HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Natural Resources

RNNR • NUMBER 082 • 1st SESSION • 42nd PARLIAMENT

EVIDENCE

Thursday, February 1, 2018

Chair

Mr. James Maloney

Standing Committee on Natural Resources

Thursday, February 1, 2018

● (0850)

[*English*]

The Chair (Mr. James Maloney (Etobicoke—Lakeshore, Lib.)): Good morning, everybody. We're going to get started. We're running a little late.

Thank you for joining us. We have three witnesses this morning. By video conference we have Antoine Charbonneau from CelluForce.

From BioApplied we have Rod Badcock, and back by popular demand, from Cobden Strategies, we have Catherine Cobden.

Why don't we start with the veteran, Ms. Cobden, since know how things work around here.

[*Translation*]

Ms. Catherine Cobden (President, Cobden Strategies): Good morning.

[*English*]

Thank you very much.

I'm honoured to be back. Thank you very much for requesting a return visit so we can deepen our discussion on an issue I care about very deeply.

As I mentioned to you the last time I was here, my name is Catherine Cobden. I'm the president of a small boutique consulting company called Cobden Strategies, and in addition to a number of things, I do work with innovative forest product companies as well as other sectors that are all exploring the use of forest fibre in new bioproducts and processes.

I was born in rural Ontario, in a pulp mill town just down the road from your riding, Mr. Serré. I became a chemical engineer, and I've worked in various communities across the country who rely almost entirely on the forest industry. I was also the executive vice-president of the Forest Products Association of Canada where I led studies on bioproduct creation and supply chain development for the industry.

The vitality and viability of the forest industry in the long term is a true passion.

I believe I was asked back to talk a bit more about some tangible examples of how forest biomass can and is being used in innovative ways. I can tell you that the opportunities are quite endless.

From ice cream to plastics, from perfumes to car parts, wood fibre-derived products are making their way into many consumer products already. To give you a deeper portrait of the degree of activity happening in Canada in the bioeconomy space, I have worked with the assistance of NRCan to share with you a map, which is in front of you. This shows you the developments that are happening coast to coast across the country. These are significant developments.

When I share this with the committee electronically, you will find that each of the 27 projects is hot-linked to a two-pager *dans les deux langues* that describes the project in more detail, providing facts and figures that I think are very relevant, such as how many jobs were created, how much investment was leveraged, and those sorts of things. I encourage you to take a look at that.

I'd like to reinforce, however, that this map is only reflective of the projects that have been funded by the IFIT program, that is, the investments in forest industry transformation program. I'm excited to tell you that there are many more, both within and outside the forest sector.

You asked for some explicit examples, and you will find plenty. But to help, I thought I would dive a little bit into some of these examples. Some of these will be on the map and some of these will not. Some exciting participants in the bioeconomy are here with me today—CelluForce, for example—and I look forward to hearing about their latest developments. But the folks you've been meeting are not alone. There is lots going on. So when you hear about cellulose filaments later this morning, we will tell you that we have a lot of development going on in this country. In Canada we have the world's first cellulose filament demonstration and commercialization plant at Trois-Rivières, Quebec. Cellulose filaments are a revolutionary and unique bioproduct. They can be incorporated into a variety of products to make them stronger, more flexible and resilient, lighter, and more economical. They also happen to be chemical free and biodegradable.

Lignin is another area where things are happening. I'm sure you've had witnesses in here talking about the lignin opportunity. West Fraser, for example, is home to another first in Canada at its mill in Hinton, Alberta, where they're recovering lignin from pulp operations, becoming part of that next generation of renewable biochemicals. Lignin is natural, it's renewable, and it's a green alternative that can be used in plastics, dispersants, and polymers, and even as new resins in our exciting engineered wood products.

Speaking of engineered wood products, we talked a lot about tall wood frame buildings the last time I was here. There's Structurlam in B.C.; there's Nordic Structures in Quebec, whose hybrid glulam trusses were just used in the new arena for the Buffalo Sabres; and StructureCraft is building a new facility in the Fraser Valley of British Columbia. You all know that the tall wood market is developing, and that's a very exciting thing to keep an eye on.

Over a week ago, FPInnovations and Resolute announced a new pilot project in Thunder Bay to find ways to produce and commercialize green biochemicals from wood. I think you heard from them earlier this week, and that's a really important acceleration of the bioeconomy in northern Ontario.

There's the power generated from biomass—carbon neutral green electricity produced from the residuals of our operations from coast to coast. There are 40 mills in Canada that are doing this green energy generation. They use it to support their own operations, and some of them even use it to contribute green power back to their grids.

Woodland Biofuels is another example. You'll find them on your map. They're producing ethanol from woody biomass. You also heard from Domtar earlier this week on NCC and some opportunities they're producing outside of the IFIT program.

The examples I've just touched on are all within the forest industry, but I want to move a little beyond that to assure you that all sorts of Canadian industries are exploring the tremendous potential of what I like to call “the miracle of biomass”. Research, demonstration, and development projects are either being undertaken or are in development in a number of key areas of the Canadian economy. It's happening in energy production—in large-scale power production at OPG and Capital Power, for example, right down to small-scale energy production in indigenous communities. It's being looked at in steel manufacturing, not as a fuel but as a sophisticated bioreactant to support their production of steel and reduce their carbon footprint. The cement industry, the aviation sector, and the natural gas sector are all looking at the use of biomass.

Clearly, exciting things are happening. The forest industry is reinventing itself, and other sectors are taking this agenda very seriously as well, and discovering for themselves the benefits of a bioeconomy. Canada is making leading-edge advances, but of course there's always a “but”, which is that there is robust global competition. We cannot drop the ball.

Europe continues to be a leader in this space. In 2012 the European Commission adopted a strategy called “Innovating for Sustainable Growth: A Bioeconomy for Europe”. EU figures show that the bioeconomy—what is that, five years later?—now has a turnover of over 2 trillion euros each year and employs more than 17 million people. Individual countries such as Sweden, Finland, Germany, etc., have also adopted their own detailed bioeconomy strategies.

I believe that with our abundant renewable resource—350 million hectares of forests—our strong global reputation, our green credentials in sustainable forest management, and our effectiveness as a global exporting nation, we have the bioeconomy as an opportunity to create jobs and bring growth and expansion of trade to our country.

Please remember our last discussion on how government can help and how we can work together: we can spur further demonstration and technology advancement, we can change building codes, we can ensure comprehensive quantification of sustainable fibre supply, we can bring in smart incentives to help aging pulp mills to retool, and we can bring the Canadian Council of Forest Ministers' bioeconomy vision and framework to life.

Thank you very much for inviting me back. I look forward to questions.

● (0855)

The Chair: Great. Thank you.

Mr. Badcock, let's move on to you.

Mr. Rod Badcock (Partner, BioApplied): Excellent. Good morning, everyone.

Thank you for this opportunity to offer our thoughts on the Canadian forest industry and bioeconomy. I was explaining to Richard that it's my first time here, and it's quite an honour, if a bit of a daunting one, so thank you.

The Chair: We're very nice, and Shannon can't talk, so it's your lucky day.

Mr. Rod Badcock: Luckily I'm close to the door, so if I need to...

Some hon. members: Oh, oh!

Mr. Rod Badcock: Let me start by telling you a bit about BioApplied. We're a small consulting firm. Catherine said “boutique”, and I think that's an excellent way to describe us as well. We were formed in 2013 and our objective is supporting innovation in renewable resource sectors to help expand the bioeconomy. While we focus on a range of sectors, including agriculture and oceans, I would say forestry is in our background and our DNA.

Our head office is located in Nova Scotia, which is where I'm based, and my business partner, Greg Maloney, is located in Montreal. We have clients in several provinces, including on both coasts, so I like to say we are literally coast to coast. But I have to be fair and say we may have skipped a few provinces in between, but we hope to correct that soon.

We offer services in two primary areas. The first is that we support clients who are feedstock suppliers. These are the grassroots businesses, particularly in the logging sector, that are responsible for providing fibre to the forest products manufacturing industry. We help these clients in a number of ways, including introducing new technology into their business, providing training on state-of-the-art practices, and so on. Ultimately, our mission in that space is to help these businesses improve their productivity and health so they can be a source of high-quality, secure, and affordable feedstock for the growing bioeconomy.

Our other focus area is that we help develop markets for our clients who are producing new and novel products derived from renewable resources. We call these biomaterials. We do this by helping them assess and prioritize target markets and by engaging with the value chain players in those markets to build demand and manage what is ultimately a complex product development process. I'm sure Antoine will describe that a little later.

Ultimately, we see great promise in the bioeconomy. Research and Markets, a research organization, projects about 10% growth in biorefinery products in such things as low-carbon fuels, biochemicals, and biomaterials, some of the things that Catherine mentioned earlier.

Drawing on our own experience, we can attest that there's indeed a growing commercial interest among global players to integrate renewable materials into their products. I would say that we've seen a shift happen. This has moved from a green marketing initiative to a business imperative. These companies have begun to realize that if they want to have business sustainability, then their raw materials and processing inputs need to be sustainable as well, and that an overreliance on raw materials from fossil fuels puts them at risk. That's a major shift.

Within that context, I'd like to discuss three major points: first of all, the unique bioeconomy opportunity presented by the Canadian forest industry; the importance of public support for projects that are in commercialization stages; and the importance of collaboration among the value chain in new product development.

Let me start with the bioeconomy opportunity. Catherine referenced the Canadian Council of Forest Ministers' forest bioeconomy framework. We were very pleased to see that released last year, and we think that is a great first step in creating a unified national approach to establishing the bioeconomy and, importantly, Canada as the place to be.

In a similar vein, on a much smaller scale, we've been working on a project in Nova Scotia via an organization called the Nova Scotia Innovation Hub. That organization is a public-private partnership that is set up to attract bioresource business opportunities to the province. Through that project, we've learned a few key things.

First of all, each province has an abundance of forest-origin feedstock available. Catherine mentioned this in her discussion. We had to analyze that in Nova Scotia because we had to compare ourselves to the jurisdictions in Canada that we'd ultimately be competing with. What we learned is that as a nation we're underharvesting Canada's forests by about 33%. When you look at that and put it into context, you see that's almost 80 million cubic metres per year that we are not harvesting, that we could harvest and still have a sustainable harvest level. Said another way, we could log another 80 million cubic metres of wood in this country and still never run out of wood fibre. To put that in perspective, that is the size of every provincial forest industry east of Alberta combined. Take all of the wood harvested in every province east of Alberta, add it all up, and it still doesn't equal 80 million cubic metres. That's quite an opportunity.

A second learning we've had is that there are a lot of entrepreneurs out there, around the world, with good ideas. We don't need to create all these ideas within our own province or our own country. From the range of biomaterials that Catherine touched on, there is a lot of expertise is being developed in that area.

However, because of the growing interest in the bioeconomy and that shift I described earlier, we're seeing that there is a lot of competition for these businesses as well. Countries are competing to attract these opportunities, and there are a number of competitive factors, what we call winning conditions. Just to put this in perspective, I saw that Malaysia has a bioeconomy goal to create 69,000 jobs from their abundant biomass. That's a significant goal, and they're a fierce competitor.

● (0900)

What are the winning conditions? We need secure, affordable feedstock. We need manufacturing partners with brownfield sites that are good collocation opportunities for these business. They need access to markets. They need access to capital. They need support of government policy, and they need skilled human resources. What I love about this country is that we have all of these—we really do. Don't get me wrong, there are gaps and there is always room to improve, but Canada is in the game, and I think we should be promoting that message aggressively around the world.

From there, I want to move on and talk about the very important support that public funds can play in supporting commercialization. It's very challenging to finance a first plant. Antoine can speak to his experience with CelluForce, but let me give you an example of one of our clients we're dealing with in Nova Scotia. They've done a remarkable job. They're in the renewable fuel space. At this point, they've secured through agreements all of the feedstock they need to fuel their first plant. They've secured a significant market offtake agreement from a major energy company. They have technology that's been proven on a semi-commercial scale with an insurance policy that backs its production on a commercial scale. Despite this, financing is a struggle. Despite having all the pieces in place, it's still seen as a risky new-to-world project. Programs like SDTC and IFIT, which Catherine mentioned, and the clean growth program and others are excellent examples of funding programs that we have in Canada that support these bioeconomy projects. I want to thank and applaud the federal government for supporting them and encourage you to continue to support those programs.

It's also important that capital is patient. Development time frames for new applications, particularly in the biomaterials sector, are long. For example, development of a new tire by Michelin, a major company in Nova Scotia, takes seven-plus years. A lot of safety factors go into building a new tire. Pharmaceutical products can take up to 15 years. It takes a long time to develop a new product. Accelerating them is of course critical, and a good management team can help with this but it still requires time and effort. Having patient capital around these businesses is key.

That leads me to my final comments about value chain collaboration. Through our experience we've learned it is impossible to successfully develop a new product in isolation. Each player in the value chain always validates the need and efficacy of any new product; therefore, their input and guidance is critical. Let me give you a quick example because we live this. On behalf of one of our clients we were working with a major adhesives company. We connected them with a Canadian university that was doing research in this area. Through those discussions we learned two important things. First of all, the Canadian university's use of a biomaterial in the adhesive formulation had created a set of properties that this company considered to be the holy grail of what they needed to do to improve product performance. We were very impressed with what had been achieved. More importantly, we also learned that the base formulation, the base adhesive that the university was running their trials on was no longer industrially relevant. They didn't use it anymore. Without that information, it's lost, it would have been a waste of public funds. With that information that project now has a chance to succeed. There's no substitute for that feedback.

I see I'm running short of time.

● (0905)

I think we have an excellent opportunity in the country to develop that kind of collaboration systematically and at scale. I want to refer to the biodesign cluster, you may be familiar with those. It was a group of organizations that was led by FPAC, FPInnovations, Genome Canada, and—I'm forgetting somebody—BIC.

That was an organization with the goal of bringing together value chain players. In my notes you'll see a list of the players they had engaged. There were over 70 of them. They had $200 million in projects identified. Unfortunately, their application to the ISED supercluster program was not successful, but I think there's still interest and a great opportunity there. I think it's something we should see.

With that, I would like to thank you for your time. My apologies if I'm a little bit over the time. Thank you again for a great honour.

The Chair: I'm a little more lenient because your partner is named Maloney. That's all.

Mr. Charbonneau, it's over to you.

Mr. Antoine Charbonneau (Vice-President, Business Development, CelluForce Inc.): Thank you, Mr. Chair. Thank you for the opportunity to testify before the panel.

I will start by giving an overview of CelluForce and our product, cellulose nanocrystals. I will also offer some comments regarding the challenges in commercializing and producing new and advanced bioproducts. I will conclude with remarks about the role of the federal government in supporting new biomaterial companies, thus developing the Canadian bioeconomy.

I'll start with some words about CelluForce. We are the world leader in the production of cellulose nanocrystals, also called CNC, a high-value-added material that comes from wood. CNC is actually what gives wood its strength. It is stronger than both kevlar and carbon fibre. It is also a functional material due to its charges on the surface. Our technology is based on research that started in the late 1990s at FPInnovations.

Our head office is in Montreal, and our demonstration plant is in Windsor, Quebec. The company was founded in 2011, with Domtar and FPInnovations as the initial shareholders. That year, we also started the construction of our demonstration plant, which was completed in 2012.

The technology attracted foreign investment. In 2015, Houston-based Schlumberger became a shareholder in order to jointly develop CNC applications in oil well services. Similarly, Fibria, the Brazilian eucalyptus pulp producer, also joined our shareholders and became our distributor in Latin America in 2016.

The year 2017 was the first year we had commercial sales, and we are aggressively developing applications for continued commercial success.

I will now offer some comments regarding commercializing and producing an advanced bioproduct.

First, we recognize that we are in a privileged situation. Not many biomaterial start-ups have the benefit of having a demonstration plant that can produce industrial quantities of material. This has proven to be invaluable in the development of customer applications. We can thank the foresight of our founding shareholders, Domtar and FPInnovations, as well as the financing from government institutions to FPInnovations for the fundamental research necessary to develop our technology.

Indeed, the investment in a demonstration plant is an important step in de-risking a production process. The process is capital intensive, and industrials as well as venture capitalists are quite reluctant to invest. The demonstration plant is often the first step in process development, and most improvements are also very capital intensive.

Another point I want to highlight is that the commercialization cycle for new material is quite long. This echoes what Rod talked about. Often industrials as well as funding agencies don't expect the process to take so many years. If you take PVC, for example—polyvinyl chloride—the material was developed in the early 1950s. It wasn't until the mid 1960s that it began to be widely adopted and significant revenue streams generated. We are living this challenge on a day-to-day basis and put significant energy to shorten the adoption cycle of CNC.

A significant amount of research and development as well as customer support and interactions are necessary to drive applications to a commercial status. One of the difficulties we face here in Canada is that there is very good academic and technical support for fundamental research but not for application development. We often need to deal with American or European institutions for this type of work. For example, the use of CNC in bioplastics and biomaterials is underdeveloped in Canada. We are currently engaging with institutions in the U.S. and Europe for this activity.

I will now comment on the role of the federal government in supporting new materials companies and developing the Canadian bioeconomy. One key concept I wish to bring to the committee's attention is the concept of helping in the process of de-risking. This is where, in my opinion, the federal government can have the greatest impact. This applies to research and development, production process development, application development, and commercialization. I will give you some examples of where there is some support.

Funding for institutions such as FPInnovations does indeed de-risk research and development. Regarding application development, the federal government has an important role to play by supporting programs such as Sustainable Development Technology Canada, SDTC. As a matter of fact, CelluForce participated in an STDC-funded project with Schlumberger in 2015, which led to commercial product launches in 2017. This accelerated the application to development time, but it still took two years. Additional funding to other programs and institutions specifically for the development of customer applications would also be very beneficial.

● (0910)

Other examples of de-risking are programs such as the investments in forest industry transformation, or IFIT, program. This helps companies such as CelluForce develop their production process and cross the valley of death.

My final example of de-risking involves supporting commercialization initiatives by funding organizations such as NanoCanada. CelluForce has a product that is both a biomaterial and a nanomaterial, and NanoCanada has been instrumental in supporting CelluForce in our international commercialization efforts by offering shared booth space in international nanotechnology conferences and exhibitions. Not only are the logistics taken care of by NanoCanada, but they also closed the loop with Canadian embassies and trade commissioners. Continued funding to NanoCanada will greatly help CelluForce, and I would also recommend a similar approach for bioeconomy companies.

To conclude, I strongly believe that CelluForce is on its road to success and will contribute to the economy of Canada; namely, by creating high-paying manufacturing jobs. However, we're still facing many challenges. Continued support from the federal government in de-risking the activities that are inherent to biomaterial companies will greatly contribute to our success.

Thank you.

● (0915)

The Chair: Thank you, Mr. Charbonneau.

Mr. Hébert, do you want to start us off?

Mr. Richard Hébert (Lac-Saint-Jean, Lib.): Oh, it's me?

[*Translation*]

Thank you, Mr. Chair.

I also thank all of the speakers for being here, and for their innovative ideas.

My question is addressed to you, Mr. Badcock.

Your firm finds industrial partners and third parties in the supply chains of the companies it works for. Could you give us some conclusive examples of cases where your company was able to improve environmental performance and productivity in connection with secondary supply chain products?

[*English*]

Mr. Rod Badcock: That's a great question.

I think my best answer to that is the following. Of course we work with a number of companies that are in the biomaterial space, and we help them in engaging with their markets and customers that play in those markets. That's an important piece of the innovation cycle.

I think your question may have been better answered by the work that we do in the forest fibre supply chain. There are a couple of projects we've done there—well, there are many projects we've done there. I'll give you a couple of examples.

One of them is working with logging contractors in Nova Scotia. We help a large number of them integrate a technology that was built by FPInnovations called FPDat. It may sound trivial, but this is a technology that helps monitor the productivity of logging equipment.

Working with these logging contractors, we helped them develop that technology into their equipment, and then we worked with them to help analyze the efficiency of their equipment. On that basis, they made business decisions to change. When we look back—because we have the benchmark and we're now able to see their improvement—those who actively use the data to drive their business are 10% more productive than those who do not. That's one example.

I'll also say that in a similar space working in the fibre supply chain—and again, it may sound trivial—we helped train and recruit new operators to the business and match them with logging contractors. We were able to find people who our logging contractors agreed to employ, and then we provided them training through an organization located in New Brunswick that is a world expert in this space. It's a company called Forest Liaison. As a result, we helped solve a labour shortage problem for the logging sector, and those students who graduated and who are now working with the participating logging contractors are incredibly productive. Training in the sector really helps.

Mr. Hébert, does that help?

● (0920)

Mr. Richard Hébert: Yes.

I have another question, please.

[*Translation*]

In your opinion, what are the obstacles to innovation in the Canadian forestry sector?

What are the industry challenges, but also what are the forces in the country that could further the emergence and especially the consolidation of the secondary supply chain in our forestry sector?

Finally, how could the federal government encourage innovation in this sector? Our government can indeed be a key actor in the changes in our economy's primary sector, but—my Conservative colleagues will be delighted—in other ways than through government subsidies.

[*English*]

Mr. Rod Badcock: That's a really hard question.

If I think about what the roadblocks are, and I look back into the forest fibre supply chain, particularly with the logging sector, I don't think we have focused on improving productivity as much as we can. I think FPInnovations are very good at this; they spend a lot of time in that space.

One of the gaps we try to close as a business is done by taking the ideas and innovations that are developed by others like FPInnovations, and working with the logging sector on the ground to help introduce those innovations into their businesses. It is not a simple problem, there is no question about that. Logging contractors, as I'm sure you know, are independent businesses. They are fiercely independent and sometimes resistant to change. So creating an openness for that change is important.

If I could have a couple of suggestions, one is that encouraging the types of outreach and technology transfer from organizations like FPInnovations to the on-the-ground supply chain is really important.

The second thing that I see is this. It's funny that you mention this because we've just done a project where we've met with a number of players in the logging sector to understand where they see their needs, and we asked them to rank in business metrics what was most important to them. At this point the one that stands out is human resources. They see a lack of human resources available to them. It is challenging to find skilled operators and because the pool is small, the operators often jump around. I'm sure this is nothing new; every sector faces this. But investing in attracting, recruiting, and screening people to the business so we can find good matches with the logging sector, I think, is a wise thing to do. I also think that providing them with state-of-the-art training is a wise investment to make.

How does that tie into the larger bioeconomy? By improving the health of our logging sector we can help improve the security and, most importantly, the cost of our feedstock. It's one of the places where we have a gap as a country. When you look at Malaysia and compare us to them, they have very inexpensive feedstock. Closer to home, the southern U.S. has very inexpensive feedstock, compared to Canada.

Mr. Richard Hébert: Thank you.

Ms. Catherine Cobden: Is it possible to add to that response?

The Chair: You only have about 30 seconds.

Ms. Catherine Cobden: My experience is with the steel sector, where we're trying to create new supply chains to an existing industry that needs fibre. The steel industry tends to be in southern and northern Ontario, so we're looking at the fibre basket in northern Ontario and how we can get it to the steel plants economically.

One of the key barriers—and you might have mentioned it, but just to double down on it—is the quantification in terms of the metrics that matter to these countries. In other words, economic delivery. How much is it, where is it, how much is there, and is it affordable to get it to gate? Where do you do the conversions; how do you take it from the logging companies? They're dispersed and there are many of them. How do you take them to a set location? Where should that be located, and then create the conversion to ship it all the way to Hamilton?

This is a fundamental gap that needs to be addressed. We're making progress but we're not sufficiently there yet.

The Chair: Thank you.

Mr. Schmale.

● (0925)

Mr. Jamie Schmale (Haliburton—Kawartha Lakes—Brock, CPC): Thank you very much, Chair.

Thank you, everyone, for being here today. Thank you again, Ms. Cobden. It's great to see you again.

Just to clarify, Monsieur Hébert, unless I heard this incorrectly through the translation, no, government programs aren't what we're all about. Competition spurs innovation, not applications to government to decide who will win, who will lose, who will succeed, and who will fade away. Private sector investment is where we like to see it.

At the last meeting we heard that Domtar, I believe, got $18 million in taxpayer dollars. It was a grant. I'm a Conservative and of Dutch background so I thought I was going to hyperventilate. I would prefer more private sector investment or, as we heard last time, maybe a tax credit to give companies more freedom to invest their dollars wisely and pick which projects have the best chance of succeeding.

I'll start with you, Mr. Badcock. I'm very sorry.

Mr. Rod Badcock: No, no, it's all right.

Some hon. members: Oh, oh!

Mr. Jamie Schmale: I'm splitting my time with Mr. Falk too. I'll ease in.

You said that one of your clients had applied for an application and it was denied. Can you briefly give us an idea of what that was for and what they were looking for?

Mr. Rod Badcock: Are you referring to the biodesign supercluster?

Mr. Jamie Schmale: Yes.

Mr. Rod Badcock: A biodesign cluster still exists, by the way. It was an initiative of FPAC; Bioindustrial Innovation Canada, which is located in Sarnia and has done a good job of building a bioeconomy complex there, I would say; Genome Canada; and FPinnovations. The idea was that they brought together a number of companies that are in the bioeconomy supply chain. Many of them are in the forest sector. I think I said there were over 70 of them, and they included major forest products companies like Resolute.

Antoine, I hope you don't mind my saying that CelluForce was involved in the initiative as well.

It tied together the entire value chain, and the idea was that it could be a supercluster, although it would be a somewhat dispersed supercluster. That organization put together an application to the ISED supercluster program, and unfortunately they weren't successful. They still exist and still have an interest in trying to string that together. My point in talking about them was that it's an excellent opportunity to enable that value chain collaboration, the example I described of the Canadian university going down the wrong path with the adhesive formulation. Our experience is that that's not the exception. That happens a lot, and it happens because of a lack of industrial guidance, and the biodesign supercluster is a way this could be corrected.

I should just clarify that they're not a client of ours. We were a supporting organization saying that this was a good idea, but I'm not a client.

Mr. Jamie Schmale: Okay.

Maybe both of you might be able to answer this one. You were talking about the robust global competition in your statement. What are you seeing in the global marketplace? Is it government partnerships? Is it just private dollars working better? What are you seeing?

Ms. Catherine Cobden: The fact that the individual governments have created detailed strategies for bringing the bioeconomy to fruition suggests it's not just a competition among businesses, but also among governments. This speaks to my call for action, which I like to give everywhere I can, that we need to go beyond the framework, as good as it was, and actually get into details. The framework has many components to it and each one of those components needs detailed strategies to fully execute.

Mr. Jamie Schmale: Four minutes. I'd better get going. No, I said I'd split my time.

I'll go over to Ted.

Mr. Ted Falk (Provencher, CPC): Thank you, my honourable colleague.

I'm not sure where to start. Mr. Charbonneau, I'll begin with you.

Your company has four major partners, including FPInnovations and Domtar. A lot of these companies receive federal funding and you say you're creating a lot of high-wage manufacturing jobs for people on government dollars. What kinds of markets are you opening up?

Mr. Antoine Charbonneau: As I mentioned, 2017 was the first year of commercial sales, so we are selling in oil well services. We're also aggressively pursuing different markets and I have to say that the biomaterial applications are growing very quickly. That is a suite of applications that we're finding a lot of success in. You have greases, paint, and coatings.

Regarding the high-paying manufacturing jobs, right now we are still ramping up, so those are plans for the future. We are crossing the valley of death, and it's a real situation for a start-up company where you have the technology and you have the investments, but there is a lot of risk involved. There is still a lot of process improvement that affects the cost of the material. Then there is integration of the material in customer formulation. It's quite complex, but as I mentioned, we're developing multiple applications.

● (0930)

Mr. Ted Falk: Good, thank you, Mr. Charbonneau.

Mr. Badcock, I'll turn to you as well. You indicated that biomass is very expensive. Why is that? Why is it more expensive here than just south of the border with our neighbours there?

Mr. Rod Badcock: There are a number of answers to that question. I would say I'm at risk of maybe getting at cross-purposes with some of my customers here, but I'll give you my honest opinion. We can look at the utilization rate of logging equipment across the country—and FPInnovations has done this, as have we—which refers to the percentage of time that a piece of logging equipment can operate versus how much it is operating. Just as in any manufacturing sector, uptime is key, and our uptimes are not great. In Nova Scotia, where we have very specific knowledge, 60% is about average, and it can be a lot lower than that. When you have expensive capital equipment like you have in the forestry sector, it's imperative to run it at high levels of uptime, so one of the major challenges is improving the uptime of our logging sector.

I would like to say that it is possible. While the average that we see in Nova Scotia is 60%, the range is quite high. Some are very good at this, 75% being an upside.

Mr. Ted Falk: I have another question.

The Chair: You're not going to be able to ask it, I'm afraid, because you're out of time.

Mr. Cannings.

Mr. Richard Cannings (South Okanagan—West Kootenay, NDP): Thank you all for coming before us here today.

I'm going to start with a very high-elevation question, just to change gears. As you know, I'm a big supporter of the forest industry; I'd like to see it succeed. There's a lot in my riding and my province. I'm from British Columbia, I'm an ecologist, I come from a biology background, and I've worked with forest companies in the past. Ms. Cobden mentioned that sustainability is paramount. That's where I come from with the forest industry. I'm very much a supporter, but I demand sustainability, and you said that was important. Mr. Badcock said we were underharvesting by 30%; that's the first time I've heard that figure.

I just wondered if maybe both of you could comment on this. In British Columbia, most foresters would admit that we were overharvesting for a century and now things have changed. We are seeing drastic reductions in the annual allowable cut, partly because of that and partly because of beetles and fires. We have climate change coming. I'm just wondering if you could perhaps—it's a big question—briefly comment on where you see sustainability in Canadian forestry, where we could harvest 30% more and still maintain the environment in the way Canadians demand. I don't want to mention the word “caribou”, but I just have.

Voices: Oh, oh!

Mr. Richard Cannings: I'd just like you to comment on that in some way.

● (0935)

Ms. Catherine Cobden: I'll start. I'm not going to be able to comment on the harvest study, although I am very curious and interested in perhaps getting more information on that myself; that would be great.

As we discussed, it's not only an imperative for the good of Canadians to be sustainably managing our forests; I actually would like to put it in business terms, which is, I believe, a market imperative. It's one of the reasons Canada really has the gold standard in terms of certification and certification adoption. We have, by far, the greatest third party-certified land base, which is fantastic. However, it isn't an agenda solely based on taking care of the planet. It's also an agenda for business to be thinking about not just taking care of the planet, but also about the fact that their market requires it, so I really appreciate you reminding us that it's important.

I'll go a step further because you said caribou. I'd like to say that we should be able to find solutions that balance species. You're an ecologist; we can balance species and jobs, but we can't be one pole over the other, in my opinion, especially given my background in these communities. The jobs really matter, so we have to figure this out. It's going to take a lot of solid thinking—the best and brightest—to sort this through, but I believe it can be done.

Mr. Rod Badcock: I don't have a whole lot to add.

That was very well said, Catherine. I would say I don't profess to be an expert on caribou or wildlife management issues—

Mr. Richard Cannings: I shouldn't have said that.

Mr. Rod Badcock: —in B.C. or the prairie provinces.

I will say there's a lot of misunderstanding about the forest industry, and I have no reason to think this is any different across the country. I've worked across the country, but my specific knowledge being from Atlantic Canada, I would say that one of the things that strikes me is today in Nova Scotia that only 23% of our crown land is available for unrestricted forest management. The rest is tied up in some way, shape, or form in protections that provide for wildlife habitat protection.

I say and acknowledge that as a fact. In a recent survey of the general public we just did—I say "we", being the industry in Atlantic Canada—on what they thought about the forest industry, about one-third of the respondents thought we were harvesting more than 50% of our forests on an annual basis. If that were true, the industry would be out of business in two years.

Mr. Richard Cannings: Two years.

Mr. Rod Badcock: There's a disconnect between the public perception and what is actually happening on the ground in the forest industry that I think is very important for the industry to try to correct. It's not a trivial task. There are challenges in communicating those messages, but I think it's important that we continue and build upon our efforts to do that.

Mr. Richard Cannings: I will turn to Monsieur Charbonneau.

I assume that with CelluForce and Domtar, you're associated with companies and operations that are primarily in the pulp and paper industry. I'm wondering how you see these CNC and other products as helping out the pulp industry, particularly as we've seen a serious decline in much of it because of a lower demand for paper. Do you see these new biomaterial products as an additional source of wealth for Canada, or as just replacing products that are no longer in demand?

Mr. Antoine Charbonneau: First, it's a misconception that we are selling mostly to the pulp and paper industry. Actually, our material is sourced from the pulp and paper industry, so it's a high value-added application, but most applications are outside of pulp and paper.

Potentially we often compete against petrochemicals. In the case of biomaterials, it's a very difficult fight. Most biomaterials or bioproducts don't necessarily have all the specifications of petrochemical-based materials, and, of course, these have been spec'd in. Customers expect such a high level of performance even though it may not be necessary. CNC actually enhances the properties of materials and allows bridging the gap in the case of biomaterials. That is just one aspect.

In other applications, for example in oil well services, we have displaced the petrochemicals that were traditionally used, because of the exotic properties of our materials. Our material has a very high-charged density, and we're able to perform much better in lower quantities than the traditional petrochemical-based materials.

● (0940)

The Chair: Mr. Serré.

Mr. Marc Serré (Nickel Belt, Lib.): Thank you, Mr. Chair, and thank you to the three witnesses for your work and the preparation you have done to present today.

I know this is a young industry, and there is a huge potential market, not only across the country, but also the billion-dollar market that exists today in Europe and Asia that we have to try to find ways to attract.

I don't have much time in the seven minutes I have, but I want to make sure of something in regard to the comments from my honourable colleagues across the hall here. I hope they're not suggesting that they weren't giving any grants over the last 10 years to stir private sector development. I think there were some grants given in the past—

Mr. Jamie Schmale: I liked it.

Mr. Marc Serré: —so we have to see how we would balance that out.

My question is for Mr. Badcock, but I will just make a comment first.

Mr. Charbonneau, I know when you talk about the valley of death and you look at commercialization, we've heard from many industries that have clusters that it is a really huge element there.

I want to go to my specific question.

Mr. Badcock, do you know how much money the private sector has been putting in the supercluster application on the biomass design? We heard from Domtar that they are investing $3.5 million. If you don't, can you provide the clerk with the number that the private sector was prepared to invest in that supercluster.

Mr. Rod Badcock: For the details on that, I can ask the supercluster folks to provide that for me. My understanding was that $200 million in total projects was identified. I'm not sure if that was $200 million of industrial investment or $200 million in total, with some portion of it industrial investment.

Mr. Marc Serré: Thank you.

When we talk about interprovincial barriers or regulations, is there anything that we could do as a federal government to work more closely with the provinces to help your businesses, your industry, or your association to expand and create more jobs?

Are there one or two elements that you think we could do to remove some of those interprovincial barriers? Is there anything specific?

Ms. Catherine Cobden: Actually, I just had this experience two days ago of having assembled—again, I'm going to go back to my steel example, as it's the freshest in my mind—the steel industry; the forest industry; and a third industry, the clean-tech industry, to talk about this opportunity that I was describing earlier.

What was so exciting was that we invited the federal and provincial governments that were involved to participate. What became really clear was that, if there weren't cooperation and support—which goes back to this question of how much fibre is there, what's sustainably available, and what's sustainably and economically available—we can't come to those answers working with one government or the other. We actually do need that collaboration. If I may suggest, keep maintaining that strong working relationship between the provinces and the federal government on that type of information. It is crucial for this moving forward.

Mr. Marc Serré: Are there any other specific comments from the other witnesses on some of the barriers? No?

Ms. Catherine Cobden: I have one more comment and I'm a little bit scared to raise it, namely the ability of the funding programs to fit together and to make sure that any gaps in funding mechanisms in, for example, a province be addressed. I don't think there's a province with an IFIT type of program. Wouldn't that kind of thing be interesting? More alignment would be good.

My apologies for raising it. There are so many more things beyond funding, though.

Mr. Jamie Schmale: That is what I want to talk about.

Marc, split your time with me.

Voices: Oh, oh!

Ms. Catherine Cobden: There's so many more things, it isn't fair.

Mr. Marc Serré: Not a chance. I like you, Jamie, but—

Looking back at the export market, we talked about Europe leading in the bioeconomy. Asia is also up there. As a federal government, what specifically do you think we could do to spur the innovation to look at creating jobs and expanding the export market to these countries?

● (0945)

Mr. Rod Badcock: I'll start there maybe.

Maybe you touched on this, Antoine.

One of the things that we see is that the product development process involves a fair level of collaboration and business development. I would say it's about support for advancing commercial readiness levels. When I look at programs like clean growth and sustainable development, there is a lot about advancing the technical readiness level of projects, but advancing the commercial readiness level is also important. Relatively speaking, I would say there's an opportunity to either build into existing programs or maybe create a new program that focuses on that—that is, the business development resources required to actually build the commercial demand for the product.

Mr. Marc Serré: Be quick.

Ms. Catherine Cobden: One of the great things about this nation is that we have these strong green credentials. I think the work that the government does for “Brand Canada” is wonderful. We should continue to get the message out to our markets on green credentials for the industry and how strong we are, in terms of our forestry industry. It is already happening, but it needs to continue, please.

[*Translation*]

Mr. Marc Serré: Ms. Cobden, it's always good to see people from northern Ontario working in the national industry. I want to thank you very much for the work that you do.

My question is for you. Mr. Badcock spoke earlier of certain labour challenges. What would you recommend, specifically, to increase the number of women in the forest industry in scientific fields, technology, engineering and mathematics?

[*English*]

Ms. Catherine Cobden: There is another issue I'm highly passionate about. We've done some wonderful things. I don't know, for example, if you're familiar with Women in Wood or Women for Nature. Just be forewarned, gentlemen, the women in forestry are getting themselves together.

Championing, demonstrating, giving women opportunities—we are trying very hard. I'm looking at Ms. Rudd because in NRCan we've been trying very hard for things like conferences to make sure that women are participating as much as men on the panels. Women have very strong voices in the forest industry, but we need those outlets. Those types of things are crucial, and we have work to do on the glass ceiling as well.

Mr. Marc Serré: Just quickly, I don't know if you'll have a chance to answer, but for the three of you, if any parts of your associations have any specific recommendations on tax credits—we have 15% tax credits for mineral exploration, and there have been other tax credits. Do you have any specific recommendations you'd give to the clerk on what we could do, as the federal government, to spur innovation and exploration more on the forestry side and on biomass?

Ms. Catherine Cobden: It is a really good question. This is all a gut reaction, but more could be done there. I'm just not sure who's doing it, who has done it, or if we need to look at it.

Mr. Rod Badcock: I'll add that one of the things we saw in exploration is that in Minnesota they have created a program that pays production incentives for production of biochemicals from a cellulosic base—so, wood fibre. It's a fairly substantial production incentive when you look at the price of the materials they are trying to encourage. While that's not a tax incentive, it's something unique that I haven't seen done elsewhere. What I like about it is it's very targeted at trying to use more wood fibre.

I'll be happy to provide details on that if that would help.

Mr. Marc Serré: That's good. Thank you.

The Chair: Mr. Charbonneau, do you have something to add very quickly?

Mr. Antoine Charbonneau: There seems to be a gap in tax credits for capital equipment. I'm talking about continuous process improvement. Again, this is key again to crossing the valley of death, as it allows the cost structure of biomaterials to go down. This is just a suggestion.

The Chair: Thanks very much.

Thanks to all three of you for taking the time to be here today. Your evidence will prove to be very valuable to our study.

We are going to suspend for about one minute. If we can keep it to one minute, then we can finish on time today.

● (0950)

(Pause)

● (0955)

The Chair: All right, I'm going to start here.

Mr. Minhas, why don't we start with you?

Mr. Gurminder Minhas (Managing Director, Performance BioFilaments Inc.): Thank you, Mr. Chair and members of the committee. I'm very pleased to be here today to speak on behalf of Performance BioFilaments as part of your study on the secondary supply chain products coming from the Canadian forestry sector. Copies of my remarks have been made available to you.

I'm Gurminder Minhas, the managing director of Performance BioFilaments, one of Canada's new and emerging biomaterials companies. We are leading the biomaterials revolution by improving the performance of many existing and new products while making our planet more sustainable with the use of forest-based renewable resources.

Performance BioFilaments was launched in 2014 as a joint venture between Vancouver-based Mercer International and Montreal-based Resolute Forest Products. Aside from myself, within the company we have two Ph.D. research scientists, two research associates, one full-time business development director, and two part-time business development professionals.

Performance BioFilaments is focused on providing microfibrillated and nanofibrillated cellulose products in application areas where they can add significant performance improvements in existing and new products combined with environmental benefits. Our core technology has been licensed from FPInnovations and involves the utilization of kraft pulp and other fibres as a feedstock and converting them into micro and nanofibrillated cellulose, also known as cellulose filaments. We're also developing our own processes and technologies for modifying these fibres and filaments to make them more suitable for specialized applications, where traditionally cellulosic fibres have not had widespread use, so we're actually creating new markets for some of the fibres that come from our forestry resources. Some of these applications include fibre-reinforced plastics and thermosets.

I'll highlight an example of a project we did with NRC's automotive and surface transportation group, where we successfully introduced cellulosic fibres into reinforced polypropylene. We achieved a similar strength to glass-fibre-reinforced polypropylene, the same strength, but at the same time we achieved a 16% reduction in the weight of these components. Plastic lightweighting is a major goal that the automotive sector is looking for.

We're also developing applications in high-performance concrete. In a study we did with UBC Civil Engineering, we demonstrated a 20% improvement in the compressive strength of concrete while virtually eliminating cracking due to plastic shrinkage. This was achieved by only a 0.1% addition of our cellulosic fibres into the concrete matrix, that is, a 20% increase in strength and elimination of cracking with a 0.1% addition of our material.

Another application we're developing is air and liquid filtration media. We've demonstrated improvements in the strength of the filtration medium while giving the filter manufacturer the ability to control pore size, thus allowing them to further engineer the filtration media that they're producing.

As you can see, Performance BioFilaments is developing applications in some very diverse and large markets. Our commercialization strategy is focused on becoming experts in the production and modification of cellulosic biomaterials. That said, we rely on subject matter experts at universities and research institutions to help us accelerate the use of our materials in some of these new applications. We are not experts in the plastics sector, we're not experts in concrete, and we're not experts in filtration media; we are experts in creating fibres that can perform to certain characteristics that are demanded by these industries. Then we rely on others, for example at the university level, at the institution level, and on their expertise in certain centres of excellence within Canada to help accelerate the development of our applications of our materials into these markets.

We've leveraged several government funding programs to date, such as NSERC engage grants and IRAP funding, to accelerate our application development work. These programs have allowed us to take advantage of the expertise and specialized equipment located within research institutions and Canadian universities.

Performance BioFilaments is also developing our first commercial plant. This plant will produce products for sale into our established markets as well as allow for accelerated development into new applications. As this is a first-of-kind plant, the risk is going to be quite high and we don't expect that we would qualify for traditional methods of project financing. We are looking to programs such as IFIT, SDTC, and the new NRCan clean growth program to help support getting our technology to commercial scale.

Specific to the question of how the Government of Canada can further support and accelerate the development of secondary supply chain products in the forestry sector, I have the following recommendations.

● (1000)

First, increased support for high-risk capital projects, specifically for demonstration and first of kind commercial plants, is needed. The IFIT program is a very good program. It was created to address this particular need and to provide financial assistance for innovative projects through a competitive selection process.

Previous IFIT calls have been extremely popular with the industry but have resulted in many good projects remaining unfunded. Continued investment in the IFIT program, as well as an annual or semi-annual request for projects from IFIT, will help the industry plan for capital projects accordingly. The SDTC program and the newly developed NRCan clean growth program will also help on this front, and these programs should be continued and broadened.

Second, government support in the early parts of the innovation cycle needs to be expanded. Increased support for universities and institutions to conduct new and innovative research, which typically is higher risk, should be considered and supported. This will create a pipeline of new innovations for companies such as ours to leverage, with the potential of licensing and commercializing these newly innovative technologies that are going to be produced based on the basic research and the fundamental research that is being conducted at universities.

Above and beyond that, this is also going to produce highly trained student researchers who will be ideal candidates for our future employees. Partnership funding such as NRC IRAP and the NSERC Engage grants should be further continued and expanded to allow for a greater opportunity for industry to collaborate with universities and research institutions.

Finally, on the market development side, support for new products should also be considered in both international and domestic markets so that we can appreciate that the majority of the products that we and others are developing are intended for international markets. Support for Canadian companies to become early adopters of these new materials would be very helpful in demonstrating the use and effectiveness of these materials at large scale, and it will help pave the road for expanding the applications that we create here in Canada to international markets.

In closing, I would like to just say that Canadian companies commercializing Canadian innovations created by Canadian researchers will create a win-win-win situation.

Thank you. I will take questions as they come.

The Chair: Thank you very much.

Mr. Stewart, it's over to you.

Mr. Greg Stewart (President, Sinclar Group Forest Products Ltd.): Thank you for the invitation to testify before the standing committee.

I just want to confirm that I can be heard at this time.

The Chair: Yes, we can see and hear you. It's all systems go.

Mr. Greg Stewart: Okay.

My name is Greg Stewart. I'm the president of Sinclar Group Forest Products and all of its related companies. I'm going to start by giving you a background on our company and then I'll discuss the conditions leading to our company's growth, followed by some considerations to promote growth in the value-added sector.

Sinclar Group was starting in 1962 by my grandfather, Bob Stewart, and his partner Ivan Andersen. Over 55 years later, the Stewart and Andersen families are still working together to provide quality wood products to the market. Initially, the company was started as a lumber wholesale office. At the time Sinclar was one of 20 wholesale offices in Prince George, British Columbia. This drove Bob and Ivan to develop strong relationships with both lumber suppliers and customers. Through those strong relations, Bob and Ivan approached the partners in a number of lumber operations in B. C.'s central interior and had the opportunity to acquire Apollo Forest Products, Nechako Lumber, and Lakeland Mills between 1969 and 1972. All of these operations are still operating today and are focused on producing stud lumber primarily for the United States, Japanese, and Canadian markets.

The family also acquired The Pas Lumber, which was later renamed Winton Global Lumber. This was a dimension lumber operation, which unfortunately had to close during the downturn of 2008.

In total, our current lumber operations produce over 550-million board feet of lumber and employ over 400 employees in Fort St. James, Vanderhoof, and Prince George.

While our company remains primarily focused on the primary lumber industry, one of our driving principles for our business has been to maximize the value of the forest resource that we handle. In 1985, Sinclar, through its Lakeland operation, became one of the first companies to deploy an energy system to capture the heating value of wood fibre. Previously lumber was dried by natural-gas-heated kilns. Through our conversion to woody biomass, it is estimated that the Lakeland operation reduced its greenhouse gas emissions by 90%. Shortly after the implementation, the other Sinclar operations were then converted.

In Vanderhoof, our Nechako operation was producing a lot of shavings and sawdust. To capture those residuals, the company identified that wood pellets would be viable. In 1997, we opened Premium Pellet. At the time, with a capacity of 180,000 metric tonnes of wood pellets, Premium was the largest pellet plant and was one of three companies leading the North American wood pellet industry. The other two B.C. companies were Pinnacle and Pacific BioEnergy. Today Premium employs 22 employees, purchases the residuals from regional mills, and ships 90% of its product to Europe. Currently the product is being used by utility companies to generate electricity, but in the past we've also supplied European companies to provide heat for homes. Aggressive European policies aimed at reducing greenhouse gas emissions have played a big role in enabling the export of Premium pellets.

Remaining focused on the energy applications of the industry's woody biomass residues, Lakeland has supported the University of Northern British Columbia's Nexterra gasification system by providing hog fuel, which is essentially bark and other wood residuals from our operations.

In 2011, Lakeland partnered with the City of Prince George to further capitalize on the waste heat generated from our energy system. Through the system, Lakeland heats glycol, which is pumped to a heat exchanger where it heats water for the City of Prince George. That water is then pumped to 11 buildings in downtown Prince George, including the courthouse, city hall, the Four Seasons pool, and the Wood Innovation and Design Centre, providing heat for all those buildings.

Going back to the mid-1980s, our company acquired Winton Homes, which was formerly known as Spruce Capital Homes. Winton Homes produces structural building components, including roof trusses, panelized walls, and floor trusses. These components are supplied to contractors within a 400-kilometre radius of Prince George. The contractors use the products for home construction, but we've also helped design and supply hotels, apartments, office buildings, hospital buildings, and restaurants. Just last month Winton supplied our Winton-wall passive panel to the Wood Innovation and Design Centre lab to help it achieve its passive house standard.

Winton also supplies structural home kits to first nations, do-it-yourself homebuilders, remote builders, and under-manned contractors. For these customers, we amalgamate all the products required to get the home to a locked-up status. Winton Homes during the peak production season employs up to 70 people.

● (1005)

Sinclar has also had success in the finger-jointed lumber market. Until recently, our Apollo operation had a joint venture with the Nak'azdli Band. Tl'oh Forest Products, founded in 1995, was a viable operation for over 20 years, primarily producing high-quality finger-jointed lumber. The operation produced 25 million board feet annually, and approximately 90% of its 50 employees were first nation.

Sinclar has been driven by a sense of responsibility to extract the full value of the fibre resource it processes; however, our willingness to try new approaches and produce new products has been supported by the communities and the strong relationships we've been able to build over our 55-year history.

Underlying each of these business ventures were strong economic fundamentals allowing us to invest. There was either market access or demand to facilitate product flow or there was initial abundance of resource materials to supply the venture. In each of the value-added businesses, their addition to our operations strengthened the company. They relied on the raw material our products supplied from the primary lumber industry. As the businesses have grown, they now rely on supply from other primary manufacturers in the region. I believe our value-added operations are playing a role in making the overall sector stronger.

While there are great additive effects the value-added industry can have on the existing primary manufacturers, the initial launch of these ventures depended heavily on three factors: market access and demand, resource availability, and government regulation. For example, the decision to build a pellet plant hinged largely on government regulation. First, regulation to eliminate beehive burners, which were used extensively in the industry, meant the sawmills had to address the hog, sawdust, and shavings from the operations. At the same time, we saw European countries enact legislation to displace coal for their heating needs. Europe was looking for an alternate fuel source that was able to provide stable baseloads while reducing the environmental impact.

At Tl'oh, the finger-jointed business was started because of the glut of trim ends being produced in the local mills. Through our primary lumber business, we were familiar with the markets, allowing us to sell all the finger-jointed materials through our existing distribution channels. However, the business has been adversely affected by government regulation. The punitive softwood lumber duties limited our ability to access the U.S. market.

I'm optimistic and excited about the potential for Canadian wood products. The primary forest industry has driven this sector's growth and infrastructure development. There are new and emerging uses for our value-added wood products, allowing the country to realize additional GDP per each cubic metre of harvested fibre.

Wood products, provided they are sourced or harvested from sustainably managed forests, are environmentally viable alternatives for energy production in construction. The sector is geographically diverse, employing Canadians from coast to coast. As the world grapples with how to reduce greenhouse gas emissions, wood products provide a naturally occurring renewable resource that has the ability to store and consume carbon dioxide. The ability to realize this potential today will depend on the factors mentioned above: market access, resource availability, and government regulation.

Market access is front of mind for many value-added operations due to the United States-imposed duties on the Canadian wood product sector. While I do not believe a negotiated settlement is imminent in the next few years, it is important that the country prepare for the eventual discussions. It is my understanding that quota was discussed as a potential resolution to the trade dispute. While the country scrambles to define what a quota system would look like in the short time available, I would recommend that the Canadian government and the ministry of natural resources continue to develop a potential quota system by working with the Canadian industry. Domestically, I strongly encourage the continued and possible expansion of support for the Canadian Wood Council and the Wood WORKS! program.

The use of wood products in construction projects beyond single-family homes requires further development. Architects, engineers, fire officials, building officials, developers, and contractors influence the decisions to build with wood. It is important that each of these influencers is familiar with the benefits of wood and how to build with wood. However, each of these groups has very different focuses, and the woodworks team has proven adept at being able to address these individual influencers.

Resource availability today, while important, is largely a provincial government issue. With respect to government regulation, there are two areas where I feel there is opportunity to influence the use of value-added wood products.

First, the building code requires buildings built with wood to have a 25% frontage. This requirement will limit when wood buildings can be used. I have been told it will also change the economics of proposed developments. This will have a significant negative impact on structural value-added wood products. Second, to address greenhouse gas emissions from power generation plants, I recommend studying the potential of coal fire in these facilities with wood pellets or other biomass products. As I mentioned earlier, Europe has been focused on this for a couple of decades, and as we've recently seen, Japanese legislation is also encouraging the adoption of wood pellets.

● (1010)

I see tremendous opportunity in the value-added wood market in Canada. I thank you again for allowing me to speak to you today.

The Chair: Thanks, Mr. Stewart.

Now, Mr. Tan, you're going to start us off with some questions.

Mr. Geng Tan (Don Valley North, Lib.): Thank you, Chair; and thank you, gentlemen, for being here today as witnesses.

My first question is for Mr. Minhas. Your product is very interesting. It is made from natural, renewable material and has great strength, and I assume that it will have wide application in the future.

Is your product still at the lab scale or industrial pilot scale, or is it already commercially available?

Mr. Gurminder Minhas: We had some field trials just last year of large quantities, several hundred kilograms going out to the field for trials. We also had smaller scale trials where, in the plastics example I gave you, we're actually generating several hundred kilogram batches of our material in a compound form. That's going to be made available to injection-moulding companies, automotive manufacturers, for trial of our compounded plastic in their processes.

Mr. Geng Tan: In your statement you mentioned finance from the government and research at universities. From some short notes I have, not your statement, about your program or your joint venture —

● (1015)

Mr. Gurminder Minhas: I rarely go on script.

Mr. Geng Tan: —you mentioned your collaboration with FPInnovations, but you don't mention much about the universities.

Do you really have any strong, direct collaboration with other universities, such as the University of Toronto? I know the University of Toronto's Faculty of Forestry has a long pilot scale or test plan, or whatever, sitting there. Do you have any collaborations with universities and academia?

Mr. Gurminder Minhas: We do not specifically with the University of Toronto, but we do actually work quite closely with universities. Our laboratories right now are located on the campus of the University of British Columbia. We have working relationships with the Faculty of Forestry at UBC, and the Department of Civil Engineering.

In the example I gave of the concrete, we don't have our own concrete lab. We actually rely on UBC Civil Engineering. We supply them with our material in various forms and they actually do the testing on our behalf.

We've also just started a project with Université Laval, where we are going to be incorporating our fibres as a reinforcing agent in thermoset foams.

Mr. Geng Tan: In terms of the research or the joint venture program, currently the most popular model is the collaboration between the industrial producers and the research institute, either the industrial research institute or university, and the government partner.

There's another model in which the industrial company just works with another small group of researchers or another industrial company so that they can better protect their technology or patent in the future.

How do you compare these two models, and which is more promising in terms of promoting innovations in the industry?

Mr. Gurminder Minhas: I think the collaborative model has the most promise, but we actually have a unique model where we're not just collaborating as a company with universities and research organizations, but have brought two forest product companies together to collaborate.

Resolute Forest Products and Mercer International technically are competitors with each other in their general markets. When we created the joint venture, we actually carved out the market. In traditional paper and tissue applications where these two companies or parent companies are competitors, they are interacting, dealing, and developing those markets for cellulosic filaments independently of Performance BioFilaments. Our role is to create new applications and new markets where the current companies and current sector is not focusing. We have two companies that we've brought together, and they fund a separate company, Performance BioFilaments.

We in turn reach out to what I call “centres of excellence”, whether that's a research institution, a private contract lab, or a university, and we know which areas of the market we want to accelerate in. We find those experts, the expertise, equipment, and laboratories, and we actually do collaborative research work with them.

The question of intellectual property does come up and we deal with that on an individual basis. Some universities are very open, in particular if we're providing all the funding, to allowing us complete access to IP. Some are a little more closed with respect to allowing access to IP for research purposes. With each of those, we haven't come across a situation where we weren't able to address IP in a formal contract. We address those on a one-on-one basis, given the project they're undertaking.

Mr. Geng Tan: A few days ago, we heard from another witness. He said that when launching a high-risk project, the university and government involvement adds external validation. I guess you must agree with this concept then?

Mr. Gurminder Minhas: External validation is key, yes.

Mr. Geng Tan: Mr. Stewart, I have a quick question for you.

Also from the notes I see that some of your operations are done by a small, family-run venture. I don't know how big the scale is; it's probably on a smaller scale, compared to other competitors. For your small-scale facilities to survive, you have to be very innovative.

Innovation always costs money at the beginning. How do you compare or maintain your competitiveness with other competitors that have a larger scale or more money for innovation, probably with lower costs. How do you use your money, your capital, wisely?

● (1020)

Mr. Greg Stewart: Just to be clear, in terms of small-scale versus medium-sized, I would characterize us as more of a medium-sized forest business with a total of 550 employees in all of our operations. There are certainly smaller operations out there, which I think very much deal with the issue you're talking about, namely how one continues to innovate.

Going back to my initial comments, Mr. Tan, one of the areas we focus on is making sure we're that developing strong working relationships with communities, with various participants. The example is the City of Prince George in our renewable district energy system. By having those strong relationships with the City of Prince George and understanding what they were looking for as a solution to some of their heating needs, we were able to talk about and develop the project such that they installed an electrostatic precipitator on our site, and we are providing heat to the city of Prince George through that glycol I mentioned.

We've relied on strong relationships and all of these ventures started in partnership. Over time those partnerships either endured or sometimes people achieved their aspirations, but we look to try to find partners in a lot of the projects we initiate.

Mr. Geng Tan: Okay.

The Chair: Thank you.

Mr. Falk.

Mr. Ted Falk: Thank you very much, Mr. Chairman.

Mr. Minhas, you talked a little about the polyfibre that you're developing for the concrete industry, and you say you've been conducting some tests already. Has this been accepted or adopted by folks in the industry?

Mr. Gurminder Minhas: We are still in discussion with industry. One of the reasons I'm back here east from Vancouver is that we just had meetings yesterday with two concrete producers, and we shared results with them from our latest study at UBC. I'll comment from this side as well that the nice thing about working with universities is that we're working with established professionals in centres of excellence, so when we have a professor, who is in essence world-renowned in this area, and who conducts research on our behalf, that credibility and expertise they bring to the table goes a long way.

Just in our call yesterday, the professor we're working with conducted... The call went through...the slides that he did for us. Some of the questions we asked of him were answered very well, so we're well on our way to getting this into field trials.

We do expect that by the end of this year, if not this summer, we will have field trials on a concrete site.

Mr. Ted Falk: To ramp up to a commercial-scale production, you don't see that as a problem, or do think there are individuals or organizations that would do that?

Mr. Gurminder Minhas: Do you mean on a commercial-scale for producing our product, or getting it into concrete sites?

Mr. Ted Falk: For producing your product.

Mr. Gurminder Minhas: Yes, we're developing our commercial plant. We've done the first engineering study, plus or minus 30%. We do expect the full engineering study and the capital costs to definitely be done by the middle of this year. We would build that plant ourselves.

Mr. Ted Falk: Thank you, Mr. Minhas.

Mr. Stewart, thank you for your testimony. I appreciate very much your providing the committee with that information.

I noticed that you're able to use a lot of biomass in your plant that produces heat for the municipality of Prince George. Are you able to find a market for all of the biomass your different organizations produce?

Mr. Greg Stewart: Largely, yes. There are a number of different biomass swaps that go on between various operations in this region to optimize the transportation costs of getting the product to those sites. With the elimination of the beehive burners, it required that we basically be able to handle our biomass. In the past, if you had a beehive burner, you had extra residuals. You would probably be looking to landfill some of that material.

Mr. Ted Falk: Okay.

Mr. Greg Stewart: Today, with the strong bioenergy or bioeconomy, it's giving other options. Whether it be combined heat and power projects, pellet plants, or our own energy systems, we're able to consume the volume.

● (1025)

Mr. Ted Falk: The residue from that is ashes. What do you do with the ashes?

Mr. Greg Stewart: There are a number of things that we're looking at. I believe we actually end up landfilling some of the ash, but I know there have been projects up at the University of Northern British Columbia looking at how to use ash as a potential fertilizer .

Mr. Ted Falk: Okay, very good.

Outside the partnerships you have with municipal partners, has your company had to utilize any government grants or subsidies to do what you're doing?

Mr. Greg Stewart: We certainly don't use the word “subsidy” in this industry. But as far as grants go, the Nechako green energy process that we have, which utilizes some of the waste heat to generate electricity for our site, was a project initiated using B.C. Hydro's funding as part of their conservation effort. The idea was that by utilizing that wasted heat and generating the electricity that we do on site, we reduce our overall load on the utility for providing electricity. That's under their conservation program. I know that in the partnerships we've had with first nations and the City of Prince George, our partners were able to access government funding that enabled those projects to go ahead. We have not accessed the funding, but obviously we pay close attention to a lot of the funding mechanisms that Mr. Minhas talked about, whether it be IFIT or other like programs.

Mr. Ted Falk: Good. I appreciate your testimony.

It's over to Mr. Schmale.

Mr. Jamie Schmale: Thank you, Mr. Falk. It's very nice of you.

Mr. Stewart, I might as well start with you. I'll read you this headline from the *Financial Post*. I'm sorry, Mr. Serré, it's not from the CBC. It says, “Climate crusaders are close to banning something that can save your family's life”. It goes on to say, “In Montreal, beginning in October [of this year], no traditional fireplace or wood stove 'may be used or left to be used' by any resident, according to a new city bylaw.” It also goes on to say that in Metro Vancouver they're “in the midst of a public consultation regarding its own proposed ban on fireplaces and wood stoves.” If approved, Vancouver residents in the metro area “would be required to register all wood-burning devices by 2022...as in Montreal...fireplaces and stoves would be ineligible for registration. In 2025, it would become illegal to use any unregistered wood-burning system...”.

First of all, I find that quite concerning because these activists would rather you freeze to death in the event of a power outage than use something they disagree with. However, you had said that you also are advocating for more wood pellets with government. Aren't you concerned that if the government can advocate for your industry, it can also, in this case, work against it?

Mr. Greg Stewart: I think the simple answer is yes. The opportunity around regulation can go both ways. We've certainly seen the impact of that. I'm not familiar with the details of that particular report you are referring to, but I would be interested in seeing exactly what it is referring to. I know that pellet stoves, for example, which are used for home heating, have been adopted extensively in Europe, and I know that in northeastern U.S. there is a very strong network of homes being heated by wood pellets. Those facilities do burn quite cleanly. I know that Prince George, with its air-sensitive climate, has dealt with wood-burning stoves. However, the reality is that in our facility, we put the electrostatic precipitator in with the City of Prince George. We make sure that we're able to address those concerns.

Mr. Jamie Schmale: But you see the dangers of governments picking winners and losers here, instead of letting the market decide. You see what government power can do here.

Mr. Greg Stewart: Absolutely. I, by no means—

Mr. Jamie Schmale: Even by force, by fine or jail, it can determine behaviour. They should be enhancing our freedoms, not controlling us through the tax code.

Mr. Greg Stewart: Fair, but I don't have the information on the tax code—

Mr. Jamie Schmale: No, for sure. That was more a statement. My time is running out. That's why I said that. It was more a statement than a question.

The Chair: Actually, it's past the answer time—

Mr. Jamie Schmale: Yes, I know. That's why I needed to get that in.

The Chair: Mr. Cannings.

Mr. Richard Cannings: Thanks to both of you for being here today.

I want to start with you, Mr. Minhas, and talk about how you're in the very early stages of developing a product. This sounds very encouraging. It's a very interesting product.

I wonder if you could give me where you see this in 20 years, say, if everything goes very well for your company and for the product. I'm asking because I have a Mercer plant in my riding, in Castlegar. I'm wondering how the production of this product links with Mercer mills, Resolute mills, and the Resolute mill across the river here. What proportion of their output, if any, would go into this? Could you give me a deep-in-the-future look at where you hope things go?

● (1030)

Mr. Gurminder Minhas: Yes. The primary feedstock right now for our process is northern bleached softwood kraft pulp, or NBSK. Both Mercer and Resolute are major producers of this, but we envision our facilities being less linked to pulp mills and more linked to the end-user markets. Because we are creating a specialty market, we're not going to be talking about tonnes of material produced. We're going to be talking about kilograms. It's going to be similar to a specialty chemical plant, more so than to a pulp mill.

We envision having satellite plants where we would bring feedstock—ideally from the parent companies, because they do have production globally—into these satellite plants and then having these plants serve specific markets. The plant we're designing right now is intended to serve all the key markets that we're developing, some of which I've highlighted, but we do expect to get to a certain volume point where that plant, being the first plant, will basically run out of capacity. Then, as our markets and the volume develop, we will have specialized plants to serve, for example, the concrete sector. We'll have a specialized plant to serve the plastics sector. Filtration media could be another opportunity.

Mr. Richard Cannings: Thank you.

I'll turn to you, Mr. Stewart. That was a very interesting presentation. I was just in Prince George at the natural resources forum. I don't know if the civic centre there is heated with your heat, but you said the pool next door was?

Suddenly we can't hear you, so....

A voice: We've lost him.

[*Technical difficulty—Editor*]

Mr. Greg Stewart: I was just saying yes, the civic centre is heated by us.

Mr. Richard Cannings: Okay. Just out of curiosity, how far away is the heating plant that pipes the glycol? I'm curious as to the physical aspects.

Mr. Greg Stewart: I would put the plant as probably a kilometre or a kilometre and a half away from the civic centre.

Mr. Richard Cannings: Okay. It's interesting that it can be done that way.

On a map that one of our previous witnesses gave us about IFIT-funded projects, I see a Nechako forest products dot. Could you tell us about your use of IFIT, how that went, and any recommendations you'd have about that program?

Mr. Greg Stewart: Unfortunately, I'm not familiar with that. The one project I talked about in the previous answer was with Nechako Green Energy. We utilize waste heat to generate electricity.

In preparing for this talk, I was trying to do some research to see if they were able to access that, and I was under the impression that they had accessed IFIT funding. What that project was able to do was to be the first of its kind in all of Canada to use waste heat from a sawmill operation. It was great funding for that. I can't tell you what amount of money went into that project, but it did facilitate the first commercial application in Canada.

Mr. Richard Cannings: Okay. One thing I also learned at the natural resources forum was about the vast amount of wood pellets coming out of your region, both from your company and others, that is going through Prince Rupert and on to England and things like that to create energy. It was quite an eye-opener.

I want to come back to your home company and the panels you're making, the structural work. Can you export those products to the United States without softwood lumber tariffs? Or could you?

Mr. Greg Stewart: There are elements that remain outside the tariffs. There are other components that go with home construction that we do have to declare and pay tariffs on; generally speaking, there is going to be loose lumber and the like.

As of today, the U.S. market has not been a huge market for that particular business. In the past, when the dollar was weaker relative to the U.S. dollar, we saw roughly 30% of our production go south of the border. Today, we're sending maybe 5% to 10% of our product down there. We certainly haven't sent a lot of product since the duties were imposed.

● (1035)

Mr. Richard Cannings: Okay.

Another issue in British Columbia that I hear a lot about is the export of raw logs. With a company like yours that is seemingly doing a lot with every log you use, I wondered if you could comment on that. I know it's probably more of a coastal thing, but for the B.C. interior, are there things that you could use that fibre for here in Canada in terms of value added, like what we're talking about here today?

Mr. Greg Stewart: In terms of the export of raw logs, you're right: it is primarily coastal rather than interior.

There's an incredible demand for that fibre. A lot of the interior fibre is used in the interior. You don't see a lot of that exported. As for our ability to utilize some of these different species that are coming out of the coast, at this point we haven't really ventured much further beyond SPF, the spruce, pine, and fir species, which are largely the species in the interior of British Columbia. In the future there might be an opportunity, but today we don't utilize those species to any extent that would have a significant impact on those exports.

Mr. Richard Cannings: I'll leave it there. Thank you very much.

The Chair: Mr. Serré, unless you're giving your time to Mr. Schmale, I believe you're next.

Mr. Jamie Schmale: That's a great idea. I think that's a fantastic idea.

Mr. Marc Serré: No. I like Mr. Schmale, though.

Thank you so much, Mr. Chair. Maybe I'll start with what Mr. Schmale mentioned.

I'm glad that you're now reading the *Financial Post* versus what you were reading previously, the CBC, Mr. Schmale. You were quoting from some articles. That's really good.

Voices: Oh, oh!

Mr. Jamie Schmale: I like to mix it up.

Mr. Marc Serré: I want to also specify that the article was really focused on Montreal and Quebec.

Also, I hope you're not suggesting that we should stay with oil furnaces and not explore other heating sources. I just wanted to make sure that article—

Mr. Jamie Schmale: A lot of my people are on oil, though.

Mr. Marc Serré: We have to try to see how we we move forward on that—

Mr. Jamie Schmale: Without a government subsidy.

Mr. Marc Serré: We'll look at that.

Thank you so much to our two witnesses for your testimony and the research you've done to prepare for today.

My first question is for you, Mr. Stewart. Several times you mentioned your first nations engagement. Can you give us a few examples of the successes you've had with the first nation communities and also any recommendations that you would have for industry and for us as part of our report?

Mr. Greg Stewart: Probably the one that I spoke about in terms of Tl'oh Forest Products and the 20-year relationship that we've had with the Nak'azdli band has been a great success. As part of that venture, we also established Ta-Da-Chun, their logging operation. We continue to this day to work with their logging operation.

Within our area, we have a number of different bands that we work with on a regular basis. In Fort St. James in terms of the next band that we'll probably work with, the closest is the Tl'azt'en band. We've worked with them around forestry management agreements, making sure that we're coordinating our efforts as well as helping them manage their forest to the benefit of their community, whether that's sales or purchase agreements. We've been working closely with them.

Right now, we're in the process of negotiating a forestry benefits agreement with the Saik'uz First Nation band south of Vanderhoof. That as well is a relationship that has gone on for over 20 years. We have been purchasing fibre from them over that duration. In addition to that, they have a forestry company, a logging company, that we have worked closely with. It is a top-notch logging company that we're quite happy to continue working with, and we're looking at opportunities to try to expand the amount of fibre that's available for them to harvest.

As part of those agreements, we're looking at what this means for education, training, employment, and the ability to purchase. We also look at what are some of the other opportunities around joint ventures. We've explored other joint ventures with the various bands. With Saik'uz, for example, we have looked at a log home business and a couple of other ones. Also, today we're talking about what other opportunities exist.

We have also tried to partner with a number of the local bands on first nations housing. One of the challenges with first nations housing is that it comes and goes; it's in fits and starts. It's not necessarily a steady flow of housing, so it's tough to establish any long-term working relationships on first nations housing. It's something that we're hoping to work with, and we're in conversations right now with Saik'uz on that.

● (1040)

Mr. Marc Serré: Thank you for your work with the first nations community.

Mr. Minhas, you talked at great length about the cluster. You talked about the R and D. You had UBC and their work. You're also looking at Laval. I'd also like to mention Laurentian University in Sudbury, which started an architectural school 10 years ago, the first architectural school in Canada in decades, and also is now in the construction phase of a new state-of-the-art engineering program that they're expanding. They're doing a lot of the work with Resolute and the forest industry. You might want to link in with them and see how they do that.

I have a question, though, when we talk about the R and D, the production, and the SMEs and, to them, the commercialization and the valley of death and the challenges that centres of excellence have. Can you expand a bit more on what you would recommend for the federal government in terms of playing a role here to support more attraction and more product sector investment, especially on the commercialization of these products?

Mr. Gurminder Minhas: Again, I think one of the keys—and the government has done a pretty good job at it to date—is supporting universities and research institutions to create new innovation. We are a licensee of technology, so we created the company—and that's not the single premise of our company. I should note. We are a licensee of technology that was created by FPInnovations.

We chose that technology because we thought it was very commercial ready. It got to that stage based on support from government. We took that technology, and now we've accelerated it even further. I would say that we're now pre-commercial, if not commercial, in certain applications.

Additional support is going to come in, since we're not just relying as a company on this one particular piece of technology or material to take us all the way to becoming a very large, successful company. We're also trying to fill our pipeline with additional technologies and innovations, whether we create them ourselves or we license them in. We're constantly seeking new innovations and new researchers.

Often, we bring ideas to universities and researchers where, since we're much more exposed to the market and commercialization than a professor in a laboratory, we think we know what industry needs a little bit more of than perhaps a professor. We bring ideas to professors and we sometimes get them very excited about working with us in certain areas.

Supporting the innovation pipeline and giving companies, such as ours, opportunities basically to pick and choose what we would believe to be very successful near-term opportunities for taking something from lab scale, and then into the pre-commercial and commercial scales is something the government can continue to support.

Mr. Marc Serré: Thank you.

In 45 seconds or less, Mr. Stewart, with previous witnesses, we've talked about Europe and Asia and billion-dollar biomass industries. What can we do better here in Canada to attract some of the investments and also to look at exporting our products to Europe and Asia?

Mr. Greg Stewart: From a biomass or bioenergy perspective, one of the areas we would love to see more development of is those end uses here in Canada through cofiring, as I mentioned, but I think we have to continue to make sure that we have access to markets. The recent TPP signing, although I haven't seen the details of it—I know there was speculation around wood fibre and its flows and the benefits that would be realized in Asia. Of course, Asia is one of the next growing areas for the use of biomass.

The Chair: Thank you, Mr. Serré.

Gentlemen, thank you both for joining us today. Unfortunately, that's all the time we have, so we'll stop there. We're very grateful to you for taking the time to be here, especially Mr. Stewart, because I know it's very early where you are. You probably had to get up a little early to participate in this. We're grateful for that. We'll let you two go.

There are just three things we have to deal with quickly, committee members. Regarding the detailed logistics of the program for our travel in two weeks, you should be getting that next week. As a reminder, we need lists of witnesses by next Wednesday, February 7.

That's it. We'll deal with the other issues next week, but you need to know that.

The meeting is adjourned.