



HOUSE OF LORDS

International Relations and Defence Committee

Corrected oral evidence: The Arctic

Wednesday 7 June 2023

10:35 am

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Members present: Lord Ashton of Hyde (The Chair); Lord Anderson of Swansea; Baroness Coussins; Lord Robertson of Port Ellen; Lord Stirrup; Baroness Sugg; Lord Teverson.

Evidence Session No. 6

Heard in Public

Questions 72 - 81

Witnesses

I: Mads Qvist Frederiksen, Executive Director, Arctic Economic Council; William Johnsen, Strategic Adviser, Offshore Norge.

Examination of witnesses

Mads Qvist Frederiksen and William Johnsen.

Q72 The Chair: Good morning and thank you to Mr Frederiksen and Mr Johnsen for sparing some time to be talk to us. This is the sixth evidence session in our inquiry into the Arctic. Today we will focus on economic activity in the Arctic, and the opportunities as well as the challenges that that presents. This is a public session that is being streamed live on the Parliament website. A transcript will be taken, and once it is available you will be sent a copy to make any small corrections, if necessary. I remind all members of the committee to declare any interests pertinent to the inquiry when they first speak, and I ask the witnesses to introduce themselves briefly for the record when they answer the first question. That would be very helpful.

Leaving aside the hydrocarbon sector, which we can talk about later, just as background could you outline the current scale of economic activity in the Arctic, what those kinds of economic activities are and to what extent the non-Arctic countries are involved?

Mads Qvist Frederiksen: Thank you for allowing me to give evidence to this very important inquiry. I wish I could be there in person, but unfortunately I am sitting here in Tromsø, deep inside the Arctic Circle, where we have our headquarters. I am the executive director of the Arctic Economic Council, which is an independent business membership organisation working from the north and promoting sustainable economic development in the Arctic region. As a side note, our organisation was specifically mentioned in the UK's *Looking North: the UK and the Arctic* policy framework of February this year. I have been working in our organisation for a little more than two years now, and before that I worked at the Confederation of Danish Industry.

Now to your question. Leaving aside the hydrocarbon sector, which is probably one of the most important industries in the Arctic—I am sure Mr Johnsen will cover that just fine—you can put the economic activity into three big areas in the Arctic region: fish to feed the world; energy; raw materials. To put into context why it is important and why it is a growing industry in the Arctic region, there will be 9.7 billion people on this planet in 2050, according to the UN. Most of these people will live in urban cities, probably in south-east Asia or Nigeria. They will all move into a middle class and expect to have more food and energy, and they will need more raw materials. We also have a situation in the Arctic region and globally with global warming.

That is just context to answer your questions, because in the Arctic region the three industries that I mentioned have the solutions. Let us take them one by one.

The first is fish to feed the world. The seafood industry is very important for the Arctic region and has been for more than 1,000 years. A Viking king from the north of Norway sold dried cod to the English king in the

Viking city of Hedeby in northern Germany at the time, and that happened for more than 1,000 years. Today, the fishing industry is still very important. More than 93% of exports from Greenland are from the seafood industry, which is extremely important to the Icelandic economy, to the Faroe Islands and to northern Norway. Alaska also has a history of seafood but with different characteristics. It does not have fish farms, for example, whereas in northern Norway we have do. In Alaska, it is very different. But overall, and for subsistence living, seafood is important and has massive potential, since only 7% of global protein intake today is from seafood.

The second is energy to power industries. Leaving aside hydrocarbons, which are very big in Russia, Alaska and Norway, we have a lot of renewable energy. One hundred per cent of Iceland's energy is from geothermal. Norway has hydropower. I have heated pavements outside my window here, and I have negative energy prices because we have too much green energy and not enough people to use it. We have wind turbines in Sweden and Finland. We also have communities in Canada and North America that are more fly-in, fly-out and are very reliant on diesel generators. However, the renewable energy we have in the Nordic region particularly is being used for datacentres and could be used for battery production in future, but is already being used in aluminium smelters, for example, which is a key industry.

That leads me to the third sector, which is mining. Raw materials have been mined in the Arctic region for almost 200 years. The most famous one is LKAB, in northern Sweden, which is one of the largest iron mines in Europe. It also has the rare earth elements that we all talk so much about and that we need in our defence industry. The mining industry is very big. It is particularly big in Canada and Alaska, but it is also big in Finland and northern Sweden.

You will hear a lot later about the shipping industry, which ties it all together and is also important to remember, and there are other industries like tourism. Tourism is not an exporting industry to the same extent as the others, but it is a growing industry. Forestry is big in Finland and Sweden. Space and defence are very big and are growing sectors. Finally, we have 4 million people in the Arctic region, so that is the limit. It is the economy of scale, quite often, for industries.

The Chair: Thank you. We will issue questions alternately to you, but do feel free to come in if you want to add something.

Q73 **Baroness Sugg:** I will direct this question first to Mr Johnsen. Can you say how extensive current oil and gas development is in the Arctic at the moment? What do you see as the growth potential for the sector in the Nordic Arctic?

William Johnsen: First, thank you for the opportunity to give evidence to the committee. I am a strategic adviser for Offshore Norge, the organisation for oil, gas and offshore wind in Norway.

To answer your question very precisely, we have five fields currently producing above the Arctic Circle, which is the definition I will use for the Arctic. I should say that we use the term "Arctic" differently. If you think of the Arctic as a place of Arctic explorers and polar bears, sea ice, the polar ice cap, those sorts of things, that is very far from where we do any sort of petroleum activity now and there are no plans for doing that in any such area. I will come back to that later, but the operations in the Norwegian part of the Arctic are pretty much like anywhere else in the Norwegian continental shelf.

The five fields that are producing at the moment are Aasta Hansteen, Goliat, Skarv, Norne and Snøhvit—with one more field approved for future production. There are three gas fields—two of them have pipelines to the UK and the EU, and one is an LNG field—and two oil fields. One of them, Snøhvit, is also used as a CO₂ storage site. We have stored approximately 700,000 tonnes of CO₂ annually there since 2007, I believe.

There are numerous fields in the clarification phase where production is probable, and over the next four to five years we are looking at investments of about £2.65 billion there. As for estimates of what we can produce, the Norwegian Petroleum Directorate estimates that there is probably about 575 billion cubic metres of gas in the southern parts of the Barents Sea and about 2.7 billion barrels of oil, so there is considerable potential there.

Q74 Lord Stirrup: Perhaps this is a question that both of you could address. Could you give us some idea of all of the technical and operational challenges of developing hydrocarbon resources in the Arctic? Clearly, even with global warming, the Arctic is not exactly a benign environment. How difficult and how expensive is it?

Could you also give us some idea of the extent to which European countries are going to rely upon this source of hydrocarbon in future? Clearly we have seen demand for gas being reduced over the last year or so because of the difficulties caused by the Ukraine conflict. Will the development that is likely to happen in the Arctic over the next 10 years or so yield very significant European energy supplies when you compare it with alternative sources of supply elsewhere in the world?

It is a two-dimensional question: one on the operational and technical challenges, and the other on the extent to which it is likely to meet European demand.

William Johnsen: It is important to understand that just because something is within the Arctic Circle does not necessarily mean that the conditions are especially harsh. Our experience has shown that this is not the case for the Norwegian parts of the Barents Sea that are open to petroleum activity. Actually, weather conditions are more challenging in the Norwegian Sea further to the south than they are in the Barents Sea. I can come back to the precautions that we have taken.

As for energy, as I mentioned, there are large energy reserves in the Barents Sea and there is a huge possibility that they can be used. The biggest challenge at present is not the environmental conditions but the infrastructure. Pipelines for gas especially are missing at the moment.

In Norway, we have a state-owned company, Gassco, which regulates and operates the pipeline network. In April of this year, Gassco launched a report showing that, from an economic perspective, there is already a possibility to evacuate the gas via pipelines. From an economic perspective, that is now profitable. That might change a few things.

As for the energy requirements, there is unfortunately no credible energy scenario whereby the UK and the EU can meet their demands for oil and gas based solely on their own production and what Norway can produce at the present. Also, Norwegian production, without new developments, will go down. That means that the UK and the EU will be dependent on LNG, which has considerably higher CO₂ emissions and is subject to global competition, and, of course, there is the security implication of this. In the longer term, of course, the resources in the north can also be combined with CCS as a valuable source of hydrogen and ammonia, but in the next 10 to 20 years this will definitely be needed as natural gas.

Our discussion has focused primarily on gas so far, but the same is true for oil. In my view, those who wish to halt production before we can halt consumption are mistaken. I hope you all agree that for the sake of the climate we must phase out fossil fuels as soon as possible, but that means consumption of those fuels. The fact is that if you reduce the production, you just increase your reliance on other nations' production. So the fact that Norway can contribute so extensively to the production of energy for Europe is of vital importance.

Mads Qvist Frederiksen: On the operational, technical challenges, it depends on what parts of the Arctic you look at. Very simply, in the North American Arctic, Joe Biden has just launched the Willow project, which is on-land oil exploration. Greenland, for example, has said that it does not make sense to do any oil exploration there because of the technical challenges, so that is the context of Greenland. Doing oil and gas development in northern Norway is the same as doing it further south. It does not make much difference, especially given Equinor's expertise over several decades.

Russia also has technical challenges, but 30% of the oil and gas income into the Russian economy still comes from the Arctic region, so it depends on what part of the Arctic we are talking about. Will it meet European demand? Currently, Russian LNG exporters are still exporting in record numbers to France, Spain and Belgium, and it could be northern Norway that exports that energy in the future. We are still buying from outside, so we need northern Norway especially. In the Arctic region, we are 4 million people and we are not using the hydrocarbons ourselves, so it depends on global markets.

As we heard from Mr Johnsen, we have to phase out the consumption of fossil fuels. I think you should see the Arctic region as a price stabiliser for the market, because if we just say that we are going to stop all imports of Russian oil and gas and do not add oil and gas from Norway, prices will go up massively. So we need the Arctic.

Looking ahead more than a decade, you will also need gas to produce blue hydrogen in the future, and I see potential for the Arctic there as well.

Q75 Lord Teverson: In the United Kingdom at the moment, quite a strong political debate is starting about whether it is right to open new oil and gas fields and whether we should just stick to the ones we have, even though those fields are declining. Is that same debate happening in the European part of the Arctic Circle? What is your opinion on it? As you say, energy is a global market and it tends to follow where market demands are rather than any sort of strategic view on those things.

Mads Qvist Frederiksen: The European Union's Arctic strategy called for oil and gas to stay in the ground. That was debated quite widely because no alternatives were offered, so it was a very easy political statement to come up with. Yes, the European Union's Arctic policy says that oil and gas will stay in the ground even though the numbers from Arctic oil and gas have gone up for the past year and a half now—for different reasons, as you might know.

We are feeling climate change much faster than anyone else, so there is a wish in the Arctic region too to get away from hydrocarbons, but we also need to realise the amount of money that it means to the economy and the number of jobs that it will mean for the people. That is a balance there. Just to give you one example, some places, like Greenland, as I mentioned, have banned oil and gas exploration in their legal statutes. What is interesting, though, is that Greenland, even though it has banned oil and gas exploration there, has decided not to sign up to the Paris Agreement, so it is not always all that simple.

William Johnsen: If I could just add a few things from the Norwegian perspective, I think the discussion in Norway is much more muted than it is in the UK. One reason for that is that we have had quite a few inquiries into this ourselves. The Norwegian department of energy asked Rystad Energy to do a study, which shows that capping some production accomplishes very little since it is driven mostly by demand. A cap on production would have to be replaced with production elsewhere, while cutting consumption would generate substantial CO₂ reductions. That is very hopeful, because we see that if you use resources to cut your own fossil fuel use, that reduces global emissions. In fact, Rystad's findings were that adding new production with low CO₂ emissions like we do in Norway would replace production with higher CO₂ emissions and reduce global CO₂ emissions. I know this is a bit counterintuitive when you first hear it, but it is a very good study and I would be more than happy to provide it to the committee.

Coupled with the energy security situation, I would suggest that our target should be consumption and not production. In Norway, that is certainly the debate. About 75% of the population in Norway supports the continuation of the oil and gas industry, with about 10% to 15%—the numbers vary—against.

Q76 Lord Robertson of Port Ellen: Can I start by declaring an interest? I am an adviser to BP and I am an unpaid adviser to Agile Spray Response, which is a start-up involved in dealing with oil spills.

Can I ask you about other economic opportunities taking place in the Arctic and where they might be located? Beyond hydrocarbons, what is the other economic potential? Can I also ask you, Mr Frederiksen, a question that relates to some of the written evidence we have received? It talks about “China’s controversial attempted investments in strategic airfields in Greenland and Finland”, and I wonder whether you might enlighten us on what is meant by that.

Mads Qvist Frederiksen: Thank you for the question. Again, there are 4 million people in the Arctic region spread over a massive area, so the economic opportunities are very much within the sectors that historically we have been good at. So when I talk about fish, it is about how we can better utilise the fish—what is called full utilisation. For example, if you catch a cod today, only 40% of it is eaten and 60% is thrown away. Iceland, for example, is looking into how it can utilise more of the waste product. The seafood sector is especially important, also for using seaweed and so on.

Secondly, in energy, a growing industry is anything with the Power-to-X hydrogen or ammonia. Sweden, for example, is using renewable energy to revolutionise the mining industry to make it more responsible and with fewer emissions. It is also investing. Some of the largest battery production in Europe will happen in the Arctic region, because we have space, energy and the mining sites close by. Mining is a key industry, especially because the European Union has outlined in the Critical Raw Materials Act the critical raw materials needed in the green transition, and has found that most of them—the same goes for the UK’s critical raw materials—can be found in the Arctic region. The question now is whether we want to continue getting rare earth elements from China or cobalt from the Democratic Republic of Congo or whether we would rather have it from northern Norway and northern Sweden. That is definitely a growing opportunity.

Another opportunity is anything in digitalisation and space. Simply because of the location of the Arctic at the top of the world it is the best place to launch satellites and the best way to take down data. One UK company, OneWeb, is looking very much to the north and is interested in the Arctic region. The same goes for shipping. You will hear more about that later.

With that, I will probably segue into your next question about China’s controversial interest in the runways. There are two answers to this

question. An American think tank some years ago tried to map Chinese investments in the Arctic region and saw that there was very little investment from China in the region. When there are investments, they seem to be interesting or strategic. China does have an interest in a few mining sites, and it had an interest in the runways, as you mentioned, but quite often these get blocked, which creates conflict in the north, because some people in the Arctic region feel that when Chinese investments are offered to Copenhagen, Oslo, Stockholm or London, we roll out the red carpet, but when Chinese investment is offered to buy broken infrastructure in the north it is blocked by the capital. It creates challenges sometimes, but overall we have seen very little Chinese investment.

William Johnsen: The Norwegian Petroleum Directorate has explored the possibility of deep-sea mining. There are lots of rare earth elements that will be very important for the energy transition in the region's continental shelf.

We are also working on several proposals for large offshore wind farms in Norway. That is especially important in the north, because, as you know, the challenge with offshore wind is when it blows, it blows in most of the North Sea at once or it is quiet. The advantage offered by the northern parts of Norway is that the wind patterns there are different. When there is no wind in the south and off the UK, there is often quite a lot off northern Norway, so that varies. We need more interconnectivity southwards to achieve this, but for the future this offers quite substantial possibilities.

Q77 **Lord Teverson:** Yes. I think part of this question has been answered, but perhaps it is worth investigating a bit further. First—this is primarily to Mr Johnsen—Norge Offshore also represents offshore wind companies and companies involved in carbon capture. What is the potential for the development of renewable energy in the Arctic region? We have already heard from Mr Frederiksen about Iceland's leadership globally in geothermal energy and, something I had not thought about before, some of the hydro schemes in Norway, which stretch up into the Arctic. I presume that solar is not particularly sexy in the Arctic, some of which is in darkness for six months of the year, but I am interested in wind and floating offshore wind.

At the moment, certainly in the UK, the Climate Change Committee sees carbon capture and storage as an important element of net zero. I think Norway is a bit further ahead than most, but it is a pretty untested area of activity. It is very easy to put it back under the North Sea perhaps, but are you equally able to do that in former oil fields in the Arctic? I am particularly interested to explore carbon capture and storage.

William Johnsen: As you and Mr Frederiksen have mentioned, there is already considerable renewable energy production in Norway north of the Arctic Circle, I believe only in Troms og Finnmark, all above the Arctic Circle there are about 80 hydroelectric power stations and some onshore wind.

As I said in answer to questions on offshore wind, there are several projects in the planning phase, and I believe that it has big potential going forward. We also have other initiatives, like using natural gas to create hydrogen or CO₂-free ammonia for fuel, and we can of course use that Arctic natural gas combined with renewable energy and CO₂ capture and storage. As I mentioned, we already store about 700,000 tonnes of CO₂ yearly in the Arctic in the Snøhvit field. That has been going on since 2007, if my memory serves me right. So there is already considerable carbon storage in the Arctic.

Lord Teverson: On offshore wind, we have a problem in Scotland in that we produce far more wind energy than we can get back to where it is needed in the grid. Is that not even a bigger issue in the Arctic, or are we just talking about using it for hydrogen production or local facilities? There is no industrial requirement generally, is there? I am interested in how that works.

William Johnsen: In Kiruna, Sweden, there will be very high requirements for renewable energy when they decarbonise the steel industry there, and there is quite good interconnectivity between the north of Norway and the north of Sweden. As mentioned previously, interconnectivity and transporting electricity southwards will be very important. Another interesting possibility, especially if we already have the pipelines, is using that wind to produce green hydrogen, using electrolyzers to split water to create hydrogen. I know you have plans for that in the UK as well, so I guess you are quite familiar with it.

Mads Qvist Frederiksen: Probably one of the major challenges in northern Norway is how to transport energy. Norway is split into five energy regions and the lower four can trade quite freely, which also means that the pricing is equalled out. In the north, as I mentioned, we have negative energy prices; in some places I get paid to charge my electric car, because we cannot transport the energy. Troms Kraft, one of the energy producers up here in the north, even releases water into the fjord that could have been used in the hydro dam simply because we have too much capacity.

However, that is going to run out. The Norwegian Government estimate that by 2027 there will be what they call the Norway energy deficit, by which they mean that we will not have 100% renewable energy. Many other countries are used to that, but not in the north. For the first time in history, we will lack enough renewable energy, so we need to build more. The number one challenge, however, is how to transport it. Hydrogen for the shipping sector and aeroplanes is definitely one way to transport it.

The Chair: Thank you. We now move to the very important subject of sustainability.

Q78 **Baroness Coussins:** My question is for Mr Frederiksen. What are the main barriers to economic development in the Arctic? How can the work of the economic council deal with those? Is the regulatory framework robust enough at the moment to deal with existing concerns about

whether economic development can be environmentally sustainable? Another concern is the worry that it might not take into account sufficiently the concerns of local residents and particularly indigenous peoples, which might include paying attention to the needs of small business as well as big multinational companies.

Finally, can the work of the economic council be strategic and proactive enough to deal with the interplay between the different business sectors that you have identified as the main players in economic expansion to prevent perverse outcomes? I have seen one play out in a completely different part of the world, Colombia, where mining activity has produced chemicals and deposits in the rivers and seas that have poisoned and killed off all the fish. You have identified the fishing sector as being on a par with the mining sector as two of the areas for economic expansion. Can the council be strategic enough to work its way around potential clashes between sectors?

Mads Qvist Frederiksen: As you mentioned, probably the most important question is how to develop sustainably, not only for the Arctic, but for the whole planet. The challenges for economic development are very strongly linked with local communities and local jobs for people living here. I live in the second-largest city in the Arctic region and we are 70,000 people. Most of our cities are remote. Most are small and distant. The first challenge, therefore, is infrastructure. I live in a place where you cannot take the train to come here. People always say to me, "Why don't you take the train to go home?" It is impossible. We do not have trains, so we have to fly or sail. We need to invest in deep sea ports, runways and digital infrastructure. The world is getting more and more connected and there is definitely a digital divide in the Arctic region that we need to close.

That relates to the second challenge, which is investment. We need a lot more investment in the north. Unfortunately, some interest groups, which are almost never in the Arctic and do not have the interests of the people in the Arctic in mind, have lobbied for banks and insurance companies to stop investments in the Arctic region. That is a massive challenge that we are facing. Some people see the Arctic as a small snow globe that they can shake and look at the polar bears and the icebergs, but we are much more than that. We are people living here. Sustainability also has to mean the sustainability of the people living here. These people have the same dreams and ambitions as people in London, Paris or Rome, so investment is a challenge because of the bad press.

The third and probably biggest challenge, and the main impediment to sustainable economic growth in the Arctic, is the lack of people, the demographic challenge. We need a lot more people to work here. We have some massive demographic challenges. People are leaving this environment because the cost of living is higher here and it is more remote. I think we can do it, but it takes a lot of effort. There are companies working on the green transition, such as Northvolt or FREYR Battery, making the batteries that we will need in the future. They need

thousands of people, and right now we see young, educated women leaving the region, which is a massive challenge.

Our advantage is that, if you look across the Arctic, we have much stricter regulation and framework conditions than many other places we get our raw materials, energy and fish from. Most of the seafood, for example, is MSC certified, which is the highest rate of sustainability in the Arctic region. That also means that we can charge a premium, because fishing is more sustainable here in the north.

When it comes to mining, mining regulation in Norway, Sweden and Finland is considerably stricter than in Mozambique and the Democratic Republic of Congo, where the European Union, for example, gets most of its mining raw materials. When it comes to energy production, the track record here is considerably better and we have a lot more transparency than elsewhere.

The indigenous peoples are 10% of the population of the north. If you look to Alaska, its indigenous group supports the development of oil and gas. In Canada, the indigenous groups are the shareholders in almost all the mines. Greenland, which is 90% indigenous and its Government are indigenous, is promoting mining and energy development. It is more complex than just saying that indigenous groups are against development. They are quite the opposite; they are pro-development.

More than a quarter of our members in the Arctic Economic Council are indigenous representatives who want sustainable economic development. We have indigenous representation in our executive committee. They have the same voting rights as others, and together with this group we host the Arctic Investment Protocol, which is a product that was developed together with business, NGOs, climate think tanks and the Government. It is a set of guidelines for any foreign investors getting into the Arctic, ensuring that they do it the right way and that they involve local communities. We have developed this protocol to assist investors coming from outside.

As you said, there is a spillover effect when big industries come in that is both positive and negative. The positive is that a lot of SMEs will have to supply the big industries with services. There are also challenges, but the good thing here is that we are so dependent on the land and the seafood that it would be counterproductive if we allowed anyone in who would ruin our seafood or our rivers. The water here is clear and clean, and that is our strength. People here in the north will never think of not taking care of the environment. Luckily, because we have such strict framework conditions and regulations, we are doing quite well.

The Chair: Lord Anderson has a question that is somewhat related.

Q79 Lord Anderson of Swansea: It is a question on the cleaning up of oil spills in the Arctic and is probably for Mr Johnsen. In evidence to an inquiry of the House of Lords in 2015, Greenpeace argued that there was no known way of cleaning oil spilt on ice and that therefore no offshore

drilling should be allowed. Is that problem still the same? How do you respond to the Greenpeace concerns, and what steps is the industry taking to mitigate the risks of an oil spill in the Arctic? Is there an effective response to accidents, which clearly may well happen with intensified economic, mining and other activity in the Arctic?

William Johnsen: First, it is important that before you are permitted to do anything on the Norwegian continental shelf you have to go through an opening phase in the Norwegian Parliament. The opening of a new area in Norway is a substantial process: investigation into all these matters in open hearings, implications for the environment and climate and so on. That is all covered by the democratic process in Norway and, as Mr Frederiksen said, we have very high standards for it.

Johan Castberg is one example of the latter. The whole FPSO that is approved for production and the anchoring are specially constructed to withstand ice, and we have a ship with special equipment standing by to handle it. There is no solid sea ice near Johan Castberg and there will never be. Statistical analysis shows that there might be drift ice close to Johan Castberg once every 10,000 years. So it might be more challenging in other parts of the Arctic than on the Norwegian continental shelf. As I have said, there will be no petroleum activity now or in the future where the ice is.

However, we have substantial safeguards, such as specially developed radar and infrared monitoring systems, in place to ensure that there are no oil spills, and we have a complete organisation dedicated to handling potential oil leaks, which has equipment for collecting oil spills in the event of that happening. It has pre-stored equipment all along the Norwegian coast, especially in the north. We also have an agreement with the fishing fleet, which is also part of the organisation for any potential oil spills. We have exercises, I believe at least once a year, to contain them both locally and at higher levels.

If I may add one thing here that may be relevant, my mother's family is from a very small town in Norway called Sørvær, and in the 1990s an old hulk of a Russian cruiser broke free and ended up there. There are big possibilities for oil spills from shipping. The preparedness of the organisations that are there will make that sort of thing easier to handle. Quite frankly, when you look at the track record of the oil and gas industry, it is possibly statistically a bigger threat to the environment, but of course we take this extremely seriously and work every day to have those things in place. As for ice clean-up, we have some systems, but it is not that relevant to Norwegian operations.

Q80 **Baroness Sugg:** Going back to economic opportunities in the Arctic, as we understand it, it does not appear that UK companies are currently participating in the Arctic Economic Council. Could you say a bit more about the footprint of UK companies in the Arctic? Are there any recommendations you could give for how UK companies and businesses could work more closely with the Arctic on the opportunities we have been discussing?

Mads Qvist Frederiksen: It is an important question, because we need everyone on board in the Arctic, and the Arctic is definitely open for business from the UK. My best advice overall is that if you are going to work in the Arctic, please involve yourself with the local stakeholders—work with organisations and so on like the Arctic Economic Council. We have members from France, Greece and Switzerland as well as the eight Arctic states. We have partnerships with South Korea. We are definitely interested in having UK companies as well.

I was trying to think about what companies would be relevant. We have previously been in dialogue with OneWeb, which is partly owned by the UK Government. We would love to have it as a member. Space is a growing industry and OneWeb is an interesting company. Looking at other companies such as Shell, Glencore or BP, it would be relevant for all of them to join. In the mining sector, it could be Rio Tinto or Anglo American. We also have growing interest from banks and insurance companies. I spoke to Lloyds yesterday. It could be HSBC or Barclays; they would be relevant. I mentioned the food sector; Unilever would be relevant. Do these companies have a footprint in the Arctic already? Yes, to some extent, one way or another. Is it significant? Maybe less so. How do we increase it? As a starter, through partnerships. Find a local partner and develop from there.

Secondly, the UK is extremely good at combining science, business, defence, diplomacy, and so on, so let us try to look at it more holistically. Instead of just looking at it from a business perspective, let us say, "How can we combine the hundreds of years of inspiration, history and science studies in the Arctic region with business, especially when it comes to climate change?", so that we do not separate it and talk instead about military exercises or business development.

Thirdly, it is important to look ahead 10, 15, 20 years and say, "What does the world need and where do we find it?", because I do think we will find it in the Arctic region. There are a lot of opportunities for UK companies to join the Arctic Economic Council.

Q81 Lord Anderson of Swansea: Mr Frederiksen, you have spoken about potential opportunities. Has any interest been shown already, other than your potential, which you have outlined?

Mads Qvist Frederiksen: As I have mentioned, the fishing industry is huge. A lot of fishing from the Faroe Islands and Greenland, for example, is exported to the UK. There is an interest there. Greenland is currently negotiating a free trade agreement on fisheries with the UK. The Faroe Islands has done this already, as has Iceland. That is already happening on fishing.

When it comes to mining, North America is very big and some UK companies are already looking there. As I mentioned, OneWeb is already doing satellite launches and using the receiver station in the Arctic region to get data. BAE Systems is developing weapon systems that are being used in the Arctic. It is happening as we speak. You can see from the

data that there is economic development happening already. There is not very much from the UK yet, but it is growing.

The Chair: Thank you very much, both of you, for your time. It is very much appreciated. I just remind you that we will send you a transcript that you will be able to review.