

Scottish Affairs Committee

Oral evidence: [The future of the oil and gas industry](#)
, HC 996

Wednesday 5 September 2018

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Members present: Pete Wishart (Chair); Deidre Brock; David Duguid; Hugh Gaffney; Christine Jardine; Ged Killen; Danielle Rowley; Tommy Sheppard; Ross Thomson.

Questions 117 - 161

Witnesses

I: Trevor Garlick OBE, Director, Opportunity North East, and Co-Vice-Chairman, Oil and Gas Technology Centre, Neil Gordon, Chief Executive Officer, Subsea UK, and Stuart Payne, Director of HR and Supply Chain, Oil and Gas Authority

Written evidence from witnesses:

- [Sector Deal Team](#)
- [The Oil and Gas Authority](#)

Examination of witnesses

Witnesses: Trevor Garlick OBE, Neil Gordon and Stuart Payne.

Q117 **Chair:** Welcome to the Scottish Affairs Committee to help us in our Inquiry into oil and gas. Just for the record, who you are, who you represent and anything by way of a short introductory statement. I will leave it to you, Mr Garlick, and you can introduce your colleagues or shall we go left to right?

Trevor Garlick: I will lead off, thank you very much, Chair. Good morning. I am Trevor Garlick the Industrial Champion for the oil and gas sector deal. I have worked in the industry for over 35 years, much of it in the North Sea. I am here today with Stuart Payne, my colleague from the OGA who is a director of HR and the supply chain, and Neil Gordon who is the CEO of Subsea UK, the trade association for all the subsea industries working in the North Sea and some beyond the oil and gas sector.

If I may, I would like to say some opening remarks about the proposal. The oil and gas sector deal aims to deliver a significant contribution to Vision 2035, which I believe you have heard about in other sessions. That Vision identifies huge remaining potential over the next 20 or so years, both in terms of revenue and in terms of sustaining jobs, and the value really comes from incremental reserves and from building our supply chain export potential, and there is probably some in the diversification of the supply chain as well.

It aims to extend the productive life of the basin. We are targeting doubling our share of oil, fuel, goods and services and that amounts to a huge value over 20 years in terms of revenue of close to 900 billion, so it is a huge scale of potential. Some of that is a stretch target, some of that is our base case.

In recent years the collaboration between Government and industry, the oil and gas operators and academia has delivered some positive results, including a competitive fiscal regime, including the foundation of the OGA and the establishment of the Oil & Gas Technology Centre. These are welcome but they are really focused on exploration and production, and in our deal we are focusing on trying to realise more of the potential from the supply chain.

Our work is the product of a lot of engagement with industry, some beyond oil and gas, and, based on this engagement, our deal proposes co-investment with Government and industry and academia to fund three new innovation hubs: one on decommissioning, which is up and running already—well, to be launched but is going ahead—one on underwater innovation and one on what we are calling transformational technology, so three industrial hubs. One is already going.

These industry-led proposals are aligned with, we feel, the energy transition and the industrial strategy, the fourth industrial revolution and



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the clean growth strategy of the Government. We think these hubs will add value, not only to the oil and gas supply chain but also to supply chains beyond oil and gas, and we submitted this deal in March this year. We have had a number of briefings and sessions with senior Ministers, and we have maintained industry engagement during the period and engagement with BEIS, regular sessions with BEIS, so I hope that gives you kind of an insight.

We also have five core areas that are named and referred to in the report, which came from the industrial engagement and we felt should reference, because they are very important for the industry but they are actually being worked by other groups, so we reference those as being five core areas. We are open to your questions on the proposal.

Q118 **Chair:** For that we are very grateful. Any there any other contributions from either of your colleagues?

Stuart Payne: Good morning, Chairman. As Trevor said, I am Stuart Payne. I work for the Oil and Gas Authority. I am also the Co-Chair of the industry MER UK Supply Chain and Exports Taskforce, and thank you for the chance to come and talk to you today.

Neil Gordon: Just a little background. I am Neil Gordon of Subsea UK. Subsea UK was formed in 2004, a trade association, with the support of Government, both Westminster and the Scottish Government. The objective there was to grow the subsea industry and hopefully, as we go through the questioning, I will be able to tell you a little bit more later on about the expansion of the subsea and the underwater industry.

Q119 **Chair:** On the timeline, Mr Garlick, you said that this was established in March this year. We presumed that there was going to be some sort of announcement made around about now, and we were hoping that we might be able to hear that. We understand that that has now been delayed until the autumn. Could you give us a sense of what your view of the timeline is and where you would like to be in a year, 18 months, a couple of years' time?

Trevor Garlick: Yes. We started the work before March, the industry engagement, through a number of different trade associations and corporate enquiries themselves. We submitted quite a large document in March. As I say, I have been meeting with a team regularly with BEIS and getting its feedback on the ideas and we have kept industry up to date. I have had a couple of meetings with the Minister of Energy and also most recently with the Secretary of State for Business, and they have provided further feedback and we continue to work and try to improve our design.

The work we are now engaged in is looking at the implementation plan, so I don't think we had any expectations of any announcement now, as you say. We realise that there are a number of sector deals being processed and it is quite a complicated process. However, we do



appreciate the feedback that we get and we now have funding to improve and further detail the business cases and the delivery plans for these two central ideas.

Q120 Chair: You mentioned the groups involved in your sector deal, and you mentioned the three different elements to all of this, but there is a lot going on and we have heard quite a lot of evidence from the different players in the sector. We have MER UK, as you correctly identify; we have Vision 2035, and there are all the new centres and facilities that have been established by the UK Government. How do you see yourself working with these different initiatives, and could you tell us why you think it is important that we pursue a sector deal at this time?

Trevor Garlick: There has been a lot going on and I think all of the groups, without exception, that you have just mentioned, have been involved in some form, in some way, in developing this further idea. I guess the question we are trying to answer, which is quite a difficult question, is: in partnering with Government and with other institutions, what could industry do next that would help industrial growth in our sector? That is quite a big question and there are quite a lot of people to ask it to, but we have used the taskforce that is set up between industry and the Government already under the MER process, and we have used a number of trade associations to get their input.

In terms of timing and why now, I think there are a couple of reasons. One is there is momentum from what I would call the catalytic effect of Government investment in the Oil & Gas Technology Centre. As I said, I have worked in the North Sea a lot and I have seen a different pace and a different behaviour between the suppliers, the oil companies and the academic institutions and technology institutions to bring innovation to bear that is industry-led, so that momentum is there.

A further driver behind the momentum is the industry's own self help on the back of what has been a really difficult period. I think they should be commended for, for example, driving efficiency and driving cost, so there does seem to be a renewed help, a needs must to do it differently.

The third thing is probably that some of this work and some of the work you referred to has revealed the size of the prize that is out there. The prize is significant both in terms of incremental reserves, to an extent accelerating reserves, helping to lower emissions by trying to bring our industry aligning into the energy transition, but probably the biggest lever is this export one, and it goes across the three hubs that we are talking about. We see a big export potential in each of those.

Q121 Chair: Lastly from me, you are one of the first and one of the most significant in the sector deals that were announced as part of the industrial strategy. I want to know what your feelings are on the model of the sector deal, whether you think it is something that will be valuable and useful and what you expect to secure from it, and when do you expect to have done the work developing your implementation plans?



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Trevor Garlick: In terms of what do I feel about the process? I understand it is not dissimilar to the City Region Deal idea, building a partnership of co-investment and getting the right parties together to tackle a problem. In this case: how do we grow the industry?

Given the success in our area of the City Region Deal, I like the idea. I understand from our discussions with the Government that it has led to a lot of sector deal proposals and, therefore, a lot of work to scrutinise and prioritise those proposals. We have been asked to be patient several times and I understand that.

In terms of where we hope to get to, the work we are now doing—and we have resources to do that from industry, some from Subsea UK, some from Scottish Enterprise and some from Oil & Gas UK and OGTC—has allowed us to put in place a plan to build an implementation plan and a better business case. What that will be doing is focusing the scope, improving the cost estimates, improving perhaps the business case, but particularly focusing the scope and making sure that whatever we try to put in place in this co-investment model does not duplicate anything else and that it really does fill a gap that we think will make a difference to industrial growth.

Q122 **Chair:** Therefore, you are amending your plans and proposals as—

Trevor Garlick: We are. One of the biggest amendments—and some of this has come from encouragement from the Government but also from encouragement within our own supply chain—is that we look and see where we can make an impact on the offshore supply chain, rather than just the oil and gas supply chain, and we think there are significant opportunities. Neil can probably say a bit more about that in a second, particularly on the subsea area.

In terms of timing, you asked about the studies we are doing. We expect to finish those at the end of the year. Those should give us a much more defined handle on the scope, the prize, the cost and also the delivery model.

Q123 **Chair:** Grateful. Mr Gordon?

Neil Gordon: I am going to add on to what Trevor said there. I suppose the subsea industry grew up in the oil and gas industry over the past 30 or 40 years or so. Over the years that underwater sector has grown into a number of diverse other industry sectors as well, such as offshore wind, wave, tidal, deep sea mining, which is on the horizon, aquaculture, marine science and defence.

What we are looking at here, this is really focused on the supply chain and the opportunities to try to join up those sectors that work in the underwater space. That is the thing that is missing in the UK. It is not cohesive. It is not joined up but we have already started working this space with the renewables community and with the defence community and others.



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We recently had a meeting of all the stakeholders, both geographically and from the different sectors, at our base in Westhill, which Trevor chaired. We explained the scenario to all the various stakeholders and there was a huge amount of support for that, saying this was something that of value to all the sectors.

It is really to look at all the white spaces: where are the opportunities to work together to perhaps try to share some of the challenges and get some of the solutions to those challenges, so we are getting the best return for and from UK Plc.

As I mentioned earlier on, we are based in the north-east of Scotland, which is the operational hub for subsea and underwater operations. There is a very strong manufacturing base in the north-east of England and there is a huge amount of companies, a strong cluster there. We work very closely with Tyne Subsea and the subsea north-east community there. Also, in the south of England there is a strong community around marine science, around Southampton in the National Oceanography Centre.

Connecting those spokes to this main hub is how we plan to deliver value because it is about getting the best of the sum of the total, working together and making sure that there is no overlap or duplication and sometimes sharing in those opportunities in working together.

Q124 Chair: Stuart Payne?

Stuart Payne: The only thing I would add, Chairman, is your question a few questions ago around: how does this fit with the landscape of lots of other things, often with acronym spaghetti to try to navigate your way through? I think what the industry has done very well in the last three or four years is to make sure that the different bodies that were created—like the Oil & Gas Technology Centre—work well with each other.

What this proposal tries to do is to then take that to a much grander scale and connect across the entire UK and across the entire breadth of Scotland to say, “Outside of the direct industry, whether it is broader academia, whether it is defence, marine, aquaculture, how do you try to bring all of that together to try to unleash what is a much larger global market, but also to leverage the experience and skills that we have around the country?”

Chair: Grateful. Did you want to come in, Deirdre?

Q125 Deirdre Brock: Yes, just on something Mr Gordon said. You mentioned, Mr Gordon, that you had hosted a meeting recently bringing all the various sectors together, including the marine renewables, and I was up in Orkney not so long ago and was struck by the fact that they already seem to be working very closely with a lot of the organisations within marine renewables, for example, even joining forces with the fishing industry and so on. That is already happening. Are you saying oil and gas have not been exploring that up to this point or is this something that has



been on the backburner for a while?

Neil Gordon: The subsea industry is very much cross-sectoral. When we talk about oil and gas and we talk about offshore developers and wind and the other end users and the navies, we are talking about the underwater expertise and companies who supply, whether it is to do with underwater robotics or survey. They serve many of these industries.

There are many, many companies working already in those other diverse sectors but what we want to try to do is make those opportunities much more visible to the community and the supply chain, to understand how they can diversify into those sectors and of course improve on the export capability as well, and Mr Kermode, the CEO of EMEC, joined us at the actual meeting recently as well.

Trevor Garlick: The Orkney guys were represented and understood the proposal. We are not saying this has not started yet. What we are saying is if we had a more cohesive approach. It is a bit fragmented and, while some wind companies are talking to some oil and gas supply companies, if you had wind, mining, defence, aquaculture, tide, wave all working with oil and gas subsidy suppliers and, as I say, a cohesive approach—not least to winning markets in markets overseas and building competitive advantage through the technologies and innovations we can help them with—we think we will have a better result. It is tightening it up and making it larger and faster.

Q126 **Christine Jardine:** Could you tell us a bit more about how you went about designing the sector deal to make it fit in with maximising the economic return strategy?

Trevor Garlick: Yes. As I said earlier, we consulted quite widely. We used our colleagues in seven or eight trade associations and at least two of the MER UK industry Government taskforces, first of all, to ask for ideas. Something like 180 ideas were submitted. We went through those, bucketed them and prioritised them, and by collating some of the ideas that were overlapping that slimmed it down.

It was subjective but we used about 10 people from a range of different parts of the industry to say, "These are probably the eight or so areas we would like to focus on". We asked each of those eight to write papers and decided that three of those—the three I have mentioned: the underwater hub, the transformational technology centre and the decommissioning centre—were three where we felt we could see what was needed, and that it was needed because it wasn't being done anywhere else.

The other five we thought should be highlighted that were being run in another part of industry, so we have listed those five in a paper that I think you have seen: exports, culture, operational efficiency, skills and support to CCUS. Those five each have a champion and a piece of work running. Our role there was to try to promote that and broaden the



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profile of it, get more supply chain involvement in it but not to lead on it as in the first three.

Then we looked at the three and started to look at: what would the cost of doing this be and, obviously, what would the prize be? We have done that going through looking at: for each of these hubs there is a significant prize and then there are several other prizes that might come with it. Would you like me to go through that?

Christine Jardine: No, that is okay.

Stuart Payne: Could I build on that?

Christine Jardine: Yes.

Stuart Payne: Hopefully, as Trevor said at the beginning, you will be familiar with the Vision 2035 graph. The predominant focus of this is the red line in that graph, which are the exports from the UK overseas. The blue line, which is the pure maximising economic recovery piece, the view was that the interventions that had been made through the Wood Review, through the Scottish Independent Expert Commission, through the driving investment plan from the Treasury have all come together to get us into a much better place where, from an OGA perspective, we track the level of resources from reserves that have been booked and future forecasts and we are seeing very healthy progress towards achieving the blue line.

There are two separate pieces. The first one is, as a sector, we have always said that without a thriving service sector we won't achieve MEI UK, so making sure that service sector is as robust as we can is key to the blue line.

Out of all of those 180 responses, the natural next chapter is to then say, "What about the red line?" It does serve MEI UK but it is more predominantly focused on the red line part of Vision 2035. Does that make sense?

Christine Jardine: That makes sense. Thank you.

Q127 **David Duguid:** Before I ask my question I should probably declare—somewhat of an address there—Mr Garlick and I both worked for BP about the same time in the early to mid-2000s, so welcome to all of you, not just to my old boss.

The question I want to ask—I think you have covered some of this—was the oil and gas supply chain has clearly been under some pressure over the last few years. My first question is: how critical is the timing of a decision on the sector deal and, secondly, how would the sector deal proposals create more business opportunities for supply chain companies across the UK? Obviously Mr Thomson and I are very glad of anything that benefits the economy of the north-east of Scotland, but there has been some mention of how this can benefit companies across the supply chain across the UK. Can you say a bit more about that?



Trevor Garlick: The first one, sorry?

David Duguid: How critical the timing of the decision is.

Trevor Garlick: The critical timing, yes. It is critical in the sense that I described earlier. I think there is an opportunity because of the change in behaviours and because of the recent interventions that both suppliers and operators have made on the back of the oil price, the severe reduction since 2014, and also what they have done in the light of the setting up of the Technology Centre. We are now seeing a lot more and a lot faster willingness for people to put forward places to trial technologies, people putting forward data that would not normally be available, people being happy to second skilled people into an innovation environment to make these happen.

There is a little bit of momentum, both from I would say the pride of the recovery—there is still a way to go but it is recovering—and this new behaviour that I think is nucleated by the Technology Centre.

Is it critical? There are two things that make it critical. One is that we are a maturing basin and we only have so much time. I don't want to talk it down because I believe there are an awful lot of reserves and life still left in the basin. However, the faster we move, the faster we can make an impact both on reserves, as Stuart was saying, but also on the supply chain opportunity.

The second thing that makes it critical is that other people are looking at the same ideas as us. In our research around the underwater hub—Neil will obviously have known this—we have all found that the Norwegians have something very similar already running called the GCE subsea node, which does pretty much what we have described in our current design as what we would like to do. You can see that if we don't do it it will be filled by others, and I think you also know, Neil, that in Brazil they are thinking of something similar.

This idea of us having a world-leading position in the subsea and underwater industry is one that we all know about in the north-east. Not everybody knows that in the country and sees us as a world leader, but we are a world leader and we want to sustain our position as a world leader and use that to get into more international growth, obviously improve our domestic engineering but get into more international markets and actually diversify and, as we were saying earlier, bring these technologies together, even though the sectors might be acting independently. As you know, if you have a problem laying a cable it doesn't really matter whether it is going to a windfarm or it is going to an oil installation or, indeed, if it is helping in some form of subsea mining, it is laying a cable subsea.

In terms of your second question across the UK, I know the latest Oil & Gas UK's Workforce Report says something like 61% of the people who work in the industry of about 280,000 people are not in Scotland. A very



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large proportion—39%—are in Scotland of course and a very large proportion of the contractors are in Scotland, relative to other regions. But it is split something like 50:50 between Scotland and the rest of the UK.

Therefore, our view here and our vision for these hubs—as Neil said they are hub and spoke models, so part of it is setting up a physical presence with some staff in it—the other really important part, is this virtual connection to these other centres. This is the piece of work we have been doing with the other centres, and we started it underwater getting together the people who represent all of these aspects of innovation in marine engineering.

I know my colleague Colette Cohen, who you spoke to, is doing the same thing for the transformational technology work and for decommissioning work. The idea is to connect these up, so that it is less about where you are based and more about what you do and how relevant what you can bring is to the problem that has been set.

The problems are set by industry, so in each of these three cases the idea of this is very much industry demand-led. Industry says, “This is my problem”, and then another part of the industry—possibly in another part of the country—says, “I and maybe this company and that institution or that university can solve that for you”, and then we can share that solution. That is the rough way I think it can help.

Q128 David Duguid: Lots of good stuff in your response there. I want to clarify one thing: do you worry about the momentum? I think Mr Thomson and I would both recognise the cautious increase in enthusiasm in Aberdeen, in the north-east of Scotland in general since the oil price started creeping its way back up. But personally I have always had a fear that we will go back to the old wasteful behaviours of the past when we have recovered from other downturns.

I would agree with you about the OGTC and also the fact that the OGA is based in Aberdeen has led to more collaborative thinking that was recommended by the Wood Report back in 2014, but is there a risk that if we don't capitalise on that momentum, that energy that we are cautiously seeing now, that we might see opportunities fall by the wayside?

Trevor Garlick: There is a risk. There are other initiatives that have been alluded to. We are obviously coming here thinking that we have the next three things that our industry should do. If you canvass the 280,000 people they would not all agree with these three things, but we feel we have gone through a process that is as pragmatic as it can be to get to an answer. We think we have the handle on three things that would be a good idea to do. One of them, as I say, is actually up and running because the City Region Deal has funded that, and the other two we are looking to find co-investors, both from industry obviously and from Government.



As I say, there is a risk that if we don't get after this that it will be harder to deliver the vision. It will be harder. It will be slower. We might miss out on getting onboard the energy transition train. We will definitely miss out on some of the subsea growth in the world, because others will take it up. That market is growing.

We quote in our report a study done by Scottish Enterprise that says there is a growing oil and gas market, and there is a growing diversified subsea underwater market. Given that we are currently a world leader—we have 38% of current global subsea market, which is a world leading position—we want to maintain that position, grow that if we can and then get into other markets. It is like anything, if you wait: less impact and slower pace. I cannot say the whole industry rides on this and I also think that the industry is very aware that it cannot go back to some of the old behaviours as they are known, and even some of the old contractual behaviours. I know there is a lot of work going on on that.

One of the concerns in the diversified sectors was that if the oil price rises again the price of doing work in the oil and gas sector will go up, and so we will set up our own supply chain.

A fringe benefit of the downturn is that oil and gas now competes, and I think we are increasingly seeing—I think 59% came out in the recent Grampian Report—companies that are trying to diversify, so it is happening but could it happen at a much faster pace and on a much bigger scale? That is what we are suggesting, yes.

Chair: We have to move on.

Q129 **Danielle Rowley:** You have talked a bit about the innovation hubs, which I am very interested in. Could you elaborate a bit more, especially on the decommissioning hub, and also on, is it, the five supporting focus areas?

Trevor Garlick: Yes, and I will bring my colleagues in on some of those areas because they are more expert than me on those.

Each of the hubs has a slightly different remit. I will start with the decommissioning one as you highlighted that one. The decommissioning one is the one that is going to happen. It is being funded through the City Region Deal. To start with, it is a partnership between Aberdeen University and the OGTC. Aberdeen University has supplied a building. The current work is to build the resource and to build the industrial partners that will set that up and then to kit out the building. I think the plan is to launch it in the fourth quarter.

That is really good news because you will all understand that decommissioning is a necessary feature of an extraction industry, and we will have to decommission our platforms safely and efficiently. There is a huge cost that goes with that and one of the two biggest prizes in decommissioning is to try to reduce the cost and make it more efficient. So this will be focused on building innovations to reduce the cost of



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decommissioning, particularly well abandonment, which is about half the cost of decommissioning but also cutting, cleaning and removal technologies.

The second value driver in the decommissioning one is about exports and, again, it probably feels a bit early to be talking about us as a decommissioning export industry but it won't take long before our supply chain has done a few of these and, almost by virtue of other people not being at that point in their industrial cycle, we will be more expert than them if not expert. Therefore, we can start exporting decommissioning skills fairly soon is our view, so that is the decommissioning one and where we are with that one.

On the transformational technology one, I think we all see that now—and it could be—largely an extension of the Technology Centre that already exists, so it would be fairly easy and straightforward to set up. What it does is it focuses less on fixing now, which is what Colette and her team are predominantly working on. Nearly all of the projects are on fixing current problems, either in wells or in subsea systems, particularly in asset integrity issues, which are obviously very urgent and you can understand why the effort is going there.

It would also be good to see if we can take some of the ideas that are coming out of the energy transition, and some of the ideas that are coming out of the fourth industrial revolution and say, "Could we bring more low carbon ideas into our hydrocarbon industry?" I am not saying we can make a huge impact but there are couplings between renewable power offshore and how we currently power offshore, which can be made as we build more windfarms and start to use tidal power or experiment with tidal power.

Then a second thing is the obvious prize in efficiency for further automation, further digitalisation, which can lead to more remote operations and again, combined with more subsea technology, more operations where the equipment is on the seabed, which allows you to go into deeper water or manage smaller discoveries with less cost.

Then the third one is the underwater centre. Neil has already said a bit about this, but the underwater centre we are increasingly seeing that not so much a big R&D centre but more of a connecting hub with roles like approaching markets in a cohesive way, helping to get the right training and the right skills, helping to get training that can cross sectors, helping to drive the right innovations and maybe apply for the right sort of research and bring the right kind of partnerships together, but it is this idea of: we can do it faster and bigger if we do it in a more cohesive way. It is very much about joining up the current institutions. At the meeting we had, which Neil referred to, it was clear that they all felt: this is an obvious thing to do but we haven't yet done it and we need something to nucleate it around.



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In terms of the other core areas, on skills and exports, let me go to Stuart who can give something on that and I will come back on some of the others.

Stuart Payne: Very briefly, the exports piece in simple terms is around £500 billion-worth of market value per year for the next 20 to 30 years, projected out around the world. The UK has around 3.7% of that market and the challenge of Vision 2035 is to double that by 2035. It is not instant. There is a gradual process to go through.

Our aim is to work together bringing all of the various parties—whether that is the trade associations like EIC and Oil & Gas UK, the Government bodies, like SDI and DIT—into one space working on a very pragmatic route map of how to get to that prize. The benefit for the UK goes from if we do nothing probably around £350 billion in revenue by 2035 to £500 billion. That £150 billion prize is obviously enormous in terms of jobs, in terms of revenue and tax.

Therefore, we are working collaboratively across industry and Government Departments to have a plan in place to do that, showcased predominantly next year for the first time by an all energy exports conference held in Aberdeen. I think it may be one of the final events held at the Exhibition and Conference Centre in Aberdeen before the new shiny one opens. We hope that will bring together a huge range of both exporters who do export, pairing them up with key targeted customers that we have identified in terms of projects, but also those people who don't export.

The data that we saw—it is probably a year and a half old so it may have changed slightly—suggested that 80% of the companies in the sector did not export. Some of those will be because they choose not to, but the argument is there may be a number of those who don't understand the support and services that might be available from places like SDI or UK Export Finance and so on, so making that information readily available is there as a big focus in the exports piece.

On the skills piece—as Trevor mentioned at the beginning—it is a great example of where the project team has tried to not duplicate stuff. The industry has OPITO, an industry-wide body that is hugely respected. It has done a project, which was released in May of this year, looking at the workforce: what does it look like now, where is it headed, what is the impact of technology on that and what is the impact of Vision 2035 on that? OPITO is moving into the second phase of its work looking at the real impacts of digitalisation and certain other technologies, and we are supporting it in that work but not getting in the way. Letting it do that and making sure the two things talk to each other.

Chair: We will just leave it there because we have lots of questions for you. I am determined that we get through as much as we possibly can. Danielle, are you—



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Danielle Rowley: I am sure we will get to the rest in due course. Thank you.

Chair: We will be back to you, Mr Garlick, make no mistake about that. We have lots of questions to ask. Deirdre, did you want to come in?

Q130 **Deidre Brock:** It is a quick one about decommissioning. Can you estimate how much of the work that is required for decommissioning will be done out of Scotland?

Trevor Garlick: I don't have a fraction for that. What we do know is there is an estimate of £60 billion-worth of decommissioning heading our way in the next 10 years; 95% of that is offshore and about 5% is onshore disposal. Most of this is money spent offshore, which means that most of the skills that are required we already have. You can always improve on those and the Technology Centre is particularly aimed at: how do you make those more efficient, safer and cheaper?

But most of those things we have, so 50% of that £60 billion is well abandonment, which is a really expensive task and something that we have to reduce the cost of, and 5% of that £60 billion is onshore disposal. I would say a lot of it will come to the UK supply chain but it is for us not only to win the business but also to try to make that supply chain more competitive so that it can win further business overseas, because it is an industry that is going to be needed everywhere.

Q131 **Deidre Brock:** Yes, but obviously we are Scottish Affairs, so I am wondering how much Scotland specifically would benefit from it and how much we are likely to be sharing it around the UK and competing against other areas.

Trevor Garlick: As we were saying earlier, the supply chain is split across the UK. I think it is something like 50:50 between Scotland and non-Scottish in terms of companies. In terms of people, as we said, it was 39% of the workforce in Scotland and 61% in the rest of the UK. I don't have a specific decommissioning split but I would not have thought it would be too different to that.

Stuart Payne: As a rough rule of thumb, if I may, the service sector typically provides around 45% to 50% of the work done on platforms, not decommissioning but work done is done by UK-based service sector companies. Again, I don't have the Scottish/English split but again using a rough rule of maths, if roughly half of those are based in Scotland it would be a reasonable supposition that, unless there is an intervention, that logic could flow forward. We can certainly look and see if there is a specific number.

Trevor Garlick: We can look and try to provide that. My guess would be probably more than 50%—

Q132 **Chair:** If these figures are available somewhere, if you can get access to them if you could send them to the Committee that would be really



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helpful.

Trevor Garlick: Yes.

Chair: Thank you.

Q133 **Ross Thomson:** Export potential is a thread that runs throughout the sector deal proposal, and the ultimate aim of Vision 2035 is to double the market share of exports. How will your proposals maximise the export potential of the UK supply chain?

Trevor Garlick: As you say, it runs through the three hubs so we think in each case a component of the work that the hub does should be aimed at trying to bring together both the innovations that are required to make our supply chain more competitive overseas, but also some structure and process to join up an approach, so that, when we approach markets overseas, we have a better chance of winning them rather than the somewhat fragmented approach at the minute.

It is not as black and white as that because, clearly, our institutions that are helping are Government institutions in both the UK and Scottish Governments, but it is fair to say that both SDI and DIT would appreciate more industry help to approach the markets overseas and win more business for the UK.

We see the innovation as being an advantage because it builds competitive advantage when you go to tender and you are bringing some product that someone else hasn't got. Then, secondly, you will bring it in a way that gives you a chance of winning a bigger part of the business, because we are going as cohesive, focused effort.

The idea is to do that in each of these hubs. The benefit that we see particularly is in the underwater and subsea sector. The reason there is because we currently have this leading position and we need to hang on to that and then we also see that the market is growing. It is growing not just in oil and gas but it is also growing in these other renewables and mining and aquaculture technologies. That is where the big prize comes in and that is where you see some of the big numbers, which we have just pulled from Scottish Enterprise's recent study.

Q134 **Ross Thomson:** That is a very good point, because I know from meeting Neil before that subsea already is global in terms of exports. Are there any particular global markets or opportunities you think there are for the sector or the industry as a whole, and anywhere you would recommend that the UK Government look to in regard to their future trade policy?

Neil Gordon: We work very closely with both the agencies, DIT and SDI, and have a number of interests in other markets, such as Brazil, Mexico, the US, Australia and Asia, around Malaysia, Singapore, those areas. Those tend to be the global hubs, as we would say, for the subsea industry where the decision-makers are.



We certainly have strong relationships. One such example is I am a member of the subsea committee within Brazil, so we have a seat at the table with the technical decision-makers in Brazil. We are out there promoting UK Plc and our expertise.

I think that is one of the roles that this hub can do is to find out and identify where the key opportunities are for the companies, the low hanging fruit where we can deliver some results because there may be some other issues or challenges within those countries that might prevent some companies entering. Therefore, we have to try to identify where the low hanging fruit is and where we really can win the work as well.

Another thing that is important to mention, we already do work cross-sector with other areas. For example, we will be in Hamburg later this month and we will have a subsea theatre within the DIT UK pavilion, alongside Renewable UK, promoting the subsea underwater expertise. There will be 100 or so companies promoting UK underwater expertise.

We have started on this journey but, as an organisation, which we are, we are restricted by the scale of our capability. With help we could do a lot more and I think we can bring a much bigger return from that.

Q135 Ross Thomson: It is interesting to hear about the collaboration partnership you already have with the Department for International Trade. In part of your answer, Trevor, you talked about how you felt the industry could help support DIT. Do you think that there is an opportunity to see a greater presence of UK Government and DIT in Scotland post-Brexit to support the industry? For example, I would like to see DIT based in Aberdeen in relation to the oil and gas side. I don't think that should be in Glasgow or Edinburgh. I think that should absolutely be in Aberdeen. Do you think that there is scope to see a greater presence of DIT in Scotland?

Trevor Garlick: I think the presence, where it is, is less of an issue. The thing that is the issue is that there is more collaboration between the two Government export Departments and the types of export opportunity, and understanding what our supply chain can do in those. Clearly, if that was in Aberdeen then there would be more conversations with the Aberdeen-centric supply chain.

In Neil's area, one of the reasons we want the hub to be in the north-east of Scotland is because something like 150 of the 600 subsea companies are based in the north-east. That is clearly a critical mass that you don't replicate anywhere else. It also means that there are 450 somewhere else. The idea of the hub is to make sure that we understand, if we can, where the skills are and where the specific innovations are and the suppliers that can bring those to the market, so we think there is a body needed to bring that together. Definitely part of that role would be interacting with SDI and DIT, and we are doing that.



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As Neil suggested, there are areas that are already coming up the list. Mexico is one of them. The East Coast of Africa is another one of them. In this regard, the idea of working with the Eastern Seaboard in the States where technologies might be more about wind and renewable energy than they are about oil and gas.

Q136 Ross Thomson: Is there an opportunity to look at areas where oil and gas industries are developing? I know, for example, Guiana is at the very early stages in the development of oil and gas and they don't have the infrastructure. Do you think there are opportunities through DIT and others that the experience that has been built up in the North Sea and Aberdeen could be used to help support these other countries, but also for companies as well to get in and invest?

Trevor Garlick: Yes. Any new prospective oil and gas basin, but increasingly any marine energy basin we can start to look at and say, "Is there something that could be provided from our supply chain?" There is always a difficult question as to how quickly you build a supply chain in a new area. Increasingly these days, with communications and the way that many of the headquarters are anchored in the UK, you can service these places from here. Again, if they are joined up and if they are connected to the market and also joined up among themselves that is easier.

Chair: We have lots of questions to go and we appreciate you are taking a great deal of time to answer in a lot of detail, but we are going to have to lose some members to Prime Minister's Questions in the next 20 minutes, half an hour, so what we will do is we will try to get through this a bit more quickly if that is possible and appeal for perhaps more concise and shorter answers, fascinating, though, the full answers have been thus far. We will start that with Mr David Duguid.

Q137 David Duguid: Yes, before I ask my next question, in your response to Mr Tompson you mentioned the opportunity of getting into new markets where the industry, subsea or other parts of the sector, is seen as a global centre of excellence in this country or in Scotland. Are you also looking at places where we already exist in the traditional oil and gas sector and looking at ways we can diversify into somewhere like the Caspian Sea, for example?

Trevor Garlick: Absolutely. The short answer is it will be both in new areas where there might be emerging markets, but I would imagine almost more of the focus would be on where there are current markets that are growing, and growing in terms of the diversification as well as the oil and gas business.

Q138 David Duguid: The main question I was going to ask was about: you have projected that a total investment of £176 million could deliver up to £110 billion of potential value between now and 2035. At the high level, what are those projections based on?



Trevor Garlick: Those projections the cost side is based on the cost of setting up similar hubs and institutions, so they are fairly well understood. They are 10-year numbers, so the cost of effectively £176 million means £17 million per year over 10 years in our proposals split between Government and industry. We are working those and, as the scope tightens and we understand what would be lucrative and what would be the priority in the scope, I expect those costs to come down.

In terms of the prize, you will appreciate it is quite a difficult thing on innovation to put a hard prize against a specific investment because you don't quite know what it is going to do, but you try to estimate the scale of the prize. You assess that it is large enough that the investment is worthwhile, so this is not the same as saying, "I want £50 million for a well and I will give you 5,000 barrels when it comes in". This is saying, "I want to invest in these ideas, these innovations and these connecting behaviours and, if I do that, we feel if we do that well that that will give us access to the vested market".

As I have said earlier, most of the prize comes from gaining market share in a growing export market in subsea. Most of that prize comes from that, and those numbers have come from Scottish Enterprise's recent study on subsea activity, which shows by sector a forecast of these things, and then we have risked that back. We have not taken the whole numbers. We have at least risked it back by 50%. You could choose an even bigger risking back but I think the significant point is that there is a big prize to go for and we feel this helps us get it.

Q139 David Duguid: At the beginning of the session you talked about the implementation plan that is currently under development, so presumably that would include setting milestones that you would be able to check that you are delivering on the return that you expect?

Trevor Garlick: Absolutely. The performance management of any hub that is set up needs to be good enough to prove that it is worth keeping going, but the implementation plan we were talking about was really more about: if we can get the co-investment agreed, what does it take to set it up? How will it be governed? How will it be staffed? Where will it be and how will it connect? This vital connection will be made virtually with the IT between the other centres.

Q140 Deidre Brock: The industry has had quite a lot of support from Governments recently, so the petroleum revenue tax, for example, has been abolished permanently we are told and some companies at least have received considerable tax rebates. Could you outline for us why you believe a sector deal is still required for the industry?

Trevor Garlick: Clearly, there are many priorities for Government where they invest their money. I understand that and we are not trying to put this above other things. We are trying to answer the question which is: if there is some political will to invest further in this sector where would you invest it? That is the question we have been trying to ask, rather than



say, "This is more important than there or there". It is the same reason why we understand we have to wait while other sector deals are done.

Our team is a reasonably good cross-section of the industry, and we say, "Where would you go next if there was a way of partnering within industry and doing something beyond the OGTC, beyond the OGA?" We are saying, "We think these are the things to do", and in fact one of them we have gone ahead and done because the situation deal allowed us to do it.

I understand there are other considerations, but I suppose I am trying to answer it from a sector point of view about where we would go if we could. Do you want to add anything, Stuart?

Stuart Payne: Yes. The one thing that we have discussed as we have gone along is there is clearly incremental improvement and change happening in the sector, and I am sure you will have heard in your evidence sessions from others around improving production and efficiency and so on, all of which is welcome.

Big transformational steps and changes: creation of the OGTC, creation of the OGA. It requires something else, and that does not necessarily always have to come with funding of course but it requires a continued partnership between Government and industry. A great example is that the underwater proposal would go well beyond the boundaries of the sector and would require significant support and enabling and help. The way we have looked at it is that the sector should focus on self help first but then should say, "What else is possible with additional partnership?"

Neil Gordon: You referred to some of the more recent help, and I think that help has been directed towards the exploration and production side of things. This is more about enabling and supporting the supply chain so the supply chain can support a broad range of sectors, so it is a level down before perhaps the final end users where, as you say, the benefits of investment has been historically. This is more directed at the supply chain.

Trevor Garlick: The case we make is that most of the interventions have been aimed—and rightly so—at maximising economic recovery, which is really about maximising reserves. This one is about directly trying to support our supply chain, and, yes, that will have a domestic benefit but it will more significantly have an overseas benefit on other sectors too, so it is an offshore supply chain.

Q141 **Deidre Brock:** Yes, indeed. You mentioned at some stage getting further assistance from private companies to help sell some of these technologies overseas, for example. Do you feel that private companies are stepping up enough here? Shell, for example, has benefited particularly from tax rebates. They have had money back from the UK taxpayer fairly recently. Do you get the feeling that they are buying into this and they are certainly contributing in the way that they should to these sorts of



initiatives?

Trevor Garlick: We haven't yet got to the point of asking industry to sign up for these new ones. We are just about to do that on the decommissioning one, but in terms of the OGTC we now have 80 members and that is faster than we predicted it to grow. I am pretty sure the one you mentioned is part of it but many of the majors are backing it.

The interesting thing about the model is it is very much an industry-led model, so the industry sets the demand, the innovation challenge, and then parts of industry decide to contribute to solving that problem and then benefit from that problem being solved. It is somewhat self-selecting but I would say, increasingly, companies are selecting to be part of it, and we would hope that that same model would replicate when we do the underwater hub as well.

Q142 **Hugh Gaffney:** Given the considerable Government support the industry has already received in recent years, why do you believe a sector deal is necessary?

Trevor Garlick: I certainly acknowledge there has been a lot of recent support, which is why we have the competitive fiscal regime we now have and why we have the regulator and a regulator based in an area where it can probably be more effective and we have an OGTC.

As I tried to say earlier, there is a momentum right now in the recovery cycle, which makes it a good time to strike. Behaviours are changing. People don't like the "collaboration" word in Aberdeen because it has been overused perhaps, but it is important that the supply chain and the regulator and the operators do collaborate on solving these problems together.

If there is the possibility of co-investment, we are literally saying the next place to go would be more focus on the supply chain, and we are saying within that broad general area to go for subsea because that is where there is big value to be gained. Go for decommissioning because that industry is coming towards us. Go for lining up with the energy transition and the new technologies that are coming, and are already available in other industries, and bring them into our industry.

I guess the supplementary reason is that other people will do this if we don't do it. I was quite shocked by how far ahead Norway were on this GCE subsea set up. They are several years into it.

Q143 **Hugh Gaffney:** You are saying a lot of people are keen, what countries are you talking about then, Norway and all that? You want to start getting the decommissioning work, don't you, this country, is that what you are saying?

Trevor Garlick: The decommissioning has to happen. It is a fact of life of the declining and maturing basin, so it has to happen and somebody has to do it and we are saying, "Get our supply chain ready to do it and, also,



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get them ready to do it cheaper because the bill is huge both for the corporations and for the Government, and get them to do it in a way that means that they can be competitive overseas when decommissioning starts in earnest overseas”.

Q144 Ged Killen: Could you give us a brief overview of your proposal for the governance and accountability structure for the deal, and can you tell us how you envisage the funding being managed? Will it be released into the hubs to manage or will it be directed to individual projects within the hubs?

Trevor Garlick: In terms of the governance, we will get more detail on the governance as we do this work on the implementation plan but our current thinking is that the governance will follow pretty much the model that the Technology Centre hub currently follows, and that is to set up a board of academics. In that case we have people from both universities that are participating.

This would have different people because there will be different universities, universities and institutes from England as well as some of the institutes in Scotland. It would have industrial representatives from big and small corporations. Different from the OGTC because of the broader nature, it would have representatives from some of the other marine industries and it would certainly be an option to have a regulator presence, which we currently have on the OGTC board. It would have an independent chair and it would be governed in that way.

If we could come to an arrangement about co-investment and, as I say, we will do more work on the specific numbers but, again, the model is likely to be similar in that it would need to be frontend loaded for the setup costs for the capital and the premises, for the IT installation and any vital kit, but the majority—and I would estimate, and this is the case for the technology centre, that 90% of the money would be operating expenditure based on people and projects and it would actually, as you say, be released on a project-by-project basis. One of things that it does is it allows you to say, “I want to solve this problem. Who is willing to come in and solve this problem with me? Who is willing to provide people or money or trialling sites or data and to match the cash that is needed for the people to do the project?”

Q145 Christine Jardine: Apologies if you feel you are going over information more than once for us, but what I was specifically interested in is you have spoken about specific delivery plans. If you have one, could you tell us a bit about what it looks like and who will be responsible for the practical delivery of the elements you have talked about, about the sector deal?

Trevor Garlick: Each of the three hubs is at a different stage. The decommissioning hub is now going ahead. It is being set up with a project manager from Aberdeen University and it is a partnership between the technology centre and the university. A building has been



found. We are now trying to find industrial partners and call out for what would be the first things that the decommissioning centre tries to tackle: where are the big areas of cost saving? One of the obvious ones is, as I said, the well abandonment. It is just through the roof expensive.

We see the transformational technology centre as very simple to set up because it could effectively be another wing on the OGTC. Whether it is next door or up the road, it can be easily set up under the governance of the current technology centre with its own project manager and then, as I say, build partnerships and projects.

The one that we need to define further, to be honest, is the underwater hub. At the minute we don't have a model for where that would go, other than we may well need to set up something new and it would be in the way I just answered Mr Killen's question. We would set it up with an independent board. We might want to align it with a current institution and if there was that willingness we might want in some way to couple it up. If Subsea UK wanted to do something, this is quite a significant expansion on what they currently do but it is very much in their area.

But at the minute our plan is to draw out two or three different models and then weigh those up and obviously talk to the institutions themselves as to what they want to do. The difference in the underwater one is that it is very much more an offshore one than just an oil and gas. It is going to include, we hope, people from subsea mining, defence, aquaculture, marine renewables as well as oil and gas subsea expertise.

Q146 Christine Jardine: Thank you very much. To return to something Mr Gaffney mentioned earlier, and I didn't want to intervene then, we have throughout Scotland—abandoned is possibly taking it too strongly—slightly underused facilities that were originally used for building the platforms that are now going to be decommissioned. Have you looked at involving them?

Trevor Garlick: In the scope for the decommissioning centre of expertise, there is a plan to partner up with basically all the ports and, I think, to partner up with construction sites in Scotland that would say, "How can we mutually work together here?" As you say, there are some facilities that are perhaps underused. There are harbours whose port strategy is to think about how they relate to decommissioning.

Q147 Christine Jardine: Nigg springs to mind immediately in Easter Ross in the Cromarty Firth space.

Trevor Garlick: Yes, that does and the new harbour in Aberdeen is also—I know they are thinking about what their role might be in decommissioning and the Shetland harbours, of course.

Q148 Ross Thomson: How will you measure the success of the sector deal? Who will be ultimately accountable for the success or failure of the sector deal?



Trevor Garlick: The way we are now thinking about the sector deal is it is a series of projects. We started off with this model of three hubs and five core areas. Stuart described the core areas earlier. I think those core areas each has an owner and, to save time, we can give you the owner of each of the five areas. But they have an owner and that work is ongoing. I think our role, and the role we might try to do with industry and with Government, is to make sure that the profile of those five things stays high because they are significant to the industry.

Of the other three that we have been talking about most of all, the accountability has to be with the chief executive and the board of each of those three hubs. In the case of the decommissioning centre, it will be between Aberdeen University and the OGTC, so that is kind of clear. If we can get the transformational technology going that will also lie under the board and the chairmanship or the CO of OGTC.

Back to the earlier question, we will have to set up a new and independent vehicle for the underwater one, which might with time be aligned to something that already exists but at the minute it feels like something new because there is not anything quite like it. The closest thing to it, but it is not that close, is Subsea UK. That is governance and ownership.

We will measure different things in those different sectors, but the top three: on transformational technology I think it has to be its impact on emissions and on efficiency, which obviously leads to emissions impacts in itself. But aimed at whether it is remote working or bringing in machine learning and automation technologies or bringing in links to renewable power grids, there are some very clear metrics and changes that you should be able to see.

I think the main measure for the decommissioning is really: what is it going to cost us to decommission? Apart from doing it safely, which is obviously number one, the biggest challenge on decommissioning is to get the cost down. If we can get the cost down, good for us but it is also good for our export potential. The third one on the underwater hub—and you might want to add, Neil—I think the big prize is to continue to be the world leading exporter of subsea technology and services. If we can do that it should be measurable in export share.

Neil Gordon: To add on that, every two years we measure the value of the subsea industry to the UK: what we do domestically, how many people are working in the industry and what we export overseas as well. There will be a good measure there and those are some of the key indicators to look at the value and the jobs it brings to the UK.

Q149 **David Duguid:** You have already answered the first part of my next question. You have given lots of examples of projects that you would invest in. The second part of the question is: how do you prioritise which technologies and projects get the funding?



Trevor Garlick: That is a really good question. The current institutions and hubs have to do that. The prioritisation tends to be, first of all, we try to look at what is called the readiness level. Not to dwell on it, but there is a scale of technology readiness of one to nine. Basically a project is looked at as to whether it is almost applicable and just needs tweaking for a particular application or, right at the other end, it needs inventing from scratch or something in the middle that is maybe available but needs quite a bit of customisation before it can be applied to a certain industrial purpose. There is a choice about how much you do on those technology readiness levels.

Another main factor is the business case, so your estimate of how likely it is to generate a business case. Whether it is a more efficient process or a cheaper product or some lowering of emissions or something that enhances safety, you will find the right KPI for that project. The last one is how deliverable it is, some kind of risk and estimate of how likely it is that this can be done. You look at the benefit, the maturity, the risk benefit and then you look at the delivery and you have to put those in some kind of sequence. It is a subjective process but you can feed it with data.

Neil Gordon: To add on that, the roadmaps are created by engaging with the industry to find out where the challenges are and you look at the roadmaps and where the challenge is. There are three steps to that. You adopt existing technology, and this is where we have cross-sectoral benefits of seeing something that has been done in another area. If there is something that is almost there you have to adapt it slightly to fit. If there is not anything there, if it is a white space, you look at new development.

Q150 **David Duguid:** It is a bit more sophisticated than just saying, "This is how much it is going to cost and this how much value it is going to give". You are also looking at the ease of implementation versus the readiness of the technology.

Trevor Garlick: Yes, and—as Neil rightly points out—right upfront this is an industry-led thing. You say, "What is the challenge in the first place? What is the demand and how do we meet that?" Then you look at how mature, what is the business case and can it be done or what is the risk of it being done.

Q151 **Deidre Brock:** In the first evidence session we heard that the sector deal is going to explore technology transfer from oil and gas to the renewable sector as part of a transitional period away from reliance on oil and gas. You have spoken quite a lot about partnerships between the subsea sector and industries and so on. Can you give us some examples of how you think that might operate, what might occur in those circumstances where that transfer is happening?

Trevor Garlick: I will ask Neil to address that because he is already doing that. I think it is about doing that more and at pace.



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Neil Gordon: I think I mentioned before that many of the companies that are working in the underwater area, supporting things like pipeline survey or where they are going to be laying cables and so on, have already made that transition and the supply chain. Typically, when offshore wind started in the southern sector there were more benign conditions but, as we have moved further north into more challenging deeper water and more difficult seabeds, the underwater construction becomes a bit more challenging because we need bigger structures and the seabed itself perhaps makes it more difficult for burial. All those experiences from those companies over the years have developed and can be transferred into that. That can be transferred into other areas as well.

We are working with the defence sector at the moment, just working through an MOU with the UK Defence Solutions Centre based in Farnham. We are looking at underwater autonomy and robotics, because many of the underwater communications and how we use our robotics are very similar across other sectors as well. As I say, we have already started embarking on collaboration in small scale. What we really need to do is scale this much higher so we involve all the other sectors. The renewables part is a very strong area where we have a good relationship particularly with Renewable UK.

I mentioned that we will be in Hamburg later this month promoting UK subsea expertise and that is something we will be building on, certainly with our partners in DIT and SDI in other parts of the world. The UK is still by far the biggest area for offshore renewables, but what the rest of the world is doing is looking at the UK to try to emulate and we want to make sure that we catch the opportunity to export to some of those other areas.

Q152 **Deidre Brock:** Can I ask about training opportunities for oil and gas workers in the supply chain or in the industry itself? What work is going on there in order to enable them to explore opportunities in the renewable sector as well?

Neil Gordon: Typically offshore in those environments they are working on vessels. They are either putting something on the seabed or working in the open water, so a lot of the skills are very similar. Some of the technologies that they are using might be slightly different but those are more based around the manufacturing and construction side of things. I wouldn't say the transition of the skills and capability within the sectors is relatively easy but it is much simpler in comparison to others.

Q153 **Deidre Brock:** They are more easily transferable, you think?

Neil Gordon: Yes, absolutely.

Q154 **Deidre Brock:** But the sector is aware of the requirement for extra training. Are you looking at adding extra support for that?



Trevor Garlick: Stuart is familiar with some of the work that is going on in this.

Stuart Payne: There is one associated piece that might be of interest, led by BEIS working with OPITO and other skills bodies, looking at how do you build—this is probably not the correct language—an energy skills passport so you can move between the core skills, the oil and gas world, the renewables world, the nuclear world, and how do you have both core competencies from the safety point of view, first and foremost, but also from a professional accreditation, whatever that looks like, so that you can have a real energy career across the UK.

It is not just about training, that is around compliance and assurance and all those things that go with it, but I know BEIS is looking at that work right now. That is one of the things that when the OPITO work looks at these skill needs and skill studies, we are working as a team to make sure that those two things plug into each other and talk to each other.

Q155 **Deidre Brock:** Very interesting. Thank you. In the written evidence you provided you say the key focus of the National Decommissioning Centre is to properly understand and manage the environmental impacts of decommissioning. Could you expand on that a little bit, please, and perhaps tell us a bit more about how it is going to ensure that decommissioning is carried out in a way that protects the environment?

Trevor Garlick: I don't think I can give you much more context other than it is a headline of the centre. As I said earlier, probably the biggest push will be on reducing costs and making the thing more efficient, but in doing so clearly you are removing a lot of metal and there is a lot of clean-up to do. Some of innovation will be about: how can that clean-up be done better, faster and more efficiently but, also, how can the removal be done in a way that has minimal damage to the environment from which you are removing the structures and the pipelines and in some cases the wellheads?

It will be a top line on industry calls but the detail of what is done will be industry led. Industry will come back and say, for example, "The problem I have is debris clearance around pipelines". How do the industry, the supply chain and the academic institutions respond to that problem if the measure of success is minimising environmental damage? It will be one of the headline categories of projects that that centre will do.

Q156 **Deidre Brock:** I take it environmental groups like Friends of the Earth, for example—I think they have given us written evidence—will be consulted and their views will be taken on board.

Trevor Garlick: In each of the projects that are undertaken there will be a consultation in getting the right partners' input to that. But the decommissioning centre is literally just being set up and the projects under those broad headings of efficiency and cost and environmental damage minimisation are just being started.



Q157 **Deidre Brock:** Beginning, but it will be a focal point?

Trevor Garlick: Yes.

Q158 **Tommy Sheppard:** You have talked a lot about decommissioning but I would still like to probe you on a couple of aspects of it. I am assuming that over the next 20 years the need for decommissioning grows as we shift away from oil and gas and then take less of it out. Can you give us an idea of the scale of what that would be? Is it going to grow 10 times from what it is today and is there some sort of measure of the global market that is there for decommissioning? Also, is there a difference between decommissioning a well offshore and onshore? To what extent is the technology similar and are you interested only in the offshore market?

You said earlier that the bulk of the decommissioning costs were about capping the well. Can you give us an indication, therefore, of where progress and where competition between companies is driving this? Are we looking at different ways of understanding the geology to cap the well or different products to put in to create the bung? Can you give us a little bit more indication on that?

Trevor Garlick: I can give you a little bit on each of those but I think we probably could give you better answers than I can give you. On the first one, the decommissioning growth, undoubtedly it is going to grow. The demand for decommissioning the supply chain and decommissioning in and of itself is going to grow because the basin is maturing. There is lots of work going on in trying to extend each field and maximise the recovery from each field but, ultimately, the installations, the pipelines and the wells have to be safely abandoned and they have to be removed, so it will grow.

In the North Sea we have the 60 billion figure as an estimate and I think it is not a bad estimate for the near term. One of the things that we both know is that every time somebody produces a forecast for decommissioning it generally goes to the right. There is generally a way that is found to delay it a little bit longer because we get clever at late life management. It is a side point, but the fact that we are getting very good at mature field management is another competitive advantage of this basin and this basin's supply chain.

Internationally the same thing will happen. Basins that are younger than ours—for example the exploitation of the Norwegian basin is behind the UK sector—will hit the same issue. They will have to decommission their fields and they will be looking for expertise to do it. You can go further abroad than that and the same thing applies, so it will grow. Some people like to talk about it as a new industry, others talk about it as the natural extension of the oil industry, but it is a growing sector or subsector.

Q159 **Tommy Sheppard:** Sorry to interrupt, but are there places elsewhere in the world where this is more advanced than the North Sea, where the decommissioning is more active?



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Trevor Garlick: Yes. The obvious place is in the Gulf of Mexico where their industry offshore in some parts, in the shallow parts, is older than ours. However, the environmental conditions and the oceanic and meteorological conditions are completely different to what we are learning to deal with. In a sense, if you can decommission here, particularly in the northerly areas of the North Sea, it is a competitive advantage and it is a niche skill. That is why we think it is something we should try to harness and improve and then be able to export.

On your second question, which was about onshore and offshore decommissioning of wells, clearly an onshore well is different because it does not have water over it and it won't have subsea equipment. Down hole the main issue of abandoning a well is to contain the pressure that is left in the well and to make sure that anything that can be is removed but that the hole is left completely safe by being pressure contained. Technologies from offshore that are controlling the down hole side can be applied to onshore, so it is a benefit in the onshore market that way.

On your third point about technologies for plugging and abandonment, the Oil and Gas Technology Centre currently has a series of big programmes aimed at trying to reduce the cost and improve the efficacy of plugging and abandoning wells because of this massive cost. In the North Sea it can cost the same to abandon a well as it does to drill the well, which is crazy. We can get you more examples but a couple of examples that I am aware of are using new metals and new materials to plug wells instead of using a series of cement plugs, which takes a lot of time and a lot of rig work. You can potentially use a single or maybe a double material plug made out of a new compound, a new metal or a new alloy. We are looking at that and we are looking at camera technology to see the state of the well. We are looking at how you remove things from the well.

There is a series of technologies that are being developed already and I would imagine that the technology at the decommissioning centre will just make that an even bigger programme because of, as I say, the huge cost fraction, which is roughly 50% of the decommissioning estimated cost.

Q160 Tommy Sheppard: I am getting the feeling that what you are saying is that if you can decommission a well in the north of the North Sea you can do it anywhere, that that is probably the most challenging oilfield to be working in.

Trevor Garlick: Someone will find a well that we couldn't do but I think that covers most of them, absolutely. You are in deep water, in very harsh meteorological conditions. The wells themselves are very deep and often high pressure, often multiple reservoir zones, often gas and oil, often impurities in very salty hot water. If you can do that you can do the onshore ones definitely but you could probably do—

Q161 Tommy Sheppard: The challenges are greater and, therefore, if you can



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overcome them that gives you a global advantage.

Trevor Garlick: It gives you the advantage and if you can overcome them you can also reduce the cost of doing them, which is a big burden on companies and governments.

Chair: Thank you for that. We have just made it in time for Prime Minister's Questions, so we are grateful we managed to get to that. I think we have asked you for some supplementary pieces of information for you to supply to the Committee. We hope to conclude this report by November and have a series of recommendations in place by December. The sector deal is going to be a big feature of all that, so we might come back to you about where progress is going to be made and where the next steps are. Either I or the clerks will get in touch just to be updated, if that is okay, and you can keep us informed about how we are doing with all this.

It is very exciting and it is obviously a huge opportunity for the sector, so let's keep in touch and see what we can do to ensure that this continues to be progressed. Thank you for your evidence this morning.