

## **Investing in UK nuclear**

Simon Flint, February 2018

In May 2006, Tony Blair indicated that nuclear was back on the agenda. The mantle was taken up by the Labour administration in the late noughties during which time the world changed. In 2008, the world went through a financial meltdown and the equilibrium of the so-called trilemma of balancing reduced carbon, affordable prices and security of supply had to be recalibrated. Idealism and green policies were subjugated by pragmatism and austerity. The nuclear strategy was put under further pressure in 2011 by the Fukushima disaster and more latterly when oil and gas prices halved.

Against these events nations have revised their industrial and nuclear strategies. The UK industrial strategy or lack of it continues to be shaped by Margaret Thatcher, whose central belief was that free market economics should prevail and that the Government should restrict itself to the defence of the realm and managing the currency. The philosophy of today's energy policy is to allow the private sector to promote projects and to distance the tax payer from development risk.

Thatcher's monetarist principles continue to influence UK economics and today's benchmark is to keep the national debt below 90% of GDP. It is dangerously close to this mark at 84% and therefore there is a preference to exclude large capital expenditure from the government balance sheet. Tipping over 90% will harm the UK's credit worthiness with private investors. Larger debt often leads to the need for higher taxes which will stifle foreign investment, economic growth and full employment. All of which endorses the UK Government's decision to play an enabling role in "keeping the lights on" and shying away from the building of its own power stations.

In contrast, the civil nuclear super powers (France, China, Russia, Japan and Korea) are characterised by state owned industries and the strong links between business and Government. As a consequence, the decision to invest in the UK's nuclear power stations has been made by foreign Presidents as well as CEOs.

The motivation for each state is different but it is more than just headline economics. France has looked to provide contracts and employment for its supply chain. China has sought to gain western acceptance and sees nuclear as part of its broader industrial export strategy entitled "the one belt one road initiative". Japan and Korea are looking for potential outlets for their technology in a market where they can create differential advantage. This contrasts with the low tech manufacturing markets where they are increasingly challenged by the lower cost base of China and other Asian countries. Russia is currently excluded from the UK due to political sanctions.

Meanwhile the UK is looking at mechanisms that can justify its decision making by creating additional social value. Currently projects are negotiated as stand alone with the emphasis on time, budget, safety, sustainability and efficiency. A more long term option would take into consideration the required investment in UK nuclear industry to create a new force to compete in an expanding global market. In turn this will lead to greater social cohesion and the revitalisation of industry.

In the absence of a championed higher vision, the UK's fallback policy is to allow the different national teams to compete for the right to build a nuclear power station. It will allow a range of different technologies instead of selecting one reactor for all of its new fleet. This means that new nuclear power stations will proceed as a series of one off projects. Unlike China, the supply chain does not have clear visibility of a pipeline of similar projects and as a consequence has no long term plans for investment. For the overseas state backed investor, the UK Government's laissez-faire approach can be mystifying and frustrating.

By employing a non interventionist strategy, the UK has sought to distance itself from development issues. New nuclear is a risky business, costly overruns have plagued Finland's Olkiluoto 3 and France's Flamanville 3. Both of these are using the Areva EPR reactor which has also been selected by EDF at Hinkley Point C.

Nevertheless, the Chancellor has pledged 1.2% of GDP towards infrastructure. Although this does not help energy per se, Treasury would appear to be open minded and is looking at different options to generate a value for money nuclear solution. Indeed, the NAO has encouraged this by finding that there are better ways of creating value to the consumer within the nuclear option than the agreed formula for Hinkley Point C.

To secure a risk free project at Hinkley Point for the consumer, the Government has agreed to pay £92.50 per megawatt hour for 35 years. The value of this has been estimated as an income over its full life of £160bn or £2.65bn per year for its first 35 years. Operating costs will be £1bn which results in £1.65bn being repatriated to foreign shareholders. Other power generating technologies can produce electricity at half this price which has resulted in accusations that nuclear represents poor value for money. It remains a political football and for the nuclear sceptics, proof that Hinkley Point C at some stage will be shelved.

The strike price has a number of cost components and these act as a good summary of the headings for where investors and owners perceive the risk. Key components are:

- Operating
- Decommissioning
- Planning and consenting
- Construction
- Financing
- Programme

Each UK nuclear project has demanding set up costs which are currently being met by the client body before it has a contractual agreement ie the commitment to sell electricity at a fixed price over a period of time. Nuclear projects are lumpy exercises and CEOs have to tie up a considerable amount of equity without a return for say five years.

This becomes longer if the project is delayed and therefore the "construction programme" becomes a major factor. The UK construction industry is perceived as being inexperienced, short on skills in certain areas and containing productivity shortcomings. Arguably these are negotiating ploys in assessing risks to agree a strike price. However, there is a perception that nuclear projects will attract the construction "B Team".

The strike price commitment allows the investor comfort and potentially a good return. However EDF spent £2bn in developing an acceptable business case before the £92.50 strike price was finally accepted. After Centrica withdrew from its consortium, it negotiated with China General Nuclear Power Group (CGN) a 33.5% stake in Hinkley Point C and an unconfirmed 20% for Sizewell C. For the Chinese the prize is the switch in the Hinkley Point shareholdings for Bradwell where CGN is thought to have 66.5% and EDF 33.5%. Bradwell will allow the introduction of a Chinese reactor, Hualong One.

Funding and financing remain hot subjects for Hitachi (Wylfa and Oldbury). The FT reported that both Japanese and UK governments may be drawn into the financing model following visits by Philip Hammond and Greg Clark to Japan. The UK Government would look to have an off-balance sheet

minor shareholding and the scheme may be dependent on Japanese soft loans. Set up costs are compounded by Hitachi being a manufacturer with little experience of being the client or the operator and it is having to acquire both these skills.

The UK for the last 20 years when faced with a major infrastructure project which contains risk or is troubled by programme has turned to Bechtel. Hitachi has followed suit and Bechtel's commitment is to "bring Wylfa Newydd safely into delivery to cost and budget in collaboration with local communities and our partners."

A simple formula is that a chief executive is only prepared to lockup 5% of his Enterprise Value that is unlikely to realise any income for 5 years. 5% of EDF's and Hitachi's Enterprise Value is \$4bn and \$3bn respectively. EDF seems to have found a way around this ceiling but Hitachi will require considerable UK and Japanese Government support to close its funding gap.

Toshiba (Moorside) is considerably smaller than Hitachi. Before its public announcement over its financial difficulties, it was gingerly proceeding through the necessary consenting steps. Toshiba desperately needs a funding injection. Both CGN and Korea's Kepco have expressed interest in providing support in exchange for creating an opportunity for their reactors.

2019 will be an interesting time for investors and politicians. It is the time when construction is scheduled to be well under way at Hinkley Point C with site work on the reactor about to start. By 2019 four EPR reactors will be on line at Taishan (China), Olkiluoto and Flamanville. It also coincides with the initial conclusion of the Brexit talks. The UK will be anxious to be able to announce some meaningful trade deals as it exits the EU. Top of the target list will be arrangements with Japan, China and arguably Korea.

If all goes well over the next two years, then private investors may wish to enter the market. EDF has flirted with offloading 15% of its stake in Hinkley Point C. Development risk will be better understood in 2019 and there will be less likelihood of currently unknown potential deal breakers surfacing. It is these uncertainties that prevent investors involvement. Known risks can be managed although the preferred way is to wrap them up contractually and offload them in the form of a turnkey lump sum EPC contract.

Hinkley Point C with a capital cost of £18bn was seen to have an internal rate of return of 9%. However this has dropped to 8.5% as the budget has had to be extended and any delays will further damage this at the rate of 20 base points for every 6 months. Nevertheless the private investor sees the defined income stream as a good return and may be prepared to go as low as 6% to secure a steady secure income for 35 years. Indeed, for some pension funds, locking up the investment for 2 to 5 years followed by a long payout period fits their pension profile.

Investors will look to be invited to join the party rather than going through an expensive competition to earn the right to invest.

The UK continues to be for equity investors only and holds little attraction for debt financing or the stock market. In contrast China which has a clear line of sight of 200 nuclear power stations is financed using 60-80% debt.

The challenge for the construction industry and for Team UK is to present a formula which gives confidence to both the UK Government and the foreign investor to invest in UK nuclear. With the emergence of renewable energy and small modular reactors, industry needs to propose a compelling argument. This will require industry and government to work together to reduce the strike price from £92.50 per megawatt hour to £60 – a 35% reduction. A simplistic approach is to

share this problem 50:50. Assuming that Government can support the financing and account for 17.5%. Can the supply chain target a 20% reduction in the capital costs? A different mindset and approach can deliver a different outcome.

Constructing Excellence has developed a fresh approach which has received backing from a wide range of supporters. Now is the time to read, challenge and develop its model to put good words into actions.

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