APPG on Small Modular Reactors

Minutes of Meeting with Alastair Evans, Rolls-Royce

Date: Tuesday 8th February 2022
Time: 12.30pm
Location: Online via Microsoft Teams

Attendees:

- **Virginia Crosbie MP** – Chair
- **Chris Green MP –** Treasurer
- **Jill Mortimer MP –** Officer
- **Rt. Hon Alun Cairns MP**
- **Clive Betts MP**
- **John Stevenson MP**
- **Paul Beresford MP**
- **Brendan Clarke Smith MP**
- **Chris Matheson MP**
- **Dr. James Davies MP**
- **Katherine Fletcher MP**
- **Lord West**
- **Lord Wigley**
- **Baroness Neville Jones**
- **Lord Ghadia**
- **Josh Male -** Office of Trudy Harrison MP
- **William Hickey** – Office of Rt. Hon Nigel Evans MP
- **Adam Gibbor** – Office of Mark Menzies MP
- **Isobel Clark** – Office of Lord Trenchard

- **Tom Brook** – Nuclear Industry Association (NIA)
- **Georgina Hines** - Nuclear Industry Association (NIA)
- **Ieuan Williams** - Nuclear Industry Association (NIA)
- **Havard Hughes** – Barndoor Strategy (APPG Secretariat)
- **David Spencer** – Barndoor Strategy (APPG Secretariat)

Apologies

- **Baroness Hayman, Lord Whitty, Liz Saville-Roberts MP**

Speaker:

- **Alastair Evans** – Director of Corporate Affairs and Government – Rolls-Royce

Minute

Virginia Crosbie MP opened the meeting, thanking everyone for attending and welcomed Alastair Evans to the session. She invited him to make his presentation, explaining that there would be questions afterwards followed by a brief discussion on the future activity of the APPG.

Alastair Evans explained that he would offer a quick introduction about where Rolls-Royce were in their Small Modular Reactor (SMR) programme.

Six years ago, Rolls-Royce set out to design an SMR looking at what sort of fuels, mode of construction, and various other factors. Rolls-Royce took the decision that the quickest route to market, to supplying power to the grid, and to create an exportable commodity, was a standard fuel assembly model pressured water reactor (PWR).

Rolls-Royce have more than 60 years' experience of building submarine reactors. The SMR is a different reactor but it would benefit from all the lessons and experience from that work.
If nuclear projects went wrong, they tended to do this in the construction and assembly. It was seldom a fault with the technology itself. So Rolls-Royce wanted to take all that construction risk out of the project.

Rolls-Royce had raised £280 million from the private sector which had enabled to access £210 million of Government grants. But that didn't go far in nuclear development. The investors included Rolls-Royce, the QIA (Qatari Sovereign Wealth Fund), BNF Capital, and Exelon.

So, Rolls-Royce had the finance, an operator (Exelon) and a product it could bring to market. Rolls-Royce SMR had already submitted its application to enter the Generic Assessment three months ago. Rolls-Royce would therefore enter the Generic Design Assessment (GDA) in the coming three weeks or so.

There were some SMRs going through the regulatory process in the US but Rolls-Royce were the only SMR in Europe at that stage.

AE outlined that there are three F's that he wanted to focus on: Funding, Fields, and Factories. By the end of this year, Rolls-Royce want to have answers on all these issues.

Funding
On funding, Rolls-Royce SMR had just done a two-day workshop with lawyers and financiers to figure out how they could get the funding right. What funding mechanisms were needed? The aim was to minimise the 'ask' on Government.

If Rolls-Royce SMR have to go to the Treasury looking for equity or debt it will take too long. Rolls-Royce SMR had seen this in getting the RAB model into existence. That process began more than four years ago and was still going through Parliament now.

Rolls-Royce wanted to avoid being stuck in Government processes for that long so the aim was to fund it with 100% private capital. That is challenging and had never been done before. Nuclear was normally done by sovereign entities. But Rolls-Royce SMR believed it would be faster to raise the funds in other ways to finance it.

That meant Rolls-Royce SMR needed to enter negotiations with Government for a 'Contract of Difference' that gives us long term certainty and price stability for the next 30-35 years. Rolls-Royce SMR wanted to get into those discussions as soon as possible.

The reason can be seen from the experience of the NuGen project. That took 5 years of regulation then four years of planning, then two years of negotiating the price. So, twelve years were spent talking. For SMRs Rolls-Royce wanted to do all of those steps in parallel. That is a challenge to the orthodoxy about how nuclear was done in the UK.

Field
Rolls-Royce SMR need to be able to show investors where they are going to build these new SMR power stations.

The fastest way to do that was a commercial deal. But the only commercial companies that owned sites were Hitachi and EDF Energy. So, a commercial deal will depend on deals with them. The next opportunity would be Trawsfynydd as Rolls-Royce SMR can speak to the delivery alliance formed to develop the site.
The final way was the Nuclear Development Agency (NDA) which has a large portfolio of sites including in West Cumbia, Dungeness, and Anglesey. But at the moment, Rolls-Royce SMR did not have a counterpart there that they can talk to about this prospect.

While there would be benefits to the taxpayer in NDA discussions, they might take longer and would need to discuss it with them. These sites were where Rolls-Royce would have supportive communities, existing supply chains and workers, and importantly grid connection. This was where Rolls-Royce would like to build.

Factories
Rolls-Royce SMR have put out a call for tenders for factory sites. Rolls-Royce SMR was looking for a site that could take a large factory installation. It was a unique facility so Rolls-Royce couldn't repurpose what was already out there.

The factory would be a £100-200 million investment so Rolls-Royce SMR needed to get funding right with the site for the SMR and the funding solution to enable the factory investment

Questions

Alun Cairns MP – Who was it envisaged would operate these plants? Exelon could but were they committed to it? Also, what work would Rolls-Royce be undertaking with Advanced Modular Reactors?

Alastair Evans – Rolls-Royce's intention and their intention was for Exelon to operate. The real difference having Exelon as partner and investor was that it solved a problem. Rolls-Royce needed an operator and they answer that question and give us a route to market.

For countries like the Czech Republic or Poland they have their own local operators so may not need Exelon.- but vital for the UK. Rolls-Royce SMR would work initially with Exelon and then hand over to the local parties as needed.

On Advanced Modular Reactors, Rolls-Royce SMR were involved to an extent in the fusion programme. Rolls-Royce SMR had held discussions on high temperature gas, particularly how Rolls-Royce's modular assembly approach could be utilised. Rolls-Royce SMRs challenge was about pace and the quickest route to market.

Chris Matheson MP – suggested that with regard to field, there were some licensed nuclear sites which weren't necessarily previous generation sites, such as Capenhurst in his City of Chester constituency. It made sense that Rolls-Royce focussed first on previous generating assets. Was there an ambition that SMRs could be rolled out further afield?

Alastair Evans – agreed, the fastest route to market is to use a previously identified red line site. But if Rolls-Royce SMR could get acceptance it would use non-red line sites.

Rolls-Royce SMR were looking at three distinct sites for deployment. Existing sites, followed by wider NDA estate, and then coal sites which had good grid connections and water access with existing skilled labour.
You could do 20 of our reactors on existing NDA land easily which is the fastest route to make it happen. Then Rolls-Royce SMR could look at coal-generating sites, which tended to be close to energy-intensive industries around them.

Lord Wigley – Were Rolls-Royce getting the cooperation needed at Trawsfynydd and were there any snags apart from the situation with the old building?

Alastair Evans – responded that Rolls-Royce were getting cooperation and no there are no snags. However, while the developer entity had been established; there was no clarity or certainty as to whether they could secure the land. They need to get over that and I don't know how close they are to doing that. Rolls-Royce were suggesting a partnership because it made sense.

Rolls-Royce didn't want to be a demonstrator and there was no business case for building one SMR. So, Rolls-Royce had to see more than just Trawsfynydd coming forward. There had to be a pipeline of sites.

Rolls-Royce needed to have multiple sites because the planning would take longer than building a power station. It was the same at Hinckley Point, despite being a tenth of the size. While it took 500 people to assemble an SMR compared to 8,000-10,000 for a standard large nuclear reactor but it has the same planning rigmarole

Rolls-Royce SMR was seeking submissions for sites for their factories by the end of February / beginning of March 2022. They hoped to make a decision in Q2 to get the planning process underway. There would be a down-selection process for 3 – 5 sites to discuss further. This wasn't one factory.

The first would deal with the heavy pressure vessel but then there would be other factories for the other parts. Rolls-Royce SMR wanted to make a decision by the end of this year. The quicker the better, because the earlier in the process this took place, the stronger the argument to BEIS and HM Treasury.

Clive Betts MP – Asked about the location issues in terms of end use of the power with other industries and in particular about the role of Sheffield Forgemasters and their role. Did that have any relevance in terms of where the eventual assembly plant may be?

Alastair Evans – Rolls-Royce had a £4 million contract in place with Sheffield Forgemasters. Rolls-Royce SMR wanted to have a strong UK supply chain. All Rolls-Royce SMR modules were road transportable, so the factory could be next door to Sheffield Forgemasters but it didn't have to be. Forgemasters would produce components that will go to a modular factory which could be ten miles or a hundred miles, it didn't matter so much. The benefit would be a good local supply chain with strong skills. The factory would employ 300-400 people so we have to be mindful of coming in and sucking out external talent from the supply chain.

Clive Betts – On the topic of labour availability, just down the road from Forgemasters was the Advanced Manufacturing Research Centre which had a 600 place apprentice training scheme.

Alastair Evans: Skilled labour was a factor in siting facilities. Rolls-Royce knew it either needed to have a skills training centre in place or it needed to work with a developed training centre.

James Davies MP – Asked when would the first factory and follow on factories to be constructed and opened. Also, did they need to be on a services site or could they exist in isolation?

Alastair Evans: Responded that they could exist in isolation. One of the main requirements was road transportation and being near to a motorway is a significant benefit. On construction, shovels would need to be in the ground in 2023 or early 2024. It is a four to five year construction time so it was a significant construction programme. Rolls-Royce were talking to Laing O'Rourke and others about getting this factory infrastructure built.

Lord West – Stated that about 20 years ago, he was responsible for the nuclear submarine reactors and one of the issues was that the Royal Navy was the only organisations in the UK teaching nuclear engineering courses. Now Navy engineers were being poached! Was there an issue over manpower and was it being addressed?

Alastair Evans: Had spoken to the Permanent Secretary at the MoD about the loss of workforce and increased cost in the Navy. It was one of the reasons why Rolls-Royce SMR wanted to put training centres in place across its programme.

Rolls-Royce was currently looking for 280 engineers in a constrained labour market. There was less competition than there would have been if Horizon and NuGen had gone ahead. Bluntly, the UK needs to make sure it is training up enough nuclear engineers to work in the civil and defence sectors.

As an aside, Mathew Blake, Rolls-Royce SMRs Chief Engineer who designed the SMR is the son of the designer of the initial submarine reactors.

Virginia Crosbie MP: Asked what more could Parliamentarians do?

Alastair Evans: Said he has never seen more political support for nuclear power than in the last two years through this government and parliamentarians in both houses. The Government's position was very strong and very clear. This helps investors to see SMRs as investible.

The problem was that when power would not be generated until 2031 to 2032, Ministers eyes glazed over. Part of that is because the critical path to deployment was full of different regulatory processes. The 5 year GDA regulatory process didn't need to be fast-tracked. It was important and gave Rolls-Royce SMR a global stamp of approval.

However, the thing that HMG needed to understand was that everything else needed to be done in parallel and at pace. That meant at the same time as the regulatory process, Rolls-Royce SMR needed to get the land and funding right. At a recent meeting, one member of the House of Lords flagged a similarity to the vaccine process which was all done at pace.

The climate emergency meant that the longer it took to put SMRs on the grid, the longer the UK was at the behest of the coal and gas markets. It was also a tremendous expert opportunity. Speaking to the Czech Republic and Poland they wanted to see sufficient progress in the UK. Not necessarily a reactor built, but they want to see significant progress.

Also Rolls-Royce SMR were competing internationally with mostly American competitors. The American Bear Hug was immense. They sent diplomats, White House officials, etc. This put the US offer in a really high category. The UK didn't currently do this. There had been conversations with wider Government on how to take this approach.

Virginia Crosbie MP: Thanked Alastair Evans and invited him back in a couple of months to update the APPG.

Alastair Evans: Said he was happy to come back and appreciated the positive support Rolls-Royce SMR was getting from the APPG and Parliamentarians.

The 2022 Work Programme

Virginia Crosbie MP: Led a brief discussion of the 2022 work programme. Which was broadly agreed by members present.

Havard Hughes: Noted that many attendees had not yet seen this document. It was agreed that the Secretariat would circulate it to Members and that it would be brought to a future meeting.

Action: Secretariat to circulate Future Work Programme to members after the meeting for comment.

Any Other Business:

Potential meeting dates were discussed for March, April and May with the intention that the SMR APPG would have a regular programme of briefings for MPs and Peers.

Virginia Crosbie MP: Noted future forthcoming parliamentary questions sessions and encouraged APPG members to submit questions on SMRs.

Meeting Ended – 13:12

SMR APPG Secretariat
8th February 2022