HOUSE OF COMMONS

Public Accounts Committee

Oral evidence: Ministry of Defence nuclear programmes, HC 1028

Monday 2 July 2018

Ordered by the House of Commons to be published on 2 July 2018.

Watch the meeting

Members present: Meg Hillier (Chair); Sir Geoffrey Clifton-Brown; Chris Evans; Luke Graham; Stephen Morgan; Gareth Snell.

Sir Amyas Morse, Comptroller and Auditor General; Adrian Jenner, Director of Parliamentary Relations, National Audit Office; Jeremy Lonsdale, Director, National Audit Office; and Richard Brown, Treasury Officer of Accounts, HM Treasury, were in attendance.

Questions 1–128

Witnesses

I: Ian Booth, Chief Executive, Submarine Delivery Agency; Julian Kelly, Director General, Nuclear, Ministry of Defence; Stephen Lovegrove, Permanent Secretary, Ministry of Defence; and Vice Admiral Radakin, Second Sea Lord, Royal Navy.

HOUSE OF COMMONS

Reports by the Comptroller and Auditor General

The Defence Nuclear Enterprise: a landscape review (HC 1003)

Ensuring sufficient skilled military personnel (HC 947)

The Equipment Plan 2017 to 2027 (HC 717)

The United Kingdom's Future Nuclear Deterrent Capability (HC 1115)

The construction of nuclear submarine facilities at Devonport (HC 90)

Management of the Trident Works Programme (HC 621)

Control and Management of the Trident Programme (HC 27)

Trident Project (HC 287)

Examination of witnesses

Witnesses: Ian Booth, Julian Kelly, Stephen Lovegrove and Vice Admiral Radakin.

Chair: Good afternoon and welcome to the Public Accounts Committee on Monday 2 July 2018. We are here today to look at the defence nuclear enterprise on the back of the NAO's Landscape Report. It is not a Report that assesses value for money or makes a judgment; it simply looks at what is going on in the defence nuclear enterprise area. The NAO last looked at this in 2008, and the Public Accounts Committee looked at it a year later, so it is some time since this Committee has had a really good delve into what is happening with the nuclear enterprise in defence. We are very alert to some of the challenges and the large amounts of money, which account for 14% of the entire defence budget. A rounding error in this area, gentlemen, potentially has a big impact on the rest of the MOD budget.

We see this as our first stab, but I warn you now that we will look in more depth at some areas of this, some of which may be determined by your answers today. You can think about that. We are obviously concerned about looking at what is happening with the new submarines, which Parliament has now voted on a couple of times, and see where that is going.

Back then, we were concerned about the management and leadership of this sector. Obviously, we have now got Mr Kelly and Mr Booth in position, but only for a short period of time. It has taken a long while to get here.

We are hearing bits and pieces of good things, but it is very early days. We really want some candour from you about what the challenges are ahead, how you are managing the money and how we are going to make sure we keep this on track.

I am going to introduce our witnesses, and then I will hand over to Sir Geoffrey Clifton-Brown, who will kick off. We have Julian Kelly, who just over a year ago was appointed director general nuclear for the Ministry of Defence. You are the first incumbent of that position, Mr Kelly. Mr Stephen Lovegrove is the permanent secretary at the Ministry of Defence, Vice Admiral Tony Radakin is the Second Sea Lord in the Royal Navy, and Ian Booth is the chief executive of the Submarine Delivery Agency, having come from the private sector. He has been there nine months. Welcome to you all.

Q1 **Sir Geoffrey Clifton-Brown:** Good afternoon, gentlemen. Mr Kelly, you are one year into a three-year appointment. Is that correct?

Julian Kelly: Well, I am one year into the appointment. I do not think, unless Stephen wants to tell me otherwise, that I have a fixed term.

Sir Geoffrey Clifton-Brown: You don't have a fixed term?

Julian Kelly: No.

Q2 **Sir Geoffrey Clifton-Brown:** When do you expect to appoint your commercial director, and what other commercial appointments are you short of in your organisation?

Julian Kelly: The key commercial director appointment we are making is actually in Ian's team. They recently interviewed for that post, and I think they have offered the job to someone. They are no doubt in the final knockings of agreeing terms and conditions and the timing. That is the key senior appointment in the Submarine Delivery Agency. In my own organisation, we have just appointed someone at a slightly less senior level, but none the less the key senior commercial position, to manage the contract with the Atomic Weapons Establishment. They are arriving in the next month or two.

Q3 **Sir Geoffrey Clifton-Brown:** Maybe you can cover this or maybe I will ask Mr Booth, but what shortages do you have in both organisations in terms of the commercial staff you would like to recruit?

Julian Kelly: I will let Ian talk specifically about the submarine delivery side. In my own organisation, the key gap has been to strengthen the commercial team facing off to the Atomic Weapons Establishment. It is not, and nor does it need to be, a large team. It is the person I have just mentioned plus about five other people we are appointing to strengthen an existing team. The key thing we are focused on is the submarine side, which is managing a much larger bunch of contracts. I might let Ian talk about that.

Q4 **Sir Geoffrey Clifton-Brown:** Welcome, Mr Booth. You have appointed a commercial director, which is a good thing. How many more people will he need to support him in your organisation?

Ian Booth: My answer is similar to Julian's: we do not need a large number of people, but we need the right skills. We already have several good contracts officers, who are excellent at negotiating and managing contracts. The area that we particularly need to focus on is supplier development. To deliver the whole programme, we need our supply chain to be much more efficient and effective, and much more transparent, than we have seen in the past.

The commercial director we have recruited has a particular background in developing suppliers to better performance. We are now looking to put around that person a small number of extra contracts officers, but also people who can do supplier development at all levels in the supply chain, so that it is not just our three tier 1 suppliers that are performing well but we perform better at tier 2, tier 3 and tier 4. We are particularly keen to make sure that we have a resilient supply chain that will be here for the duration of the programmes, that we can see their performance very transparently, and that the incentives flow all the way down so we get really good performance out of the whole supply chain, not just the tier 1s.

Q5 **Sir Geoffrey Clifton-Brown:** It seems as though the programme is slipping a bit. Can you describe to us whether you think it is on time, despite the fact that you do not have these key members of staff?

Ian Booth: Which programme is that?

Q6 **Sir Geoffrey Clifton-Brown:** The Dreadnought programme.

Ian Booth: Yes, the Dreadnought programme has moved slightly, but that is not actually a commercial issue. We have seen an issue of design data release into production, which is slightly behind where we would have preferred it to be. That is actually an engineering and project control issue, which we are working on very closely with our two key suppliers. Actually, our counterparts in the US are having a very similar problem—they are seeing the same issue. The challenge in the early phase of the programme is getting the mature design flowed into production such that we can go to the tier 2 and tier 3 supply chain to buy the componentry—and the same in the detail shops in Barrow and Derby.

Q7 **Sir Geoffrey Clifton-Brown:** So the slippage in the Dreadnought programme has nothing to do with the slippage in the Astute programme?

Ian Booth: No, there is no direct connection between the two.

Q8 **Sir Geoffrey Clifton-Brown:** Back to you, Mr Kelly. On value for money for the taxpayer, how do we know that the sorts of figures you are predicting are reliable?

Julian Kelly: As we put together the costs, we look at how we have performed historically. The challenge is then how much we can beat the way we have historically performed, be it the productivity in the yards, the purchase of materials, the overheads. We are in discussion with the only counterpart against whom we can benchmark ourselves, the US, as a way of challenging ourselves. We need to make sure we have the teams who have really got a grip of the cost on a day to day basis with our suppliers. So one of the other areas that we are looking at strengthening in both Ian's team and to a lesser degree on my side—on the weapons side—are the cost control teams who can properly get under the skin of the costings we have and the invoices that we get to make sure that scheduling and cost is as we would expect it to be.

Q9 **Sir Geoffrey Clifton-Brown:** You have very helpfully raised something that I was going to ask about: cost comparisons. You get not only the information that is in the public domain, but you get other private information from the Americans and presumably the same thing from the French. Between the three of us we can get some fairly good cost comparisons as to whether we are doing a good job or not.

Julian Kelly: To some degree. I would say that is easier with our US colleagues than it is with our French colleagues because there are some things we do not share or discuss with our French colleagues. Clearly, for particular elements of these programmes there are some things that the US is particularly sensitive about and there are some elements where you just cannot do a straight comparison because what we are doing is different. But, in as much as we can, we explore in particular with the US.

Q10 **Sir Geoffrey Clifton-Brown:** You have got quite a challenge. The thing is going to cost some £50 billion over the next 10 years. You have already made efficiency savings of £3 billion. You have another £2.9 billion to find. You have already drawn down on two lots of contingencies. Is this really doable?

Julian Kelly: Do I think the programme is doable?

Q11 **Sir Geoffrey Clifton-Brown:** No, is the cost doable within that costing? Are we going to start on this thing and then find that it overruns and overruns?

Julian Kelly: Let us just take the Dreadnought programme. The Government announced two years ago that they were setting aside £31 billion plus £10 billion of contingency. Sat here today we are still targeting delivering the programme for £31 billion. I do not want to guarantee you today that we will definitely do £31 billion. That is a probabilistic estimate. That is why the Government have still put to one side the £10 billion of contingency. There is a lot of risk, including assumptions about inflation, earnings rates, foreign exchange, all of the things that are not within our control, but we are absolutely working with our suppliers to work out reasonably what this should cost. We still think it should be £31 billion. We are putting in place the teams to manage this as hard as we can and getting an agreed schedule backed off with a resource plan that is completely transparent between us and our suppliers, so that at the end of all of this we can definitely show we have done the best job we can for taxpayers. But it is a very big long-term complicated programme, so there is clearly risk.

Q12 **Chair:** One of the bits of evidence we have had has suggested that in the past there has been an issue with a lack of clarity by the Department in specifying certain contract arrangements. Jag Patel highlights that clarification requests submitted by contractors is indicative of the quality of this written-down requirement, and the larger the number of clarification requests the poorer the requirements, and then of course contractors can charge more for the variation. How are you watching that that is being reduced? Do you recognise the problem that he has described?

Julian Kelly: Yes. If you look historically at nuclear programmes—not just in this country, the same would be true in France and in the US—the great lesson has been, particularly if you look at failures over the last 15 years or so, in beginning the work of building things before we have really nailed the design and the requirement. When you look at some of the history of the things covered in this Report, that is exactly the trap that was fallen into.

Let us take the Dreadnought programme: effectively, the benchmark that both we and the US have established is that if you have not designed one of these submarines to the point of 80% to 85% fidelity, you should not begin serious construction work. We are now beginning serious construction work, having got the design fidelity to the 80% to 85% level.

We still have a couple of issues we need to resolve, but we are confident we can do so and they are not material to the construction work that we have started. Then we just have to absolutely manage the requirement and the scope so that we are not materially changing the design as we go through the build. That is the simplest lesson; that is what we have learned.

Q13 **Chair:** So it is not rocket science.

Julian Kelly: It is not rocket science—even if it is.

Q14 **Sir Geoffrey Clifton-Brown:** The Chair has very helpfully drawn attention to that evidence from Jag Patel. He says, "The problems associated with letting uncontested, single-source development contracts like that for the Dreadnought nuclear submarine programme are not only limited to the usual delays". It is the single-point contracts with your four big suppliers. We have a little bit of evidence in 3.19 on page 42, but can you describe what you have been doing to tighten up on those contracts with those single-point suppliers?

Julian Kelly: I will start and then Ian may want to elaborate. First, as I have said, we need to nail the requirement in the way that I have just said. That is part of our becoming a better customer, which is a prerequisite if we are really going to get suppliers to perform. The second thing is that we have been looking at how we improve the governance and relationships with the suppliers so that there is proper and appropriate transparency between the MoD, BAE Systems and Rolls-Royce in particular on the Dreadnought programme, and that we have transparency on schedule and what our cost estimates are, so we have a proper basis of fact for the discussions we are having.

The next thing is strengthening our own team. We have discussed that a bit in the earlier questions. We are increasingly looking at how we tighten the contractual arrangements so that over time, progressively, as the whole programme matures, we move away from simple cost plus to target cost incentive fee contracts and indeed, where appropriate, fixed cost. You can get there, particularly as our understanding and the supplier's understanding of the programme matures and develops.

We are seeking to do that in a phased way, which is why for the last round of contracts we signed in March we have not just said, "We are contracting for the whole boat," but "We are contracting for the programme we can see and understand, and we know what our major next contracting point is, and we are being absolutely clear with our suppliers how we are working toward that point and what we are seeking to get out of them." Ian may want to elaborate.

Q15 **Sir Geoffrey Clifton-Brown:** Do you want to elaborate on that, Mr Booth?

Ian Booth: I absolutely support what Julian said. We are approaching this issue on two levels. One is with the individual companies, the four main suppliers we are dealing with, exactly as Julian said: getting transparency of costs and schedule, really clear project controls and reporting. That involves putting our own people out on supplier sites in greater numbers than we have before, with the right skills to be able to do the analysis and work with the suppliers to get that honesty and transparency.

Q16 **Chair:** Are those people all in place now?

Ian Booth: Not all of them. We have a recruitment plan over the next three years to strengthen those teams. We are also looking with each supplier at their productivity, or what I would call productive utilisation. That is, "When we pay for an hour's work, how many minutes of real work do we get?" With all our key suppliers, we need to increase that productive utilisation, because fundamentally a lot of our money goes into man hours, so we need to get good value for money from each man hour. Effective man hours also mean that schedules get delivered on time—or they are a big contributor to that. We are pushing that. With each supplier we are trying to get to a should-cost model, so that we and they jointly understand what each aspect of the work should cost, what it costs at the moment, and where there are improvements against international benchmarks. If you look at the Dreadnought programme, we really need to bring it up a level above that, so that not only is each supplier performing well, but we get the suppliers performing well together.

We have set up the Dreadnought Alliance, which is enshrined in a joint programme office. We have a managing director who runs the joint programme office. That gives us a joint schedule, so that both Rolls-Royce and BAE are working from the same schedule, at quite a low level of interdependency between their activities, and so are the MoD, because of course we supply into Dreadnought the combined missile compartment and quite a lot of Government-furnished equipment.

In effect, all three of us are working off the same plan and the same data to a high level of transparency, and are able to take decisions between the three parties for the best interests of the programme. To incentivise that, we have a small incentive for each of the suppliers. There is a 2% incentive on schedule, where if the two suppliers and ourselves work well together, they can earn the 2% by hitting milestones. If we do not hit the milestones, neither of them get it. It is only a small percentage, but it is still a large amount of money in the scheme of something as large as Dreadnought. That is designed entirely to incentivise joint working at this phase.

Q17 **Chair:** Did you learn this from the Aircraft Carrier Alliance? From the way you described it, it sounds like it.

Ian Booth: Yes, what we have tried to do is bring the best lessons out of the Aircraft Carrier Alliance, previous submarine programmes that have worked well or not, the Olympics and Terminal 5. We have tried to draw the best lessons, because every individual project has its own characteristics. We tried to tailor it for that.

The next phase—the DP2 phase—of Dreadnought is all about getting that joint alignment around the schedule, the joint working, the sharing and the transparency. If we can get that to work well during DP2, that gives us a great foundation for what Julian has talked about—a much more heavily incentivised contract for DP3 that would place much more risk with the supplier chain to deliver. Their earnings would be related to that.

The next phase is really about getting the trust, transparency and openness and, I have to say, some runs on the board. It is very difficult predicting the outturn of a cricket match until you have a few overs under your belt, and that is what we are trying to do.

Q18 **Sir Geoffrey Clifton-Brown:** To follow up on the Chair's question, clearly the best way of knowing what your supplier is up to is to get people embedded in there. What is the timetable for that, and when would this Committee, or the taxpayer, be able to see whether or not you are on track financially? Is it, say, at the end of DP2?

Ian Booth: The end of DP2 is a clear milestone. We are focusing very heavily on getting a really good performance and a stable, predictable performance before that point. Otherwise, it would be very difficult to contract for DP3.

In terms of putting people on the ground, we already have the alliance offices up and running in Barrow. It has people from all three organisations in it. I was there last week on Thursday, meeting the team and discussing it. There is a genuine feeling of coming together of all three parties to a good goal, and a very clear aim of all three parties to, by the end of DP2, understand our performance, what we need to do to improve it and what risks we are carrying jointly. It is a really crucial two and a half to three years of getting there on DP2.

Q19 **Sir Geoffrey Clifton-Brown:** There is one bit of this jigsaw, Mr Kelly, that you do not have such tight control of—the missile itself, the Trident missile programme and, particularly, its update. Are you doing a similar sort of exercise with the Americans, having somebody embedded with the Americans so that you know exactly what they are doing at any particular time?

Julian Kelly: Yes, we have a very close relationship with the US. On the missile side, we have a team based in the Navy Yard in Washington with the US navy team responsible for the missile, so we are talking to them each and every day about where they are in their plans, both current and slightly more forward looking, for the Trident missile and scheduled projections, cost projections and so on.

Q20 **Sir Geoffrey Clifton-Brown:** So is the only variant for a missile likely to be exchange costs? Are they on schedule at the moment?

Julian Kelly: Clearly there are variants for the contracts they actually negotiate with their supplier, the delivery of their supplier and decisions they make about quite the nature of their future life extension and renewal programmes. They are on track with the work they currently have agreed and committed to do. Clearly, even where there is variation there, the effect on us is much more marginal than the effect on them, given we only take a reasonably small share of the total cost; but we do track it.

Q21 **Chair:** I wanted to ask Mr Lovegrove what the impact has been of the cost challenges on the rest of the Department so far. Obviously already some contingencies have been drawn down from Treasury, but you have got quite a commitment to keeping costs down in this area, so what has the impact been so far, and what are the risks in the future, if Mr Booth and Mr Kelly do not manage to deliver what they have set out to do?

Stephen Lovegrove: Yes, you are obviously right; it is a very large component of our equipment programme. Most of it is in the equipment programme, so it is a good £44 billion of the £178 billion. The next largest component is in the information segment, broadly defined, which is about £23 billion, so it is very big—

Chair: So it is about a quarter of your—

Stephen Lovegrove: It is about a quarter of our entire equipment programme. It is not, in a sense, ring-fenced in financial terms, although some of the things that we have done by setting up the SDA and setting up the nuclear delivery body, which, now, Julian runs, effectively give a degree of coherence and unity around that financial management, which it did not have before; so I feel much more comfortable that it is being collected in one place and we can manage it.

Q22 **Chair:** But, as you say, it is not ring-fenced, so an overspend here—obviously there is the Treasury contingency that, already, some of which has been drawn down, but when can that be drawn down, and have you got red lines at the Treasury, or when does it impact on the rest of the MoD's budget?

Stephen Lovegrove: I will hand over to Julian in a second: there are two bits of contingency, in fact, so there is the Treasury contingency, and we hold a piece of contingency within nuclear. You will remember from the equipment programme, we have a centrally held contingency of £6 billion and about £1.1 billion or £1.2 billion of that is, effectively, for us, ring-fenced for nuclear. We have not drawn that down yet, but it is there as a first—

Q23 **Chair:** But what has been drawn down so far has come down from the Treasury, hasn't it?

Stephen Lovegrove: That is correct; so £600 million has come down from the ring-fenced contingency, which Treasury holds; and of the remaining £9.4 billion, that will be subject to discussions with Treasury at the time when it is needed. There are not, to the best of my knowledge, anyway, rules and procedures and protocols for drawing it down.

Q24 **Chair:** What is puzzling is which bit comes from the bit that you have already got ring-fenced within your budget—and can that be un-ring-fenced and used for other things in the MoD; and whether Mr Kelly is really as open as Mr Lovegrove has described. The Treasury just says, "Come in, Mr Kelly, let's have a chat. Here is some money." I am sure it is not as simple as that. There must be some parameters. One would hope there are some parameters. As a former Treasury man I am sure you would not have just given it away—

Julian Kelly: The only gloss I would just put is the Dreadnought money is now ring-fenced, because we have drawn down contingency from the Treasury to offset an MoD budget, so as part of that we have agreed the Dreadnought funding is ring-fenced, so that I cannot use the £600 million to offset something else within the nuclear programme. It is for the Dreadnought programme.

Stephen Lovegrove: But of the £1.1 billion that we are holding within the Department—

Chair: You could un-ring-fence that.

Stephen Lovegrove: Theoretically, with the agreement of the Secretary of State, we could use it for something else. I think the chances of us doing that are very low. This is avowedly the No. 1 priory of the Department and we are very conscious of the need to invest at the right time in this programme in order to make sure that we do not build time delay into building up the supply chain, and all the others things, which actually would be value for money-destructive. While, theoretically, there is a fungibility between those bits of MoD-held contingency, in reality it is very unlikely we would do that.

Chair: You are unlikely to do that, but you could, if you chose, spend it elsewhere. There is absolutely nothing to stop you doing that.

Stephen Lovegrove: With the agreement of Secretary of State, that £1.1 billion could be repurposed, but at the moment we have drawn a ring fence around it and I see no plausible likelihood of that happening.

Q25 **Stephen Morgan:** The NAO Report nicely highlights the dependency on a small number of specialist contractors. Of course, that brings challenges, which we have touched on so far. I understand that the enterprise is supported by something like 1,500 contractors. I just wonder how you assess the financial health of those contractors and their viability, given that they are a key part of the nuclear supply chain.

Ian Booth: Your point is a really good one. We are very concerned to make sure that we have continuity for a long time. It is absolutely correct that some of the suppliers are small. We are currently undergoing an exercise with BAE Systems and Rolls-Royce of working through their supply chains and measuring and quantifying them so that we absolutely understand who the suppliers are, what their state is and what the future plan is with them. When we assess a supplier as a concern, we will go and work more closely with them to make sure that we understand what to do there. We have worked previously in the sector with other specialist suppliers to make sure that we sustain them in good health. We have to make sure that we spot people ahead of time and do that.

Q26 **Stephen Morgan:** If there were concerns, what actions would you take?

Ian Booth: It would depend on the situation. I would like to think that if they were a valuable supplier we would do the right things to keep them in the business. Equally, if a supplier had decided not to continue in that line of business, we would have to find alternative suppliers. But it is very much a case of doing whatever suits the situation.

We had a good example of that recently working with Sheffield Forgemasters, which is a critical supplier to us. We and our three tier 1 suppliers that use that particular supplier—BAE Systems, Rolls-Royce and Babcock—have all worked extensively to support that particular supplier and to make sure that we keep the continuity of supply. Your point is absolutely right, and I expect that will be ongoing activity for the duration of this programme. The next year is the one in which we will get a much clearer view of where we should worry and where we should focus.

Q27 **Stephen Morgan:** Mr Kelly, is there anything you want to add?

Julian Kelly: No. That is exactly the process we are going through, be it on the submarines sides or on the weapons side. We have examples of firms that have folded or gone into administration, where we have had to put in place contingency plans and move supply elsewhere, so this is not unpractised.

Stephen Lovegrove: It should be said that what has been described is obviously the kind of activity that we try to have right across the equipment programme, but I am sure we can always do better on that. We are trying to improve our strategic supplier information systems all the time, because there are moments at which it does not quite work.

Q28 **Stephen Morgan:** In terms of Britain leaving the European Union with Brexit, what would you envisage that having an impact on in terms of the supply chain?

Julian Kelly: Clearly it depends what the trade arrangements are. We import material from some EU countries, so that may at some level affect prices. We are working with our suppliers on what will happen with chemical regulation, for example, and on the arrangements for the UK more generally, but they will clearly impact our world. It is just about working those things through, largely through our tier 1s but through some of the tier 2s as well, and remaining in close contact with BEIS, for example, about what their plans are and how they will affect us.

Q29 **Stephen Morgan:** So you are doing assessments on that and thinking through the different options?

Julian Kelly: Yes.

Q30 **Sir Geoffrey Clifton-Brown:** How can you make sure that small suppliers are treated fairly? That seems to be a theme of this Committee. How do you make sure that your main contractors pay smaller contractors on time, for example?

Ian Booth: We are looking to set up a common approach across our supply chain. When my new commercial director arrives, one of their responsibilities will be to set up a framework under which all our contractors in the submarine delivery area are treated in an appropriate way. We would like to set standards, just like the aerospace or car industries do, where there is almost a mandated approach to the supply chain at all levels, including on the transparency of data and performance reporting, but also on quality standards and payment terms and things like that. We intend to adopt the best practice from those areas and to make sure that that flows through.

However, that is not a short-term plan; it will take us some years to roll out. I do not want to reinvent the wheel. I will take whatever the best is in defence and adapt it for other sectors that do well and then try to roll that out. We have to remember that some of our suppliers for Dreadnought today will still be supplying spare parts into Dreadnought in 50 or 60 years' time, so we need to set a standard and then hold to it for a long time.

Q31 **Sir Geoffrey Clifton-Brown:** I am going to take you up on your answer, and I will start my aggressive bit, if you like. You said "almost" and "years". If I were a small supplier to, say, BAE Systems, which is one of your major single-point suppliers, I would be shuddering at your reply. Why can't you adopt that best practice that you were talking about much more rapidly? You also said, "almost a mandated approach". Why can't it be mandated? If something is in the code of good practice for prompt payment, it should be part of your contract, surely?

Ian Booth: On prompt payment, absolutely. I think the intent of what you and I are both asking for is the same. However, we have to be cautious that we do not put something in that is different from the rest of defence.

Sir Simon Bollom is driving similar improvements through the rest of the supply chain. I will not be able to do a bespoke submarine solution. If, say, Simon is buying ship parts and I am buying submarine parts, we would want a common approach. We will do the very best that we can. Hopefully, anything good that we develop for submarines will work in the rest of defence, and vice versa, but we must make sure that we have a common defence approach to our supplier base.

Q32 **Sir Geoffrey Clifton-Brown:** Mr Lovegrove, when can we expect this to be put into practice right across your procurement budget?

Stephen Lovegrove: I am afraid that I don't have an answer for you on that, but I am very happy to take that away, speak to Sir Simon and write to you.

Q33 **Chair:** That potential precariousness of the supply chain brings me to one other point, which maybe Mr Lovegrove should have the first stab it. If and when Brexit happens, we don't yet know what will happen with the customs union—there is obviously a key meeting on that this week—but that could have an impact on items in the supply chain and for the supply chain businesses coming through.

Where is the biggest risk for the submarines and for the general nuclear enterprise from that threat to the supply chain—for those individual widgets, if you like, coming in across the UK border with the EU—if we don't have a customs union? Is that a threat?

Stephen Lovegrove: In any given company of any given size, there could be multiple threats and multiple opportunities.

Q34 **Chair:** As a corollary, the other example that often comes up is the car industry, for which some people say that could be a real challenge. I am not a defence expert, but if there will be a challenge with cars, surely there will be a challenge with parts for the nuclear enterprise.

Julian Kelly: If the car industry is working to incredibly tight time margins, the speed of things coming across the border therefore becomes absolutely critical. We are not currently working to those kind of time margins.

Q35 **Chair:** So you mean that you have some time to plan?

Julian Kelly: There is at least some time to plan. However, there are definitely cost risks and there are definitely areas where we will just have to work through all the regulatory approvals in place, because of some of the materials that we are dealing with. Those are the things that we are just working through. I cannot sit here and tell you—in fact, I am not sure I would want to in a public forum, given what we are talking about—that it will be widget X or widget Y.

Q36 **Chair:** We have some idea of what you are talking about. Presumably, you are not 100% confident at this point that you have it all nailed, because you can't be—

Julian Kelly: Because you can’t be until some of those other details emerge.

Q37 **Chair:** Mr Booth, on the same point, for submarines, do you have any particular worries?

Ian Booth: We have a number of suppliers who have raised concerns about material standards, exactly as Julian said. The most common concern right now is material standards and the changing of those, and any impact that could have on their ability to supply to us.

Q38 **Sir Geoffrey Clifton-Brown:** With Carillion ringing in our ears, do you have a contingency for all those 1,500 small suppliers that Mr Morgan has talked about? If one of them goes out of business, can you get another supplier to fill that role?

Julian Kelly: I cannot say we currently have a list of what the contingency plan is for all 1,500—the picture Ian described of us mapping properly what that supply chain looks like. I will not quote a particular example, but in the last few months a critical company providing a critical piece of equipment to us has gone into administration and we had to find, very rapidly, an alternate supplier, which we have successfully done, while also agreeing the arrangements by which the existing supplier, which went into administration, can continue to see us over a gap.

So we are working through the work that Ian described—it is not completely done. Equally, I am not sat here going, “When we have identified a problem, we are unable to deal with it.” We have shown that we are able to deal with it.

Q39 **Stephen Morgan:** Earlier, we briefly touched on performance management. I was concerned to see poor performance historically, but there have been some improvements more recently. How confident are you that they will be sufficient and sustainable?

Julian Kelly: I would say with all of our suppliers in the last two or three years—let’s put that timeframe on it—we have seen really material improvements in performance. I think you are referring to those. My basic takeaway is that you cannot afford to be complacent. If you ask me how confident I am, I do not want to start projecting all the way into the future because my job and Ian’s is to ensure that we have thought through the plan for next week, the strategy for the week after that and plan B if that does not begin to work.

Our job is not to leave our suppliers feeling that we are incredibly relaxed and confident. It is about recognising what they have done and being absolutely fair and honest about that, but really continuing to find fair ways of keeping them honest—that is best phrase I would use. I do not want to make out that I am confident 10 years out. I want to see the same performance next week and the week after that, and to have thought through what the heck our contingency plan is when the current plan A starts to falter.

Q40 **Stephen Morgan:** Help me to understand why the new alliance fell short of your initial aspirations and ambitions.

Julian Kelly: I do not think the new alliance has fallen short. We literally started the alliance on 1 April. We saw problems in our supply chain over a period of time—even they ebbed and flowed a bit over the last 10 or 15 years. Credit to our predecessors for the work they did over 2014 and 2015 to really help drive improvements in places like Rolls-Royce and AWE. We have seen a change in leadership, certainly at BAE Systems, Rolls and AWE. I credit the people who have come in for really showing the right spirit and commitment to us, and evidencing it through decisions they have made to change personnel—and, indeed, real tangible improvements in performance and actually in their products.

But there is no room for complacency. It is about being on top of what is really happening at the yards and factories day by day, with the people embedded there really seeing what is happening, testing and prodding whether the MI we are seeing is true, and not waiting three or six months before discovering there is a problem but being on it each and every day. That is the strategy.

Q41 **Stephen Morgan:** Mr Booth, you mentioned the learning from the carrier alliance. Could you say a bit more about how you envisage the commercial arrangements developing over the years in this instance?

Ian Booth: For Dreadnought, at the moment we have bilateral contracts between the Ministry of Defence and each supplier, with a small incentive for joint schedule performance. Where we envisage moving for the next phase of DP3 is for a more comprehensive programme, where the two key players—Rolls-Royce and BAE Systems—have a great and mutual incentive, ideally on cost and schedule performance, with the Ministry of Defence in that as well.

All three of us are incentivised for win-win contracting, so that none of the three of us can win at the expense of one or two of the others. We would like to put it on to a win-win, lose-lose, axis, such that good performance means we will win together, bad performance means we will lose together, and then we will all pull together to deliver that output. That is where we envisage going to.

Q42 **Chair:** You say that is over a few years. What about the longer term? What would success look like to you in the longer term?

Ian Booth: We would expect at DP3 to be in a position so that we can contract for a very significant portion of the programme. At the moment we are contracting small amounts, for good reason, because that is where our confidence is at the moment. As we get to DP3, we would like that to be for a much longer period.

Q43 **Chair:** The better that commercial relationship, the longer term your arrangements and planning can be.

Ian Booth: Absolutely.

Chair: At a saving to the taxpayer, presumably.

Ian Booth: Yes, absolutely.

Q44 **Stephen Morgan:** We will move on. The Committee has previously looked at skills shortages in the Royal Navy. Vice Admiral, could you say a bit more about how confident you are about the arrangements being put in place around nuclear skills shortages?

Vice Admiral Radakin: For the Royal Navy, it is an improving position. The Report as it stands is accurate, but the reason I would describe it as improving is because of four factors.

If we look at inflow, whether it is things that we have done, such as starting to have a submarine recruitment team, the initiatives of an undergraduate apprenticeship scheme and an accelerated apprenticeship scheme, all demonstrate that we now have more people in the training pipeline. Last year, we had in net terms 100 extra engineering technicians. That is significant, and we are predicting that we are going to have a similar number this year.

The second piece is the through-flow. We have massively improved the through-flow of our people, particularly in the engineering branches. So, that is a mixture of bringing people in and recognising their technical qualifications and leveraging off that to push them through the system faster.

We are also just revisiting everything that we do to see whether we can push people through more quickly. Some of those changes are dramatic. For a petty officer, under the old regime, it might have taken as long as 12 years to be fully qualified. Now you can do that in five years, so that is a substantial improvement.

The third point would be outflow. Our outflow has reduced substantially. In the submarine service, compared with everywhere else in the Navy, we now have the best outflow.

Q45 **Chair:** You mean the smallest outflow.

Vice Admiral Radakin: The smallest outflow. It is less than 2% for officers and less than 4% for other ranks. That means, in data terms, we are seeing an improvement underneath the surface of the current situation, and we are predicting it is going to be better in the next two to three years.

Q46 **Chair:** So, what is being done differently that means mariners want to stay where in other parts of the armed forces people are leaving?

Vice Admiral Radakin: I would pay credit to the submarine community and the way that they have gripped this. Some of this is the creation several years ago of a dedicated two-star Assistant Chief of Naval Staff Submarines, John Weale, who spends a lot of his time in Scotland, and we have invested in that community.

Q47 **Chair:** So Faslane, basically.

Vice Admiral Radakin: Faslane. If we looked at the plan to move the submarine service to Scotland five years ago, we would have described a lot of caution and wariness. Now, about 84% of all our submariners are centring around Faslane and the Clyde. We are gaining momentum. We have also invested, so the large investment in infrastructure and people seeing the improved accommodation is starting to generate confidence in their branch of the service. That what we are starting to see.

We have done some mechanical things. We have made some adjustments to open the service so people can come in more quickly. We are pushing them through far more quickly and, if we look at how that is being reflected back to us in the armed forces continuous attitudes survey, the submarine community has improved in terms of its positive response by around 10% or 11%. So the question "Am I proud to serve in the Royal Navy?" is at 60%, and that is an increase of about 11%. The question "Would I recommend to others joining the Royal Navy?"—and, by implication, becoming a submariner—almost 50% of people are saying that. That is another increase of 10%. Those things are coming together.

Q48 **Stephen Morgan:** That all sounds very positive but, of course, the targets still aren't being met. What else do you think can be done?

Vice Admiral Radakin: Our targets are starting to be met in the submarine service. You are right. As a whole, in terms of the Royal Navy, we need to get more people in and we need to do a lot more to satisfy that. In terms of the submarine service and whether we are seeing us getting back to what I call normal, at the moment I wouldn't want to gloss over that this is a stressful situation and we need to improve.

The things I am describing—inflow, through-flow, outflow—are also accompanied by structural changes. We now have far more people in the submarine service agreeing to stay longer than their 20-year point or their pension point. About 40% to 50% of all our senior rates have accepted extensions of service or contracts to serve longer than their pension point. That, again, is hugely significant. This is a series of lots of different initiatives, some phenomenally strong leadership and a community coming together and starting to buy into our investment, and then all of these are starting to have an impact. However, the impact isn't instant; it will be more significant over the next two to three years.

Q49 **Chair:** You use the word "community" quite a lot. Is there a particular camaraderie among the submariners that makes them want to stay once you have done that bit of push and support from the centre?

Vice Admiral Radakin: Yes. I think we are not at the virtuous circle whereby everybody wants to stay as long as they can, and they say "Hurrah! We all want to be up in Scotland and this is the best place to be," and so on. But we are combatting the sense that existed a few years ago of disgruntlement and frustration. When people have gap billets and others who remain come under more pressure, that just fuels it. To me, the community aspect and how we respond as a Navy to the submariner branch is significant. Then I think it is also backed up in the operational space. We have that community. We have always said that they are the most important in terms of UK defence and our obligations to the Government and the nation. If you also look at the operational space, which we cannot talk about too much in this forum, the fact that so much is going on, again, helps to breed that sense of purpose and worth. That is something we want to invest in.

Q50 **Stephen Morgan:** Mr Lovegrove, you wanted to come in.

Stephen Lovegrove: Just to move the issue of skills away from the Navy for a second, there is another big national question about nuclear skills—nuclear engineering skills.

Q51 **Stephen Morgan:** In industry?

Stephen Lovegrove: In the industry.

Q52 **Stephen Morgan:** Yes, that was my next question for Mr Booth. Do you want to say a bit more about that, or is there anything else you want to add?

Stephen Lovegrove: Just to complete the thought, clearly—nuclear renaissance is probably not quite the right word—we are looking at a number of decades from here on in where there is going to be intensive nuclear activity in the UK: building the submarines, renewing the warhead, extending the missiles, building the new civil nuclear reactors and continuing with the immense task, which the Committee has considered many times, of decommissioning what we have had in the past. This is an area of intensive activity and of vastly increasing scale. It is paradigmatically one of those places where we need to have a joined-up strategy to ensure that we have the skills available to the country when we need them in the coming decade. That may be one of the areas where Brexit might be relevant. It may be more difficult to bring engineers from the continent. It is something we have been talking about to BEIS, and we will have to continue doing so.

Q53 **Stephen Morgan:** That is really helpful. Mr Booth, could you tell me more about how you are supporting industry in the medium and long term to ensure that you have the skills you need for this industry?

Ian Booth: We recognise the challenge. We have had good conversations with the chief executives of the three tier one submarine suppliers. I believe Julian has also done so with AWE. We have had the conversations and we recognise the issue, and we all recognise that we need to build our skills base. At the moment, we are each doing it semi-independently. With the SDA we are increasing our intake to 30 graduates per year as of September, and we also put 10 people a year through an apprenticeship scheme. We will effectively be generating 40 people a year once they wash through the system. I believe that we need to do more than that; we need to recruit directly in from externally or recruit non-nuclear people and convert them, and our suppliers are doing similar things. We recognise that we need to look at pooling our resources and efforts to grow nuclear skills. It is not just the engineering skills. It is easy to see this as being about nuclear engineers or physicists, but actually it is about people who can project-manage nuclear projects and handle cost control, who can write contracts and who can do quality standards and inspections. There is a whole suite of skills needed.

Q54 **Chair:** From what you are saying, it sounds as though you do not have a clear pathway. So if Mr Morgan decided to give up his job tomorrow and apply for a job in the submarine authority, for example—I am sure he is highly skilled—how would he or anyone know where to look for that pathway?

Ian Booth: At the moment, they would go to each individual organisation. We are in our first few months as the SDA, and this year we have recognised that we need to refine and develop our strategy so that it is clear how you do exactly that.

Chair: A recent graduate might not immediately think of the Submarine Delivery Authority because conceivably they might not have heard of it. I am sure everyone is glued to this as they are leaving university, but probably not.

Ian Booth: Yes we do go to recruitment fairs and we do publicise. Only last Wednesday I spoke to 40 nuclear graduates. They had not joined the MOD in this case; some had gone to Rolls Royce and others had gone to other parties. This was a community of nuclear engineers.

Chair: So you are fishing in quite a small pool to begin with.

Ian Booth: I addressed them more to welcome them to the MOD main building and explain what we did. That was an eye-opener for both of us—for them to understand what we do in the defence nuclear sector, but also for me to realise just how enthusiastic they were. There is a real opportunity to go out to the graduate market and attract people into the sector.

Q55 **Stephen Morgan:** I have been up to Faslane and heard directly from some people about their frustrations with delays and costs related to infrastructure developments. Why is it so difficult for the Department to manage that infrastructure programme across the Department?

Julian Kelly: At Faslane and the Clyde, we are beginning to make progress on a programme and we have some confidence in the timescale in which it will be delivered. I think the latest Cabinet Office review of it reflects that. More generally, nuclear infrastructure is quite complicated and you tend to do these things as big one-offs. It is not like you can always pick up, "Here is the blueprint I did last time and I am laying it down again."

As I said earlier, particularly if it is real nuclear infrastructure, as opposed to accommodation on a site, the biggest thing is to nail the design and the requirement before you start building. Then when you start building, you can really get on and deliver it, as opposed to fiddling with the design and requirement even as you build it. That is the basic lesson.

Stephen Lovegrove: This is one of the areas where coalescing the various nuclear functions into one organisation is making quite a big difference, because the interdependencies and interrelation between various things can be dealt with that much more easily. The knock-on consequences of failing to make appropriate progress or delaying things can be properly assessed. This is definitely one of the big pluses of aggregating the nuclear activity into the DNO.

Q56 **Stephen Morgan:** The Report was really helpful on this. Could you say a bit about why the new AWE warhead has been so over-budget and delayed?

Julian Kelly: What has been over-budget and delayed is the infrastructure as opposed to the new warhead. We are still working out what the plan is for the new warhead. Project Mensa is the classic case. To go to the thing that I just said, we started building it when we were at about 10% or 20% design. I forget the precise percentage. You are laying a foundation before you have even really worked out for what you are laying it.

As a result, you have not got your requirement right; you have not tested it and made it right-sized. So, you end up over-engineering your solution. Really, that is about the most straightforward answer. As a result, there are customer-side responsibilities and there are supplier-side responsibilities but they all come back to the fact that, if you have not nailed your scope and requirement at the outset, well—

Q57 **Stephen Morgan:** Have other programmes had similar difficulties?

Julian Kelly: If you look at us, the US and France, you could point to a host of programmes that have had similar difficulties and we have all drawn the lesson that I have just articulated.

Q58 **Chair:** But that lesson is not specific to the nuclear side of things, is it? It is project management generally.

Julian Kelly: It probably is project management generally. I guess the thing on the nuclear side is the degree of robustness that you end up having to put into things. There is probably a slight multiplier effect. I can only speak today for the nuclear side.

Stephen Lovegrove: My experience is that one of the complicating factors is that the safety cases for anything to do with nuclear are by an order of magnitude, for very understandable reasons, more complicated and take longer to nail down. They have got more like that over the years. The tolerance of risk has got quite a lot smaller in our nuclear regulators, again for very understandable reasons. It is possible that, as a project manager, we have not quite—

Q59 **Chair:** The point that Mr Kelly highlighted was about starting to build infrastructure when you are only 10% into the design the thing that the infrastructure is there to support. In any other sphere—you have been at other Departments, Mr Lovegrove—you would not go down that route. Why has it been so bad in nuclear? We have only just seen Mr Kelly and

Mr Booth appointed to their posts.

Q60 ***Stephen Lovegrove:*** I canot tell you why Mensa was started at that level of immaturity, because that must have been 10 years ago.

Chair: We hope that you two being in post means that these lessons will be learned, but it seems very slow progress.

Q61 **Stephen Morgan:** Vice Admiral, what is the impact on Enterprise as a whole of not getting these projects right?

Vice Admiral Radakin: There are lots of different impacts. The piece I was going to add to what we have been discussing, is that another element that we have probably struggled with, particularly in the Nuclear Enterprise, is the number of different seams. We are seeing a much cleaner governance and an ability for us to aggregate the conversations, because most of it is connected to another part of the submarine and nuclear enterprise.

The impact is across the piece. When we end up talking about projects, and we then take a long time to resource them and to get on with successfully concluding an infrastructure project, it adds to that sense of frustration about the Department as a whole. The impacts range from practical human ones, in terms of accommodation, through to operational ones, where we are not able to progress the work as efficiently or as effectively as we would like in our naval bases. There are also potential impacts where we are having to assume more risk or mitigate security concerns, because we wanted to invest to strengthen our security. So the impact is across the piece in terms of infrastructure. I would re-emphasise that when you look at defence as a whole, the Clyde, for the Navy, is seen as somewhere where significant investment is taking place. People are now seeing the fruits of that. The fact that they can see those projects physically taking shape and that the accommodation has improved substantially over the last few years makes a huge difference.

Q62 **Chair:** When you say accommodation, are you talking about accommodation and kit?

Vice Admiral Radakin: Particularly about single-living accommodation. For example, sailors who, when a submarine comes in, live ashore, have been on patrol and in operational circumstances and then go into inadequate accommodation. That was a big frustration and we feel that we have made progress there.

Q63 **Stephen Morgan:** On accommodation, how has Carillion's collapse affected accommodation up at the Clyde?

Chair: Amey took over that joint venture, I think, didn't it?

Vice Admiral Radakin: Because it was Carillion Amey, I do not think it has had a specific impact. It was a joint venture, so it was covered, rather than having its sole source in Carillion.

Chair: That single accommodation was covered, too, I think.

Vice Admiral Radakin: Yes. The broader piece is getting the base ready for an increase in size over the next few years. Then there are other accommodation issues, which you have taken before, such as the future accommodation model and what that might mean.

Q64 **Chair:** Talking about space at dockyards, perhaps I will start with you, Vice Admiral. I am sure Julian Kelly will have something to add and possibly Mr Booth as well. Given that you have been building Astutes since 1997 and there will now be an extension of the life of the old boats, why has it taken so long to realise that we need more space at Faslane and possibly at Barrow, which I guess is more a question for Mr Booth, to ensure that we have the space to maintain the submarines?

Vice Admiral Radakin: Forgive me, Chair, are you asking about the shiplift capacity and docks, or berths?

Q65 **Chair:** The existing Astutes have to have their lives extended as a result of the delays. That means they will need more maintenance—as I understand it, but tell me if I am wrong—and they will need to come into dock more often, but there is not the space for them. There is also the Astute, for which you also need the right docking facilities.

Julian Kelly: Astute is planned for a 25-plus year life, with a mid-life refit. The issue has been nailing down the plan for a nuclear licensed dock to do the Astute mid-life refit.

Q66 **Chair:** That's at Barrow, isn't it?

Julian Kelly: That is at Devonport. People are confident that we have sufficient berthing capacity at the Clyde to manage the submarines that will be stationed there. The specific issue has been docking capacity at Devonport, where there had been an assumption that we would be able to use an existing dock. Coming in a year ago, it was clear very early on that that assumption was not going to work; that even the dock that people had thought could be used would need investment for it to be upgraded. A considerable amount of work had been done even before I arrived to work out what the options were. We are now fast narrowing down what the options are and are clear it will require additional investment. People had not quite written in what is the run of numbers. We have written in what is the run of numbers.

Q67 **Chair:** I am just puzzled as to why it has taken so long—maybe it has not. Some of us were not aware of that until recently and the NAO has highlighted it as well.

Julian Kelly: It is a bit hard to say exactly why. First, until people felt that there was a clearer sense of what the specific plan was and secondly, what the run of numbers were, people were not writing things in. There is an argument that people should have been writing in a provision of numbers earlier.

Q68 **Chair:** Will that money have to come out of one of the contingency funds?

Julian Kelly: In the report, there is a £2.9 billion pressure over the 10 years, of which about 40% is the potential cost of the dock infrastructure. You could say that that would be covered by the £1.1 billion, but that still leaves a broader issue. That is what we are figuring out.

Q69 **Chair:** The Committee looks at many projects that could have been anticipated. Parliament voted on this to set things going—we were trying to remember whether it was in 2008 or 2009 originally—and we knew we would have a vote 10 or so years later. The decisions were being made at that high level, but somehow, did someone drop the ball? As you say, assumptions were made. It seems like a very big assumption to make, that we have the capacity to take in these enormous submarines.

Julian Kelly: I find it hard to say what was assumed in 2010. The thing I would say—it goes to Stephen's point about bringing my team together—is let us make sure we have the whole end-to-end picture. Let us really drill down and understand the assumptions we are making and how realistic those assumptions are. Therefore, let us make sure we have coherent plans.

Devonport is a really good example of us trying to manage the whole infrastructure thing better. The first thing we are doing is properly thinking about what the real regulatory requirement is. Does the improved safety of the submarine and the submarine's reactor mean we need to pour less reinforced concrete than otherwise people have been assuming? So, how do we drive the most efficient value-for-money proposition for the regulator by not just thinking about the concrete but getting all the people together with the regulator to think about the whole system? I have some hope that that will be an example of something where we nail a better value requirement and get the job done more quickly than we otherwise would.

Chair: We will be here in a decade looking at it, no doubt, to see if you are right, Mr Kelly.

Stephen Lovegrove: As a broader point, I suppose that some of the easier things to do when money feels tight is to delay essential maintenance. That is not just in the dock but in a host of different things. I suspect that this may be an example of that kind of thing and that is the kind of thing that we are keen to drive out of the system as much as we possibly can. It comes up a lot.

Q70 **Chair:** It just leaves a ticking time bomb for your successors, which is what we have seen as a pattern in defence.

Stephen Lovegrove: It leaves a ticking time bomb. Exactly.

Chair: While we are on the subject of Devonport, I will ask Mr Graham to come in.

Q71 **Luke Graham:** Let us move on to decommissioning very quickly. There are 20 submarines waiting now, still with fuel. When do you forecast you will run out of storage space for decommissioning submarines in Devonport, Mr Kelly?

Julian Kelly: We do not anticipate running out of space, but to go to the earlier thing about a coherent programme and really nail all the assumptions, one of the things we have got to do as part of the plan for Devonport is complete and agree how we are going to complete the work to make the current defuelling facility operable. Our current estimate is that we would begin defuelling the next submarine in the mid-2020s, and then you are just on a steady stream. There are a couple of things we have got to work through before we nail that date down, including whether we refuel the next Vanguard class when it comes in for a refit. We are in the process of making that decision. We are piecing together the jigsaw. If we do not have to, our aim is that we complete the defuel system and start in the mid-2020s. Then we are just on a roll for probably at least a couple of decades.

Q72 **Luke Graham:** Some of this defueling and dismantling has been pushed out. Would you assure the Committee that the continual deferring represents true good value for money, or is there a degradation problem, as the longer we leave them, the higher the cost?

Julian Kelly: As Stephen said, you can fully understood that they were deferring this defueling and dismantling programme while they thought they could, but we are now at the point where we are not comfortable continuing to do that, because you also have to persuade the regulator that it is safe to hold a submarine in a basin in Devonport, and you are getting to the point where we cannot keep on assuming that. It is why the work we are already doing in Rosyth—where we are for the first time properly dismantling submarine HMS Swiftsure—is so important.

Q73 **Luke Graham:** Do you have a forecast of the additional costs incurred because of these deferrals?

Julian Kelly: Probably the additional cost runs to the tune of a few single-figure millions each year, which is the cost of continuing to hold the submarines in the docks and making sure that they are safe. There is probably a low £10 million to £20 million cost to having to restart work that you started and then stopped. The immediate financial effects do not look massive, but it is about the reputation, and in the long term there is a safety issue that we have to manage.

Q74 **Luke Graham:** Understood. Mr Kelly and Mr Lovegrove, when will we get positive news on the full decommission? You were saying mid-2020s for defuelling, but when will we have the plan in place in which we say, "Here's the full defuelling and decommissioning, and here are the relevant deadlines" for all the sites including Devonport and Rosyth?

Julian Kelly: I think the list will mature over the next six or seven years, because we will nail the plan for Devonport infrastructure over the next couple of years and we will nail the decision on whether to refuel any more of the V-class submarines over the next six months, but the work on full dismantling will depend on the outcome of current work to dismantle HMS Swiftsure, and only when we have done that can we begin to understand what it will really take.

Q75 **Chair:** What about the barriers? Where are you going to put all this spent nuclear fuel? Will it go in a hole in the ground in Cumbria?

Julian Kelly: Nuclear fuel disappears off to Sellafield. Other nuclear waste will also be dealt with by the Nuclear Decommissioning Authority and eventually it ends up in whatever their long-term facilities are.

Q76 **Chair:** So it is not lack of storage?

Julian Kelly: It is not lack of storage. Clearly we are tied to the final plans and decisions of the NDA.

Q77 **Chair:** Has the NDA made plans? We have seen the storage units at Sellafield being built to encase waste above ground for 100 years. We were potentially one of the last groups to go into that building, except for the engineers building it. Have they planned in the bit that you are going to add in for the submarines?

Julian Kelly: Yes, we are talking to them about that. It has to be considered within the grand scheme of everything they are dealing with.

Chair: So there is not really an excuse that it has not been done. Not that excuse.

Julian Kelly: No.

Q78 **Luke Graham:** Just to try and wrap up on that point, when is the work on HMS Swiftsure due to be completed?

Julian Kelly: I think it is 2023, when we will have really learned what we need to learn and will begin to properly show what that means for the submarines at both Rosyth and Devonport. This is one of those things that will gradually mature over the next six or seven years.

Q79 **Luke Graham:** So for your plan referred to in the NAO report about defuelling specifically and then about dismantling, we are still six years away from having it confirmed.

Julian Kelly: From really having a plan in which we can say we have done one, and we really understand everything that is involved, and now we can show you exactly what that is going to mean.

Chair: I am sure you are in touch with the local MPs; they have been in touch with us expressing concerns about the endless delay. I will bring in Sir Geoffrey Clifton-Brown on this point and then go to Mr Evans.

Q80 **Sir Geoffrey Clifton-Brown:** The additional information we have for this session tells us that the US has retired 100 submarines and Russia—if you can believe it—has retired 195 out of 201 of its submarines awaiting disposal. If other nations can do it, why is it so difficult?

Julian Kelly: It is a question of getting on and doing it. We have defuelled a whole raft of submarines.

Q81 **Chair:** Nine?

Julian Kelly: I think it is about nine; I can check and confirm the precise number. It is just that no one has made the final decision to fully dismantle one. Now we are finally doing that, and HMS Swiftsure up in Rosyth is the one we are doing.

Q82 **Sir Geoffrey Clifton-Brown:** Is the constriction on space in Devonport related to the amount of space being taken up by these submarines awaiting decommissioning?

Julian Kelly: Clearly, the submarines in Devonport take up basin space that, at some point, we will need to free up, so that we have somewhere to put an Astute-class submarine when we finally retire it in the late 2030s, early 2040s. We are cognisant of that. Probably the fact that there has not been that space pressure might have been another reason why people have felt able to defer getting on with dismantling and decommissioning.

Q83 **Chris Evans:** Of course, we live in an uncertain world. As we have seen, President Trump has launched a tariff war. What work has the Department done on that as an impact on these programmes?

Julian Kelly: We have assessed the potential impact, in particular of steel tariffs. We are in conversation with the US about the broader picture. We are not materially concerned about the direct impact on the Dreadnought programme, though it would clearly be better if we could persuade the US not to apply the tariffs.

Q84 **Chris Evans:** What components do the US export to this country?

Julian Kelly: Our concern is as much about UK suppliers exporting to the US. Therefore, they are more fragile if their export market is diminished, vis-à-vis their ability to continue to support us, as well as in a few places their ability to support the equivalent programmes in the US.

Q85 **Chris Evans:** You seem very confident, even though the rest of the world is very worried about this tariff war. What is the outcome of the assessment that you said you had made? Is there anything that inspires that type of confidence?

Julian Kelly: Our analysis so far says we would much prefer it if they did not apply the tariffs but, even with the tariffs they have applied, they are not a material driver of cost and risk.

Q86 **Chris Evans:** The cost is not going to go rise, then.

Julian Kelly: We are bothered—in a couple of very specific places. To go to the point about contingency plans, and thinking about the health of one or two very specific companies, we are working with those companies to ensure that we mitigate the potential effect, but it is quite focused.

Q87 **Chris Evans:** I would be concerned, Mr Kelly. You say that we would prefer them not to do it. What genuine actions are being taken to stand up for British companies in this?

Stephen Lovegrove: The specific issue is the steel tariffs and, as Mr Kelly said, the effects on British companies. Ultimately, this is clearly an issue for the Department for International Trade. For the MOD's part, last week I expressed our strong disappointment to my counterpart in America and the week before to his deputy, who was travelling. Mr Kelly has probably done very similar things. Officials in Washington are fully aware of the specific, albeit not determinative, issues that Mr Kelly has raised.

Q88 **Chris Evans:** I have just one last question. You say it is a matter for the Department for International Trade. What discussions have you had with that Department on this matter?

Stephen Lovegrove: We have listened to what they, the Prime Minister and the Chancellor have said by way of mooted American tariffs. We have fully supported them because we have a specific issue. As I said, it is not one that is terminal for us but it is, nevertheless, something that we would prefer not to have to deal with. We are fully in line with what the Department for International Trade is trying to do.

Q89 **Chris Evans:** Before I move on to governance, I have just one last question. How high up the agenda is this programme for the Department?

Stephen Lovegrove: In terms of this programme, when I was speaking to my American counterpart, I had six things to talk about and it was one of those six things.

Q90 **Chris Evans:** I would like to move on to governance now. In 2008, the Senior Responsible Owner covered only Dreadnought. Can you talk through the process we have arrived at today?

Stephen Lovegrove: I arrived in the Department immediately after the strategic defence and security review of 2015, which crystallised some of the NAO's thinking in 2008 and said that there needed to be a dedicated body looking after the procurement aspects of the nuclear enterprise, and that the various parts of the Department, which were touching on nuclear, were too fragmented to be effective. There were nascent plans to set up the Submarine Delivery Agency and nascent plans to set up the Defence Nuclear Organisation that Mr Kelly is now running. Those were nascent, so we pushed very hard—it was probably the thing I spent the most time on when I arrived in the Department—to get those moving as quickly as possible. I stopped the appointment to Mr Kelly's post, because I was not satisfied that it was properly configured and that the field had been properly trawled to get the right people in. We pushed as hard as we possibly could on that, because the benefits of aggregation in this area were theoretically pretty clear and in practice they have become even clearer. We think that we are in reasonably good shape now.

There is one other component, which is not particularly represented here today, which is that we had a body within the Department called the Defence Nuclear Enterprise board, which had become unwieldy and non-action focused over the years, for whatever reason. We radically cut that down to only the people who needed to be in the room and cleaned up the governance of it. So, for instance, Mr Kelly is not a member of it, because we are holding him to account through it. It is chaired by me and the vice-chiefs of the defence staff. That has been a big change in the way that we have looked at the governance.

Q91 **Chris Evans:** Would you stand by the statement of your predecessor in 2009 that Government systems were robust?

Chair: I think you just said no, actually.

Stephen Lovegrove: If I had been in his shoes, I might have said something like, "They are robust, but there is certainly room for improvement." We are confident that they have been seriously improved.

Q92 **Chris Evans:** So by 2014, the Department recognised that the governance of enterprise needed to be improved. Why did the Department take that view? I think you have half-answered that question, but why specifically on the enterprise part of the programme?

Stephen Lovegrove: On the Defence Nuclear Enterprise board?

Chris Evans: Yes.

Stephen Lovegrove: Bureaucratic entities—the Defence Nuclear Enterprise board is a bureaucratic entity—have a tendency to expand and collect barnacles, and every now and then they need to go into a dry dock and have the barnacles scraped off them, and go through a period of maintenance.

Chair: That makes me see your job in a whole different light, Mr Lovegrove.

Stephen Lovegrove: That is the process we went through. The vice-chiefs and I were always meant to chair that and indeed did. It became clear after the first meeting that it was not acting in the way that we needed it to act. It was not the central conscience of the Department holding colleagues to account, because it was too diffuse and there were too many people on it, so we restructured it.

Q93 **Chris Evans:** I appreciate your allusion to seafaring. How do you know that these barnacles are not attaching themselves to the new arrangements now?

Stephen Lovegrove: I don't. I need to be very clear that we do not want, over a period of time, the DNEB to become ineffective again. We have had a recent experience of trying to make it properly effective. We need to keep it there.

Julian Kelly: I would add one other thing. In 2014, various bits of information began to come to light. They are covered in the report about the performance on some of the actual programmes. The AWE programme would be one at about that timescale. There were a few others. The Department at that point was opening its eyes and saying, "Hold on. The programme is just not in the position we need it to be in." Part of the answer to your question to Stephen is him holding me to account. It is about whether we have the information about how the programmes are running, whether we are hitting the schedule and whether we are dealing with the risks.

Q94 **Chris Evans:** 2014 was a long time ago. It seems like there was an 18-month gap with the Government's new arrangements being set up. Why did it take so long? Were there any specific reasons for that?

Stephen Lovegrove: The arrangements only went formally into place at the beginning of the new financial year. For instance, in the Defence Nuclear Organisation, we were shadow-running that for a good nine or 10 months beforehand, but it only formally came into existence at the beginning of the financial year. To be candid, it was more complicated with separating the Submarine Delivery Agency from Defence Equipment & Support down in Bristol, because those involve many more people. There were existing very clear organisational structures and there was a degree of mutual support that it took some time to negotiate with colleagues down in DE&S. That was why that took a little bit longer. In both instances, we had quite a long period of shadow-running. It is the moment at which it formally comes into existence that is referenced in the Report.

Q95 **Chris Evans:** I have two issues I want to raise here. The first is the amount of time it took to appoint senior positions. You did not have people in senior leadership roles for a long time. At the same time, is the issue simply that the skills base was not there, or that you were not paying the market value for these types of people? Why did it take so long?

Stephen Lovegrove: The reason that the job that Mr Kelly is doing now—DG nuclear—took longer to appoint than people identified was because I took the decision to stop that competition. I did not think that the job had been properly configured. I had quite a lot of experience of that kind of thing from previous lives. I did not think that the field had been properly trawled. I took that decision, and I am perfectly happy to stand by it, because it is better to have a properly configured job and the right people doing the job than to rush into it. The SDA was a more complicated exercise, because institutionally it was more complicated to untangle the parts of the SDA from DE&S, and that was where that delay arrived from. It was not a question of paying the market price, actually. This is an area that attracts very high-quality people to do the jobs because they are very important, very interesting and very large. It was not really about the market price; it was about ensuring we had the right design.

Q96 **Chair:** Can I just check something? I was trying to find the reference, but was it you then who decided to split the SDA off as a separate body? I cannot remember the timeline.

Stephen Lovegrove: The decision to draw the threads together within the Department and the decision to have a dedicated procurement agency were both prefigured in the SDSR '15, but there was not any detail about that. It was that detailed design work—

Chair: So you made the decision.

Q97 **Chris Evans:** Just a quick one, Mr Kelly. Would you have applied for the job before it was reconfigured?

Julian Kelly: To be completely frank, I had not even thought about it until Stephen phoned me up and asked whether I was interested after he had done that thinking.

Q98 **Chris Evans:** My real concern in all this, Mr Lovegrove, is the fact that when these organisations were being set up, you were negotiating some very substantial contracts. The example in the Report is the Dreadnought programme's second delivery phase, which is worth £960 million. There are other commitments as well. How confident are you that you are not going to be sitting here in 10 years' time saying, "There were problems with those contracts", with your excuse being, "We were setting those organisations up"? Are you confident that those contracts can stand up to scrutiny?

Q99 ***Stephen Lovegrove:*** They have been through the usual scrutiny processes that the Department always applies. I would say that, although I am content that the institutional arrangements we have at the moment are better than the ones we had before, it was not like we did not have people doing these jobs. There was a very large predecessor organisation doing the work of the SDA within DE&S. There were people within the Ministry of Defence centrally who were looking at all of these facts. We have a better organisation now, but I am content that the work we did when we were shadow running these organisations and they were in nascent form, was perfectly properly done.

Q100 **Chris Evans:** What I am concerned with is the old saying that success has many fathers but failure is an orphan. In this case, are you confident those reporting lines were robust enough?

Stephen Lovegrove: Yes, I am.

Q101 **Chris Evans:** Okay. Mr Kelly, just a quick one for you. You have been in post since May 2017. As you have now gone past your first anniversary, what are your initial thoughts on the role?

Julian Kelly: Other than it being a fantastic job.

Q102 **Chair:** What needs the most urgent attention? List your top priorities.

Julian Kelly: Number 1, end-to-end, we have got to make sure we have pulled together a robust programme. We have come a long way, but we are not the whole way there, because on some elements of the programme we are still working through what we are going to do. Until we have worked through what we are going to do—

Q103 **Chair:** But you are introducing an end-to-end approach.

Julian Kelly: That is thing number 1. That then goes to—

Chair: Sounds a bit like Dr Seuss. Thing number 2.

Julian Kelly: With a view to what this, therefore, would really cost, number 2 is to make sure we have got the people who are really focused on the job and free to get on with the job. Ian's team is a critical part of that. Number 3 is to look at—the only word I can use is "resilience"— the effective, multiple incremental decisions over many years. We need a real assessment of how resilient the enterprise is. Number 4 is to line up the international relationships, in particular with the US, so we can feel confident that we can do everything mentioned above.

Q104 **Chair:** One of the risks that occurred to us as we were reading and preparing for this is that Mr Booth, you have been in post nine months, and Mr Kelly, you have been in post 18 months. There are new people at BAE Systems. I think Andrew Wolstenholme has just joined as head of maritime and they've given me the name of Cliff Robson, who is now the MD in Barrow for BAE Systems—some pretty key people. How much depends on your personal relationships with each other, and how much are you building in something that will sustain beyond you as individuals? You might get from that that we have heard some positive things about this team, but we must never be complacent.

Julian Kelly: Inevitably, you can build in all the systems and structures you like, but if you do not have the right people and they are not relating to each other in the right way, you are sunk. Number 1—let's make sure those relationships are really healthy, very honest and transparent, and that we confront the real issues we face and are honest about them. Number 2 is how we then build the systems and the trust so that, at least when we hand it on to our successors, they have got the best chance of making their relationships work as well. How they make those relationships work will be down to them.

Q105 **Chair:** To put you on the spot for a minute, Mr Kelly, you are a career civil servant with a little bit of time in the private sector. It is not typical that a director general will stay in the job for more than two, three or four years—maybe a little longer, occasionally. How long were you in your last job at the Treasury?

Julian Kelly: I did my last job for broadly five years.

Q106 **Chair:** That is a bit better than some averages. Presumably, this is part of your career path; you are not going to be there for a decade. Or maybe you are. Maybe you can tell us whether you are—I wouldn't want to pin you down like that.

Stephen Lovegrove: His half-life.

Q107 **Chair:** So what happens? You are the first in the job and it is a very big job, as you say, just to get some of the things you have talked about today. The timescale is six to seven years just to get the decommissioning on track. There is a long way to go to get the end-to-end planning on track. How long will you be staying to see this through, and is it good for your career—currently in the civil service it can be quite hard to stay a long time—or is there a disincentive for you to stay?

Julian Kelly: I don't have any disincentive to stay. A lot of people ask me that question—not just in this country, but some of our partners overseas. I am not going to stick a timetable on it today, but there is a commitment and it requires time to make it work.

Q108 **Chair:** What about you, Mr Booth?

Ian Booth: I am on a five-year contract and it is an extendable contract, so I would love to stay here and do it. Like Julian, I have one of the best jobs in the world, and nuclear submarines are pretty much the most complicated machines that mankind builds. For me, at the stage I am at in my career, this is almost the best thing I could go and do. I cannot envisage doing anything else at the moment. I am here to do it for the long haul, so long as I am doing a good job.

Chair: We love enthusiasts on the Committee, as long as they deliver on what they say.

Q109 **Chris Evans:** You both sound like premiership football managers.

Julian Kelly: Stephen has not made a statement of confidence in us.

Q110 **Chair:** Going to BAE Systems for a bit, you have had two big new appointments: you have Andrew Wolstenholme, who has a track record of delivering on Crossrail up there in Barrow, delivering on the submarines. Is that a cleansing activity? BAE Systems have good people, but will they actually be delivering what you want them to deliver now? Do you see that as a real shift?

Ian Booth: Yes. We were consulted heavily, particularly on the Barrow appointment. That is exactly the right person for this phase of the programme. The yard needed a boost and it needed an operational focus, and bringing Mr Robson in was exactly the right thing to do. He is a very clear, focused individual, who is very operationally driven, and he has demonstrated that focus in previous jobs in the aircraft industry. Particularly, for us, he did the last 18 months before this job in Derby, helping Rolls-Royce to improve the performance of the Derby facility. The real advantage we have with that appointment is that it is someone who understands Derby and Rolls-Royce and modern manufacturing approaches, and can work closely with Derby to get the—

Chair: So he is working with his former colleagues, basically?

Ian Booth: Absolutely.

Q111 **Chair:** You say you are on a renewable five-year contract, but Sir Geoffrey raised earlier the question of some of the commercial skills not being in place. Do you both have succession plans to ensure you can plan ahead, so you have a team that could step up if anything happened to either of you?

Ian Booth: We are developing those. It would be wrong to say that they are fully fledged, certainly in my case, but I see it as really—

Q112 **Chair:** You have only been there nine months; it would be quite extraordinary—

Ian Booth: It is really important that probably our strongest set-up for the future is to bring in the right skills in the right numbers and to build people at all tiers. I hope that when I finally move on, whenever that may be, I will leave behind a robust organisation that is based not just on personalities but on processes, tools and having the right skill base and the right interface with the industrial parties.

Q113 **Chair:** I will ask the question we asked Mr Kelly about his priorities: what are your top priorities? What achievements do you want to see?

Ian Booth: I have three operational priorities. One is to get Dreadnought running at pace so that we get schedule and cost performance out of it. My next operational priority is ensuring that the Vanguard class remains available and high-performing for my Navy customer. My third one is to get the Astute class into service—to see all seven boats in service and performing well. Then I have two real set-up activities, both of which come out of building good foundations in the organisation of all the right skill sets. Particularly, I need to go and recruit and develop a cadre of people for the next 50 years. That is a big set-up activity that needs to endure. The final one is supplier performance improvement. We need to drive a top-to-bottom supply chain performance improvement, so that we get out of this monopolistic monopsony arrangement the sort of performance that you would see anywhere else in the world.

Q114 **Chair:** Figure 16 lays out that, "Four contractors hold 97% of the Enterprise-related contracts by value", so if one of them goes wrong you have challenges, which has of course happened in the past. You have talked about the enterprise and the way you are working with these private-sector companies. We have just touched on BAE Systems and how it has changed its approach at Barrow. Are you confident that the strength and skills are in those individual companies, to make sure that they will work with you on the partnering arrangement you have described, to get best value for the taxpayer and delivery?

Ian Booth: I am confident that in the senior teams we are dealing with, we have the right attitudes and confidence. Just like with the SDA, though, each of those organisations needs to boost their skills base quite significantly. We need to see in Barrow a really heavy recruitment activity of capable people, or development of the existing people—the same in Derby with Rolls-Royce.

Q115 **Chair:** So you've got a challenge here, because you will all be recruiting from the same pool. In effect, everyone is a competitor; if you add in you, there are five competitors in this. It makes sense to have some similar programme that people go through, so that you can have interrelationships.

Ian Booth: It does, and it also makes sense to rotate people between the companies and between the MOD and the companies. We need to look at a cadre of people who can run a nuclear enterprise.

Q116 **Chair:** Will that really work? If you were BAE Systems or Rolls-Royce, you would not want your best people to go to your rival. Although they are working together on this, and some of these companies—I cannot remember which ones—have been working on the carrier alliance, BAE Systems could train somebody up and lose them to the MOD or Rolls-Royce, so there is that competitive tension there. How far along the line are they agreeing with you on this single approach to recruitment and development?

Ian Booth: A living example is Mr Robson, who was in BAE Systems. He was seconded for just over 18 months to Rolls-Royce and is now back in BAE Systems. Both chief executives completely sponsored the move in both directions, so I think that is a good example. With the set-up of the Dreadnought alliance, we are also seeing that companies are very willing to put their players into the central alliance activity. So we are seeing good signs, but we need to make that systemic.

Chair: So it is all right until you get a shortage of good people, and then that becomes a problem?

Ian Booth: Yes.

Q117 **Chair:** Perhaps you could both highlight what you think the biggest risks are to the programme. What keeps you awake at night?

Julian Kelly: Finding the right people. Right now, it is about making sure we have got people who are set up to work. We have really nailed some of the roles, responsibilities and systems processes—

Q118 **Chair:** Change management.

Julian Kelly: Yes—so that people are working as effectively as they can do, both across the MOD, and then the MOD into the supply chain. It is also about thinking through the next leg of our supplier strategy—so, if we are running a plan now, what are the next three things that we are going to try? It is about making sure that we remain safe, but that the whole approach to safety and regulation doesn't tangle us up and stop us making progress. If we are not very careful, it could do.

Q119 **Chair:** So you are streamlining that safety built in from the beginning?

Julian Kelly: It is just how we get intelligent people working in the business and making really sensible judgments, with the right relationship with the regulator, so that regulation safety isn't the thing that stops you progressing.

Ian Booth: People are my biggest risk: maintaining and growing the skills base. The second is supply chain fragility.

Q120 **Chair:** You mentioned Sheffield Forgemasters earlier. What would happen if the British steel industry failed? We have had a lot of pressure in that industry.

Ian Booth: I think it is not just steel; it is across the board. There are some very key suppliers—whether it be our combat systems, our steel forgings or much of the nuclear componentry—that are critical. We have a vulnerability there that we need to make sure does not happen. To me, that is a risk that we need to prevent by being really bold and clear in what we do.

Chair: You can't prevent that entirely, and nor can Mr Kelly—nor even the MOD.

Ian Booth: No, absolutely.

Q121 **Chair:** Mr Lovegrove, would it potentially take the Government to bail out a major strategic supplier, if you could not find a contingency supplier?

Q122 ***Stephen Lovegrove:*** The nuclear programme—the deterrent—is a great national endeavour. We have a strong belief in the market and we would like the market to work as well as it possibly can, but, ultimately, there is a whole host of things that we may be prepared to do in order to make sure that the programme stays on track. My biggest concern is that the programme in general runs on very fine tolerances. I would like to be able to build a bit more time-bound contingency into it if we possibly could, because that does make me a bit nervous.

Q123 **Chair:** Earlier, you talked about the strategic suppliers, which you were trying to get a handle on. I think that with a moving group of 1,500 or so, no one ever knows exactly how many you have. Do you feel yet that you have enough oversight of that, and does the Cabinet Office know exactly whom you are dealing with? I say strategic, but they are not strategic in the central Government sense, are they? Some of them are small suppliers.

Stephen Lovegrove: No. I should clarify that when I say strategic suppliers, I am not talking about the 1,500; I am talking about the tier 1 suppliers.

Q124 **Chair:** But some of those 1,500 could be quite critical.

Stephen Lovegrove: They will be, and we will clearly have to work through the primes and the tier 1s. There is a variety of ways in which we can assure ourselves that we are not going to find ourselves in difficulty. Certainly with the strategic suppliers, the new approach that we are taking across the whole MOD has been intensively discussed and agreed with the Cabinet Office. We will have different people performing different functions within the relationship, with a view to getting it on a much more systematic and controlled basis. That is happening right across the piece—right across Government—as you will know from your other hearings. We are definitely working with the grain of that, and it is really important in this enterprise.

Q125 **Sir Geoffrey Clifton-Brown:** Since quite a lot of the discussion has been about your ambitions for staff this year, can we try to nail that a bit more closely? On page 31 of the Report, Mr Kelly, it says that "56 of the DNO's required 184 posts (31%) were vacant."

Chair: As at February.

Sir Geoffrey Clifton-Brown: As at February. Where are we today, and when do you expect to fill those vacancies?

Julian Kelly: The position we are in today is that we are actually a slightly bigger organisation, because some people who were previously working for Ian now work for me, so we are probably looking at an organisation that will be veering towards 300 when we are fully staffed, and we are currently at about 250. I'm expecting, over the next three or four months, about 30 of those posts—the ones we have prioritised—to be filled.

Q126 **Sir Geoffrey Clifton-Brown:** That will still leave you 20 short.

Julian Kelly: Yes. Those are the ones where, in one sense, people have drawn organograms and said they are not the priority. Indeed, we will come back, as we go through and do these 30, and just say, "Hold on. Let's fine-tune exactly the design and whether we need those or something slightly different."

Q127 **Sir Geoffrey Clifton-Brown:** The same question to you, Mr Booth. The same paragraph says that "the SDA had 1,193 full-time equivalent staff and was reviewing its staffing requirements. It expects to increase staff numbers during 2018-19." How many extra do you need to recruit?

Ian Booth: At that point, we had about 1,300, which was the figure in there, plus about 80 contractors. What we intend to do over the next three years is recruit between 100 and 150 people for each of the three years. In the meantime, while we are recruiting those in, we are using private sector support to bridge the gap, but that is clearly not the best value for money for us, so our intention is to recruit in, to substitute for our private sector support, in the region of at least 100 a year. We will refine that figure as we go through, as we start to see how the organisation performs, and look at exactly where we place people, because clearly we want to put more people out with our contractors; that will help. So we will reduce our dependency on expensive private sector support and increase our civil servant headcount and Royal Navy headcount; that is how we will do it.

Q128 **Sir Geoffrey Clifton-Brown:** Thank you. Finally, can I take you to page 27 and figure 10—the RAG ratings? The core production capability is rated red, and the definition of a red rating is that there are issues that "at this stage do not appear to be manageable or resolvable." Can you tell us about that and what can be done to resolve it?

Julian Kelly: The red rating at this point is because the judgment was that this is unaffordable, but let me just explain what has happened there. As we went through 2014, '15 and '16, a decision was made, which I referred to earlier, that we would refuel the Vanguard class. That fundamentally changed the parameters of that programme. So we got on with the work to refuel HMS Vanguard. That added five years to the whole programme; it meant we had to keep open a facility. When you add all that up, it is now going to cost more than the original estimate for the programme, but we are currently in the process of resetting the programme and agreeing what is now the scope—what is that really going to cost? In fact, Ian's team are currently in the process of reviewing the options. In the process of resetting the programme, we expect to turn that from red back to amber. That sort of reflects the fact that we had a major shock and are currently in the process of resetting the programme. However, the actual work to build the facilities at Rolls-Royce is on track, demonstrating both schedule and cost adherence. The question is just: what's the total programme we are now going to do?

Chair: Thank you very much indeed for your time. We are obviously going to be watching this very closely—it is a large chunk of your budget, Mr Lovegrove—

Stephen Lovegrove: It is.

Chair: And I am sure you are, too. We will be coming back to look at aspects of this—we're not quite sure of our timescale yet, but be ready—and maybe we will be visiting some of the facilities, because I think it's important that we get a flavour of what is happening on the ground, so we may see you there. This landscape review has given us a lot of food for thought and an interesting discussion. Next time, we will be looking to see whether the pledges, promises, and risks you have highlighted have been dealt with properly, so you have set your own agenda. Thank you very much indeed.

The transcript will be up on the website in the next couple of days—uncorrected, as ever. I am not sure whether our report on this will be out before the summer. It depends; we have a lot to get through in publishing reports, but it will be out in due course. Thank you very much indeed.