan Crockatt: If I can turn to Mr. Arsenault, I'm from Alberta, so I was interested in your comments about Alberta.

You're thinking that wood pellets are going to end up being a source of electricity for heat and cooling in the oil sands. Is that what you were suggesting?

Mr. John Arsenault: Yes, there could be a possibility there. They are huge consumers of fossil energy just for extracting. I understand that they need to make steam to extract in the tar sands. Well, they can make steam with biomass. There's a lot of biomass available in Alberta and in that neck of the woods where they're extracting, I believe. In fact, the Albertan producers, the few of them that produce pellets, have a hard time finding markets.

Ms. Joan Crockatt: I'm asking more or less the same question: how does this compare to other forms of biomass that are being

experimented with now? Are we close to making this an economically competitive fuel source?

Mr. John Arsenault: Right now, woody biomass as energy is 7% of the Canadian energy mix. It's already there.

Now, several markets are different. The paper industry has done a great job of using their waste wood as an energy source.

Ms. Joan Crockatt: It's right there, though, and I'm wondering about some of the challenges. Is it economical now to use wood pellets? Or does it depend on the distances that you have to travel to transport? I can see it being a lot easier than a lot of other fuels to transport.

Mr. John Arsenault: Yes. That's the advantage of pelletizing. It helps with distribution and storage. We're transporting overseas. It depends on the markets you're dealing with.

Of course, Canada is blessed with other forms of relatively cheap energy, and we're having a hard time competing there, but most of those other energies are not sustainable and are carbon-emitting energies. If we're looking to reduce greenhouse gases and looking to use renewables locally, wood pellets are competitive already.

Ms. Joan Crockatt: What is the best way that NRCan has been helping you and how should it do so in the future?

Mr. John Arsenault: NRCan has been helping us with our export markets, mostly, in developing the overseas markets and helping us to show overseas markets the sustainability of our products, but there is a huge potential in Canada that has to be developed, and we'd like to see some incentives being put up there to use more biomass locally to replace fossil fuels.

Right now, it's economical to displace heating oil, for instance, except that there's a cost conversion. You have to change your stove or your furnace. An incentive to help do that conversion would be a great help to the industry. There's also the possibility of the government setting an example by converting its offices to biomass and replacing oil in remote communities. There are all the northern communities that are being served with oil currently and could be served with biomass by organizing conversions and haulage routes or whatever.

• (1630)

The Chair: Thank you.

Thank you, Ms. Crockatt.

We'll go now to Monsieur Aubin and others. We have a bit of time left.

Go ahead.

[Translation]

Mr. Robert Aubin (Trois-Rivières, NDP): Thank you, Mr. Chair.

I will be sharing my time with my colleague.

I thank the guests for being here, especially the representatives of the two universities, which, coincidentally, are those where I got my degrees.

My first question is for Dr. Mangin.

My venerable age allows me to remember my first walks in the forest. At that time, logging was done quite differently. We were told that the tons of forest residues that were left behind helped the soil regenerate. When I listen to the guests before us, I feel that forest residue, today, is a gold mine.

Does the biomass make it possible to carry out, commercially and profitably, all the projects that have been proposed? I know you have others in the pipeline that you have not talked about yet.

Dr. Patrice Mangin: I am currently working on a big project seeking to set up a biorefinery that will process 650,000 tonnes of forest residue per year. It is in the Haut-Saint-Maurice, or region number 4. I think that, first, we have to clarify exactly what is meant by “forest residue”. For example, when paper mills talk about residue, it is often slash residue, or wood chips that sell at a very high price and we cannot use to transform biomass into energy. For my part, I am talking about what you saw as you walked about, that is to say, logging residue that can be used. In Mauricie, for example, we are talking about 650,000 tonnes per year. This is obviously wet biomass.

Mr. Robert Aubin: You were also talking about trees that were not necessarily profitable and burnt forests.

Dr. Patrice Mangin: When we had the pine beetle infestation, FPInnovations worked on adding value to the wood that was salvageable. The rest could be used for something else, as fuel.

I would like to go back to the original question, namely costs and prices. We are starting to see these forest residues from logging on the markets. According to the FOEX index I consulted again yesterday, the cost of forest residues—and this data is from Finland—is \$7.6 per gigajoule. This measurement is used because of moisture. There is no longer any water in these residues. If we adopted the appropriate regulations, we would be able to set the price of these forest residues in Canada, including Quebec, at \$4.7 or \$5 per gigajoule. In fact, it is often noted that this is the province where fibre is most expensive.

We would be extremely competitive and we could then plan on setting up these famous biorefineries.

Mr. Robert Aubin: In those circumstances, would we have to make choices by region? If your project was carried out in the Mauricie, we could forget the possibility of manufacturing wood pellets in the area, which does not mean it could not be done elsewhere.

Dr. Patrice Mangin: That is a very insightful question. The fibres used for wood pellets are not necessarily the same as those used for bioenergy. For now, I do not think that the members of Mr. Arseneault's association collect these forest residues in the forest. These residues are in the process of decomposing and producing methane and carbon dioxide, period. They are not used.

Mr. Robert Aubin: Is there an authority that can coordinate these diverse needs, or these various possibilities?

Dr. Patrice Mangin: Yes. This is very region-specific. That is why I have talked so much about regions. The studies must be conducted region by region. We should not rob Peter to pay Paul. If biomass is actually used for pellets in a region, those are steps 1 and 2 of the development of the biorefinery. We should let it develop. Nevertheless, for me, it is a transitional stage.

I feel sorry for Mr. Arseneault, but exporting pellets to the U.K. could well draw the ire of Greenpeace. The social acceptability is not there. As I said earlier, to create a certain image and engage youth in sustainable development, the pellets should be used locally. In short, yes to incentive programs for local use, but no to exporting large volumes to the U.K. That is what Greenpeace would tell you.

Mr. Robert Aubin: Thank you.

Unfortunately I must stop you there. We will resume later.

Mr. Dany Morin (Chicoutimi—Le Fjord, NDP): Thank you, Mr. Chair.

Mr. Beaugard, you said that the sustainable future of forestry in rural communities matters to you. I'm from Saguenay-Lac-Saint-Jean. As I listened to your presentation, what came to mind immediately with respect to ensuring the sustainability of forestry in my part of the country were aboriginal claims, protection of the woodland caribou and the failure of some businesses to maintain FSC certification.

Given your background, you are very familiar with the forestry industry. How would you solve the three problems affecting my region?

•(1635)

Mr. Robert Beaugard: It's a complex problem, but I think that it is possible to reconcile promotion of traditional first nations use and protection of the woodland caribou, even though protecting the species is extremely complex. With good collaboration, we can reconcile forestry production—for much less than it currently costs to supply mills—with the pursuit of nature conservation goals and the promotion of first nations participation in their socioeconomic development through their contribution to forestry activities.

It's very complex and requires a lot of collaboration. On the ground, it's hard, but I believe it's possible. We need lots of good will to keep the dialogue going between all of the parties, including first nations, environmental groups and the industry. I think it's possible to reconcile the pursuit of these different goals with integrated and economical approaches to managing our resource for the development of society as a whole.

Mr. Dany Morin: Mr. Beaugard, what advice would you give to the federal government? What is the federal government's role in this area?

Mr. Robert Beauregard: The federal government can really help with this. For one thing, the federal government is the entity that plays the most important role vis-à-vis first nations. The federal government can implement programs to help first nations develop their ability to train people, particularly in forestry and entrepreneurship, so that communities can be involved in economic development and in their relationship to society as a whole. The federal government can certainly play a role there.

The federal government also plays a role in forestry product certification. As you know, there are three major certification systems in Canada. One of them is under the federal government's jurisdiction. Generally speaking, the three certification systems play an important role in reassuring markets and the public that we are managing the forestry resource responsibly and sustainably.

I believe that the best feature of this particular natural resource is that it is completely renewable. If we do it right, we can create lots of added value and lots of socioeconomic development while balancing the relationship between society and nature, which is another long-term goal we need to achieve for ourselves and our children.

[English]

The Chair: Merci, Mr. Morin.

Mr. Regan, you have up to seven minutes. Go ahead, please.

[Translation]

Hon. Geoff Regan: Thank you, Mr. Chair. I would also like to thank the witnesses for being here today.

Mr. Arsenault, I know that combustible dust has caused explosions in wood pellet plants in recent years. You are researching ways to reduce fine dust in the combustion of wood pellets.

What measures do you think should be in place to make wood pellets safer compared to natural gas and coal? How can the government help facilitate those changes?

Mr. John Arsenault: I don't really think you can say that pellets are less safe than natural gas or coal. The same standards apply. It's a fuel and has to be used with care. Explosions happen in natural gas systems too. Wood pellets certainly have to be handled with care.

There haven't been any explosions in residential applications. There can be problems with fire in chimneys. Proper installation practices have to be followed, and installation codes have to be regulated accordingly. Wood pellets for residential use have a very good safety record. For heavy industrial use, just like for coal, safety precautions must be followed for protection from potential explosions and problems caused by the use of pellets because of gas emissions in enclosed spaces. It's actually the same technology.

• (1640)

[English]

Hon. Geoff Regan: Merci beaucoup.

Mr. Marcoccia, first of all, I appreciate your mentioning that over 50% of your research and development is being done in Canada. That's terrific. That's very encouraging to hear, because those are important jobs, obviously, and there is important work being done.

Your website indicates that something like 79% of your paper production is done in the U.S., even though you're headquartered in

Canada, which is an interesting development, and your U.S. mills far outnumber the ones you have here. What is it that pushed Domtar to increase its production by expanding into the U.S.? What recommendations do you have to help the Government of Canada convince strong companies like yours, or make it easier for companies like yours, to keep production at home?

Dr. Bruno Marcoccia: The paper statistic might be a little misleading. We manufacture two main products: pulp fibres, which go into market pulp, and paper, which is a primary conversion of the pulp into a higher-value-added product.

The paper industry is an interesting one. Much like tissue grades, it has a bit of a moat against transportation costs, because paper historically didn't transport very well. So one of the reasons why we have a lot of paper mills and paper machines in the United States is that they're closer to market. The converse or the opposite would be that one of the reasons why a lot of the paper mills in Canada shut down was that they were too far from market. That is one of those key structural cost disadvantages that I was referring to.

You can think of certain examples. Domtar had to shut down in Prince Albert, for example, and it had to shut down the paper machines in Dryden and repurpose the Dryden mill to a pulp mill.

Every one of these is very much a site-by-site specific evaluation. When you're in secular decline, the first to go are the high-cost producers, and then you start cutting into the muscle. Now we're at the point where we're cutting into the bone. We're shutting down profitable machines and operations in the United States, actually, simply to match our productivity with our customer demand.

As for what can be done to stop the flow of capacity into the United States—and elsewhere, actually, because I think there are more ferocious competitors beyond the United States, such as South America and Asia—I would come back to the notion that if you have structural cost disadvantages, which Canada does.... A simple fact of the matter is that in northern climates trees grow slower, the landmass is vast, and transportation and access are very costly. That's a key factor here.

Another thing that I would ask the committee to consider is that there hasn't been any significant capital modernization in the Canadian industry in over 20 years. The last green fuel mill in Canada was 20 years ago. One of the things that happens as a consequence is that not only do we have higher transportation costs in and out and higher costs to market within Canada, you also don't enjoy the economy of scale. That's because we haven't been building in Canada and because you simply can't feed a mill enough wood to enjoy the kinds of economies of scale that you'd get in a facility where the trees grow faster.

Again, I would repeat that the way out of that quagmire is to create value-added propositions and focus on that. I think Professor Mangin's comment about "local"—having a locally based economy—is a good way to go. An example of that is this discussion about the use of biomass for solid fuel. Domtar burns two million tons a year of biomass solid fuel in our combined heat and power systems. We do it because it's a fuel of convenience for us. As the honourable member mentioned, it's there, so we do it.

But I can't think of anything that has stopped more projects than the low cost of natural gas. The low cost of natural gas will stop all of these projects. For example, for any one of our mills, the technology exists, and it has been demonstrated that you could go entirely fossil-fuel-free in a pulp and paper mill. You could go completely with bio-based fuels and generate electricity, but we're not doing that because of the price of fuel. The economics don't pencil out when you have natural gas at a price of \$5 per million BTUs.

• (1645)

Hon. Geoff Regan: Let me ask about—

The Chair: Thank you, Mr. Regan.

Hon. Geoff Regan: Oh. Okay. Thank you.

The Chair: We'll go to the five-minute round now, starting with Mr. Trost, and then we'll have Ms. Perkins and Monsieur Caron.

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

One of the first issues I dealt with when I joined the natural resources industry committee about 10 years ago was how do we target our science dollars? I suspect that I may get a few volunteers to answer this one.

When it comes to how we've dealt with forestry programs, are we doing it right in terms of the balance in basic versus applied research, the whole spectrum? I know we have engineers and pure scientists here, so we might have a little bit of a cultural difference in approach. But relative to how the government's been spending its science dollars aimed at forestry in the last few years, applied and basic, etc, in each of your opinions, of those who care to comment, do we have the right mix? If so, should we be putting more emphasis somewhere? Or what should we do?

I see one hand up to volunteer. After that, I suspect that I might get a couple of different opinions here.

Professor Mangin.

Dr. Patrice Mangin: I'll try to be brief, because we could go on for some time on this one.

I've been back in Canada for 10 years now—I was in Europe before—and my feeling is that we're lacking in good fundamental research right now. When I talk about fundamental research, I don't mean academic research, blue sky research; I mean the kind of research that is targeted towards innovation.

I'm sick and tired of hearing about "innovation", because if we forget the research part, the fundamental research part done in the universities, we're missing a link. We're missing the boat. That's why, in one of my points, I said we need a very good link, while

preserving the independent thinking of the universities in fundamental research, with FPInnovations. They're the innovative people who will basically target and tell us that they need these kinds of these fundamental things to be known, and to go ahead, because right now we do not know. The fundamental research right now is either purely academic or the professor thinks about it in his office, with no link to reality. It's very nice, very good. Is it useful? That's hard to say.

We don't have the real dollar value in fundamental research right now. We could. I was mentioning the innovation framework. The director of FIBRE, the network of networks, is invited from time to time when it pleases the members. That's not good. To know what's needed from the industry at the fundamental level, he should be there.

By the way, Dr. Theo van de Ven, the director, is a very good fundamentalist.

Mr. Brad Trost: Now that I have that from an academic, I'll go to industry. I suspect that the engineer from industry might have a slightly different perspective—or maybe not.

Dr. Bruno Marcoccia: You're right, I might surprise you, because I was actually trained by one of the greatest fundamental scientists in the space of wood chemistry.

I happen personally to be of the opinion that the role of universities is to produce people; that the work, the creation of knowledge, is there to produce the people; and that the technology itself is almost secondary. As I mentioned earlier, what we really need, and where Canada has an advantage, in my personal opinion, over, say, its U.S. neighbours, is highly skilled technical people.

Having said that, in terms of fundamental research, I actually don't have a good feeling for what the balance or the mix is in Canada. I know the programs I'm involved with. I like the fact that I can engage directly with universities on a fundamental level and have federal government and provincial agencies support it.

I might be cutting off my nose to spite my face here, but one of the things we've seen in the last five to ten years with this added interest in biorefineries is that many times we're trying to put the cart in front of the horse. These technologies simply are not ready for implementation. There are too many unknowns. These create risks and the margins are too tight.

I would never advocate backing off on fundamental research. I happen to believe that when you produce the people, that's the most important product you have. Fundamental knowledge will always find a way to create value.

•(1650)

Mr. Brad Trost: So what I'm hearing you say is that it's a very, very difficult thing to balance, and if we get the people right, we will ultimately get the product right?

Dr. Bruno Marcoccia: That's my personal opinion, yes.

Mr. Brad Trost: Mr. Chair, if I have only 10 seconds left, I'll yield.

The Chair: Thank you, Mr. Trost.

We go now to Ms. Perkins for five minutes.

Mrs. Pat Perkins (Whitby—Oshawa, CPC): Thank you very much.

I think I'll continue on with Mr. Marcoccia for the balance of the questions here.

With regard to the three fundamental areas, you talked about the specialty pulps, the proprietary specialty fibre, the new things that are coming on stream. You spoke about the R and D innovation. I think you said that less than 5% of the production is here but more than 50% of the innovation is here.

Dr. Bruno Marcoccia: Actually, 25% of our manufacturing—

Mrs. Pat Perkins: So it's 25%.

Dr. Bruno Marcoccia: —and between 50% and 75% of all our innovation activity occurs in Canada.

Mrs. Pat Perkins: Okay, thank you. I was trying to keep up with you, and I obviously didn't do quite so well.

Dr. Bruno Marcoccia: Sorry.

Mrs. Pat Perkins: At any rate, we have that kind of a disparity, which is quite significant and in a way is good for us.

Then you talked about PPGTP. I really want to know what that is because you seem to be very excited about it, thinking that it is one of the best things we've ever had the opportunity to present.

Can you touch on those three things?

Dr. Bruno Marcoccia: I can, definitely, if I can remember them.

The first item was why a disproportionate amount of our research and effort is going into Canada. I would say that, looking from the top down at the government agencies on a federal and provincial level and also at the universities, it is easier to deal with all of the agencies and institutions and individual researchers. I personally believe that socially—and this is represented in the government—more value is attached to the forest-based industry in Canada than to the one in the United States.

As an example, I remember a debate in which we were saying that the U.S. spends \$1 billion a year on nanoparticle research. The forest products industry in the U.S. still represents 7% of GDP, so it should be able to get \$50 million to \$100 million a year in research support for nanocrystalline cellulose and nanoparticles from the forest, where we have an enormous advantage, and yet it can't, because they'd rather put the money in other places.

I believe that Canada is a better environment to work in because of the values that are placed on forest-based industry by government, society, and university professors.

PPGTP stands for pulp and paper green transformation program. It was a short-term program, I believe two-year. In response to certain policy aberrations in the United States, Canada had to step up to the plate to level the playing field. Essentially this is an example of very targeted support of improvements that were not necessarily transformational in terms of generating a whole new class of products or bringing us into a new century. It was blocking and tackling basic kinds of things, and it was focused on energy improvements and improvements in environmental performance. The dollars were extremely focused.

It caused a significant amount of capital investment, and there was excellent follow-up on the program as well, in which they looked at the benefits accrued by this supported investment. It caused companies to do good projects that they otherwise wouldn't have done but that should have been done.

The moral of the story there is that while we're all very interested in developing entirely new applications and products and moving up the value chain, it's absolutely essential to have an element of this work that looks at the most fundamental things we deal with, which are thermodynamics, energy efficiency, and things like reliability—very fundamental things.

We come back to this discussion about fundamental things versus project funding.

•(1655)

Mrs. Pat Perkins: Okay, and the—

The Chair: Thank you, Ms. Perkins.

We'll go now to monsieur Caron.

[*Translation*]

Mr. Guy Caron (Rimouski-Neigette—Témiscouata—Les Basques, NDP): Thank you, Mr. Chair.

I'd like to thank the witnesses because this has been one of the most informative and interesting sessions in our study on the forestry industry.

I'd like to start with the exchange between Mr. Mangin and Mr. Arsenault following the question asked by my colleague, Mr. Aubin. It was about exporting wood pellet versus finding domestic markets for them.

Mr. Arsenault, I was surprised that you did not mention the \$45 per tonne U.S. subsidy. The Americans are starting to compete with us on our own soil. That subsidy was introduced in 2009 and renewed in 2010. To date, there's been \$235 million in subsidies.

Is that preventing us from reaching the American market and being competitive in our own markets given that the Americans are starting to export to eastern Canada in particular?

Mr. John Arsenault: The program you're talking about is the Biomass Crop Assistance Program. That program was created to support the lignocellulose sector for making ethanol. There was very little impact on pellets. Some projects benefited. I would say that, of the \$235 million, about \$5 million was invested in the American pellet industry. That has virtually no impact on trade for either of us.

However, if we're talking about the discussion with Mr. Mangin, I'd like to follow up on his comment about exports. We have a study—life cycle analyses—that showed that the transportation of pellets, even overseas, does not have a major impact in terms of loss of life cycle. I myself have done exporting. To give you a sense of scale, a ship carrying 35,000 tonnes of pellets will use 350 tonnes of fuel to cross the Atlantic, which is 1%. Crossing the Atlantic involves carbon loss, but it's not like half the cargo is being used up in the crossing. It's just 1%.

Mr. Guy Caron: Mr. Mangin's question is relevant, nevertheless. Why don't we use more here in Canada?

Mr. John Arsenault: That's because of the current cost of other energy sources, such as natural gas. Electricity is cheap in Quebec, but we are replacing heating oil and propane to a significant degree. There are more problems economically with other forms of energy. There are also conversion costs. Pellets cost half as much as energy, but require investments worth thousands of dollars in heating systems.

Mr. Guy Caron: I'm thinking of major projects. In my riding, which is in Témiscouata, there are maple syrup producers. People are starting to use biomass to run their evaporators. I'm thinking of all kinds of infrastructure, such as churches and schools. In my riding, in my region, communities are doing those conversions, but it doesn't seem to be going far enough fast enough.

I see another problem with domestic use versus export. Many European players are now coming here for raw materials. They process it and then they ship it out. A Belgian company is going to set up shop in Saint-Jean-de-Dieu and Causapsal in the lower St. Lawrence region, which is good news. That will create jobs. The company is going to take the resource, make the torrefied pellets and then ship them to Belgium. The pellets are for use over there only. Why wouldn't Quebec companies do the same thing and benefit from those European markets just like a company that comes here?

Mr. John Arsenault: Many projects have been announced. There is plenty of potential for export to Europe, but none of those projects have materialized yet. However, the next time there is an announcement about the closure of a paper mill, some company—an independent one, probably—will probably choose to use its wood chips to manufacture pellets for export.

I think it's impossible for someone from another country to come here for the fibre and succeed economically without being integrated in any way whatsoever.

Mr. Guy Caron: Can you comment further on that?

Mr. John Arsenault: As Mr. Mangin said, collecting biomass from the forest and transporting it to a mill for processing costs more

than what the market is paying right now. However, there is some progress.

Mr. Regan mentioned that he paid \$2 for his bag of pellets 10 years ago and that he's now paying \$6 or \$7. The per-tonne price for fibre has increased considerably. It has probably tripled in 10 years. We are close to the point where we can compete with other forms of energy relatively easily. Mr. Beauregard is right. We need to optimize the supply chain and reduce supply costs.

• (1700)

The Chair: Thank you, Mr. Caron.

[English]

Finally, Ms. Block, we have a couple of minutes, if you'd like to just ask a question or two.

Mrs. Kelly Block (Saskatoon—Rosetown—Biggar, CPC): I'm going to let Pat ask her last question.

The Chair: Go ahead, very briefly, please, Ms. Perkins.

Mrs. Pat Perkins: Thank you very much.

It was with respect to the proprietary specialty fibre and the specialty pulps and the new programs that you're in the midst of announcing, versus what's going on with bamboo at the other end of the world, and how their shorter fibres are being produced and what they're being turned into, in terms of fabrics and that sort of thing.

Dr. Bruno Marcoccia: I wouldn't call myself an expert in bamboo, but relative to specialty fibres and going up the value chain, there's actually been an explosion of activity in this area globally in the research community. We can start, for example, with nanofibrillated cellulose, crystalline nanocellulose—these are tiny particles—and then microcrystalline cellulose. There's a scale of different types of modified and specialty fibres. There's been quite a lot of development and activity in that area. We're very excited about the fact that we feel we have a big jump on commercialization of this technology, which was developed in Canada and the United States. We will go to full commercialization in the Dryden mill with this sponsored project.

We'll see where it lands, but our view of this is that we'll be able to produce even better pulp than what we're producing out of Dryden right now, something that might go into non-traditional applications such as reinforced fibre materials and extending the functionality of the northern bleached softwood kraft, which is arguably the best fibre in the world already. This is an example of that first theme of our improving an existing product, which happens to be the best in the world, which gives us a competitive advantage. We are improving it further still and then using that as a platform from which to look at different markets where we could use this new material.

The Chair: Thank you very much to all of the witnesses today for coming and for giving us some information that will be very helpful in our study.

Thank you very much to Dr. Marcoccia, Mr. Arsenault, Dr.
Mangin, and Dr. Beauregard.

We will suspend the meeting for just a minute while we go in
camera and then come back to a discussion of our report.

[Proceedings continue in camera]

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