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Chair

Mr. Merv Tweed

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● (0850)

[*English*]

The Chair (Mr. Merv Tweed (Brandon—Souris, CPC)): Good morning, everyone. Welcome to the Standing Committee on Transport, Infrastructure and Communities. This is meeting number 36. Our orders of the day, pursuant to Standing Order 108(2), are for a study on innovative transportation technologies.

Joining us today at the witness table from WestJet is Mr. Geoffrey Tauvette, director of fuel and environment; from Discovery Air Innovations, Mr. Garry Venman, vice-president, government services; Brian Bower, vice-president, fleets and engineering; and from Top Aces Inc., Didier Toussaint, president and chief executive officer. Welcome.

I'm led to believe that you've been given some instructions by the clerk as far as making a presentation is concerned. After that we'll move to questions from the committee. Is there one group that wants to start?

Mr. Tauvette, we'll put WestJet at the top of the agenda. Please proceed.

[*Translation*]

Mr. Geoffrey Tauvette (Director , Fuel and Environment, WestJet): Mr. Chair and members of the committee, good morning.

My name is Geoff Tauvette, and I am the director of Fuel and Environment at WestJet. In my current role, I manage all aspects of the fuel supply chain, including the fuel-related infrastructure investments at airports, maintaining fuel safety and quality, and programs intended to reduce greenhouse gas emissions.

[*English*]

As you're maybe aware, WestJet began in 1996 with 200 employees and 3 aircraft. Today we employ over 8,500 WestJetters, and our fleet will soon reach a hundred Boeing 737 next generation aircraft. Over the next several years we have 30 additional aircraft on order.

Last week we also announced an agreement with Bombardier to purchase up to 45 Canadian-built Q400 turboprop aircraft for the launch of our new regional carrier in late 2013.

Your committee's study on innovation and transportation is more than timely. When we look to the competitiveness of Canada's aviation sector and the challenges we face, innovation and technology development are critical to ensuring the future success of our transportation system. We believe that government has a leadership role to play in this area.

Today I would like to highlight developments in aviation biofuel, the opportunity it presents for Canada, and the need for the federal government to develop a comprehensive and coordinated policy framework to advance aviation biofuels into production and use.

The cost of fuel today remains one of the biggest challenges to the aviation industry's economic vitality. Fuel now represents an air carrier's largest expense, typically at 30% or more of our total operating costs. Based on the current price of about $140 a barrel, jet fuel is typically about $30 to $40 over the quoted WTI price of a barrel of oil, which you hear about in the media. WestJet is forecast to spend over $1 billion this year on our fuel.

Over the past decade we've also spent billions on upgrading our fleet and driving operating improvements. As a result we have improved our overall fuel efficiency by 43% since the year 2000. The resulting fuel savings are equivalent to the amount of fuel that would have been used to fly a Boeing 737 between Calgary and Toronto, and back, up to 34,700 times.

Improved fuel efficiency obviously lowers aviation emissions. However, existing technology can only take the industry so far in achieving even further emission reductions. The aviation industry globally is now looking to develop an innovative new fuel source, aviation biofuel, which will begin to lessen our dependence on conventional jet fuel, lower our emissions, and decrease overall price volatility.

As recently as five years ago aviation biofuel was more science fiction than science fact. The skyrocketing price of jet fuel and the aviation industry's stated objective of lowering our aviation emissions has resulted in biofuel research being conducted by the airlines, aircraft, and engine manufacturers around the world. Companies such as Boeing and GE, among others, are deeply involved in supporting biofuel programs, and they have worked with industry to develop aviation biofuel specifications. Recently both the ASTM and CGSB, the overall regulatory bodies responsible for approving fuel specifications in the U.S. and Canada, have approved aviation biofuels and certified them for use in aircraft.

Aviation biofuels can actually be derived from a surprising range of materials, including industrial crops, such as canola and mustard seed, tallows, fats, and algae. Many of these crops are and can be grown in Canada.

Aviation biofuel is designed to be a drop-in, meaning it looks and behaves the same way as current jet fuel. It can be used by any aircraft fleet, and older engines.

The main challenges to developing an aviation biofuel that demonstrates a lower emission profile when compared to conventional petroleum-based jet fuels are that it does not compete with important feedstocks such as food crops and, of course, that it be economically viable and affordable for the airlines to purchase.

There is still much work to be done to advance aviation biofuel from small test plants to viably sized commercial projects. While cost is still the main challenge today, with technology improvement and scalability the costs of making aviation biofuel will become more affordable with time.

Canada has all the right ingredients and know-how to become a global technological leader in advancing non-food feedstock and aviation biofuel commercialization. However, what's missing is a clear policy framework focused on development and promotion of aviation biofuels in Canada.

In the context of the committee's current mandate, we recommend that the federal government identify a federal department as the lead in developing a federal aviation biofuel strategy that integrates efforts of various federal and provincial stakeholders as well as industry.

This will not be a simple process. We are looking at developing an evolving technology over the next five to ten years, but the need for policy is now.

As we will discuss in a moment, the United States is forging ahead with the development of such policy, increasing the risk that Canada will end up simply supplying the feedstock to the U.S. biorefiners to sell back to Canada without any accompanying benefits. Currently in Canada federal departments do have various biofuel development activities under way and provincial governments are now entering the aviation biofuel space in particular. Discussion is occurring, and there are pockets of good things being done, but they are not being adequately leveraged across all stakeholders.

Through Transport Canada we have attempted to call together Transport Canada, Environment Canada, Natural Resources Canada, Agriculture Canada, and the Department of National Defence to discuss prioritizing aviation biofuels. What is needed is a designated lead department. The U.S. experience is illuminating in this regard. The U.S. is implementing an aggressive plan to becoming the world technological leader in biofuel production and generation. In addition to taking a coordinated view on developing aviation biofuels, they are providing incentives through policy development and grants.

President Obama has created a presidential interagency working group on biofuels, comprising the U.S. Department of Agriculture, the Environmental Protection Agency, and the Department of Energy. Their mandate is to accelerate the establishment of an advanced biofuels industry, the whole being influenced by a primary vision of energy independence.

The Federal Aviation Administration, the FAA, has taken the lead role at the federal government level to support the aviation industry in establishing affordable aviation biofuel refining and production. Additional examples of this commitment come from the recent MOU between the FAA and the U.S. Department of Agriculture to further the implementation of industrial cropseeds for use as aviation biofuel. The FAA has also been awarded funds to distribute to suitable aviation biofuel production initiatives.

While the FAA represents aviation at the federal level, various U. S. agencies have made complementary investments across the entire biofuel supply chain. Ultimately the U.S. has an underlying strategy to coordinate efforts for the development and production of biofuels by assigning leadership responsibilities to each affected governmental agency. For example, the FAA is responsible for testing and performance and quality standards. The Department of Agriculture is looking into feedstock development and production. The Department of Energy is enabling production. The airlines, of course, are agreeing to purchase the produced biofuel.

These departments have provided almost $1 billion in grants for biofuel-related projects. For example the USDA, Department of Energy, and the Navy have committed $510 million to advance biofuel production. The U.S. Department of Agriculture has awarded $13 million for feedstock development. The FAA has recently awarded $7 million to several producers to develop aviation fuels for testing from different sources.

Industry has actually played its part. Airlines 4 America, A4A, and Boeing have partnered with the USDA to develop a program called farm to fly. This program promotes efforts at the farming level for feedstock research and production to use at the airline level.

In late 2011 the EPA revised its renewable fuel credit program to award aviation biofuels production with one of the highest credit values. The policy incents refiners to produce biofuels from sustainable non-food sources such as industrial cropseeds, camelina and mustard seed. Ironically, Canadian sources of feedstock are highly sought after by U.S. companies as an opportunity to produce biofuels with a high credit value, with any excess production for resale back to Canada. In short, Canada is sending our feedstock to the U.S. for processing and potentially buying it back without receiving any benefit under the EPA credit program.

Canada has a world-class expertise in developing and growing industrial oilseed feedstock, canola being a prime example of this, and this expertise should be leveraged accordingly. Since feedstock represents more than 90% of the cost of biofuels, it is a critical piece of the supply chain to reduce the cost.

● (0855)

This is an opportunity for industry and government to work together to leverage Canadian expertise and to position Canada as a world leader in aviation biofuel development. However, we need a policy framework to advance aviation biofuels into production and use. We need to identify a federal department to lead the development of the aviation biofuel policy framework and integrate efforts across industry, federal departments, and provincial governments. The U.S. has built the initial template, and Canada has the opportunity to strengthen that model.

Additionally, by accelerating the production of sustainable Canadian-made aviation biofuel, WestJet and the rest of the aviation industry can achieve further significant emission reductions. This will strengthen the competitiveness of our industry so that we can continue to deliver the affordable and quality air service that our guests have come to expect from us.

Thank you. Merci.

● (0900)

The Chair: Thank you.

Who is going to speak for the next group? Didier, please.

Mr. Didier Toussaint (President and Chief Executive Officer, Top Aces Inc.): First of all, I'd like to clarify that I am the group president for Discovery Air government services, in addition to being the CEO of Top Aces.

Mr. Chairman, vice-chair, and members of the committee, thank you for the opportunity to discuss with you today an emerging transportation solution that should be of interest to Canada. I'm talking specifically about hybrid air vehicles.

This technology holds much promise, especially for economic development in Canada's remote areas, such as the north and Arctic regions. In addition, Canada has an opportunity to establish itself as a major contributor and a world leader in the development of this technology by creating conditions that will attract investment and companies that are involved in the field.

What I can tell the committee is that Discovery Air is already actively participating in a collaborative effort with a world leader in this field. This effort has potential to bring significant development activities to Canada, but this will not occur unless the government can find ways to support it.

As with all new technical developments, there's always an element of risk, but with risk comes reward. By participating in the early stages of development, Canada and the Canadian aerospace industry will benefit from the jobs and cutting-edge expertise created throughout this development cycle.

With increased scrutiny on the environmental impact of development, and as nations push the geographic boundaries of where resources are developed, it is our belief that traditional infrastructure, such as roads and railways, will no longer be the preferred solution. Not only do these traditional solutions have significant negative impacts on the environment, they are capitally intensive and saddle governments with unsustainable support costs for years to come.

We don't believe Canada can afford to develop its wealth of natural resources using traditional methods. This is one of the reasons we should be exploring promising technologies, such as hybrid air vehicles.

Let's talk a bit about Discovery Air. Discovery Air Inc. is an aviation services company operating across Canada and in select locations internationally. We're one of the largest air operators in Canada. Actually, we are the second largest when it comes to the number of airplanes. We employ more than 850 flight crew, maintainers, and support staff to deliver a variety of air transport, maintenance, and logistics solutions to our government, airline, and industry customers.

We're headquartered in Yellowknife, and we're flying more than 45,000 hours per year in the Arctic. Discovery Air already provides air transportation and logistics in the remote regions of Canada's north. We're intimately familiar with the challenges this unique operating environment brings. When we began participating in buoyancy assisted flight workshops a decade ago, we immediately recognized the important role hybrid air vehicle technology could play in the future, and started to architect how Canada's aerospace industry, communities, and partnerships could benefit.

Hybrid air vehicles are not airships. Hybrid air vehicles are specifically designed to overcome the traditional problems associated with handling airships. The hybrid air vehicle generates its lift from a variety of sources, namely, helium, aerodynamic lift similar to a conventional aircraft, and vectored thrust from the engines. This combination of lifts is what allows the hybrid air vehicle to operate in remote locations, as it requires minimum support and infrastructure.

The other part of the hybrid air vehicle design that facilitates remote operations and minimizes the requirement for large infrastructure investments is the air cushion landing system. This system is similar to a hovercraft and allows the hybrid air vehicle to land on water, gravel, snow, ice, or grass, providing it's relatively flat. The airflow within the landing system can also be reversed to create a suction effect that stabilizes the air vehicle on the ground for loading and unloading operations. This negates the requirement for expensive runways in areas of thawing permafrost and rapidly changing ice conditions.

● (0905)

The initial hybrid air vehicle we plan to introduce to Canada can carry 50,000 kilograms over more than 5,000 kilometres. This would allow a non-stop flight from Hay River, Northwest Territories to Canadian Forces Station Alert and its return, without the traditional logistical challenges and the addition of infrastructure on the ground.

Because most of the lift is generated through buoyancy, the hybrid air vehicle does not burn as much fuel as conventional aircraft. For example, the 5,000 kilometre flight from Hay River to Alert can be done on about 12,000 kilograms of fuel, whereas an RCAF C-17 or a Boeing 747 freighter would burn over 80,000 kilograms of fuel. The hybrid air vehicle is therefore more environmentally friendly than comparable heavy-lift aircraft.

What are the obstacles to success? Introducing a new technology like the hybrid air vehicle into a service is not without its challenges.

After serving potential end-users of the technology in the oil and gas, mining, and transportation industries, we have concluded that interest in this technology is very high. However, no resource company is willing to initiate years of environmental approval based on a conceptual air transportation system, and very few companies are willing to invest the required capital to develop this technology.

To move ahead with the commercialization of the hybrid air vehicle, we need to design, build, and certify a demonstrator and prove that the technology works. This requires people with the correct skills, a receptive regulatory environment, and funding.

The Government of Canada has various funding programs that support research and development, such as the strategic aerospace and defence initiative. However, SADI eligibility criteria associated with intellectual property and geography are not attractive to international joint ventures such as ours. If a partnership with international members approached Industry Canada with a technical solution to some of Canada's transportation challenges and a plan to establish Canada as the global leader in the commercialization of the technology, the request would likely be denied, unless all of the intellectual property belonged to a Canadian entity. This is not conducive to international collaborative efforts for commercializing technology that originates offshore.

This issue is currently being discussed in the aerospace review the government has asked the Hon. David Emerson to lead. We believe that the aerospace review will generate a series of recommendations regarding access to funding for international collaborative efforts that will have several benefits for Canada. We urge the government to seriously consider these recommendations.

With respect to training, technical skills obstacles will need to be resolved. There is no academic institution specializing in buoyancy-assisted flight technology. And although Canadian aerospace engineers and technicians are globally recognized, specialized training in the intricacies of hybrid air vehicles will be required. We have initiated an annual student paper competition through the Canadian Transportation Research Forum to help encourage academic institutions to focus on the application of this technology. But time will be required to develop an understanding of buoyancy-assisted flight and to generate the required skill sets to build and maintain these aircraft.

The National Research Council Institute for Aerospace Research has no buoyancy-assisted flight expertise. They will need to acquire it if they are going to remain a trusted source of aerospace advice to the government.

There are at least three companies investigating or proposing commercial buoyancy-assisted flight operations in Canada at this time. The U.S. government spent over a billion dollars in buoyancy-assisted flight operations last year alone, so it is highly likely that this innovative transportation solution is coming to Canada sooner or later. Canada has a chance to be at the forefront of this innovation cycle and to establish itself as a global leader in this technology.

Let's talk about the regulatory environment. The regulatory environment for hybrid air vehicles also needs to be addressed. The Transport Canada regulations on buoyancy-assisted flight refer to the U.S. Federal Aviation Administration, the FAA, and the European Aviation Safety Agency regulations for both technical certification and operator certification. Industry will have to work with Transport Canada to develop the regulations in parallel with the development of the air vehicles.

● (0910)

According to Transport Canada, there are 220 people in Canada with valid balloon licenses, none of whom are instrument rated and most of these licenses are for hot-air balloons versus commercial airships. Part of the challenge is that a clear licensing route for multi-engine instrumented operations of hybrid air vehicles does not exist. For example, Transport Canada currently requires a hybrid air vehicle pilot to have a hot-air balloon licence, which is comparable to mandating a candidate for a driver's licence to know how to ride a bicycle.

The third obstacle to success with hybrid air vehicles is one of infrastructure. In order to meet the market demands, the air vehicles are very large. A 50-tonne version measures 150 metres in length. It's 55 metres wide and 36 metres high. This is big. This is roughly the size of a CFL football field and 10 stories high.

During construction, the advanced composite layer hull must be laid on a heated floor and requires approximately 20% more space than the air vehicle dimensions in length and in height. There is no hangar anywhere in the world that can accommodate a 50-tonne variant and we have future plans that call for a 200-tonne variant measuring 200 metres long, 80 metres wide, and 50 metres high.

Whoever creates the facilities for the manufacture and final assembly of these air vehicles will establish a global centre for research and development in the field of hybrid air vehicles. This in turn will create jobs and the conditions for significant participation in this emerging field.

As Discovery Air has become better informed about the unique lifting mechanism and ground handling capabilities of the hybrid air vehicle, it is apparent that the possibilities for this transportation solution are very promising. Instead of thinking about the technology, we started to think in terms of economic development, environmental stewardship, and aid delivery. For example, imagine the vast regions of Africa that can be developed for food production because goods can easily be transported to these markets with no need for investment in roads and airports.

Canada could be a leader and contribute an environmentally friendly transportation solution direct from the warehouse or the farm to refugee camps without incurring losses due to spoilage or handling. Imagine the significant improvements in the quality of life we can bring to our remote communities by changing how education and services are delivered. Instead of bringing people to hospitals, let's bring the hospitals to them while at the same time not being held hostage to the seasonality of ice roads and ice-free ports.

With the ability to land on water and unprepared surfaces, think how quickly a hybrid air vehicle could respond to a natural or man-made disaster. Canada could become the global leader in disaster response and humanitarian aid.

It is our hope to introduce a fleet of 50-tonne air vehicles and to establish a centre of excellence here in Canada. With the global support of this fleet we look forward to working with our government and industry partners to realize this vision. By rapidly identifying itself as a leader in the development of a hybrid air vehicle, Canada can become a dominate player in this field, reap the benefits of this technology, and continue to provide cutting edge opportunities for the 80,000 people employed within Canada's aerospace industry.

Merci. Thank you.

The Chair: Thank you very much.

Ms. Chow.

Ms. Olivia Chow (Trinity—Spadina, NDP): What is the timing of the delivery of these hybrids? I know you've had the order from the U.K. and is delivery for that in 2015? When is the first pilot project coming in, or first hybrid...? What's it called?

● (0915)

Mr. Didier Toussaint: Hybrid air vehicle.

Ms. Olivia Chow: Hybrid air vehicle. When is it arriving? What is the timing of it?

Mr. Didier Toussaint: There is a military application of hybrid air vehicles. As I stated earlier, the U.S. government has already invested $1 billion and this technology will be flying this year. For the commercial version of the hybrid air vehicle, we expect to start manufacturing production and flying in 2015. This is all a go.

Ms. Olivia Chow: The one you're talking about, isn't that one for the military by Lockheed Martin, or is it the same U.K. company?

Mr. Didier Toussaint: No, it's a different one.

Ms. Olivia Chow: It's a different company, I believe, right? It's two different technologies. That one is not a hybrid; it's more of an airship.

Mr. Garry Venman (Vice-President, Government Services, Discovery Air Innovations): Lockheed Martin has a competing product, and Lockheed Martin bid against Northrop Grumman for the U.S. military's long-endurance, multi-intelligence vehicle program. It's a U.S. Army program.

Northrop Grumman won that competition, but the manufacturer of the air vehicle is Hybrid Air Vehicles from the United Kingdom, and the first flight of that fully assembled vehicle could happen this month. They're getting very close to the first flight. Our participation in the program is with the same British company, but it's on the commercial development side.

Ms. Olivia Chow: Are there any other countries besides the U.S. that are piloting these hybrid air vehicles?

Mr. Garry Venman: No, they're not operating. When this surveillance version for the U.S. Army flies, it will be the first flight of this model.

Ms. Olivia Chow: We heard from the last group of witnesses that the airships require a hanger, so there are major infrastructure costs. This hybrid can land like a helicopter—well, not quite like a helicopter, but can land anywhere that's flat, right? Is that the theory?

Wouldn't it also need a hanger to service it? Would it require a huge space, which would explain the big infrastructure need?

Mr. Garry Venman: There will be a requirement for infrastructure for sure, just like you need airports to operate airplanes. At some point, you will need to put these vehicles in some facility for annual maintenance.

The intention is for these things to operate in the field without the requirement for massive infrastructure, but there will have to be certain locations across your regions where you can bring the air vehicles back for maintenance, routine maintenance, inspections, that type of stuff.

Ms. Olivia Chow: Can you describe how it lands? I've been on planes: I flew to Yellowknife several times, and I've been to Hay River and all of those remote areas. Usually the runway is really short. Half the time you need helicopters, and I notice you run helicopters also. How does this actually land?

Mr. Garry Venman: It can land either vertically or like a conventional aircraft, and it requires about three to four times its length. If it's 100 metres long, it's going to need about 1000 feet to get airborne, fully loaded. The beauty of it is that you don't need a runway. You could literally land this thing on a lake, spin it around, back up against a shoreline, and unload equipment. Northern communities are isolated except for short periods of the year when there is access by ice road. The rest of the time, stuff is flown in and out.

Ms. Olivia Chow: Also, you can land on water. And you don't require the float plane. What about a business plan, the dollar cost to fly cargo this way, versus a traditional plane or driving or rail? Has anyone done a comparison on what it would cost, per-tonne and per-kilometre shipped? Have you seen a study like that?

● (0920)

Mr. Garry Venman: Yes, we have seen research into this. The cost per ton per mile is cheaper than it is for conventional aircraft. It won't compete with rail and road transportation, but that's not the segment of the market we intend to go after.

Ms. Olivia Chow: Yes, none of these have rail...

Mr. Garry Venman: No, but typically if a railway is built or you have a highway, then your transportation costs are minimal. Where it starts to make more sense is when you look at regions that don't have that infrastructure. So if you have to factor in the cost of $4 billion to install a railway so you can access a mine, for example, it's starts to become a different equation. With this type of solution you wouldn't need to put that capital investment in.

So in Canada's north there are numerous stranded resource plays that haven't been developed, because the companies, quite frankly, don't have $4 billion to invest in an all-season road and a deep sea port so they can extract their resources to markets—not to mention that the installation of those roads and deep-sea ports is going to have negative impacts on the environment. We think the environmental approval process is going to become increasingly challenging. The easy stuff has all been found, in our opinion. In the process of developing stranded resources, should we not be looking at other ways of doing this?

The Chair: I have to stop you there. I'm sorry.

Monsieur Coderre.

[*Translation*]

Hon. Denis Coderre (Bourassa, Lib.): Thank you, Mr. Chair.

I am trying to understand. This is the first time I'm seeing this.

Mr. Didier Toussaint: This method of transportation is fairly slow.

Hon. Denis Coderre: I just returned from Paris. That would take about two days.

Mr. Didier Toussaint: We are not offering you a ticket to Paris; that's not our intention. Rather, our intention is to transport resources at a much lower cost. We were just talking about infrastructure. Yes, it will take a little longer than an airplane, about the same time as a train, but at much lower costs. That's the goal.

Hon. Denis Coderre: You mentioned Yellowknife. I'm a newbie when it comes to this and I'm just trying to understand. Sometimes there are crosswinds. Isn't it a reality of flying? What speed does it travel at and how do you get organized? I'm not closed to the idea, not at all. It's going to cost less, but it's going to take more time, which may have an impact on the transport costs. To sum up, there are two questions: the transport costs and the crosswinds.

Mr. Didier Toussaint: With respect to the question of piloting, we have already looked at the issue with a company from the United Kingdom. Of course, there are flight plans at different altitudes. There is a limit of 50 knots for winds on landing, which is very high. The time it takes to get from point A to point B is generally relatively stable and predictable. It's something that can be planned. There are various flight plan options to bypass the winds that would make up for this difference in time.

Hon. Denis Coderre: How many prototypes have been built so far?

Mr. Didier Toussaint: According to the contract, three prototypes have been built for the American armed forces. None have been built yet for the commercial version. We would be the first in the world. We have a contract with the company in England to market the production of several of these vehicles.

Hon. Denis Coderre: You spoke about 50 knots. What does that relate to in terms of speed?

Mr. Didier Toussaint: It's about 80 km/h, which is equal to very strong ground winds, to be able to land.

Hon. Denis Coderre: The engine can transport fairly heavy loads, can't it? You compared it with what a C-17 can transport.

● (0925)

Mr. Didier Toussaint: The 50 tonne version has almost the same volume as a 747.

Hon. Denis Coderre: Have you already met with Canadian government officials?

Mr. Didier Toussaint: We have met with several people in the Government of Quebec, as part of the Plan Nord. We have taken many steps in this area, as well as in the mining industry. That is where the potential clients are. As for the Government of Canada, we are here making our initial efforts.

Hon. Denis Coderre: It's a first step.

Mr. Didier Toussaint: This is my first, at least. I'll turn things over to Garry.

[*English*]

Whom have we approached?

Mr. Garry Venman: We have approached Industry Canada and SADI. Our biggest challenge right now, as Didier just said, is that we are the first company globally that's going to introduce one of these things into service. We need to mitigate the risk associated with that. There are large investments required. There need to be changes to the regulatory environment and there are going to be requirements for investment in infrastructure. To mitigate that risk we are going to be looking for risk-sharing partners. We do see government as being a part of that because there is a lot of upside for Canada. We also need to get through a demonstration phase. We want to see one of these vehicles built and actually go out and prove it. We know there's a market for this, not just in Canada, but there's a large market for this globally.

Hon. Denis Coderre: What was the reaction? I wouldn't understand the reaction regarding the money but regarding the product itself?

Mr. Garry Venman: The reaction to what we're asking for is a little muted because of the current eligibility criteria for programs like this. SADI seems very focused on where all the intellectual property resides. If that doesn't come to Canada, the response is, "Sorry, we're not interested."

The aerospace review that David Emerson is leading is ongoing, and we are participating in it through the working groups. The technology working group is addressing these types of concerns. We're hoping something comes out of that process that says that opportunities like this, which involve international collaboration.... This is a U.K. company's technology. We're trying to bring it to Canada to commercialize it. In the process of doing that we believe that the capabilities that will be available will be attractive to Canadian resource companies, and even the Canadian government, because it has to support these remote communities.

Hon. Denis Coderre: But you understand the necessity of intellectual property? This is a transfer of technology. It's not just a matter of enjoy yourself.

Mr. Garry Venman: No, but in the process of that the manufacturing would be done here. The U.K. company would transfer manufacturing here and there would be a follow-on in terms of research and development into materials for the hull, engine propulsion systems, human factors, and all kinds of things. There are lots of benefits.

[*Translation*]

Hon. Denis Coderre: Thank you.

Mr. Tauvette, as the fuel director, you are sort of at the mercy of the aircraft you are going to buy. I think biofuel is an interesting option. We tried ethanol, but there were environmental obstacles. Your recommendation concerning the strategic framework is interesting. I think we should in fact find other options for jet fuel. It's important.

What do you propose more specifically? For example, do you think that Transport Canada should first create a working group, appoint a deputy minister who would be responsible just for this issue in order to give recommendations, develop a program and, eventually, invest in research and development? We aren't just talking about the type of technology that we need to use; we also want to ensure we can invest and form a partnership with the government, with regulations. Is that how you see things?

Mr. Geoffrey Tauvette: The challenge in aviation—except in the case of my colleagues here—is that we cannot use another fuel. The fuel alternative is like jet fuel. We cannot move to a hybrid or hydrogen system. So we are limited to using only liquid petroleum fuel. We are currently working with Transport Canada, and we have a voluntary memorandum of understanding with them to establish targets for fuel performance and reducing our emissions. We aren't the only ones working with Transport Canada. Canada's entire air industry is, including NAV CANADA and the other airlines. The department determined that a policy is needed. However, no department is a leader in this respect.

● (0930)

Hon. Denis Coderre: In the industry, everyone is going back and forth.

Mr. Geoffrey Tauvette: Yes, and there also aren't any priorities for aviation. I know that a lot of effort is invested in several types of biofuel, but in our case, we can use only one type.

[*English*]

The Chair: Thank you. I have to interrupt there.

Monsieur Poilievre.

Mr. Pierre Poilievre (Nepean—Carleton, CPC): My question is for the DAI witnesses.

What is the total cost of all your recommendations?

Mr. Garry Venman: I'm not really sure of the scope of what you're asking. Are you asking how much it would cost if...?

Mr. Pierre Poilievre: You have a series of recommendations at the back of your text. I'm just wondering how much they would all cost.

Mr. Garry Venman: Those recommendations aren't going to cost.... Really, what is going to cost is an effort on the part of the departments to get organized for this.

Mr. Pierre Poilievre: There is funding, risk sharing, and all that stuff.

Mr. Garry Venman: Yes, the funding stuff—

Mr. Pierre Poilievre: Generally that costs money. If you're saying all this can be done without any government money, I think we would all celebrate. Is that what you're saying?

Mr. Garry Venman: No, that's not what I'm saying. I'm saying a lot of the recommendations require the departments to do certain things.

Mr. Pierre Poilievre: Do you know what the cost would be for all of these recommendations?

Mr. Garry Venman: For the developmental phase we're probably looking at $60 million to $80 million to get the first vehicle approved and certified.

Mr. Pierre Poilievre: Is that the cost to you or to the taxpayer?

Mr. Garry Venman: That would be the cost of the program. If the government could find a way to fund even half of that we would be ecstatic. I don't see it as being overly burdensome, from a financial point of view, to get through the development phase of this technology.

Mr. Pierre Poilievre: How much government money are we looking at here?

Mr. Garry Venman: It's probably $40 million to $50 million.

Mr. Pierre Poilievre: Why would Canadian taxpayers want to spend $40 million to $50 million developing United Kingdom intellectual property?

Mr. Garry Venman: Part of our agreement has a lot of upside for Canadian industry, i.e., they are going to transfer manufacturing and final assembly here. The certification will happen here.

Ten years from now somebody is going to be doing this. Wherever that centre is established will become the global nucleus for how this gets developed. That will create thousands of jobs and thousands of indirect jobs. Canada has a strong history in aerospace development. This is an emerging transportation solution. If we don't get involved now it will bypass us and will be—

Mr. Pierre Poilievre: Putting aside the jobs that are lost whenever you take $40 million out of the economy—when you take that money away from those who earned it to provide assistance to one industry or another—what are the job guarantees? Can you give the number of jobs and their duration?

Mr. Garry Venman: I would say that the jobs associated with the creation of the centre of excellence will be in the thousands. Just for our operation alone we're probably looking at 400 people, and our company has rights to certain portions. We have certain commercial terms that are going to ensure multiple jobs. It won't be just us operating these things. We'll be supporting—

Mr. Pierre Poilievre: Is this for manufacturing facilities?

Mr. Garry Venman: It's for manufacturing, assembly, all the in-service support, development of the training system, and all the exportation.

Mr. Pierre Poilievre: Where do you propose to set that up?

Mr. Garry Venman: We would do it in Canada.

Mr. Pierre Poilievre: Where?

● (0935)

Mr. Garry Venman: There are a number of provinces that are quite interested. Manitoba, Alberta, and Quebec have shown the most interest, to the point where I believe Alberta is actually going to fund a facility.

Mr. Pierre Poilievre: We have businesses that set up all the time, every day, without any government money. They take enormous risks, by the way, and don't get government money. In fact they pay. It's the reverse. They pay taxes.

I always find it hard to understand why we should take money from those businesses, which causes job losses, to give it to another business.

Can you tell me why your enterprise should have the money we take from businesses that are in debt?

Mr. Garry Venman: Government makes choices every day, and through the application process someone will determine whether this is a worthwhile venture, balanced against other requests.

Mr. Pierre Poilievre: Isn't it always better for that someone to be making decisions with their own money, rather than with other people's money? Because that's what government does: it spends other people's money.

Mr. Garry Venman: But government invests in aerospace all the time. The funding for SADI is close to a billion dollars. They gave CAE $250 million last year for developing something. What was that for?

Mr. Pierre Poilievre: My question was about your asking for incremental government expenditure. We don't have any money in government: governments just take money from other people. The people we take it from are those who earned it. They obviously have taken risks to earn that money. Why should your enterprise have it instead of them?

Mr. Garry Venman: Because I believe that this is a worthwhile venture. I believe it is going to create a lot of benefits for Canada, not just in terms of what the technology will ultimately do so that this government can realize the vision it's communicated with its northern strategy, but also by creating economic benefits.

Mr. Pierre Poilievre: You mentioned these economic benefits. For example, let's say that a mining company takes advantage of the technology. Frankly, when I looked at your technology it seemed extremely promising, and if I were doing business in the mining sector, particularly in a remote community, I would be very interested in what you have to offer. But these mining companies would be paying you, so any benefit you're creating for a mineral firm, for example, would be reimbursed to you through their payment for your service. I don't understand where the taxpayer needs to be involved in that transaction.

Mr. Garry Venman: We're asking the Government of Canada to assist in the early-stage developments of this technology. We're not asking for handouts. In fact, any money that would flow into this program we would expect to repay through the commercialization of the technology. We have a lot of companies that are interested in this, but given the stage of the technology they are not going to pay for something they have not seen see work yet. We believe a proof of concept and a technology demonstration is a prudent way to progress. We're not expecting the Government of Canada to fund this. We are going to put our own funding into this and, hopefully, some of these industry partners are going to put some funding into it as well.

Mr. Pierre Poilievre: If we're talking about repayable contributions, we have whole industries in the financial sector that do that for a living. They lend money to businesses. So I don't understand why taxpayers then have to take on the role of banker?

Mr. Garry Venman: If we were going out and acquiring a 747 to put into service, I'm pretty sure we could get traditional financing for that because if the business case for it fell apart, the lender could seize the asset and there's a resale market for an aviation asset like a 747 or 737s or Q400s.

But we're not talking about an airplane that goes into the airline industry. We're talking about a brand new technology, and maybe 20 years from now there'll be secondary airship market, but right now there isn't even a market. So traditional lenders are going to look at this thing and say, “Okay, if we can't get our money back by seizing the asset, what else are we basing this on?” It would have to be based on project cash flows. The cash flow relies on customers. Customers are reluctant to commit based on the fact that they want to see this thing and see it work. That's why we think Canada, the government, has a role to play in doing a technology demonstration, which I don't think is a lot to ask considering there is a significant upside.

● (0940)

The Chair: Mr. Watson.

Mr. Jeff Watson (Essex, CPC): Thank you, Mr. Chair. Thank you to our witnesses for appearing and to the chair once again for the study on airships.

This has been fascinating. I'm still barely at the novice stage of understanding all of the capabilities. I appreciate hearing that the limit of landing one of these hybrid air vehicles is 80 kilometres per hour. That was useful. We were trying to get some of that information out at our last hearing and weren't able to. That it has the same cargo capacity as a 747 is pretty impressive if you're moving items to the north, for example.

Do we have any way of gauging what the global demand is for hot air vehicles, or even the North American demand for HAVs? If you were going to begin manufacturing, what is the realistic market or demand for these, since we're still in a fairly early stage of commercialization on this?

Mr. Garry Venman: There's been a variety of market studies dating back to the late-seventies, and the upper limit of the global demand for these things has been forecast as 1,400. We think that's—

Mr. Jeff Watson: Over what timeframe? For that 1,400, would it over the next five year? Ten years? Twenty years?

Mr. Garry Venman: If you could instantly produce 1,400 of these things, there are market studies saying there are customers who could use that capacity. So if you had a production capacity that could produce that much, you could find a market. We think that's a little on the high side. The average for any of the studies we've seen is more like 200 to 300 air vehicles, and that's consistent with our own market analysis.

Mr. Jeff Watson: How long does it take to manufacture one?

Mr. Garry Venman: At steady-state, it would take about 12 months.

Mr. Jeff Watson: And it's labour intensive to do that, correct?

Mr. Garry Venman: Well, sure. You're assembling an air vehicle that's the size of Scotia Bank Place. It's going to take a lot of work.

Mr. Jeff Watson: I presume that some of the major costs include actually building a hangar facility in which to manufacture or construct one of these things. I was just thinking of a hangar built in the city of Windsor for maintenance and repair overhaul that fits a 747 and a 737 side by each, but it's only about 40 feet high. It cost $21 million. I imagine that if you more than double the height of that and get to 10 storeys, we'd be talking about a significant investment just for a single piece of infrastructure.

Mr. Garry Venman: We've had quotes ranging from $35 million to $57 million for a facility, depending on the construction methods.

Mr. Jeff Watson: You've said that you plan to be operational or will be putting into service a hybrid air vehicle by 2015. You've presented a number of possible recommendations, but you've also dealt with some obstacles. If nothing were to change, would you still be operational in 2015? And if changes were made, what would introduce that quicker?

If we did nothing, if we made no recommendations to change anything at all—and I don't suspect that will happen—would it still be operational in 2015?

Mr. Garry Venman: I would say that there's still a high probability that we would have one of these air vehicles built and, hopefully, through the certification process, depending on how cumbersome that becomes.... It's a bit of an unknown at this stage. We may operate these in Canada if there are customers, and we know there are customers, but things like manufacturing and final assembly, all the R and D associated with new fabrics, engine technology, that kind of stuff will not take place in Canada.

Mr. Jeff Watson: If changes were made with respect to the regulatory environment, how would that have an impact on what you propose to do? Would it get you much closer? Is it still too far away? That's a practical consideration to bring to the table, even though we don't favour one technology over another. It at least brings to the table HAVs as an equivalent consideration with other forms of technology.

Mr. Brian Bower (Vice-President, Fleets and Engineering, Discovery Air Innovations): I think our schedule, as it is right now, is based on a regulatory environment that adopts standards. Right now, Transport Canada, for example, doesn't have appropriate regulations for these and borrows them from other groups. There are the airship design standards from the FAA and there's also a standard in Europe with EASA. These are probably going to be the full basis for the vehicle, because a vehicle that will be globally operated will need to have one or both of those. But to operate it as a Canadian operator in Canada, we have assumed that Transport Canada will adopt regulations consistent with and appropriate to a new vehicle, in other words will not use balloon regulations or things like that.

● (0945)

Mr. Jeff Watson: For licensing purposes, should an operator have some sort of fixed-wing aircraft licence as a precursor rather than a balloon licence?

Mr. Brian Bower: The current requirements are include a lighter-than-air element and experience—in fact a considerable amount of lighter-than-air vehicle driver experience. From the discussions we've had with the people who fly them for the company we've partnered with, they say that rotary wingers are the best at operating or hoisting aboard the concepts of operating these vehicles, but I would say either one could satisfactorily perform the duties.

Mr. Jeff Watson: I'm not sure I have any further questions. I don't know if one of my colleagues has one.

Mr. Pierre Poilievre: There seems to be potential for this technology to provide services that the government purchases or provides, whether it's aerial surveillance, some sort of mapping, or transportation of large volumes of cargo to northern communities for which Aboriginal Affairs and Northern Development is building housing. Would your enterprise be able to compete with other modes of transportation in a head-to-head request for proposal in those areas?

Mr. Garry Venman: I would say, yes. If we can't compete commercially, this thing won't fly.

The Chair: Thank you.

Mr. Sullivan, you have the floor.

Mr. Mike Sullivan (York South—Weston, NDP): Thank you, Mr. Chair.

Thank you to our presenters today.

Much as I'm fascinated by the Discovery Air Innovations project, I really want to talk to the folks from WestJet about biofuel.

It appears that what you're suggesting is that a biofuel alternative would save some greenhouse gases. My understanding is that it's not a huge amount, but it is some, so we shouldn't ignore any opportunity to save greenhouse gases. The real pitch is about cost, is it not? You're trying to lower the costs of your fuel.

Mr. Geoffrey Tauvette: Ideally we'd like the cost of fuel to be lower all the time. In this case, aviation has globally committed to some pretty aggressive goals: 2% improvement on fuel efficiency year over year up to 2020; from 2020 on, carbon neutral growth; and then by 2050 to reduce our emissions by 50% compared to 2005 levels. For us, biofuels represent a solution to the carbon-neutral growth perspective.

There's still a lot of work to be done on the sustainability of several of the crops. As we're seeing recently, industrial crop seeds such as camelina and mustard seed, specifically, can be grown in harsher conditions in Canada. Rotational crops don't compete with food. There have been very good, established sustainability criteria already in the provinces, in terms of the amount of water being used and so on.

Mr. Mike Sullivan: What's the advantage to the farmer? What's the price differential between growing a crop for the purposes of feeding the world and the purposes of feeding an airplane?

Mr. Geoffrey Tauvette: Thanks for the question.

That's part of the policy development. It is an area that is currently being looked at by the U.S.. In Canada we're participating, for example, with a group in Saskatchewan called Ag-West Bio, which represents the biofarming industries. That's exactly the question we're trying to ask. I guess to get to these non-food or industrial crops, those are the questions that need to be answered. How will the farmers grow them? What does it mean for them? That's where it's coming into crop rotations and harsher pieces of land that can't grow anything. Yes, that is a key component of the policy going forward.

● (0950)

Mr. Mike Sullivan: The bottom line is that you don't have the answer. There's no number.

I heard an interview on the radio not too long ago with a corn grower in Indiana who was saying that he could get $4 a bushel for his cornfield, but he could get $4,000 a bushel if he grew marijuana. You don't have a similar type of analysis of the field being used for corn and the field being used for aviation fuel.

Mr. Geoffrey Tauvette: It's being looked at. Are we competing against canola? At the end of the day, it depends what it is competing against. Certainly what we do know is that 90% of the costs of biofuel, whether it's aviation or diesel, are the feedstock. So anything that can be done to reduce that cost—

Mr. Mike Sullivan: But we don't know what the farmers are likely to do because we don't know whether it's more profitable for them.

I'll go back to the other part of your comment about the energy independence issue, which has become quite the theme of the U.S. approach. Canada is somewhat lacking, I believe, in creating any kind of energy independence in this country. In fact, our government's goal seems to be to pipe the energy, the bitumen, out of the country as fast as we can, and let it be refined somewhere else. You're suggesting that, if we're not careful, not only bitumen but the feedstock for biofuel is going to be exported, and we're not going to refine it. Where is the refining of most aviation fuel done now?

Mr. Geoffrey Tauvette: There's no commercial-sized aviation bioreactor in place today. The recent incentives that the U.S. has put in place through the EPA RINS credit, I believe, will help incent someone to build something.

Mr. Mike Sullivan: In the U.S.

Mr. Geoffrey Tauvette: In the U.S. most likely, yes. And they are looking at our feedstock, of course. Canola is already sent to the west coast for production into biodiesel, for example.

Mr. Mike Sullivan: Is the current non-biofuel refining done in Canada or the U.S. for most aviation fuel?

Mr. Geoffrey Tauvette: My understanding is that there are a few biofuel refineries in Canada—

Mr. Mike Sullivan: Non biofuel.

Mr. Geoffrey Tauvette: For jet fuel in Canada? Forty-five per cent of our current jet fuel requirements are actually imported into Canada today. The rest is from the domestic refiners.

The Chair: I have to stop you there.

Before I recognize Mr. Adler, one of the issues that came up with alternative fuels in the automotive industry was whether the engines would accept the product and whether the warranties would be covered? Does the aviation industry have a challenge with that? Can a new jet biofuel cause a problem with a new engine that is being produced today?

Mr. Geoffrey Tauvette: Thank you. Actually, the term "drop-in" is exactly that. The aviation biofuel looks exactly like and acts exactly like jet fuel. Currently the specifications today allow for a mix of 50%, a blend, and the newer technologies coming out are targeting 100% aviation biofuel. So some of what the FAA money has recently been invested has been to look at what the longer-term effects are on the engine; but the ASTMs of the world and the CGSBs and the engine manufacturers have spent a lot of time investigating. It looks exactly the same but it has a reduced carbon impact at the end of the day.

The Chair: Mr. Adler.

Mr. Mark Adler (York Centre, CPC): Thank you, Chair. I also would like to preface my comments by thanking the chair for bringing forward this subject matter for discussion. He has shown great wisdom and I'd like to thank him for that.

An hon. member: Hear, hear!

Mr. Mark Adler: That's just the way you wrote it, Mr. Chair.

Some hon. members: Oh, oh!

Mr. Mark Adler: I would like to begin my questioning with Discovery Air Innovations.

You mentioned there's a window of opportunity for Canada right now. Is there anyone else out there, any other country, nipping at our heels on this? Is there an urgency on this at the moment?

Could you elaborate on that?

● (0955)

Mr. Garry Venman: I don't know if urgency is the right term, but there is definitely—

Mr. Mark Adler: If we don't act now, is someone else going to move on this?

Mr. Garry Venman: I would say the U.S. is going to move on this significantly.

Mr. Mark Adler: What will the implications be of that?

Mr. Garry Venman: Northrop Grumman is building manufacturing facilities. Most of the facilities are built. It will be easy to transfer the development of the commercial vehicle to that facility. We've had some interest from Russia, asking if we could come and set up shop, etc. These are very exploratory questions.

The U.K. is very interested in doing it, but I think it's pretty apparent that the state of their economy is pretty poor in comparison to ours and I don't think the company in the U.K. is going to have any success getting government support to develop that stuff in the U.K.

Mr. Mark Adler: With Northrop Grumman, did Congress appropriate any money for the construction?

Mr. Garry Venman: I don't know how they're funding their facilities. I do know that they consider this technology to be part of their product line. They're very focused on the militarization of the technology. Obviously there are lots of applications there, but that's not what we're interested in. We're interested in commercial customers.

Mr. Mark Adler: How did your company come to this?

Mr. Garry Venman: Hybrid Air was in the U.K. and came to the conclusion that there would be a lot of benefit from participating with an air operator that knows how to operate in remote environments, which is what we do. Half our company is based up in Yellowknife. These guys fly all over the Arctic. It's a pretty hard core environment to be operating aircraft in. So they looked at us as a natural fit. Once we started working together with them, it was pretty apparent that the teams gelled very well, and so it grew from there.

Mr. Mark Adler: If this committee could, say, write you a cheque for $50 million today—

A hon. member: Olivia's good for it.

Ms. Olivia Chow: I just heard that.

Mr. Didier Toussaint: We would take it.

Some hon. members: Oh, oh!

Mr. Mark Adler: —what would happen once you got that money? Just roll it out for me: what's your business plan?

Mr. Garry Venman: We would finalize the design over the next six months. We would start manufacturing by the end of this year. We would work in parallel with a regulatory body to complete the certification so that as this vehicle is getting built and approaching its ready-to-fly point, in parallel we would be approaching our industry partners to set up specific technology demonstrations, delivery of goods to remote communities—to Attawapiskat, for example. Let's go there. Can we take goods in there and land on whatever their backyard looks like? Could you deliver health care services?

Let's prove that this stuff can work. We know there's a large market in the offshore oil industry. All the oil that's being explored in the future is going to be explored in places that are all extremely far offshore. Helicopters are not going to be the solution. So could we do a technology demonstration to demonstrate to the oil industry that we can get out to the rigs safely, transfer passengers and cargo, and return.

Most companies we deal with—mining, oil and gas companies, in particular—see the advantages of this thing. They're very safety conscious in the oil and gas industry, so a successful demonstration of that capability would go a long way.

Beyond that, we're into orders. For that investment, it's guaranteed that manufacturing will be done here in Canada and that Canadian companies would be participating in the support of this global fleet. So in terms of a return on investment, it would be quite large.

The Chair: Thank you. I have to stop you there.

Would it be a fair statement to say that most of the aviation technology in the last 50 years or so has been developed militarily first and then brought to commercialization?

● (1000)

Mr. Garry Venman: Yes, I would say that's a fairly accurate statement.

The Chair: Is that a challenge in the sense that...? I see what you're trying to do and I like what you're trying to do, but are you trying to jump that process to get into the commercialized side of it before it's fully taken? I'm asking this because I sense that if the military doesn't make the investment, it's hard to get that initial start-up money that you need to do what you're doing to go to the commercial stage. Is that a fair statement?

Mr. Garry Venman: The reality is that someone is going to have to commercialize the vehicle. The military is investing in the technology and they are going to demonstrate that the technology works to a certain degree and there are going to be transfers from that surveillance vehicle over to this commercial vehicle. For instance, that hover skirt landing system that Didier described in his opening remarks is not part of this surveillance vehicle, so that would be a new development.

I don't think we're jumping the gun on this.

The Chair: I'm not suggesting that but just saying that traditionally, it's been the investment by the military that has created the opportunity on the commercial side.

Mr. Garry Venman: I would say if you looked at what happened with fixed-wing transportation, the Second World War was really what kick-started that. In the Second World War thousands of guys were trained as pilots; the British Commonwealth Air Training Plan built airfields from coast to coast in this country, and essentially you went from Sopwith Camels to jet transportation and long-range bombers within about a five-year time span. When the war ended, those problems were all solved and government investment did that.

The Chair: Ms. Morin.

[*Translation*]

Ms. Isabelle Morin (Notre-Dame-de-Grâce—Lachine, NDP): Thank you very much.

You said that Russia, the United Kingdom and the United States were interested in this. I'm wondering about the hangars because the groups we had here on Tuesday also told us that that was a limitation and a challenge. But, you're telling us that the hangar would have to be 200 metres long, 80 metres wide and 50 metres tall. You are asking us for help with that.

But there was a hangar in Berlin, Germany, that was much larger: it was 360 metres long, 210 metres wide and 107 metres tall. But it went bankrupt less than 10 years ago. What didn't work there? Why would it work in Canada? Is every country suddenly going to come and invest? Do you think it would potentially create jobs, while it went bankrupt in another country less than 10 years ago?

[*English*]

Mr. Garry Venman: That didn't work because there was no commercial industry behind it. Essentially, someone jumped the gun and invested a lot of money in facilities prior to proving a commercial market existed. This is why we would like to see a technology demonstration, to prove the technology works, to prove to industry that we can provide them with the operational and cost performance that will be required to ensure that the venture is economically viable prior to investing in this infrastructure. That's what we would like to do. That's what we're advocating. That's how you prevent that kind of thing from happening again.

[*Translation*]

Ms. Isabelle Morin: Do you have any studies proving that this market exists? Do you have any studies establishing that there is a demand for a certain number of airships and that certain countries are going to use them? Can you tell me if other countries are currently using airships to transport goods?

[*English*]

Mr. Garry Venman: Most airships are currently used for televising football games, taking people on tours around the Grand Canyon, that type of stuff. As far as I know, there are no commercial heavy-lift airships, whether it's an airship or a hybrid solution like this, operating anywhere in the world.

[*Translation*]

Mr. Didier Toussaint: To answer the question about demand, Mr. Venman spoke earlier about a number of studies that we have done recently. They indicate that there was a global demand, up to 1,400 vehicles. That's perhaps a little optimistic. We have also seen other studies, but there is certainly a demand from mining and exploration companies and from a number of countries. We estimate that it will involve 200 to 300 vehicles, at least, and that the number could rise upwards to 1,400. So there is a demand, which has been identified in a number of studies we've looked at recently.

● (1005)

Ms. Isabelle Morin: You told us that the United Kingdom might be interested in having the hangar, but if there is so much demand, why is no other country jumping at the opportunity? If it's an extraordinary demand, if it's so miraculous and if it will create jobs everywhere, why don't any other countries want to invest? Why do you need to lobby to tell us that we should invest in this project?

Mr. Didier Toussaint: Discovery Air Innovations is a Canadian company. As we indicated earlier, we have already entered into a partnership with this company in England. Several companies are clearly interested, but it's still a new technology and we want to commercialize it.

Discovery Air Innovations has an agreement with the company in England. We need to choose where we are going to build this global centre of excellence. We are a Canadian company, and there is already a market that seems very interested in Canada. A little earlier, we gave you some examples, such as the Plan Nord. Our operation in the north is already a good link for moving from a demonstration phase to a commercialization phase.

We are world leaders in this technology. We think it is a good fit for Canada.

Ms. Isabelle Morin: I'll come back to what our chair said earlier. Do you think the airships could possibly have a military use?

Mr. Didier Toussaint: We have developed a military use in the past few years. In that respect, the United States government has invested close to $1 billion. They do have military applications.

We decided to focus on the commercial side, even though there are military applications. Perhaps the United States will prove the viability of these military applications over the years. Our intention is to prove that the commercial applications are.

However, with respect to the military side of things, the technology may be the same, but the vehicle is different. It is much smaller. For it to be commercially effective, the vehicle must be able to transport a lot of merchandise to reach remote locations that don't have the infrastructure necessary to bring in goods or transport them elsewhere.

[*English*]

The Chair: Merci.

Mr. Toet.

Mr. Lawrence Toet (Elmwood—Transcona, CPC): Thank you, Mr. Chair.

I'd like to start with Mr. Tauvette from WestJet. You talked about a flight from Calgary to Toronto as an example. How much fuel do you consume in that flight?

Mr. Geoffrey Tauvette: Offhand, it's maybe 6,000 or 7,000 litres, potentially.

Mr. Lawrence Toet: Have you done any work on the biofuel aspect of it? What would you require as far as biofuel resource and biofuel stock are concerned to create that much fuel?

Mr. Geoffrey Tauvette: No, that would be part of what's being discussed now.

Mr. Lawrence Toet: Do you have any idea at all?

Mr. Geoffrey Tauvette: How much crop is required to produce *x* litres of fuel? I have an idea. I don't have the figure with me. We can get back to you, if that's required.

Mr. Lawrence Toet: Okay. At the beginning of your presentation you talked about your whole fleet in the whole area that you fly in, etc. Have you had an opportunity to quantify what percentage of your fuel could be from biofuel for the WestJet fleet, based on the land mass area that's available to create stock for it.

Mr. Geoffrey Tauvette: That is a difficult question, especially when it comes from bioseeds. As I said, I think we have an idea; I just don't have the figures here today.

● (1010)

Mr. Lawrence Toet: Do you have any of idea at all? Would it be 5% or 75%?

Mr. Geoffrey Tauvette: Well, reasonable expectations are that I think aviation biofuels will fulfill about 5% of our total requirements.

If you can grow it bigger, we would take more, obviously.

Mr. Lawrence Toet: Okay, thank you.

I had a few questions also for our guests from Hybrid Air Vehicles. It's very interesting. I think it's a fantastic technology that you're looking at. I do have some questions, though.

One of the things, Mr. Venman, you had talked about building was a vehicle for proof of concept. My impression is that you were building that before you were going to build any infrastructure. So where are you going to build this particular proof of concept vehicle?

Mr. Garry Venman: There are some facilities in the States. We could do the assembly, at least the layout and the final assembly of the demonstrator.

Mr. Lawrence Toet: So you've worked through negotiation on that. Is that a real possibility? Or is it just that these facilities exist and you had hoped you might be able to use them?

Mr. Garry Venman: No, we haven't negotiated access to those facilities. Ultimately, that would be Hybrid Air Vehicles' problem to solve.

Mr. Lawrence Toet: Okay.

Mr. Garry Venman: Also, there are two very large facilities in Cardington. I know that Hybrid Air Vehicles is talking to the U.K. government about getting access to one of those, which would be more than big enough to do this.

Mr. Lawrence Toet: Okay, so there is some existing infrastructure, then. It's not in Canada, but there is some existing infrastructure for building these airships.

Mr. Garry Venman: It's very limited and very dated, but for the purposes of building a demonstrator, you could use that.

Mr. Lawrence Toet: How long would it take you to build this demonstrator?

Really, you don't need an infrastructure so now it's just a matter of actually building a ship because you've addressed that for the time being.

Mr. Garry Venman: The forecast is 18 months to complete the assembly, probably another 6 to 12 months to get through the demonstration phase. So it's two, two and a half years?

Mr. Lawrence Toet: Are you talking 2015 to actually have a commercially viable operation? Am I understanding that correctly? Or is that just to get to the demonstration point?

Mr. Garry Venman: That would get the demonstration complete, but our hopes would be, then, to subsequently take that demonstrator and put it into commercial operation while the remainder of the fleet is being manufactured.

Mr. Lawrence Toet: The demonstration work is going to be done in 2015. What's your projection for when you're actually going to sign commercial contracts after 2015, and be ready to start developing a facility and to be building, hopefully, like you say, several more or quite a few more of these particular hybrid air vehicles?

Mr. Garry Venman: By the end of 2014 to mid-2015, we will have completed that demonstration phase. The only thing really that would stop you from going to commercial operations at that point would be one of the industry partners saying, "Okay, we're happy with the technology. Let's enter it into commercial operations."

At that point, you would then crank up your manufacturing process.

Mr. Lawrence Toet: Have you starting building?

Mr. Garry Venman: No, we have not started building.

Mr. Lawrence Toet: Is the engineering and all that completed on the prototype that you want to build?

Mr. Garry Venman: There are still some design elements to be completed.

Mr. Lawrence Toet: When you're saying 18 months and 2014, I'm just looking at the math and seeing it means that you pretty well have to start today. Eighteen months from now is the end of 2014. Are you at that stage?

I guess what I'm trying to do here is build a case for.... What's the return on investment timeframe? If the government does invest in this, what is the ROI?

You were looking at basically out-of-the-box financing because of your concerns with standard financing. What's the ROI on your venture, never mind all the other possibilities, but on your venture itself?

Mr. Garry Venman: To answer that question, we would have to bring you a business plan. We can do that, but for me to answer that question now would be speculative at this point in time.

The Chair: Thank you.

Ms. Day, welcome.

[*Translation*]

Mrs. Anne-Marie Day (Charlesbourg—Haute-Saint-Charles, NDP): Good morning. Thank you for answering our questions.

The budget will soon be adopted, and the Government of Canada will vote on funding that will enable big businesses to promote the safe use of natural gas in our homes and to advertise to say that it is a very clean source of energy. So we can say that nothing has been lost from the start. Everything is possible with our taxes, and that money will not be going back to taxpayers. Just to reassure you.

We are talking about research and development. You work in pure research and development. Bombardier wouldn't have its current infrastructure if our various governments had not, at one point, invested and approved loans that were later paid back and that enabled the company to develop. We would almost believe we were in *Star Trek*. We're talking about prototypes that still need to be developed, and that's no small feat.

I'm a little bit concerned about the various ranges of maintenance and other services at the Jean Lesage Airport. I have difficulty imagining this mode of transportation, which is larger than the airport itself, landing where we live. But what I really like about your product is that it can go anywhere. It can transport dozens of houses to a given location, in order to develop a region. Frankly, the big oil companies and diamond and gold mining companies will need to put their infrastructures in place quickly. Infrastructure has often been mentioned as one of the problems with getting established.

My question is along those lines. When it comes to the transport of liquids, could they be adapted to replace pipelines and transport natural gas from Alberta to western Canada, for example?

● (1015)

Mr. Brian Bower: Yes, I would say so. There are ISO liquid transport systems with a container that can carry close to 30 tonnes. They can transport liquid gas, while respecting the standards for transporting dangerous goods. For transporting untreated materials, even if it's something worth $3 per cubic metre, our market studies show that air transport is not cost effective if there are no other options for delivering the product. It would be better to use roads or waterways.

Mrs. Anne-Marie Day: There was a lot of development in this type of transport in World War I and World War II. It used hydrogen and was very dangerous. We all remember the zeppelins that caught fire in New York. Well, we don't remember it, but we've seen it. It's big, it's huge. Of course, we need to make people safe because an accident would have enormous consequences. But what you can do is go and find all the cargo with a boat.

The engine isn't small, so where there is space, could you really land it anywhere, on water or on various kinds of terrain?

Mr. Brian Bower: It can land on any flat surface that can support a certain weight, within two feet. We don't use hydrogen to make the airship fly, but instead we use helium, a non-flammable gas. Depending on the weight of the load when the airship lands, it can land vertically.

Mrs. Anne-Marie Day: You might have already mentioned this, but I'd like to know how high the airship can go.

Mr. Brian Bower: Are you talking about the length of the flight?

Mrs. Anne-Marie Day: No, it's 10 days, I think.

Mr. Brian Bower: The military surveillance vehicles can go for about 12 days. The U.S. specifications were for 21 days.

● (1020)

Mrs. Anne-Marie Day: How high can they fly?

Mr. Brian Bower: Up to 21,000 feet, in the case of the military surveillance vehicles, but only 10,000 feet for the commercial vehicles.

[*English*]

The Chair: Thank you.

Mr. Poilievre.

Mr. Pierre Poilievre: Thank you very much.

I see in your list of recommendations we have here a lot of regulatory changes and updates. If we were to make those cost-free changes, would they allow you to pursue your enterprise? I'm talking to DAI.

Mr. Garry Venman: It would be a step in the right direction. We are still faced with the challenge of funding this demonstrator.

Mr. Pierre Poilievre: Can you provide us with a list of government activities that DAI would be able to bid on were it up and running?

Mr. Garry Venman: We could provide that—not today, obviously.

Mr. Pierre Poilievre: Right, but across the board, whether it's surveillance, movement of cargo to remote northern communities, or military applications, areas where the government is already paying someone else to do the same type of work and you believe your hybrid airships could do better....

Mr. Garry Venman: I think we could easily provide that analysis, including our market analysis, if that is what the committee wishes to see. We can provide that.

Mr. Pierre Poilievre: You mentioned the military and the enormous advances in aeronautics during the wars. The difference I see between that and the kind of investment you seek today is that the government was actually purchasing a service. It was purchasing a product. Through that demand pull, there was massive industrial development.

That is distinct from an R and D investment or an industrial subsidy. There is a big distinction between government purchasing a service or product it needs on the one hand and creating an industry on the other.

Governments during the wars did not seek to create aeronautics industries. That wasn't their goal; their goal was to fight a war. To do that, they needed flying machines that could help them fight that war. The government was basically making a commercial transaction, which had the added benefit of creating an industry, but that was not the principle purpose of the government's activity.

The reason I asked my earlier question is that if there are things that government has to buy anyway, if there are transportation services the government has to buy anyway, and you can do those less expensively or better, then we can recommend to Public Works and other departments that procure those services to ensure that their RFPs are open to bids from enterprises like yours. Does that sound helpful at all?

Mr. Garry Venman: That would definitely be helpful. I agree with your point about the government generating a war effort. The comment was meant to be illustrative of the outcomes. I would say that if there were a list of government services that could be met via a commercial application of airships, that would be extremely useful to us.

I think what I'd like to do is to provide the committee with a little more detail. In some cases much of it is about cost avoidance. For example, how much is spent taking people out of the remote communities of Canada and transporting them, typically by air, to major centres so they can receive health care? If we could change how that's done and look at the economics of that, there might be a compelling reason to pursue this.

● (1025)

Mr. Pierre Poilievre: Governments have spent a tremendous amount of money on new transportation technologies, particularly fuels, in the last couple of decades. To be honest, the results have not been great. We see examples in the United States—which I don't need to list—of governments spending a lot of money and producing very bad results.

Here in Ontario we were told that wind and solar could become commercially viable if government just got them through that early stage and helped them invest in their early-stage R and D. Now, after $7 billion and countless job losses in the manufacturing sector resulting from higher electricity prices and with elderly people having to pay significantly more on their electrical bills, we have 1.5% of Ontario's electricity coming from wind and solar. I can see no prospect of our exporting in a large way the manufactured windmills or solar panels—and we now have a less competitive, more costly business environment.

I think we all have a good reason to be suspicious whenever we're told that there's a commercially viable technology for which someone else's money is required, for which taxpayers have to pay. I think overcoming that natural and justifiable skepticism is a challenge for anyone who comes before this committee seeking government assistance.

Do any of you have a response to that?

Mr. Garry Venman: I'll respond to that.

I think that's a healthy skepticism, which is why we're not advocating a wholesale investment in infrastructure for a network of airships prior to providing additional proof. We want to see that, because although the technology holds much promise, and I'm sure everyone on this committee can see the potential benefits, sometimes there's a long distance between the potential benefits and actual benefits. So we're looking to do incremental investment on a relatively small scale to prove that we're not going down a path and making additional investments that are going nowhere.

But ultimately, if the demonstration phase does work and the performance of the air vehicle and the operational cost performance particularly—and obviously from a business point of view that is very important to us—are proven to be accurate, then all of the other stuff will flow. The customers will flow. The market will get developed. There will be justification for government to invest in infrastructure to support the industry. Jobs will be created, and tax revenues will flow into the treasury. All those things will occur.

But let's be realistic and consider if it might not work. So let's not make oversized investments until we actually prove this thing is real.

The Chair: Thank you.

Mr. Garry Venman: We do think that the program of the U.S. Army is going a long way to proving the technology and certain components of it, but we still want to see the proof and a demonstrator.

The Chair: Thank you.

Before I recognize Mr. Adler for his last questions, Mr. Tauvette, what's the one thing we could do as a committee today as far as a recommendation is concerned that you or your company would make regarding our moving jet biofuel forward?

Mr. Geoffrey Tauvette: We would really like to see a federal department named as the lead to help us establish what needs to be done with respect to a policy framework. A coordinated effort would be very helpful to avoid, potentially, some of the pitfalls we have seen with some of the ethanol protocols or policies, or wind or energy subsidies.

The airlines are committed to reducing their carbon in gross terms. We have an international goal of going carbon neutral come 2020. Biofuels will be part of that solution. We need to make it more affordable. To get investment and to get things rolling, there needs to be a coordinated effort. We need help. There are many departments involved in this, but a lead department would be helpful. I think that's what we would recommend, at the end of the day, to move forward on this. Someone needs to be our internal champion to help move this forward.

● (1030)

The Chair: Thank you.

Mr. Adler, I took up some of your time, but go ahead, please.

Mr. Mark Adler: That's okay.

I think the airship concept is a wonderful idea. I would like to see that in practice.

How much have you invested so far in the development of the airship as a working model? Has there been a significant investment on your part?

Mr. Garry Venman: We've probably invested close to $5 million thus far.

Mr. Mark Adler: And that's been on....

Mr. Garry Venman: That's been approaching two years now.

Mr. Mark Adler: And the money's been spent on, generally...?

Mr. Garry Venman: A lot of elements.... There's been a lot interaction in trying to assess the market conditions for this. The funding has gone into the hiring of engineers to finalize the design elements.

Mr. Mark Adler: You have a business plan for it, right?

Mr. Garry Venman: Yes.

Mr. Mark Adler: There are obviously some regulatory challenges that need to be overcome. Are you currently working on those, or are you holding off on those until there's some prospect that we can get a working model up and going?

Mr. Brian Bower: We've made initial contact with the director of civil aviation at Transport Canada, primarily on the operational side of certification. As an original equipment manufacturer, our partner has made his initial approaches to the U.K.'s Civil Aviation Authority and EASA regarding the preliminary adoption of a basis of certification for their vehicle. Those are the two prongs we're following right now.

The Chair: I'm sorry, but I have to cut you off.

I'm going to open it up for one more two-minute round for each side.

Mr. Sullivan.

Mr. Mike Sullivan: There are some pictures of your potential airships serving heavy industry. Are they big enough, for example, to carry one of the 380-ton capacity dump trucks to Fort McMurray into the oil sands, the tar sands, or whatever they're supposed to be called today?

One of the problems with development in the far north is that they have to ship those vehicles and a lot of equipment in parts. There's a whole assembly system up there. They would rather the equipment came up in one piece, but I don't know if it's big enough to do that.

Mr. Brian Bower: I don't think the vehicle is capable of carrying one of those dump trucks whole. If you've seen a picture on the ice road of where they're taking the bucket up, that's a very outsized component. I think we could carry the bucket in weight, but the dimensions of it are bigger than the cargo compartment we foresee for the 50-tonne version.

That said, we do confer with potential customers about their most outsized cargo. We do intend to offer custom solutions where possible, such as possibly slinging such a component or strapping it underneath the vehicle in a secure fashion. It's something we think about with a lot of customers. Again, we don't have an existing solution.

Mr. Mike Sullivan: They're a big customer with a lot of money.

Mr. Brian Bower: I know what they pay to get a tire on those things.

The Chair: Thank you.

Mr. Richards, do you have a final comment.

Mr. Blake Richards (Wild Rose, CPC): Thanks, Mr. Chair.

You've been very generous in giving me one minute, so I'll be quick.

This airship concept certainly is of interest to me, and I'm hopeful that we can see it coming into practice. I think you mentioned that about $5 million has been spent by the investors in your company. What kind of prospects are there for further private sector involvement in this over the next little while?

Mr. Garry Venman: There will be significant opportunities for private sector investment. We're going to have to continually invest in the development and creation of an air-operating company. Hybrid Air Vehicles as the designer is going to continue to invest. They've just gone through a round of raising financing, and they will continue to do that to meet their financial needs.

● (1035)

The Chair: Perfect timing. With that, I will thank our guests today. We appreciate your time, and I am going to say that I've been watching from a distance for a long period of time. I do think that the potential is there with the airships. I really do. I think a lot of areas can be served and I wish you good luck—and as a guy who represents a huge farming area, keep buying biofuels too.

Voices: Oh, oh!

The Chair: I know Mr. Sullivan asked a question about what farmers would grow. One of the challenges is that they grow food and nobody wants to pay for it, and that's the challenge we have.

Thank you very much for your time today.

We're going to take a one-minute recess while our guests excuse themselves. We have two motions to deal with, one of mine and one from Ms. Chow.

● (1035)

(Pause)

● (1035)

The Chair: Before I recognize Ms. Chow, I need a motion from the committee. We've been invited by the Railway Association to a lunch next Wednesday. They have some general rail issues they would like to discuss with the committee. I don't have a problem with it.

It's your choice if you can make it or not the next Wednesday in this room. But for the clerk to send out a notice that you're invited, we just need a motion that would allow the committee to pay for the sandwiches. So I'll ask for that: that the committee defray the hospitality expenses related to the lunch.

Ms. Olivia Chow: Will it be about rail crossings?

The Chair: No, just rail issues in general. They would like an hour of our time. They know it's hard to get before the committee.

So if that's okay, you'll get a notice from Alexandre.

Will you move a motion, Mr. Coderre?

Hon. Denis Coderre: I so move.

(Motion agreed to)

The Chair: Thank you.

Now we'll move to Ms. Chow's motion.

Ms. Olivia Chow: Thank you, Mr. Chair.

Has the motion been circulated? Okay, then I move:

> That, the Standing Committee on Transport, Infrastructure and Communities immediately commence a study on the subject matter of the sections of Bill C-38, An Act to implement certain provisions of the budget tabled in Parliament on March 29, 2012 and other measures, which directly fall within the mandate of this committee, namely Part 4, Division 31, Railway Safety Act; Part 4, Division 45, Canada Marine Act, and Part 4, Division 48, Canadian Air Transport Security Authority Act.

If the committee would allow me a few minutes, I will talk a bit about these three sections because just recently we dealt with Bill S-4, Safer Railways Act. This committee just spent at least one meeting on that. We've had many meetings prior to this session of Parliament studying and improving the Railway Safety Act. It just passed the House two weeks ago after it had gone through the Senate, and it has been studied at least twice. All of that was occurring while this was being drafted, which is bizarre. To not have this section of the Railway Safety Act in front of us for discussion doesn't make any sense at all.

Let me address this more precisely. I'll talk briefly about the Canada Marine Act and the Canadian Air Transport Security Authority Act. The government is proposing that section 16 of the Railway Safety Act be amended following subsection 4 by adding:

> However, if a grant has been made under section 12 in respect of the railway work, and the proponent of the railway work, or any beneficiary of it, is a road authority, the maximum amount of the construction and alteration costs of the railway work that the Agency may, under subsection (4), apportion to the road authority is 12.5% of those costs or, if a higher percentage is prescribed, that higher percentage.

Precisely what does that mean? If there is a road authority, then the construction work would be 12.5%. Why 12.5% and not 15%, or why not 50%? It's not clear.

Then section 16 of the act would be amended by adding the following after section 5:

> The Governor in Council may make regulations exempting any railway work, or any person or railway company, from the application of subsection (4.1).

So the government could choose, if it wants, to exempt any part of this percentage. Then, there is a clarification in proposed subsection 5.2:

> A regulation made under subsection (5.1) may exempt a group or class of persons or railway companies, or a kind of railway work.

It's not very transparent why this is proposed. Having this debate at the finance committee makes no sense; it should be in front of this committee.

● (1040)

I then looked at section 16 of the Railway Safety Act. What does it talk about? Well, let me tell you what it talks about:

> That the proponent of a railway work, and each beneficiary of the work, may refer the apportionment of liability for the construction, alteration, operation or maintenance costs of the work to the Agency for a determination if they cannot agree on the apportionment and if no recourse is available under Part III of the Canada Transportation Act or the Railway Relocation and Crossing Act. The referral may be made either before or after construction or alteration of the work begins.

We're just trying to understand what this is all about, and so I went back to look at part III of the Canada Transportation Act and realized that this section 16 and the Marine Act and the Air Transport Security Authority Act—which I am going to get into—are really complex.

What we've noticed is the centralization of power in the ministers and the cabinet, that is, in the order in council.

Do we believe in that direction? Why are we doing this with the ports? Why are we doing it with air transport?

● (1045)

The Chair: Mr. Coderre, on a point of order.

[*Translation*]

Hon. Denis Coderre: Mr. Chair, I understand that we need to end the meeting at 10:45 a.m. and it is already 10:45 a.m. As usual, the NDP are playing for time until the last minute. I think we should suspend the meeting because it is 10:45 a.m. and hold the vote at the next meeting.

[*English*]

The Chair: I was just going to stop Ms. Chow and advise her that if she had more to offer, we would pick it up at the start of the next meeting.

An hon. member: At the start of the next meeting?

The Chair: I will advise our guests, as I'm not prepared to invite guests if we're going to take two hours.

So I guess I need some direction from Ms. Chow as to how long this debate will take. I'm just asking, because it's not beneficial for us to invite guests here and not have them participate.

Mr. Pierre Poilievre: Can we have a vote?

Ms. Olivia Chow: Excuse me, on a point of order, I do have the floor still, and technically I can continue until tonight through supper.

The Chair: Unfortunately you can't, because I'm ending the meeting.

Ms. Olivia Chow: Mr. Chair, pardon me for saying so, but if a member of Parliament at a committee chooses to, she or he can continue speaking. You cannot stop a member of Parliament from speaking, and neither can a committee.

If I want to continue talking until 4 a.m., I have every right to do so. You cannot stop the meeting.

The Chair: I'm sorry, Ms. Chow, but I am going to stop the meeting now, and I will ask you to pick up at the next meeting where we have left off. If you choose, you can send me a note advising how much time you need so I can advise our guests.

Ms. Olivia Chow: I will.

The Chair: The meeting is adjourned.

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