Scottish Affairs Committee

Oral evidence: The future of the oil and gas industry, HC 996

Tuesday 13 November 2018

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Watch the meeting

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

Questions 204 - 322

Witnesses

I: Graeme Fergusson, Managing Director, Decom Energy, Professor Richard Neilson, School of Engineering, Aberdeen University, Member, National Decommissioning Centre, and Jonathan Hughes, CEO, Scottish Wildlife Trust.

II: Hedvig Ljungerud, Director of Strategy, Oil and Gas Authority, Tom Wheeler, Director of Regulation, Oil and Gas Authority, Wendy Kennedy, Chief Executive Offshore Petroleum Regulator for Environment and Decommissioning, and Pauline Innes, Director of Decommissioning (Offshore Oil and Gas) OPRED.

Written evidence from witnesses:

- Decom Energy Limited
- Scottish Wildlife Trust
- Oil and Gas Authority
Examination of witnesses

Witnesses: Graeme Fergusson, Professor Richard Neilson and Jonathan Hughes.

Q204 Chair: Good morning. Thank you very much for joining us this morning for our ongoing inquiry into the oil and gas sector in Scotland. For our records, please say who you are, who you represent and anything by way of a short introductory statement. We will start with you, Mr Fergusson.

Graeme Fergusson: Good morning. Thank you for having me here. My name is Graeme Fergusson. I am the Managing Director of Decom Energy Limited, which is the parent of Fairfield Energy. Fairfield is the operator of the Greater Dunlin Area. We are about halfway through one of the complex North Sea decommissioning projects. We are a substantial employer, both directly and indirectly, with over 500 people attached to the project now and we see a great opportunity in the decommissioning sector to play a significant role.

Professor Neilson: I am Richard Neilson from the University of Aberdeen, also working with the Oil & Gas Technology Centre to set up a national decommissioning centre just north of Aberdeen. I have a background in engineering, most recently in decommissioning and oil and gas.

Jonathan Hughes: Good morning. I am Jonathan Hughes. I am the Chief Executive of the Scottish Wildlife Trust, which is a conservation and environmental charity in Scotland. We are 54 years old. We have 42,000 members and we are involved in a range of different issues, including the marine environment and conservation of the marine environment.

Q205 Chair: They were very concise opening statements, which is always very helpful when there are so many members of the Committee here this morning.

Just to get things started, perhaps all of you could help the Committee by explaining and describing the scale of the challenge that we have in the North Sea Basin when it comes to decommissioning and what we have to be aware of and conscious of as we progress with this. Maybe you could help us with that first, Mr Fergusson.

Graeme Fergusson: I think the scale of the challenge is material. We are in a fledgling time where we are all beginning to learn, that is companies, operators and so on but also regulators and beyond. Everybody is beginning to get their heads around what the basin faces now. It is a mature basin and irrespective of what the oil price does, we believe decommissioning is here to stay. It is incumbent upon all of us to try to get our arms around that and work openly to bring material options to the table that can be to the benefit of all the parties involved.

Professor Neilson: The estimate from the OGA a couple of years ago or last year was about £60 billion, with a challenge of trying to save 35% of that. That £60 billion is the overall decommissioning cost for the North
Sea. Oil & Gas UK’s estimates are about £17 billion up to 2025, annual spend about £1.7 billion to £2 billion, so it is substantial spend on decommissioning over the next 10, 20 years.

**Jonathan Hughes:** The figures we have are there are around 470 oil rigs, 10,000 kilometres of pipeline and 5,000 oil wells in the North Sea area that will need eventually to be decommissioned. The estimated cost—and we have had a couple of figures there—varies, from the figures that we have seen, between £35 billion and £70 billion over the next four decades with 214 fields within the UK coastal zone forecast to be decommissioned between 2017 and 2025, with an estimated cost of £17 billion. That gives you an idea of the scale of this. It is pretty enormous and of course with the potential environmental impact, but potential environmental gain as well, which we may come on to later.

**Chair:** Indeed, thank you for that. Again, to help the Committee, what is the actual process of decommissioning an oil rig and what are the most difficult and challenging parts of that? You could maybe help us with that in your line, Mr Fergusson.

**Graeme Fergusson:** The Greater Dunlin Area is a good example of one of the most complex projects. Each field and asset will be different and will have different aspects to it. It would be fair to say that Dunlin has all aspects to it. The most material element is the well plugging and abandonment in terms of its cost and scale. That is a basin-wide statement. What we have to do there is create the barriers between the reservoir and the surface of the sea in order that no hydrocarbons ever flow back. That is a material exercise and will take a number of years for us on Dunlin.

There is also subsea infrastructure that needs to be removed from our fields, which is another element of the project. We have subsea tiebacks, which come back to our fields, so we must remove the relevant equipment there and bury and entrench some of the other pipelines that are required and go through that process also.

Then there is the main structure itself. The Dunlin Alpha platform is a material structure with 336,000 tonnes of concrete under the surface of the sea, 20,000 tonnes of topsides, which is largely steel. We must clean and then remove everything we can and take that through an approved decommissioning programme. It is a hugely complex technical challenge, which is multifaceted and heavily interrelated. You have to consider those aspects across the board. It is beneficial to manage the project from one point.

There is significant commercial complexity in that as well. The North Sea is a mature basin and the agreements that were put in place back in the 1970s and 1980s did not necessarily address all of the challenges of decommissioning. As we begin to step into this—and it is a multi-stakeholder process—we have found that there is some complex commercial challenge and there is the broad stakeholder landscape as
well, which is relatively new and different from what upstream oil and gas would traditionally do. There are many stakeholders beyond that who would be interested in what people would do normally when producing an asset.

Q207 Chair: There are 470 of these oil rigs that we are going to have to eventually clear out of the North Sea. Professor Neilson, are you doing all that with each of them?

Professor Neilson: If they have to be removed, then yes, you need to do all of this: shut down the rig; well plug and abandonment; clean; environmental impact assessments to look at the effect of what is going to happen with the removal or if a derogation case is left, so if there is allowance for leaving some of the structure in place, what effect that is going to be on the environment; the potential for CO_2 emissions during the process of removal. All of these things need to be taken into account, whether it is a small piece of underwater structure or, in the case of Dunlin, a huge concrete structure with a large topside.

Q208 Chair: I guess you have a different view of all of this, Mr Hughes. Tell us your assessment.

Jonathan Hughes: The current OSPAR regulations would suggest that 90% of the installations in the North Sea at the moment need to be fully decommissioned. There is a relatively small percentage of them that fall into this gravity-based structure or 10,000 tonnes category that are eligible for derogations. I agree with the statements that have just been made, but maybe we will come on to what we do with that 90% that are not currently subject to derogations and whether there are different options available.

Chair: You will have lots of opportunity to tell us your views on that.

Q209 Tommy Sheppard: Can I just clarify something? You are saying there is 20,000 tonnes above the surface, steel deck. The rig we know and love and understand and can visualise, but did you say that beneath the surface was more than 300,000 tonnes of concrete?

Graeme Fergusson: That is correct, yes.

Q210 Tommy Sheppard: What does that do? What is it for?

Graeme Fergusson: Many of the platforms nowadays and of the newer generation will have steel legs. It is essentially the legs that support the platform. At the bottom of Dunlin, you have storage cells, so there is a network of storage cells that were used over its 40 years of productive life to store oil and gas at one point. Then you have four concrete pillars that come up essentially to the surface of the platform.

Q211 Tommy Sheppard: The platform is connected to the seabed by a concrete pillar?

Graeme Fergusson: That is correct, yes. On Dunlin, there is some steel transitions that run for—
Q212 **Tommy Sheppard:** On what percentage of the rigs would that be?

**Graeme Fergusson:** There are nine concrete gravity-based structures in UK waters.

Q213 **Chair:** Lastly, a general question to get things started, what are the economic opportunities for Scotland when it comes to decommissioning and what support is needed from Government to ensure that we maximise these economic opportunities? We will start with you, Professor Neilson, on that one.

**Professor Neilson:** The opportunities are relatively large. It is making sure we have the right supply chain. There are some aspects that are not well covered at the moment. Heavy lift is not well supplied in the supply chain at the moment and a lot of that will happen with Dutch companies, heavy-lift companies like Heerema and so on. But it is making sure that the supply chain can latch on to the large chunks of money, which would include the well plug and abandonment, making sure that that is taken care of out of the UK. The plug and abandonment is about 49% of the overall cost of decommissioning, so anything that we can do with UK companies in that space gives a large chunk of business in the supply chain.

The cost of topside removal is about 15% and some of that will be heavy lift. As I say, at the moment we do not have a large amount of heavy lift. Some of the structures will go to Norway if it is deep water, because we do not have a lot of open harbours, but there are opportunities like Brent Delta. On the Brent Delta topside, 24,000 tonnes, was lifted in one piece and brought into Able’s yard down south and will be decommissioned there. Buchan Alpha was a floating structure. It was brought into Shetland and has been decommissioned by Peterson’s yard up there. There are definitely opportunities in decommissioning of topsides.

On jackets, it will depend on whether there are some new technologies coming in. There is a company called Ardent that is looking at floating jackets. You would have the jacket structure on the seabed, you would cut at the seabed, having put flotation jackets around it, and then float that into a shallow water harbour, where you would take it apart. At the moment some of these jackets we are getting will go to deep water harbours elsewhere.

Q214 **Chair:** I am just looking at a quote from the UK Government that says that Scotland will “pioneer the future of global oil and gas industry” when they are looking at decommissioning. Is that something that you recognise, Mr Fergusson?

**Graeme Fergusson:** I do recognise that, yes. We are being looked at by all quarters at the moment. We have regular visits from Australia, Brazil, South East Asia, everybody coming to look, at this stage largely to set their own regulatory framework and then they are looking five, 10 years out to their own decommissioning. There is absolutely a global opportunity, but even on our own doorstep there is an opportunity.
Norway is considered to be anywhere between five to 10 years behind UKCS in its curve. Should we begin to get this right, as we did with the oil and gas industry the first time around, there is a huge opportunity to be the first out the door. The world is looking at us right now and we are setting the benchmark.

Professor Neilson: I would certainly second that. The university was approached by a group in Thailand, a university and shipyard and their regulator, and we had a visit from them recently. We are going out to visit them in a month’s time.

Q215 David Duguid: We heard evidence from Oil & Gas UK a number of weeks ago on the need for a sector deal in support of a number of projects to become global centres of excellence. I believe that decommissioning was one and subsea was another one. They were saying that if we do not act quickly on the subsea side of things there is a risk that other basins or other countries might get ahead of us. Do we have a similar risk with decommissioning or are we so far ahead of the game that we do not have such a worry?

Professor Neilson: I think we are ahead of the game at the moment. I know we are about to take part in a centre similar to one to have been set up in Australia last year. That did not happen, so at the moment, as far as I know, we will end up as the first decommissioning centre or centre of excellence in decommissioning worldwide. There are very strong areas elsewhere, but I think we are ahead of the game at the moment.

The University of Aberdeen and the OGTC are setting up a national decommissioning centre and we have had additional funding from Scottish Government for that. We have just come back to the Scottish Government’s decommission challenge fund for some further funding. We have a couple of buildings set up. We have just called for PhD proposals, so some research proposals, and at the moment we are looking for industry partners to build into that, but there is already commitment from the OGTC and from the university to set that up. That will launch very soon.

Q216 Chair: Do you want to comment on the economic opportunities, Mr Hughes?

Jonathan Hughes: I do not have much to add on economic opportunity, but you can look at this two ways. You can look at it in terms of the bill, and of course that will drive a lot of activity and that will drive a lot of economic activity, but you can also look at the potential savings that could be made if we take a slightly different approach. It depends whether you are trying to save money or spend money, in some ways. I think we need to look at both sides of the balance sheet on that.

Q217 Christine Jardine: It was actually the economic potential of it I was interested in. We have talked a lot over the years about the economic impact of the slowdown in the oil industry. Is it going too far or is there
some evidence to say that the decommissioning could be what helps to take us from the height of the oil industry through to renewable energies and that we should be able to manage it in such a way that it becomes almost a seamless transition?

**Graeme Fergusson:** I do not think we should view decommissioning as the saviour of the oil industry. I think it certainly helps; that was the word you used yourself there. It helps soften the blow and keeps skilled individuals employed in an area that they are relatively comfortable with. We have retrained a lot of our individuals from the upstream exploration and production skillset to decommissioning in the decommissioning mindset that we are now bringing to bear.

It is certainly helpful, but I do not think decommissioning should be seen as the saviour. Decommissioning is inevitably a slow-burner. It sits against the obligation to maximise economic recovery, so we should not be accelerating decommissioning at all, but the virtue of this conversation and many others, the transparency and the ability to get on and talk about this now, is hugely helpful and therefore a plan for it.

**Q218 Ged Killen:** Mr Fergusson, turning to the regulatory requirements of decommissioning, you have said in your evidence that they have the potential to cause delays and added costs. What information are operators currently required to provide to regulators about their decommissioning plans?

**Graeme Fergusson:** We have a very transparent approach to our relationship with the regulators. We have a very positive, constructive and challenging relationship with both BEIS and OGA. We are required to open the books and show our decommissioning plans, how we intend to go about removing or indeed asking to leave behind certain aspects of the infrastructure. We are checked and tested on the quality of our well plugging and abandonment, for instance, so there are checks and balances in place.

With the Oil and Gas Authority’s new focus on the reduction of cost and delivery, there is an obligation on all the operators to be completely open book with them and for them to understand what we are doing so that we can share best practice around the industry.

**Q219 Ged Killen:** You have said in your evidence that OPRED should allow more reuse of data from previous decommissioning operations. What benefits would that deliver and how easy is it to compare different decommissioning operations?

**Graeme Fergusson:** I think we sit now looking at the future of the oil and gas industry, so it is in that context that we make that point. To use my own asset as a specific example, which is nine concrete gravity-based structures, we have spent a considerable amount of time reviewing all of the options, including removing the concrete gravity-based structure in its entirety. I think there is general opinion, general acceptance that it is
not possible and not feasible to remove that concrete gravity-based structure right now.

Our question is: is there an opportunity now, as we look forward and redraw the lines for those other seven concrete gravity-based structures that come ahead in the passage of time to be able to use some of the lessons of ourselves and the other operator, who has a similar asset, again? What we are not suggesting is that you can just use each asset and cookie-cutter the approach across to the next, but there is significant learnings with each one that could bear fruit for the streamlining of the process without ultimately fettering the quality of what has been asked.

Q220 **Chair:** Does anybody want to add to that one?

Jonathan Hughes: I would just add that SEPA’s recent publication on the oil and gas decommissioning sector plan is quite useful in terms of the five stages that basically all the players need to go through from early discussions, planning and producing the decommissioning programme, submitting the programme, execution of the programme and the all important closeout. I think it is a very useful summary of the process. If you have not seen that, it might be worth having a look at.

Q221 **Chair:** Just to clarify, according to the 1998 Act, it is the responsibility and requirement of the owners of the infrastructure to decommission. It is their sole responsibility. I know there is obviously assistance and schemes in place, but is that is generally the understanding?

Graeme Fergusson: Yes, that is correct. It is the current owners of the facility. Section 29 of the Petroleum Act is the relevant piece of legislation, which ensures that any owners of the assets or licence-holders at some point will—

Q222 **Chair:** You are still bound by the 1998 Act when it comes to it?

Graeme Fergusson: That is correct.

Q223 **Chair:** There has been no subsequent legislation?

Graeme Fergusson: That is correct, yes.

Q224 **John Lamont:** What are the main costs associated with decommissioning and how are you trying to reduce those costs?

Graeme Fergusson: It is an expensive process. It is offshore and therefore the support framework that has to go around that is substantial. The main cost elements really fall into three buckets. It is the operating and management of the facility itself and the management of the programme. Then there is the well plugging and abandonment and then it is the removal of the structures. Those are essentially the three biggest buckets.

We have streamlined our process for running the asset. We have retrained a lot of the staff and we have tried to focus a decommissioning mindset. We think this is different to production and one of our broad
statements to have true decommissioning in its best way would be that clarity over cessation of production is a good thing, because you can change your operating methodology of running the asset and run it to the end of its life as opposed to upstream oil and gas.

There is a natural tendency to defer cessation of production at all costs and we think that could create an inefficient outcome, so we have streamlined our processes. In doing that, you have reduced the number of people on board the asset, which reduces cost in and of its own right, it creates space for other people to get on with the project and other elements of it. We have created a good set of processes and procedures around that.

Well plugging and abandonment is one of the major material areas here. We have tested regulation. We have taken a risk-based approach, so we have delivered some significant cost savings by getting into the wells, starting to deliver plugging and abandonment, taking a moment, stepping back and saying, “Right, what is actually the best way to do this? How are we ensuring that there is no risk to the environment and no risk to people in this?” By doing that, by analysing it, we have delivered some significant savings across the well programme. To give you a metric, we have reduced by about two-thirds the number of days per well at which we are delivering. When you have 45 wells on a platform, that learning curve is absolutely substantial.

With the topside removal and any other infrastructure removal, we have tried to create some commercial boundaries and incentivise the companies that are delivering those to come up with a creative option for delivering what we need, but at the same time being incentivised to deliver at a good and low cost. We have deployed some creative commercial contracting strategies to be able to deliver on that.

**Professor Neilson:** I think there will be savings coming out of learnings. If you look at the operators who had two assets—North West Hutton and Miller—and the costs between them, the cost for the second project is much lower. That is for a variety of reasons. The design was slightly different but the contract for lifting was different.

**John Lamont:** Can you give us the figures for those, just to give us a feeling for how much it costs per asset?

**Professor Neilson:** I do not have them to hand, sorry. Part of it was, as I say, the design was different. The design of Miller was post-Piper Alpha and therefore the structural system was slightly different but the contracting system was different. Large pieces of infrastructure were taken away in large lumps rather than relatively small pieces, so the number of lifts was smaller. I think there are lessons to be learned within operators that will make savings.

The other thing is, as Graeme was saying, plugging and abandonment is a huge cost—49% of the overall cost. One of the things that the Oil & Gas
Technology Centre is looking at new plugging techniques, and particularly rigless plugging techniques. At the moment, generally speaking when you want to abandon a well, you have to mobilise a drilling rig and utilise that to plug the well. If it is possible to not use that, then you save a large amount of cost, so if rigless techniques could be employed there is a large cost saving for wells.

There is a number of new techniques using thermite and various other things that are being investigated. The national decommissioning centre bid to the decommissioning fund in the Scottish Government is to set up the first stage of design of a qualification system for novel barriers for decommissioning of wells. That has the potential for knock-on of reducing well cost.

Q226 **John Lamont:** Is there an average cost to decommission one asset? That is probably not a question you can answer, but in the industry’s head is there a figure for the cost to decommission an asset?

**Graeme Fergusson:** I think what you have is norms. Oil & Gas UK, for instance, has certain norms around what it takes to abandon a subsea well and by looking at a field and establishing that there are 12 subsea wells, you can derive a cost for that. The same goes for platform wells. Where it starts to be difficult to draw metrics is around the infrastructure itself, which is very different. There are no two assets the same.

Q227 **David Duguid:** Following on from Mr Lamont’s question, I know we are talking very generally here because every asset is going to be different, every well is going to be different, but is there a general distinction between the complexity and cost of a topside well versus a subsea well?

**Graeme Fergusson:** The geology will dictate the complexity of the well, so whether it is a platform well or a subsea well will not dictate it. The cost though will likely be much higher in a subsea well, because the platform in most circumstances will have a running rig, although some of the older platforms do have some issues in that regard having retired rigs. The platform for Dunlin was something that we kept in use and therefore it is there, it is part of the infrastructure and able to be used. A subsea well inevitably requires a drill ship to come in. Drill ships are very expensive pieces of equipment and so the subsea well costs, per the industry norms, are substantially higher, in the order of two to three times higher than a platform well.

**David Duguid:** That was the rough general area of magnitude I was looking for. Thanks.

Q228 **Tommy Sheppard:** Before I ask the question I want to ask, can I clarify something about this capping of wells? I am curious as to how it is done. Can you describe the process of capping a well? What do you do?

**Graeme Fergusson:** In essence, it is all about forming rock to rock barriers and replacing the flow path for the hydrocarbons from the reservoir. When we have drilled that well, we have drilled down through
the earth, we have put in place metal sleeves in reducing size to be able to get to the reservoir. That has created a flow path back to the surface of the sea and then upwards to the platform. What we are doing is recreating the barriers. We are doing that three times for the main Dunlin platform. We have a 200-foot cement barrier down at the reservoir, so that is a number of miles below the surface of the earth. We then have two other—

Q229  **Tommy Sheppard:** You fill the hole with cement?

**Graeme Fergusson:** Absolutely, yes. That is correct.

Q230  **Tommy Sheppard:** The whole length of the borehole or just a little bit?

**Graeme Fergusson:** To use Dunlin as an example, we have a 200-foot barrier down at the reservoir. We then have two 100-feet barriers further up the reservoir, where we have identified from analysing the geology where any potential flow paths would come.

Q231  **Tommy Sheppard:** Is there still pressure in the borehole? Is there oil and gas still coming up from the basin while you are filling it?

**Graeme Fergusson:** There is still oil in the reservoir. You have not been able to recover 100% of the oil, but it is heavily depleted. Most of these fields, as we go into abandonment, will be heavily depleted. The rates at which we would be able to produce oil and gas were ultimately what took the asset to cease producing because it was no longer economic. There is still pressure, it is still a very dangerous activity, but it is heavily depleted from what it was in the height of its production.

Q232  **Chair:** Is it true that 40% of all decommissioning costs are on the plugging of the wells? Is that a figure you recognise?

**Graeme Fergusson:** That is a figure across the industry, that is right, 49%.

**Chair:** 49% of all activities, okay.

Q233  **Tommy Sheppard:** Sorry to press you on this and maybe you do not know the answer, but I am just trying to visualise this. If you are trying to plug a borehole into a basin and within the basin there is still pressure, there is pressure coming up the hole, is there the possibility that you pour stuff down but it does not work because the pressure just pushes through it?

**Graeme Fergusson:** We are utilising technology to test and ensure that those barriers are absolutely robust and rigid. In the early part of the project, you will set those plugs, drill them out and test them and pressure test and then reset them. There is a process of checking.

Q234  **Tommy Sheppard:** Once your three layers of cement are in the hole, is that secure, almost as good as if the rock had not been bored in the first place?
**Graeme Fergusson:** Yes, that is right. That is absolutely right.

Q235 **Tommy Sheppard:** If I can move on to the question, you have argued in your evidence that the decommissioning operators could take control of the facility in advance of the end of its lifespan, presumably to make the process of decommissioning flow better. Could you tell us how that would work? At what stage and what are the implications of that for the operator? I get the idea that there is almost a conflict of interest between those who want to keep the thing going for as long as possible to get as much out as possible and those whose job it is to try to terminate it. How would that work and, crucially, how would you persuade the operator to agree to such a regime?

**Graeme Fergusson:** Through discussions over the last couple of years we see an appetite for this. The operators are looking for creative models. The Oil and Gas Authority is looking for creative models to come along and take over and be an expert. Ultimately we want decommissioning to be a low-margin business, so we want the appropriate companies executing that at an appropriate margin as opposed to it being judged by any upstream oil and gas metrics.

There is an appetite from the operators, from the owners, to have people come in and manage the process efficiently. We see the natural step and most optimal step from our perspective as being beyond the point of material capital expenditure. In any asset the subsurface department will have a whole host of opportunities that it wishes to drill and try to produce further oil and gas from. When that opportunity hopper is empty is the point when the asset is on the way to the end of its life. If there is no future prospect of activity and further oil and gas reserves to be uncovered, it is now being managed out of its life.

We think that phase, the end of life into decommissioning phase, can be managed appropriately, not accelerating cessation of production but stepping in and changing your strategy to one that is effectively very efficient decommissioning.

Q236 **Tommy Sheppard:** What if there is a difference of opinion as to when that point is reached? Who resolves it?

**Graeme Fergusson:** Ultimately it needs the owners of the field to buy into the fact that they want a separate vehicle delivering and decommissioning, so we have to get through the door and do that. With respect to if there is a disagreement around the cessation of production date when we enter and become the operator, we do not have to define one date in the calendar two or three years out. We can define an area of flexibility and define commercial terms around that to drive towards an agreed envelope. We are trying not to suggest that in that phase cessation of production might be two years out or it might be 10 years out. We are saying it is two or three, or three or four, in that phase.

Q237 **Tommy Sheppard:** Mr Fergusson is a player in this process. Can I ask
the other two gentlemen as observers of this are you confident that those who are currently operating facilities and getting hydrocarbons out of the ground and those whose job it is to stop that process can work amicably together and achieve this result?

**Jonathan Hughes:** I think it is more your area.

**Professor Neilson:** I think there are advantages to the process that Mr Fergusson is talking about. There was a paper presented in *Offshore Review* last year by I think it is a Dutch group who looked at its best cost estimate for decommissioning as it happens at the moment. An operator decides to decommission, goes ahead, contracts and does the job. It then looked at the option of the operator doing a campaign within its own infrastructure, trying to schedule things within its own portfolio of infrastructure to optimise its costs, and that reduces costs a bit further. It then looked at if you had several operators working together trying to optimise the operations. That would cost further but the best option it came across was that at the end of its life all operators give over to one company who can then completely optimise all its lifting, all its P&A, all its infrastructure removal in the most cost-efficient manner.

I take Mr Hughes’s point that cost is not everything because there are environmental issues as well and you cannot remove those. You need to be careful what you move and how you move it and what you leave and why you leave it. On the cost issue, I think there may be benefits in Mr Fergusson’s proposal. That is a personal opinion so I will just make it clear that is not the university. I think there is some evidence that there may be benefits to an operating company.

Having said that, I think the operators are doing the best they can. The danger will come where multiple operators all want a particular service at the same time. At that point we may have a spike in cost for particular services, whether it be plugging, abandonment or heavy-lift vessels if there is a limited supply in your basin at that time. But if you can optimise the order of things you can smooth out that supply chain issue. I do not know if that answers your question.

**Q238 Tommy Sheppard:** Sort of. What I am getting at is it looks to me that there is a conflict of interest between those who want to keep things going and those who do not. I wonder whether the various contractors involved are going to come to the right decision on this or whether there is a need for some external agency or regulatory authority to set a framework for it.

**Graeme Fergusson:** I think there is a framework that absolutely applies to this and you have to demonstrate to the regulator that you have maximised economic recovery. In doing that you should be able to reach agreement between those parties.

**Q239 Tommy Sheppard:** Is that is working satisfactorily?

**Graeme Fergusson:** Yes.
**Professor Neilson:** The outcome of the review a couple of years ago, what was the Wood review, was to maximise economic recovery, so the point at which cessation should happen is that maximum economic recovery has happened. If you went to a single decommissioning company, that would be the point at which you hand over. It is not that the company would be pushing you to decommission. You would still need to justify to the regulator that you had maximised economic recovery.

**Q240 David Duguid:** On this idea of transferring control from the operator to the decommissioning operator, is it fair to say that there is still another phase in between those where you have the major operators like Shell, BP and so on who end up divesting assets? In the case of Dunlin, it used to be a Shell asset but was sold to Fairfield. Is that still a recognisable phase?

You have companies like TAQA, EnQuest and others who have taken over some of the larger assets that no longer fit within the portfolios of the major operators and are looking at various places overseas. Is that still a recognised phase as part of the transition from the major operator to the smaller operator to decommissioning? I know there will be questions later about transfer of access today so I will not ask you about that at this point, but is that still a phase where it is assumed that smaller operators will take over the last few years of production?

**Graeme Fergusson:** I think what you just described are the late-life producers. In the oil and gas industry we start with exploration. Then we develop and produce and then there is late-life production. Our reason for being is to suggest there is an end-of-life phase now. The late-life producers are fundamentally motivated to push back cessation of production and to find more oil and gas. That is fine. That is exactly what should be getting done and that is good for the UK and good for the energy mix and so on.

But there is a point now of a very mature basin and there is a significant number of assets that are ready for decommissioning no matter what the oil price is. On Dunlin we took a relatively quick decision to cease production in 2015 and we have discovered since then that had we continued to produce at a loss we would have had significant integrity failure, so we took the right decision to do that. It is just another phase is what I am trying to suggest.

**Q241 David Duguid:** To clarify that point, it is not just a case of this asset is no longer economically viable. You have to balance that against the fact that this is a 40 year-old structure that is going to fall apart if we keep operating it and you have to balance those two values.

**Graeme Fergusson:** Correct.

**Q242 Ross Thomson:** Through the Aberdeen city region deal, both the UK and the Scottish Governments have provided funding for the decommissioning centre of excellence and additional funding is currently
being bid for as part of the gas sector deal. My understanding is that £38 million has been asked for as part of the whole deal with some of the money going towards the centre of excellence. If that was to be secured, what additional benefits would that funding mean for the centre?

**Professor Neilson:** At the moment we have promised funding of about £15 million from OGTC and about £5 million from Aberdeen University. The additional funding would allow us to increase our capacity or capabilities. I talked about we are looking to build a qualification rig so that will probably be £2 million. It would allow us to build some of these additional facilities that will hopefully improve the supply chain. The whole aim is to improve decommissioning and reduce cost to give the supply chain opportunities to test things. That is where that funding will build in.

**Q243 Ross Thomson:** In the Budget the Chancellor announced he wanted Scotland to become a hub for decommissioning and there is a call for evidence right now on us being that global hub. What would you like to see that particular review deliver?

**Graeme Fergusson:** It is a continuation of the theme that is already coming into existence in the last few years since the Oil and Gas Authority came into force and one of its specific strategic areas was decommissioning. The conversation has been very positive so we have moved a long way on decommissioning already. I think we should be building on those themes, working out how we can show ourselves in the best possible light to become a centre of excellence that is then the go-to place from around the world.

**Q244 Ross Thomson:** My understanding from conversations in and around Aberdeen is that the two universities are working together on the decommissioning element. I think Aberdeen itself offers that course now.

**Professor Neilson:** We have just been accredited for ECITB CPD courses.

**Q245 Ross Thomson:** One of the challenges I hear is that we can be a centre of excellence but when the industry does move on how easy do you think it will be to retain the skills and expertise in Aberdeen? How will we try to anchor it in the north-east rather than it go elsewhere?

**Professor Neilson:** If you look at the subsea sector, it is very heavily anchored. I must be careful about numbers but I think about 25% of global operations are out of Aberdeen. There is an opportunity of doing something very similar with decommissioning.

On timescales, if we are looking at 2040 for decommissioning, you are out to 2040 and then you have other basins. You have Brazil, Indonesia, Malaysia, Thailand and Australia. Some of them will happen after decommissioning. The thing is to try to replicate what has happened in the subsea sector. They have this global reach. The idea would be to try
to do the same thing with the decommissioning side of things and have a hub out of which operations run globally.

As Mr Fergusson was saying, decommissioning is part of the process. As long as hydrocarbons are explored there will be some point where decommissioning will happen, so there is a substantial window. If you take from now until 2040 it is 23 years of people’s careers and opportunities and you can take it beyond that with other basins. It is seeing how the Government can help anchor that opportunity not just in the north-east but in Scotland.

_Graeme Fergusson:_ I think one of the positive things we have seen within the company is that four or five years ago decommissioning was viewed as the graveyard shift, to be perfectly honest. People went to the decommissioning department when the oil price dropped down and then when the oil price bumped back up they got to do the attractive stuff. We had to go through that transition with our workforce. We had to retain them and make the challenge of decommissioning and the engineering exciting for them and we have managed to do that. That has created a buzz around the place with people seeing complex engineering challenges.

Where we need help is to get that message out there, to continue to attract young people to the industry. This is complex engineering. It is highly skilled jobs and anything we can do to keep that message strong and forefront and provide careers in decommissioning. As we can see, for the UK alone it is the next 30 or 40 years, so it is the choices that people make.

I think that the university course is an outstanding start. We have engineers within the company who of their own right have gone off and wanted to learn more. They are delivering their day jobs, which is some of the more specific elements, but I get knocks on my door quite regularly asking to clarify some of the elements that are being taught on the commercial aspects of decommissioning and so on.

Q246 **Chair:** We know that the ambition is for the UK and Scotland to become an international hub for decommissioning and a centre of excellence. What is the competition? Who else is doing this and are they doing it in a way that is different to the way that we are approaching this?

_Professor Neilson:_ I am not aware. Aberdeen’s MSc course was the first one that we—

Q247 **Chair:** No, I am talking about other international locations. Who are our international competitors? What are they doing? Where are the other centres of excellence emerging? What do we have to be aware of internationally if we are trying to create this for the UK and Scotland?

_Professor Neilson:_ The reason I was mentioning that was there are no universities involved in this. There are no other centres of excellence that we are aware of for decommissioning. There was a project proposal last
year, which I think was driven by Curtin University and the University of Western Australia in Perth, Australia, to try to do something very similar. That was not supported by the Australian Government at that time. That was the only other centre based on decommissioning that I am aware of.

Q248 Chair: We have a free hit at this; there is nobody there who is challenging us for this aspiration and ambition to become a centre of excellence and an international hub?

Professor Neilson: I think that it is because we have the most mature basin. We have some experience and, therefore, we lead the edge at this point.

Q249 Chair: Is that your view, Mr Fergusson?

Graeme Fergusson: Yes, I would agree wholeheartedly with that.

Q250 Chair: Great. It is good to be ahead of something then, isn’t it?

Graeme Fergusson: Yes.

Q251 David Duguid: That was a very good question about the global competition. The Committee is already aware but I maybe should have let you know at the beginning that I spent 25 years in the oil and gas industry before being elected last year. I spent a small amount of time in the Caspian and they do not seem to have the same regulations, particularly in the Turkmenistan side of things. Old Soviet 1950s-built structures are literally allowed to fall into the sea when they fall apart, sometimes still producing. In terms of competition, are we focused on delivering this excellence in decommissioning in this kind of basin where the regulatory requirements are so high? Is there scope for that kind of regulatory compliance to increase elsewhere and expand the market further?

Graeme Fergusson: In areas of the world such as that, where ultimately everything defaults back to the government, it is less obvious that we would be the go-to people. The opportunity is in those basins that are coming to us and looking to us as the example for the regulation that we already have in place because of the high standards that we deliver and because of our social responsibility to do the best thing across a number of lenses. That is where the opportunity is. It is in the countries where there is material infrastructure and they are looking for answers. If we do not get ahead of the curve, inevitably they will try to do it themselves in time.

Q252 David Duguid: Mr Hughes, from an environmental aspect, do you see an increase in the global appetite for decommissioning more responsibly as we are regulated to do and we are obliged to do in this part of the world?

Jonathan Hughes: It depends what you mean by responsible decommissioning. We are ahead of the game in some senses, certainly the technical angle. If I had a comment on what I would like to see the centre of expertise focusing on, there are various technical aspects of
decommissioning certain aspects of these structures, such as storage cells, for example, and bundled pipes, which we have not figured out yet. There are serious environmental consequences in not figuring them out or getting that wrong. We have developed a lot of technical expertise, but there is still a way to go in that.

As to where other parts of the world are ahead of us, the Rigs to Reefs programme in the Gulf of Mexico is an example, where several hundred structures and wells have been decommissioned and turned into environmental and recreational assets, because people are using them to dive around and so on. They are used as a tourism attraction.

I think that the answer to your question is that there are various ways of being creative and not locking ourselves into a very rigid programme of heavy regulation. This is very unusual for environmentalists to say. Normally we are calling for more regulation when I am sitting in these types of committees, but what we are saying here is that some flexibility on derogations could lead to better outcomes for the operator, the taxpayer and the environment if we get that right. Indeed, there is scope for putting some of those savings into a fund that could then be used to provide employment in areas such as the east coast, but not necessarily to do with the technical aspects of decommissioning. It could be to do with broader marine environmental restoration or marine research and so on in the North Sea generally as we move towards a recovery of the North Sea ecosystem after the shock of oil and gas exploration.

I suppose my answer is let’s think a little bit more openly and creatively and let’s not get potentially locked in. I know that provides certainty to the industry and there is a certain attraction in that, but we might be making some very expensive and not necessarily very smart decisions in doing that.

David Duguid: You mentioned the rigs to reefs type of activity. I think that we are going to come on to that later. Staying with the commercial side of things, under the current tax rules about half the costs of decommissioning can be reclaimed from the Government in tax reliefs. Do you think that this is the right balance between public and private financing of decommissioning? How important is the scheme of transferable tax history to the finance of decommissioning?

Graeme Fergusson: With respect to the balance, as an operator of an asset we are operating within a current fiscal regime that is very well set and very clear. I do not think it is for me to have a view on whether or not that is appropriate in terms of the right amount of—

Chair: Do you find that what has been done is helpful? Do you find what has been offered in tax reliefs and the tax regulatory regime is helpful now to what you are trying to achieve?

Graeme Fergusson: I am not sure I would describe it as helpful. We are trying to deliver a good outcome here. It is absolutely incumbent upon us
as the operator formerly of the asset to deliver a good outcome. That is even more relevant as a result of the fact that the public purse is responsible for part of that. Our role is about delivering a good outcome, which inevitably has a knock-on impact. It does have to be balanced. Part of the decommissioning process is a comparative assessment, so cost is only one of five aspects there. Cost is not everything in this process, as we have described.

You mentioned transferable tax history. Again, I think that is a positive step for the industry. I do not think it is focused on decommissioning. I think that is about maximising economic recovery. You talked earlier of the late-life producers and within the industry we talk about getting the right assets in the right hands. Transferable tax history should do that. It should allow lower cost and more nimble operators to take hold of assets and continue to produce them for longer into the future.

**Q255 David Duguid:** TTH does not necessarily have a direct impact on the financing of decommissioning but because it helps late-life producers, does it make the process more efficient somehow?

**Graeme Fergusson:** It allows them to strike a deal. Right now you have a disparate position between buyer and seller where an asset is worth a very different amount in one hand than the other. What TTH is trying to do is to make those two things even so that the transfer of the asset can then happen. There is potential. I am not hugely familiar with the draft legislation yet because it is not really our area of focus in the round of the decommissioning. It could help, I am just not 100% sure.

**Q256 Ross Thomson:** I have a brief follow-up on what David was asking and the answer to his question. We know that the liability for decommissioning is split between oil companies and Treasury. The estimated cost to the taxpayer is about £24 billion. I was interested that you said there are other, better ways in which that money could be invested. I was speaking to Tom Baxter at the University of Aberdeen, who has long argued that rather than using that money for decommissioning in meeting DEFRA’s own principles about sustainability, people and planet, it would be better for that money to be invested in emissions reduction, green energy and maybe create more jobs as a result of it than you would under decommissioning. He said there has been a bit of a misnomer that somehow there will be some jobs bonanza with decommissioning and actually we will probably get more jobs if that money was invested in green energy. How would you respond to the kind of argument that Tom has been making for some time?

**Jonathan Hughes:** Our policy, which I think we first wrote in 2011, is similar to Tom’s position but it differs in the renewable energy link. What we are saying is that there is probably limited potential to repurpose some of these structures into renewable energy units of some kind, but where there is potential is to save an awful lot of money by broadening out the derogation criteria under the current OSPAR regulations and saying, “Let’s look at the options on a case-by-case basis. Let’s do a
proper environmental impact assessment using natural capital scenario planning, in effect”. You are basically looking at the environmental impact over time of complete removal of the structure and that would include the carbon footprint of that removal, so the energy costs, if you like.

Some of the recent research that has come out of California and the Gulf of Mexico would suggest that the biodiversity value, the biomass and the species diversity around some of these structures, is sometimes 30 times as high as it is in the surrounding water column. You have a very rich marine mini ecosystem around some of these structures and by going in there and removing them completely you are creating a lot of disturbance. You are removing that life but the acoustic pollution as well, the noise pollution, is something that I think we need more research into. There is a colossal carbon footprint in removing that. Are there better options for saying, “Okay, let’s decommission in situ”?

**Chair:** We are going to come on to that.

**Jonathan Hughes:** Sorry, yes, we have drifted into that. It is difficult to answer that question without getting into it.

**Chair:** Let me just go straight on to that because I know Christine Jardine has a couple of questions on this.

**Q257 Christine Jardine:** In your evidence, you talk about the option of abandoning rigs and platforms to provide environments for marine life. What would you say are the advantages and the challenges of this in future?

**Jonathan Hughes:** I started to touch on that there. You are obviously saving in energy savings and carbon footprint savings. There will be fewer emissions, in effect, to the atmosphere, so there is a climate change angle.

From our perspective, yes, these are ecosystems that have been modified. These structures have been put in place. You could say that is a form of damage, yet we are now in a position where we have these structures. They are rich in marine life. Is it the most sensible option in every case? This is a case-by-case basis; there is not a one size fits all here. Is it always the best option? Under the current regulations, 90% of these structures are not even eligible for derogation, so 90% of them will have to be completely removed. Is that the most sensible option for the taxpayer and for the environment?

What we proposed in our evidence and what we proposed in our policy is that if we take a different approach here there could be a triple win, which is that there could be substantial savings to the taxpayer and substantial savings to the operator. There could be a net positive effect on the environment in the retention of these sometimes highly biodiverse areas around rigs and other structures.
Thirdly, our proposal would be to place a proportion of the savings made in effect as a compensatory fund—which would otherwise have been spent by the taxpayer—into what we are calling a national marine stewardship fund, which would then create jobs in the longer term but also create a better marine environment. It would be beyond the oil and gas sector. Some of it could be hypothecated to the oil and gas sector, but it would be beyond that. There would be a fund that would create activity employment in a positive way, thinking about how we might use the North Sea in the future in the same way that, for example, the Gulf of Mexico has now utilised these structures for a vibrant recreational industry. We are proposing a triple win. What’s not to like?

**Q258 Christine Jardine:** I was thinking more about the marine habitat. I am focusing on marine habitat rather than leisure, because I think a leisure option in parts of the North Sea would be something of a challenge.

**Jonathan Hughes:** There are some very good dry suits you can buy nowadays.

**Christine Jardine:** I am sure there are but getting oil platforms there in the first place was a bit of a challenge. I am thinking the leisure industry might baulk at the cost. If we can focus on the marine habitat, what parts of the decommissioning process would still need to be undertaken before you could use, say, the legs of a platform in a habitat?

**Jonathan Hughes:** One of the concerns we have and we expressed in our response to the Dunlin Alpha decommissioning programme is that particularly with these gravity-based structures there is a lot of toxic chemical mix in some of the storage cells. At the moment, it is very uncertain how that stuff is going to be removed. It is really important to make the structure inert before it is then decommissioned in situ if that could be an option. That is not always easy, as I am increasingly understanding. This is where I think we need more research on the technical side of things. That would be the biggest challenge, to ensure that these structures are inert in the first place before they are decommissioned in situ.

**Q259 Christine Jardine:** Moving on, what is the current scientific evidence on the environmental impact of converting rigs to reefs?

**Jonathan Hughes:** It is growing all the time. There are more and more papers appearing in the academic press. I have an interesting statistic from a recent paper that asked a range of experts around the world; 94.7% of experts agreed that a more flexible case-by-case approach to decommissioning could benefit the North Sea environment. I can give you the reference to that paper afterwards. That is based on the body of evidence that is suggesting that marine biomass in terms of the weight of sea life around these structures and the species diversity around these structures is often many times higher than it is in the surrounding water column, albeit it is a modified environment. Going in and disturbing that, certainly in the short term, creates damage and impact but is also in the
longer term probably not the most sensible option now we are in the situation that we are in.

I think that there are historical reasons why we have reached this point, including public opinion at various points in the past where it seemed the obvious thing to do was to take out what was considered junk from the North Sea. We are now reevaluating—well, I hope certain environmental organisations anyway are reevaluating—the sensibility of that and whether that is the right approach.

**Professor Neilson:** I think that there is still work to be done. There was a project called INSITE, which was run—

**Jonathan Hughes:** It is still going on, I think.

**Professor Neilson:** It is still going on. Phase 1 finished last year and was reported about this time last year. Phase 2 is just starting. They have been looking at the effect of manmade structures on the sea environment in the Ross Sea. There is still work to be done, obviously. Every operator has to do an environmental impact assessment before submitting a decommissioning plan. I think that there is some interesting work to be done looking at, for some of the structures that have been derogated, what was said beforehand and what happens now, so going back and looking at what has happened around derogated structures and comparing that to the impact assessment in the first place. There are certainly some questions still to be answered about the exact benefit. I am not saying there is not benefit because there are definitely fish stocks and various other biomass around structures and there are questions if you remove all of that whether that just gets trawled over and you lose fish stock. There are questions still to be answered in this.

Q260 **Tommy Sheppard:** Before you came in, we noted written evidence from Greenpeace on this question, where they take a pretty firm view that the presumption should remain that what was put there needs to be removed. I do not want to be accused of being a cynic, but speaking to you, Mr Hughes, as an environmentalist, is there a danger that some parts of the industry might be talking up the rigs to reefs aspect in order to try to minimise the assumption or the expectation that, in fact, they have to clear up what they put there?

**Jonathan Hughes:** My honest view, having spoken to various operators, is that that is not the case. I think that it is the opposite. They are very worried about sending that signal and it getting out in the press that they are trying to pull a fast one. That is certainly my experience. This is coming from us as a respected environmental organisation that has looked very closely at the evidence and reviewed literature over a period of a couple of decades now. We are an evidence-based organisation. We look at the science and then we decide what we think is the best option based on the science. The science is telling us that this rather rigid approach that OSPAR has taken and that we seem to be unfortunately
locked into is losing us a huge economic opportunity and environmental opportunity.

Q261 **Ged Killen:** Once these structures are made inert, can they just be left out there indefinitely? Is there a lifespan or would there be ongoing maintenance required?

**Jonathan Hughes:** No. The interesting thing about the fishing hazard aspect of this is that that could benefit the fisheries as well because they can act as nursery grounds for juvenile fish. Fishing hazard versus nursery ground: take your pick. What is really interesting is that wrecks, for example, and there are—can you tell me how many wrecks there are in the North Sea?

**Professor Neilson:** Thousands.

**Jonathan Hughes:** Many thousands of wrecks in the North Sea. Many of them are protected wrecks and they are hotspots again for biodiversity. We have a completely different mindset on shipwrecks, which are treated as valuable assets and hotspots for biodiversity, yet when it comes to industrial infrastructure that was recently put in, we treat that as garbage. If you reframe your mindset, that could be thought of as an environmental asset as well as these registered wrecks.

**Graeme Fergusson:** May I make a point, Chair?

**Chair:** Very briefly because we do not have much time left and we have a couple of big questions to ask you.

**Graeme Fergusson:** Sure. I do not disagree with what Mr Hughes said around the potential to leave more in the sea. From an oil and gas company’s perspective—and this links back to your own point, Mr Sheppard—there is an ongoing monitoring obligation. The more that is left behind, there is a perpetual liability for any previous owner of the asset to ensure that it is monitored and, in fact, remedial action is taken at some point in the future if something happens. I do not think the oil companies could be seen to be walking away. They have a liability that is absolutely written into law.

**Chair:** We are going to have to move on from that now.

Q262 **David Duguid:** I will try to be quick with this. Unsurprisingly, again, my Committee colleagues will know that my constituency is Banff and Buchan and I have a big interest in the fishing industry. The rigs to reefs issue has come up several times as an attraction not just for divers but also for recreational and commercial fishing. What you say about shipwrecks is interesting. As a member of the public myself, I would suggest that when we are talking about manmade structures that we are planning to dispose of, the main issue there is we are planning, whereas most shipwrecks were not planned. It is seen as something we have control over and let us not leave things at the bottom of the sea, I would suggest.
However, my main question was about the OSPAR regulations, which I have referred to a number of times, which the UK is a signatory to and requires the vast majority of rigs to be decommissioned and removed completely. I suspect that reason says the majority of rigs, the ones that are not expected to be taken away, are the gravity-based structures that you referred to earlier. In your opinions, should the UK be seeking changes to these rules for the reasons we just described and can it?

**Jonathan Hughes:** Yes, we would like to see a broadening out of OSPAR regulation 98/3, which is the one that calls for full decommissioning of anything apart from structures over 10,000 tonnes and gravity-based structures. We think that is too restrictive. We are not proposing that the OSPAR regulations are redrafted or opened up but just that there is an interpretation. That line in the regulations under 98/3 does allow for derogations, so our proposal would be to keep the presumption but broaden out the situations in which derogations can be applied to a broader range of structures. That would also mean that we could take it on a case-by-case basis.

**David Duguid:** Is the fact that these exemptions for the larger structures are based on technical rather than environmental considerations the correct approach to these exemptions, or is it just assumed that there is a balance? Yes, we want to clear everything away but some things are just too big to lift or are going to create more environmental damage with carbon footprint and CO₂ emissions to get rid of. Is that the correct way of looking at it or should we be looking at a different way of measuring the environmental impact of these structures?

**Graeme Fergusson:** I think that the comparative assessment process that we follow is a good way to look at this. There are five factors. On an asset-by-asset basis you will weight those factors. It measures technical, safety, societal, economic and environmental, and those five factors are weighed across the asset. I think that that is the lens through which to look at this.

**Kirstene Hair:** In a previous session, we heard from experts about carbon capture who emphasised the potential to reuse decommissioned infrastructure to store CO₂. How valuable do you think that proposal is as an alternative to decommissioning? If you do think it is viable, what do you think is standing in the way? Is that a logistical or financial issue?

**Graeme Fergusson:** My understanding of this area is that BEIS has committed to looking into options like that. I think that this is an industry-wide issue and there is some value in looking into this. We would certainly be interested to see the outcomes of it. From our own asset perspective, technically it does not work with an asset that is hugely remote. We are also reliant on a set of pipelines that users will continue to export oil and gas through for the next 25 to 30 years. The infrastructure does not exist for some assets, so there are limitations to its use, but I think it is an area that requires some further research.
Professor Neilson: There have been some initial studies and there was also a potential for some work at Peterhead at one point. It depends on the reservoir. It depends on the infrastructure, whether the infrastructure is in sufficiently good condition to be useful or whether it could be rehabilitated or whether, as in the case that Mr Fergusson was talking about, it is still in use and what the timescale for that is going to be. A lot of the big structures offshore are 150 km offshore or more. It is a long pipeline to drive CO\textsubscript{2} out into. I think that this is an area that should be looked at, but there are technical and commercial challenges.

Q265 Kirstene Hair: Would you suggest that it needs significantly more analysis done in the area prior to significant investment?

Professor Neilson: It definitely needs more work in looking at the challenges but also the opportunities.

Q266 Kirstene Hair: Sorry, did you want to come in on this?

Jonathan Hughes: No, I would just agree with the previous two speakers.

Q267 Kirstene Hair: On the other reuse options for decommissioned rigs, such as wind and marine power generation, do you think that they also need exploring? I know that there is a report by the Royal Academy of Engineering that sets out a number of challenges. Do you think that is a viable solution and, if so, what do you think is holding back these kinds of proposals?

Graeme Fergusson: I am afraid this is not my area of expertise.

Professor Neilson: Some of it will come back to the remoteness of the particular infrastructure. If you are 200 km offshore are you going to run a new cable back to shore, or if you are using renewable power are you going to export that locally? I think there will be opportunities within fields to look at renewables to power locally, but I think trying to export back over long distances is quite difficult. If it is an inshore area there may be opportunities. I am not sure that any comparative assessment so far has come up with a suitable reuse. I know that one operator has included a couple of wind installations into its infrastructure and that was for local power, but I think deep offshore, central North Sea, north North Sea there will be substantial challenges in exporting power, unless there was a huge investment in the power grid and even then you will have a small structure. The wind farm off Aberdeen has one wind turbine of about 8.9 megawatts. You will get one or two of those on top of a piece of infrastructure, one maybe and that is 9 megawatts for the remotely placed. I think there is work to be done but there are definitely challenges.

Jonathan Hughes: This is the kind of option that seems on the face of it to be incredibly attractive, but when you start looking into it—and we have done some research into this and have reviewed the literature—you
have come to the conclusion that the scope is incredibly limited, really. In our view, it is just not really viable for doing anything at scale.

Q268 **Chair:** Thank you, and thank you all very much for contributing this morning. I think there were a couple of requests for extra paperwork from you, Mr Neilson if I recall. We will check and ask you for that, and if we can secure that, that would be excellent. Thank you very much for your time this morning.

**Examination of witnesses**


Q269 **Chair:** For our records, please tell us who you represent. It will have to be a very short introductory statement. It is a big panel and you can see all the Committee is here to ask you questions, so we will start with you, Mr Wheeler.

**Tom Wheeler:** Hello. I am Tom Wheeler, the Director of Regulation at the Oil and Gas Authority. I think if we are going to do an introduction, Hedvig is going to do it.

**Hedvig Ljungerud:** I am Hedvig Ljungerud. I am the Director of Strategy at the Oil and Gas Authority. We are the authority responsible for maximising economic recovery in the UK. That is our primary obligation and it is set out in statute. We do that by regulating in a traditional way, influencing the industry particularly when it comes to collaboration of behaviours and promoting the industry. We work a lot with investors and so forth. We work in a tripartite with the Government and industry and we work very closely with our colleagues in BEIS.

**Wendy Kennedy:** Wendy Kennedy and Pauline Innes from OPRED. OPRED is responsible for developing, administering and enforcing the environmental regime for offshore oil and gas. We are also responsible for the decommissioning regime, ensuring that operators do decommission at the end of field life. We are responsible for developing all domestic and international policy and for the development of all the relevant UK legislation that goes with that. We have a team of about 100 staff based in Aberdeen, 40 of whom are environmental specialists.

Q270 **Chair:** Please explain as briefly as possible explicitly what your two organisations do. Obviously you know each other with the way you have been discussing these opening questions there. Are you working together? Tell the Committee in a very simple way how regulation works across the North Sea. We will start with you, Ms Ljungerud.

**Hedvig Ljungerud:** One part of what we do, which is exploration and production, also gas storage and carbon storage, we work very closely with OPRED colleagues, particularly of course when it comes to decommissioning but also other aspects. We have our promote and influence role, so when it comes to maximising economic recovery it is equally important in terms of what we were set up to do in achieving that
objective. In some ways we are not your traditional regulator. I am very happy to talk about some of the things we have done, but I do not know if you want us to focus on how we work with OPRED.

Q271 Chair: We are just trying to understand what your organisations do and what specific role you have. I think you described that pretty adequately to us, so thank you for that. Ms Kennedy?

Wendy Kennedy: Our role is to ensure that the environmental impact from offshore oil and gas extraction production and decommissioning is minimised. All the activities that could potentially impact on the environment are very carefully assessed by our technical staff in consultation with all the nature conservation bodies and with our colleagues in Marine Scotland. We work with the Marine and Coastguard Agency and the Fishermen’s Federation. We have a huge list of consultees before we approve any activity.

Our regulatory decisions are completely independent of the OGA. Maximising economic recovery, which is the OGA function, is not our primary purpose. We are there to protect the environment and so there is no precedence given over environmental considerations. We work very closely with the Oil and Gas Authority on licensing and exploration activity. We make sure prior to any licence being awarded that the licensees understand the regime in the UK and how it works. We do a huge amount of outreach to go and talk to people, so that they understand the regime and they understand what they are committing to and we also offer to help them through the process once they take up a licence.

We have the responsibility for the strategic environmental assessment, so before anything is done offshore you have to conduct a full environmental assessment. We do that right around the UK for offshore oil and gas and for renewables because it has to be done to make sure the cumulative impacts are considered. We do all that work on behalf of Government.

As I say, we work closely with the OGA, HSE on safety aspects, DEFRA, Marine Scotland, just to make sure that all our international obligations are fully complied with. We do not take any decisions in isolation. Everything is a partnership working with other regulatory authorities. We are also in a joint competent authority with the Health and Safety Executive, so we implement the offshore safety directive through that joint competent authority.

We also work with the Marine and Coastguard Agency on oil spill contingency planning and that kind of work. We are responsible for the oil spill contingency plan approvals, but we work with the Marine and Coastguard Agency. We are also responsible for decommissioning, so we make sure it is delivered in a safe, efficient and cost-effective manner. We take advice on the safety from the HSE, on the cost from the OGA and on the environmental aspects from Marine Scotland and from our own environmentalists in-house. I think that is about it.
Q272 **Chair:** That was very helpful. I think most of the witnesses that have been in front of this Committee have been very positive about the establishment of the Oil and Gas Authority that has come as a result of the Wood review where collaboration seemed to be very much at the heart of his recommendation. The way you have described it so far would seem to suggest that that collaboration seems to be a feature of the ongoing work and there is a culture change. Maybe you could talk a little bit about some of the things you have had to overcome to achieve this and how you would see this type of collaborative approach extend into the future, given that you have probably listened to some of the previous panel discuss some of the challenges of decommissioning. Tell us a bit about what you have done to achieve this collaboration. You obviously have a very good working relationship between the two of you here, but what difficulties have you had to encounter to get to where you are and how will this continue to be a feature of the next stage of oil and gas production?

**Hedvig Ljungerud:** I will start from the OGA’s point of view about what we have done, but Tom can talk about the direct work with industry. I think when the OGA was set up there were a number of challenges from an almost commercial viper’s nest, as I have heard it explained, and production efficiency—

Q273 **Chair:** Why was that? Given this was such a big deal, what was going wrong, just so that we can understand where you are now? Obviously you do have this new culture. Where was it breaking down?

**Hedvig Ljungerud:** There would have been a number of different factors including at the time that people had been used for quite a while to perhaps a higher oil price and there was some inefficiency built into the system. The trust was not necessarily there and one of the things that is interesting about the MER UK is it takes a more holistic perspective. It looks at what would be the better outcome for the whole basin or the whole region. From the OGA’s point of view we have done a lot of work with industry. There were a lot of different boards and committees and we cleaned that up into one structure, which is the MER UK forum and then a taskforce in each area, including one on decommissioning.

As you will know, production has come up a lot. The unit operating cost is down almost by half. From the OGA’s point of view, the statistic we look the most at is the forecast out to 2050, because that really sums it up. That is now 3.7 billion barrels higher than it was in March 2015 when we were set up. We tried to tease out what some of the aspects of that are. A big part of it is increased sanctioned projects. That is about 600 million barrels and then we were hoping to sanction 250 million barrels of EOR but also increase production in those years since 2015. We try to measure our influence, how many facilitations, interventions, use of power, soft powers and so forth that we have, which is up at over 300 now. That by itself has added another billion barrels. I think we have worked very closely with industry to establish trust with Government. The changes in the fiscal system have been very helpful because they have
been very clear and have streamlined the system. They have set out that the Government are supportive, which has rebuilt trust on both sides, I think. It has come a very long way and it is a clearer system but there is still some way to go.

We have also pushed very hard on data, which helps with the transparency and trust between operators. I saw a statistic when I was reading this that since we started rebuilding our data site and operating we have had 53 million hits on our data site, so it has been quite a popular change in our approach.

I have talked for a long time. Tom, do you want to talk about collaboration in particular?

**Tom Wheeler:** Yes, of course. To go back to your question on the specific point of what we encountered when we were set up or established as the OGA, I think we are all familiar with competition as the default mode of business in industry and in particular I think in Anglo-Saxon legal-based economies. Exactly as Hedvig has said, that had built up and layered on top of that you had some extra mistrust and some personal animosity, in some cases. I think it took Sir Ian Wood’s vision and the vision of the Secretary of State and the team in DECC at the time to say, “Let’s break that cycle”.

The UKCS is a very complex area where competition, while it is good in some circumstances, in other circumstances can be quite destructive because it stops you sharing infrastructure, sharing information and working together on your future plans. What Sir Ian envisaged was a place where you did break some of those old barriers of competition and focus more on collaboration. We definitely saw that when we started and, frankly, it has not gone completely. It is still there to a certain extent, but we are doing an awful lot with industry to continuously try to break that down.

By way of example, through our stewardship regime operated by the director of operations and his team, one of the key aspects of the stewardship regime is collaboration and he has a collaboration measure that he applies to every operator who comes in and asks them to assess how they are doing collaboratively with other—

**Q274 Chair:** How accurate is it?

**Tom Wheeler:** It is moderate. I think because it is self-assessment there has been very few to come in and self-flagellate, but we also give our own view. One of the interesting things that comes out of the discussions is where the difference is, so it is not just, “How good are you at collaborating?” It looks at seven or eight different metrics. We take our own view on each of those metrics and they have their view and we measure them against each other.

**Q275 Chair:** You are a big panel so if you can try to be a bit more concise with
some of your responses. Ms Kennedy, did you want to say anything at all about the historical culture of collaboration, how you have overcome it and where you are now?

**Wendy Kennedy:** I think we are in a slightly different position. We have been regulating on the environment side for over 20 years now, so part of what we do is apply some stability to the regime so that people understand how it works. It takes a lot of the cost out. We work a lot with industry and we have various industry groups. Before we do anything or initiate any new idea or scheme we talk to industry. We have always worked collaboratively with them, because we feel that we get the best environmental outcomes if we operate in that way. For us, it has not been a big issue. There is general acceptance that is the way to move forward.

**Q276 Chair:** A sense of collaboration and working together.

**Tom Wheeler:** I do not think there has been a criticism really of collaboration between industry and Government. I think that has always been quite strong. Looking back 10 or 15 years, that has not been a problem. It has been between industry players and that is the thing we are trying to improve.

**Chair:** Thank you for clearing that up for us.

**Q277 David Duguid:** Having worked in the oil and gas industry for 25 years before I was elected last year, in the short time I was there through the downturn and since the creation of the OGA I can say from my own personal experience I can see that improvement in collaboration. It was something I always thought for a long time, that the different operators and the supply chain just in Aberdeen were keeping secrets from each other that were really quite basic stuff. It was not real intellectual property stuff. I think through necessity probably and partly because of the OGA being based in Aberdeen it has had a huge effect and the Wood review itself has wakened the industry up on the urgency of the need for collaboration.

What powers does the OGA have in cases where operators do not collaborate effectively? Do you feel you have the enforcement power you need?

**Tom Wheeler:** We basically have three key powers, or four if I come back to a slightly separate one. We have the power to require non-binding disputes, so to impose a process where we can go through a sort of dispute resolution process with people. We have the third party access powers, which are historical, that have been around for decades, but we are much better geared up to use them now than we were before, and we then have the sanctions power. If we see people misbehaving, failing to collaborate—and by the way collaboration is one of the key requirements in the MER UK strategy—we can call people out on that.

The last one, the fourth one, is that we are getting more proactive in using the licence powers. The licences contain conditions and
requirements on parties that historically DECC and people before that have not been terribly robust in enforcing. We are starting to look more closely at that and use that as leverage to get people to work together.

Q278 **David Duguid:** The OGA has had to formally intervene or use its power most frequently to resolve disputes about access to infrastructure. Is there a reason why or do you think there is a reason why you are having to intervene more in that area?

**Tom Wheeler:** I do not think there is anything in particular. Reflecting on that, we are pushing people to develop and often it is the small fields that cannot support their own infrastructure, so they need to rely on third party infrastructure. Funnily enough, because of this patchwork that you have, one new field might be quite small, might need three or four different third-party access agreements in order to get their oil and gas to market, because you have oil and gas separately in different systems frequently. There are a lot of negotiations that happen on this type of thing and hence there are quite a large number of them that end up being difficult and need help resolving.

I think our power is quite well recognised. We talk a lot about it, industry and Oil & Gas UK talk a lot about it, so I think people are prepared to use it as well, which might also be a factor in it. The final point, again going back to the commercial competition basis, is access to infrastructure is zero sum, unlike some of these other things. Does the value from a field go to the user or to the infrastructure owner? On that negotiation, we have the power that can drive the value to the user rather than the infrastructure owner, so it is quite valuable to the user to use that power.

Q279 **David Duguid:** In the previous panel discussion we heard about similar complexities in negotiation and ownership issues being part of the complexity around decommissioning. If you have to decommission a part of the infrastructure that is owned by one set of partners that is not the same set of partners as the rest of the infrastructure, is that something the OGA can get involved with as well?

**Tom Wheeler:** It would absolutely get involved in those types of things, yes. As I said, there are obligations. The strategy is a clever document because it is quite vague, which is frustrating sometimes but it certainly means that we can apply those powers and we can use them to leverage to behave better, work together, collaborate. We would take on exactly that sort of scenario.

Q280 **Ged Killen:** The OGA is committed to revitalise exploration. How have you sought to do this through the most recent round of licensing?

**Hedvig Ljungerud:** As you will probably be aware, we started a new system where every other year we have a mature licensing round and every other year frontier, so new areas effectively. We support that with an awful lot of technical background and also data packs and some of that includes the Government-funded seismic that we have been shooting
and providing. I think we have hot off the press some of the numbers from our recent frontier round.

**Tom Wheeler:** Yes, and we heard these only yesterday. In the latest frontier round the comparison would be to the 29th round, which is the last frontier round, and is pretty similar but slightly better in balance. I think we received 36 applications from 35 different companies covering a total of 164 blocks, which is slightly higher than we had in the previous time. One of the great things about the application was that we really got what we were looking for in the spread of different parties making applications. We got supermajors, which is probably a benchmark of success in that we got Equinor, Exxon, Shell, Total and BP. We also got some really small companies, which we are, especially in these frontier areas, very keen to attract because they are the people who will do the detailed work at low cost to try to find some of these opportunities that then get picked up.

**Q281 Chair:** Compared to previous years?

**Tom Wheeler:** Compared to the previous frontier round, it is ever so slightly better but not materially better. That would have been two years ago. We do not like to make a direct comparison to the odd year rounds because we get many more applications for them. We already know about these discovered reserves that we are really trying to push companies towards picking up that acreage as soon as they possibly can to use the existing infrastructure while it is still there. It is good compared to the last frontier round.

**Q282 Chair:** Was this hot off the press from yesterday?

**Tom Wheeler:** We heard it literally yesterday and I think they were working on it over the weekend.

**Q283 Chair:** You describe “frontier”. Is that new fields entirely or is this what we would expect an established basin to be? Can you tell us what you mean by this?

**Tom Wheeler:** There are two. The east coast of the UK has the established basins. There is the southern North Sea, the central North Sea and the northern North Sea where you have all the familiar names of fields. I think there are one or two what we call frontier areas, pockets in there, so the mid-North Sea high I think we consider a frontier, so that is in between the southern North Sea and the central North Sea. But broadly speaking the frontier is on the west coast, so west of Shetland is half and half, half frontier, half existing, and then anything further west of that. We have the west of Scotland and the south-west of England are our true frontier areas.

**Q284 Chair:** Just a moment, OPRED. There are a few more questions but we will be coming to you.

**Tom Wheeler:** We hope so.
Q285 Hugh Gaffney: The most recent licence round was supported quite openly by available seismic data. How does your proposal for a national data repository seek to build on this work?

Tom Wheeler: As Hedvig mentioned, we recognise absolutely the key role that data has to play, especially in exploration. Our exploration team is getting the data and pulling it together into useful teasers for companies, trying to attract them into applying for licence rounds.

Probably slightly more importantly even than that, the corporate team is really trying to make a step change in how we marshal the data that we have. We have access to all the data that oil and gas companies create as they explore and develop. While we cannot release all of that immediately, we do have very broad powers to release data after certain periods. What we are trying to do is make a real step change in how we do that and the availability and ease of access to that data, so that both existing and new users can come in, gather that data and use it to explore and hopefully find oil and gas.

Hedvig Ljungerud: If I can add to that, for me it can sometimes be confusing because we have a number of data sources. We have the energy portal that enables us to interact with operators. We have on our website the open data source, which has made available for absolutely everyone more data than we have ever had out before in the UK and really moved into a world-leading position. We have had millions and millions of hits on those sites and then we are planning to build a national data repository. That will be the real step change because, as Tom said, these powers are now coming into force where we can get pretty much anything from the companies. There are different time limits to when it can be released, but over time it will build up an almost complete repository over all the work that has been done in the UK, the wells, exploration and so forth available. I think it will really change how exploration is done. We are moving towards it, but it really will be a step change.

Tom Wheeler: By putting that data out, one of the brilliant things about the OGA is that we have much better resources. We have IT specialists who are talking about putting it out in a way that can be used by very sophisticated tools, algorithms and all those sorts of things that I do not understand, I am afraid. We are trying to do it in a way that is very much 21st century whereas I think had we still been in the Department we would not have been able to think in those ways.

Q286 Deidre Brock: It is really for the OGA I am afraid again, but it is about the cost reduction target for decommissioning that you have set of 35%. How was that target set and what is your role in ensuring it is met?

Hedvig Ljungerud: It was set in collaboration and discussion with industry, but at the time we did not have the sort of databases we have now. It was set before we issued our first cost report, so there was an element of aspiration in it. Having said that, I have talked to many
industry members now who have all given the view that it is achievable, so I think it is probably set right.

We monitor the cost. Every year we do the stewardship survey, the biggest survey of the UKCS, and get all the data and in the summer of every year now we issue our cost report. Our second report came out in the summer of 2018 when we had already seen a 7% reduction in the cost, which was very welcome.

Our biggest role is monitoring. We push it through the stewardship work we do. We look at it when people start talking about their COP. We work as advisers to BEIS when they do decommissioning programmes and we give views on the cost. We also do a lot in lessons learned and industry will do that because everyone likes costs coming down, but ensuring that the opportunities are there to learn lessons. We put them on our website with a toolkit and so forth, so we have a role as both a monitor and a facilitator there.

**Tom Wheeler:** I think that mostly covers it. My reflection is that it is not that different from everything else that we do. We really want to share information, we want to share learning, and funnily enough the companies are really quite good at that. Sometimes there are proprietary things that they do not want to share but we push that as much as we possibly can. We set benchmarks, so we say, “Company X can do it for 100. Why are you doing it for 150?” and that drives it. They are very competitive people and so that drives cost reduction in that way.

I think the other area, which again is exactly the same as in every other part of our work, is this collaboration thing. We can see there is value to be gained from people working together, doing drillings, so 50% of the cost is P&A-ing wells. A lot of that cost is in mobilising and demobilising kit. You can make huge learnings if you are doing the same thing over and over again. Again it is about pulling people together and giving people a forum to make plans and then letting industry solve the problems.

Q287 **Deidre Brock:** Ms Innes, is there anything you would like to say about the issue?

**Pauline Innes:** From our perspective, as Tom has outlined, we look to the OGA to give us a view and a guidance on cost, but we are completely supportive of the aspirational target that has been set. In a similar way, we equally promote and share best practice and lessons learned. We see operators in our office on a daily basis coming forward with decommissioning programmes, so we are well placed to signpost operators to speak to one another to make sure that they understand how they can deliver their decommissioning aspirations. As I say, we are completely supportive of the target. Our objective is that we do not want to see standards compromised in achieving that.

Q288 **Deidre Brock:** Well plugging and abandonment is clearly one of the most
costly parts of decommissioning. Could you elaborate a little bit more about the progress that is being made there to reduce that cost?

**Tom Wheeler:** Anecdotally there has been some really good progress. Companies currently, as you would expect given the oil price from the last two or three years, have started to do some decommissioning campaigns and people are driving down costs. We have seen in the southern North Sea one of the big operators making really big strides in beating its own targets and a lot of those cost reductions that Hedvig referred to reflect those things. We have seen in the northern North Sea, another very mature area of the UKCS, other companies doing likewise. I think we are definitely seeing that.

We are seeing different technologies being applied. One we are excited about is a completely different way to plug. Traditionally you use concrete to plug. I have forgotten the name now. Is it Spirit? Centrica is looking at a new way and is experimenting onshore, which is a very practical and sensible thing to do, with plugging a well by effectively melting the rock around it to create a perfect seal. Of course it is also doing everything else that you would normally expect and testing it that way.

There is good progress. As with everything, the challenge for us in the OGA, and with the help of OPRED, will be ensuring the costs of P&A-ing do not go up again when we hope demand starts to rise again for the rigs and for the people who do the work.

**Wendy Kennedy:** As a regulator of this, what we are trying to do is to encourage people to come up with new ideas and not be put off by existing regulations. We are very open and we are working very closely with the universities and with the OGTC to come up with new ideas and for us to work out how we can permit some new testing of new technology. We are very supportive and completely plugged into that whole process, and costs are definitely coming down as people are campaigning more and learning lessons.

Q289 **Chair:** You say in your most recent assessment that you have potentially slashed the bill of decommissioning by 7% or up to £4 billion. I have seen another figure here that the approximate cost is £47 billion with what is described as “uncertainty surrounding this estimate with an uncertainty range of plus or minus 40%”. That is a hell of a big uncertainty range.

**Hedvig Ljungerud:** The uncertainty range is very big given how far out it goes. If I recall, the 7%, it is comparing like for like effectively on the same price basis, but if you take either end of the range compared to another range. Basically, because it is a like-for-like comparison, it still gives a good indication of the direction of travel.

**Pauline Innes:** It is probably also worth saying that when operators are approaching decommissioning, in order to come up with a good quality cost estimate they have to undertake a high degree of engineering. They have to understand what asset they have and have a concept about how
that will be decommissioned. Most operators will not do that detailed engineering as there are costs associated with doing that. They will not do that until decommissioning is approaching. In the data that the OGA has collected you have a cost estimate across the basin. Some of those assets are near decommissioning and the cost estimation for those projects is better. Some assets are 30 or 40 years out from decommissioning and the cost estimates that an operator will have given for those are broader.

Q290 **Chair:** Who is responsible for the costs of all this in keeping it under control and trying to minimise? I understand that you have set a cost reduction target of at least 35%, so who is responsible for these cost estimates?

**Hedvig Ljungerud:** We have given it to ourselves as a KPI and it is one of the matters we have to have regard to. We certainly see it as a big part of our role. It does not have the importance of MER UK in terms of what we are set up to do, but we see it as a very big and important part of our role.

Q291 **Chair:** I am just thinking that this is the upper range of your 40%, but it is 40% plus. That is a significant increase in any estimated costs. It is substantial amounts of public money that would be given.

**Hedvig Ljungerud:** For the 35% we will continue to compare like for like, so that is set on one baseline. As it covers all decommissioning projects that anyone is aware of, it obviously stretches very far out into the future and, as Pauline said, they get less secure or certain.

Q292 **Chair:** If I was the Public Accounts Committee I would want to know how much this is going to cost the public, what the expectations of these costs are and getting some sort of realistic figure on how much decommissioning is likely to be. Looking at these figures, with that type of range, you are obviously not able to supply that just now.

**Hedvig Ljungerud:** I would say that is the best estimate available, which we have worked on with colleagues across Whitehall, given how far it stretches out into the future. I think it is right that on what we know we set it as our target to reduce that number. Even if it were to be higher in the end, to continue to work to reduce it will always be the right thing from a taxpayer point of view. Yes, there is absolutely uncertainty and I would not argue with that.

**Tom Wheeler:** I was just going to echo that. Some of these things are going to be decommissioned in 2040, 2050 and for us to put a number on that, a figure or even a figure bounded by 5% or 10% on either side I think would be just unrealistic. There are so many different factors that can play into that; inflation, change in regulation, all sorts of different things can play into that number. I think we want to reflect the fact that there is no certainty at this stage but, exactly as Pauline said, as we get closer to the decommissioning of any given infrastructure we are going to get very focused on working with them, as do OPRED, on ensuring that
that is done and that people understand exactly what the costs are going to be and monitor them as closely as possible.

**Wendy Kennedy:** As the regulator of decommissioning, while we are not responsible for the target we clearly have a responsibility to keep the costs down. If we get a decommissioning programme or an operator comes and talks to us very early on, which generally they do—that can be 10 years out from starting decommissioning—we would point them in the direction of other operators who have had similar experiences with similar assets so that they can learn the lessons. If we see them doing things that we think are completely unnecessary—and sometimes that happens because people start to interpret regulations in their own way and they start putting things in there that do not exist—we point that out to them to try to take some of the cost out. People can get really carried away with this and all the studies that they need to do and the work that needs to be done, and an awful lot of it has been done already.

Q293 **Chair:** You would be able to tell them, “I think you have done enough study. Get on with it”?

**Wendy Kennedy:** That is right, “We are good here”, yes, and we really encourage that. I do not think it is anybody’s particular responsibility. I think it is all of our responsibilities to make that happen.

**Chair:** Thank you very much. That helps clarify that for me.

Q294 **Hugh Gaffney:** To Wendy and Pauline, in the last panel we heard that Decom feel that the regulatory regime “causes significant delays and added costs”. They have called for a greater reuse of studies and information in assessing decommissioning options. Are you considering a change along these lines?

**Pauline Innes:** That exists at the moment so it does not require any change. As Wendy said, we already encourage operators to share studies. If you have a similar installation in a similar environment and you have done an environmental study, it seems to make perfect sense for an operator to share that information with another operator. That is something that we strongly encourage.

To date, I think it is probably fair to say that decommissioning is still in the early stages, so we are all learning through this process and operators are also learning. Just as we have had a conversation about collaboration, operators are becoming more comfortable in this space about collaborating and sharing data. Until recently some operators may have thought that in order for them to make the decisions that their organisation needs they need to conduct their own studies and therefore they would only put trust in their own study. Operators need to get a little bit more comfortable about sharing information and trusting the studies from one operator to another. The system currently allows it. It is set out in our guidance notes that that is acceptable and, as Wendy says, it is something that we strongly encourage on a regular basis. It seems
completely pointless to us to create multiple studies if you do not have to.

Having said that, the decisions that we make on decommissioning are done on a case-by-case basis and they are evidence-based, so if a decommissioning project does need a unique study we would expect that to happen.

Q295 Hugh Gaffney: You say it is early stages, and every year you learn. Are you looking at costs to come down?

Pauline Innes: We updated our guidance notes this year. When we updated them we said we realised that every week in my office an operator comes forward with a question that we have not faced before. We need to think about the best way to handle that. We have said to industry that it is our intention to have regular updates, and indeed that is our intention. There is a new set of guidance notes that we will be issuing later this year dealing with financial guidance. I think that is just part of the process. We have to look for performance improvement continually and have a mechanism to make sure that the regulations are updated to reflect that.

Q296 Tommy Sheppard: I think all of you were present when we had the discussion earlier with the previous panel about the debate on whether it was better to abandon some decommissioned structures rather than remove them in terms of the marine environment, the rigs to reefs debate. Can I ask each of your organisations whether you have a view on this debate and in particular whether you have made any financial or environmental assessment as to the impact of such a policy?

Wendy Kennedy: I will make a start. There were a few numbers quoted, which I think probably need a little bit of correction. We have just over 300 installations. The other numbers I think include some subsea facilities, so we have about 300. Of those, 58 of them will be allowed to be subject to derogation, so they will be able to apply for a derogation to remain in place. The rest are generally quite small. Anything that was put in after 1998 was put in with a view to it being easily removed so most of the newer ones are designed to be removed, so that will not be hugely difficult or expensive to do. This problem is not quite as big and certainly the cost savings are not quite as big as I think some people are putting on this, because 50% of your costs are plugging and abandoning the wells and a lot of it is taking topsides off. What is left is not that big, given that we will be derogating.

The Gulf of Mexico is quoted regularly to us. We have visited and in the Gulf of Mexico if you want to leave something in place you do not leave it where it is. You have to clean it all up, take away the topsides, cut it, move it to the reefing site that is close to shore. because then it is useful for fishing and things, and then you have to pay money to the local state to maintain that fishing site. In the UK, by the time you have plugged and abandoned the wells, taken off the topside, cut it and started moving
Pauline Innes: I think it is clear that there is misunderstanding in this space. We were present during the last session and there are two different models of rigs to reef that I think are being interrelated. There is one model, as Wendy describes, which is the traditional one, the one that we hear about in the Gulf of Mexico, which involves reusing part of an installation, moving it to the most appropriate place for a reef and dealing with it there. But there is some language emerging now about rigs to reef meaning abandoning the installation in situ, so where it is. I think that is causing some confusion and sometimes the messages are becoming interrelated in that. Whatever model you look at using, artificial reefing comes back to a question of matching the demand for an artificial reef with the supply of a structure that is appropriate for reefing. In order to have a rigs to reef view, you would need to determine whether or not there was a need, a demand or an interest in having an artificial reef. We do not lead on the question of artificial reefing. In the Scottish context that would be a question that Marine Scotland would look to consider.

Moving beyond that, we also heard in this morning’s session some questions about the lack of environmental evidence in place. It is probably fair to say that with every decommissioning programme we assess it has an accompanying environmental assessment, so for every project there is a high degree of environmental assessment made. In addition to that, you heard about the INSITE study that is also looking at gathering some environmental information on structures in the marine environment, which is all helping to further our understanding in this space.

Wendy Kennedy: I think the INSITE study has shown that the real benefit is in the footings being left in place and that will be happening in the UK. The structures being left do not have a huge impact on marine biodiversity.

In the Gulf of Mexico, they are hoping to leave about 10% in these reefing sites. We reckon we will be derogating 20% of the UK’s assets to be left in place.

Tommy Sheppard: Apart from the age of the structure, what are the other characteristics where you determine whether or not something can be derogated and left in place?

Wendy Kennedy: It is just can you remove it. If you cannot remove it, if it is not possible to remove, you can apply for a derogation and look at a comparative assessment of that.

Pauline Innes: That comparative assessment of structures that might be appropriate for derogation covers five criteria. Quite critically within that you are looking at the technical feasibility. Can the structure be removed and what are the safety implications of removing that structure?
An operator will look at a metric for potential loss of life. If the potential loss of life from trying to remove that structure is too high that would be a key consideration in a decision to leave the structure in situ. You are looking at the environmental impact of it and if it is more detrimental to the environment to remove something than to leave it in situ, that would influence your decision as well. The impact on society—we are very interested in hearing the views of other users of the sea and recognising that society has a view on what is the right thing to do in the decommissioning space. The last factor that we would look at in a derogation decision is looking at the cost aspects.

Q298 **Tommy Sheppard:** Of the 58 where you are derogating, are these all structures on the seabed or do they involve sinking topside stuff as well?

**Wendy Kennedy:** No, it is just the structures. The topsides are all removed.

Q299 **Christine Jardine:** From what you were saying, it is a far more complicated equation that has to be worked out about removing rigs, bringing them onshore, than allowing them to become reefs. It is far more complicated and will take far longer to take out perhaps than has previously been appreciated. You have talked about how there are two different approaches becoming intermingled. Is there a danger in the North Sea that we allow that to happen? How do we avoid that happening and not coming up with a clear strategy that says one is good and the other is not?

**Wendy Kennedy:** It is not just about a strategy. We do consider each one. I heard what the Scottish Wildlife Trust said but we do consider each one on its merits, so every single case is looked at on its own merits. There are all kinds of peculiarities to this in that we have a lot of sites designated offshore in UK waters. In the southern North Sea, a lot of them are designated as sandy features. If you then start rock dumping pipelines and things you are definitely changing that from a sandy feature. While that would attract different fish, it is a balance and environmentalists can’t agree one way or the other. Every case is slightly different and we, as the regulator, are there to take a balanced view of this and to look at each case, look at all the scientific evidence, take all the advice from our different advisers and then make a decision on what is the best way forward.

Q300 **Chair:** It is reassuring to hear this. To clarify, there is 58 that are—

**Wendy Kennedy:** That have the potential.

**Chair:** They will effectively become rigs to resurface. They are going to be there and then you talk about the other ones that you say would have to be, was it, cupped or—

**Wendy Kennedy:** Yes, and lifted.

Q301 **Chair:** Then you move them to another site, which if there is a decision
to make them environmentally sustainable for a reef they will be left at another site away from—

Wendy Kennedy: I have to say that we are under no pressure to do that. Nobody is asking us to do that.

Pauline Innes: If you think about an offshore installation, the bit you tend to think about is the bit you see above the—

Q302 Chair: Realistically the only ones that are going to remaining down in the seabed are the ones that you have derogated because the rest will get pulled to the shore.

Wendy Kennedy: On a lot of them there will be footing still left in place, so there will still be something there and that is where you would get the environmental benefits.

Q303 Chair: Ms Kennedy, I think you said that you are dragging them to somewhere else just to drag them on shore to deal with them there. If you are going to create an artificial reef, you would not do it with an oil rig, so that would be the least problem. If you are going to be moving it around, you are going to take it to shore. When we are talking about reefs for rigs, if that is what you want to call it, it will be the derogated.

Wendy Kennedy: That is still 20%. It is still a lot, a large number, but CO₂ emission-wise, if you cut it and move it to shore, you are then able to recycle the steel. If you leave it where it is, you will not be able to and to have to get more steel from ore is going to have a higher environmental CO₂ impact.

Chair: That clarifies a lot for us. Thank you for that. We have heard quite a lot about all this but hearing exactly what happens and how all this works is really helpful to the Committee.

Q304 David Duguid: I have a technical question but just before I ask that I think it is worth pointing out that this whole conversation, at least in the public mind, started with the Brent Spar issue in the mid-1990s. I am just trying to remember, but I think that was chopped up and used as a pier or something in Norway. That is an example of something being reused for a different purpose above the surface.

The question I wanted to ask is on the subject of derogations, which apply to steel installations weighing more than 10,000 tonnes, gravity-based concrete installations and it also says here floating concrete installations. How are they derogated?

Pauline Innes: We haven’t considered any.

Q305 David Duguid: I am not aware of any either but that is what it says here as one of the potential derogations. I wondered technically how that would be left behind. Would it be sunk?

Wendy Kennedy: There is only one in Norway, we are being told, so we do not actually have any.
Q306  **David Duguid:** It was a technical question. I was just curious.

  **Wendy Kennedy:** We have not been asked about that.

Q307  **Ross Thomson:** As you would have heard in the discussion we had in the last panel, we are obliged by OSPAR regulations to decommission the majority of rigs. Do you think there is an argument that these regulations should be revisited? If they were to be revisited, what do you think the response would be from other signatories to OSPAR if there were efforts to try to change those rules?

  **Wendy Kennedy:** We have just done that. We had the OSPAR meeting in March this year where that was raised. We raised all of these different ideas that people have come up with in the balance. The decision around the table very firmly was that we should stick with what we have because that allows a great deal of flexibility and that we can look at things on a case-by-case basis. As I said, most of the facilities we are removing were put in after 1998 and are not that difficult to remove. A lot of the companies want to remove them because that ends their liability. Once they take them away they are completely done. There was not a lot of pressure. Industry was there and industry’s view at the OSPAR meeting was, "Leave this as it is; it works well".

Q308  **Ross Thomson:** I accept what you are saying about flexibility, but if there was to be a change, what is the process for doing that? How complicated is it? Is it a change in treaty?

  **Wendy Kennedy:** You would go along to the OSPAR oil industry committee meeting, which we are hosting in Aberdeen next year, and raise that. You would write a paper and explain what it is you wanted to do and then there would be a big discussion. If the committee agreed to put it forward, it would go forward to the formal OSPAR meeting and there again it would be discussed and countries would have to agree to the change.

  **Pauline Innes:** It is worth pointing out that the OSPAR decision 98/3 has an inbuilt review mechanism. It has an obligation on the contracting parties to say, “We have reached that point in the process where we ought to ask ourselves the question: should this be reviewed?”

  **Wendy Kennedy:** That is what just happened this year.

Q309  **Ross Thomson:** One of the questions I had for the last panel was about the presentation that I have had from Tom Baxter at the University of Aberdeen. He has written a few times for *Energy Voice*. His argument is not just change in the OSPAR regulations but saying, given that £24 billion of taxpayers’ money goes towards decommissioning, which he argues would be short term in that it is not creating long-term jobs and the environmental impact may not be all that great, given you could maintain marine habitats, as OGA, as OPRED can we demonstrate to the taxpayer that what we are doing with that £24 billion is better than the alternative of investing it in the green energy, as he has argued? It is just
Wendy Kennedy: I think we are super keen that it is not £24 billion. We are working on that and we will get it down. But I think Tom’s ideas are quite radical. He is planning leaving the facilities in place; he is plugging and abandoning the wells. That is 50%, about 24, if you looked at it like that, gone already. But he wants to leave the topsides in place and just let them rust and fall into the sea. I am not sure that is publicly acceptable and we are certainly not coming under any pressure from anybody to allow that. We have had Tom in the office. We had a huge meeting with our decommissioning team. It was a robust conversation but it was enjoyable, because it is good to listen to people’s views and to come up with a way forward. I have to say that at the moment we do not see that as a solution to the problem.

Pauline Innes: The starting point has to be that there is a regulatory obligation to decommission and so that is where the operator begins. The aspiration has to be, as Wendy said, to minimise the cost of doing that, not to not do it.

David Duguid: If you will excuse me, ironically I have to go on to CCS. I am going to an all-party parliamentary group meeting on CCS, if the Chair allows. Thank you very much.

Chair: That is good timing.

Kirstene Hair: Scottish Carbon Capture and Storage has claimed that oil and gas infrastructure that could be used for CO₂ transportation and storage has been decommissioned. How do you assess if the infrastructure could be reused before approving a decommissioning plan?

Hedvig Ljungerud: If I start from the OGA’s point of view, it might be helpful to say quickly what we do on CCS. The majority of the time MER UK and the CCS interests have been very closely aligned because we want to extend the life of assets, which means that they remain available. I will rattle through them. We have five roles. We license the actual gas storage; we keep the public register of such licences; we approve cessation of production where we ask operators to show that they have thought about this; and down the line we are a consultee to OPRED in the decommissioning programme on whether operators have thought about this and whether there is potential for reuse. Finally, and I take this as the most important bit, we work very closely with the Government, who are in the process right now of looking at all of this in response to the CCS taskforce report, which had a lot of recommendations including looking at strategic assets and getting a better overview from that.

When the Government’s report comes out on that, on which we will be very happy to work with them but they very much own it, I think we will all have a much clearer sense of what the overall policy will be. That is an introduction on how we work with that. I do not think that at the moment there is an overwhelming situation of lots of potential being lost at all but
it would be welcome to have that report coming out from Government where we will have a clearer sense of where the policy will be.

Q311 Kirstene Hair: Does anybody else want to come in on that?

Pauline Innes: I wonder if it is worth us clarifying the approval process and decommissioning process to see how consideration and reuse might fit into that system. Once a field reaches the end of its economic life, the operator will have a discussion with the Oil and Gas Authority and they will agree a cessation of production date. At that point, or a year or so in advance of that, we will begin decommissioning discussions with an operator. We will say, “We understand you are approaching cessation of production and we have an automatic inbuilt assumption that that then means moving on to decommissioning”. Before that decommissioning process begins, the Oil and Gas Authority is looking at the same time in parallel with the operator to say, “Are there any reuse possibilities?” If there were to be a reuse possibility, we would not expect to be having a discussion with the operator about decommissioning because the asset would be being used for something else.

I think it is fair to say that in the last year or so we have had a number of potential reuse discussions in this space. We are at the stage on a number of assets where there are potential reuse opportunities, not just for CCUS but for alternatives. We are working through a process to say what are the considerations we need to put in place in order to say, from my regulatory responsibilities, “This asset is not going to be decommissioned, I understand why it is not being decommissioned. It has another use. It is no longer an oil and gas installation; it is something else and, therefore, I have no requirement or regulatory responsibility to ensure decommissioning of it.”

Q312 Kirstene Hair: The previous panel said that not enough work has been done to see how CCS overcomes some of the challenges that are claimed. How do you make those specific evaluations that you were suggesting when the technology like CCS is still very much evolving?

Hedvig Ljungerud: We advise on the reuse side. It will be an ongoing discussion with the operator and the industry. We start when we look at the cessation of production and as part of our checklist we measure all the various things that are being considered. That is one of the things we look at. If we think there might be a potential, we will ask the operator but we will not promote and push in the sense that, given the economics, there has to be some impetus from industry. It will not come out of the blue as a surprise when the decommissioning programme lands that there might be a thought about this.

Before a decommissioning programme, we establish a few criteria that we try to look at, like the technological, commercial and if there is CO₂ available for a project. I would not say those are set in stone. We are thinking about what the obligation will be in the wider energy transition and all the various transition aspects of our work, but it will never come
as a surprise. We do not see ourselves having a massive promoting role, as we do in some where we are out there actively pushing it. That is why we are looking forward to seeing the policy that will be set out in the forthcoming report because then we will have a stronger sense.

_Wendy Kennedy_: Once we get the report, OPRED will be the regulator of carbon capture and storage offshore and all the regulations are in place. We are absolutely ready to go. In fact, we did have some projects that came to us but they fell through for commercial reasons. We are good to go when they come. We just need to get some commercial projects that come to us for approval.

_Q313 Chair_: Are you confident that what you have in place will satisfy concerns about CCS?

_Wendy Kennedy_: All the environmental regulations are in place, so we can assess them. We have expertise to do that, so we are good to go if we just get a commercial project that anybody wants us to approve.

_Hedvig Ljungerud_: The economics are still very difficult and that is why it is so important that the project has to be commercial and there has to be a drive from industry to do it. There would be a cost. We would not want to do it, and I am pretty sure OPRED would not want to do it, just keep assets going at a high cost to the operator without any—

_Q314 Chair_: Is there a window that might close for us in advance of getting an opportunity from the North Sea? Ms Ljungerud, you said you are keeping this in place at cost. Will that window close if we do not take advantage soon?

_Hedvig Ljungerud_: As I see it, it is slightly the other way round in that we should not let any windows close but the costs will need to come down for it to be commercial scale. I am looking over at my colleagues to make sure I don’t overstep. I think that is part of what the Government have set out. They want it to be deployed wider scale if the economics and the costs can come down. But I look to Wendy to Pauline to make sure I have not—

_Chair_: They seem to be agreeing with that, so we will move on.

_Q315 Ross Thomson_: Scottish Carbon Capture and Storage has argued that enhanced oil recovery could help deliver the maximising economic recovery strategy by increasing production while financing the development of CO₂ storage, but argue that this approach is not being supported by the OGA. What role does the OGA see EOR playing in maximising the return from the North Sea?

_Hedvig Ljungerud_: We see it as potentially playing quite a big role. We have an informal target of wanting to sanction 250 million barrels as part of the 3.7 billion barrels. However, we would not necessarily favour any one method and probably if anything polymer might be a front runner in a lot of projects rather than CO₂. It would be on a case-by-case basis for
what is the most appropriate. As before, we will work with industry. We are doing a lot now. We had a forum last week but the drive has to come from the people who are putting the money in. We see a big role for it. The link with CCS is not necessarily quite as strong as it is sometimes presented. It is if it is CO\(_2\) but you would also have salt water or polymer as two of the big possible sources.

**Wendy Kennedy:** What makes EOR with CO\(_2\) economically attractive is the carbon price. That is what could swing it and the carbon price is going up so it might become more attractive. The problem with using CO\(_2\) for enhanced oil recovery is that while you produce the extra oil and gas you also produce some of the CO\(_2\) back and you have to work that into your EU ETS returns and things. Again, the economics are quite hard to see.

Q316 **Deidre Brock:** Can you expand a bit more on the environmental regulations covering enhanced oil recovery? You seem to suggest that more CO\(_2\) is trapped and released by burning the additional CO\(_2\) that is being extracted.

**Wendy Kennedy:** No, we are talking about putting CO\(_2\) down the reservoir in order to produce more oil and gas. The problem is that when you start more CO\(_2\) comes out again and then you have to account for that under the EU ETS and that is quite expensive.

Q317 **Deidre Brock:** But environmental regulations are keeping on top of that?

**Wendy Kennedy:** It would just be our standard we regulate on, so you would do an environmental statement for the work that you are doing. You would need an environmental consent to do the EOR and we would issue that and we would look at all the different aspects of what you intend to do and if you intend to capture that CO\(_2\). It depends what the project is, but the regulations do cover all of that.

**Deidre Brock:** They do? Okay. Thank you.

Q318 **Chair:** Ms Kennedy, are you satisfied with the industry’s environmental performance in recent years?

**Wendy Kennedy:** Yes. We have seen a huge improvement in performance over the last 10 years; all emissions and discharges are on a downward trend. Of late we have not really seen any particular issues. Environmental performance has stabilised, so we get some annual variation year on year but nothing that stands out. We have seen absolutely no correlation with environmental performance and the drop in oil price and no correlation between the environmental performance and the ageing infrastructure that we now have in the North Sea.

Q319 **Chair:** I am looking at some of the things that are produced by your colleagues sitting next to you in Oil & Gas UK and we have 520 unplanned releases of oil and chemical to the marine environment and it has been increasing since 2015, they say.
**Wendy Kennedy:** We have absolutely no de minimis level on this. If you drop 2 milligrams of oil into the sea, you have to report it to us, so the numbers are quite stark. But taking all the chemicals and oil that has been spilled into the sea in total from 2015 to today’s date would not fill an Olympic-sized swimming pool.

Q320 **Chair:** It was 3% of all of the UK’s total emissions from oil and gas and where it is good news, it is a 1% decrease to 15.6 million tonnes from 2017. “Total greenhouse gas emissions from the extraction of oil and gas in 2017 was 15.6 million tonnes, a 1% decrease from the previous year.” You are maybe disputing those figures?

**Wendy Kennedy:** I have to say in Oil & Gas UK’s defence, they use our figures, so I am guessing they must be there but I am not familiar with that figure.

Q321 **Chair:** You are quite satisfied that we are making progress when it comes to decreasing?

**Wendy Kennedy:** Definitely, yes, and that we have managed to maintain despite the fact that the oil price has come down. The other thing the industry is doing is it has great production efficiency targets and if you are keeping things in the pipe and keeping facilities moving at their optimal level then—

Q322 **Chair:** It is not just down to lower production in the course of the past couple of years?

**Wendy Kennedy:** No, I don’t think so because it is measured against production levels and things.

**Chair:** On that positive note, thank you all very much for coming to speak to us in a very interesting and fascinating session. If there is anything else you feel you could usefully contribute to this inquiry, please give us any further submissions. Thank you for attending today.