Centre for Air Power Studies (CAPS)
Forum for National Security Studies (FNSS)
100/16

UK'S HINKLEY POINT C: MORE THAN JUST A NUCLEAR RENAISSANCE

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After more than twenty years, the United Kingdom (UK) will be setting up a new nuclear power plant in Somerset, with Chinese help. This development has come in the wake of one of the most catastrophic nuclear accidents at Fukushima Daichi in March 2011. As a result, strong public opposition to perceived dangers of setting up and utilisation of civil nuclear energy decelerated the expansion of nuclear power programmes across the world. While it has been only five years since Fukushima, various countries have continued to show keen interest in expanding their civil nuclear power programmes, including the UK— a nation that has been utilising nuclear energy for many decades. Currently, it is on the cusp of reigniting its interest in civil nuclear power for reasons of sustaining a stable economy and lowering greenhouse gas emissions. However, the decision of the UK to construct the new nuclear reactor - Hinkley Point C, has also come in for severe criticism. Several challenges lie in store.

To begin with, Hinkley Point C is planned to have a capacity of 3.2 gigawatt (GW) and is set to start construction in late September 2016, after its approval by British Prime Minister Theresa May earlier the same month. While the approval was expected much sooner, a two month delay occurred as a result of change of Prime Ministership in the wake of the vote over Brexit. The new PM called for a review to assess China's involvement in the project. Indeed, Hinkley Point C has drawn attention from various factions for several reasons. Firstly, the reactor will be a first in the UK after a generation, and less than six years after the Fukushima accident in 2011. Secondly, it has been touted as the most expensive reactor to be built with an estimated cost of £18 billion and £24.5 billion if the financing costs are to be included.[1] Thirdly, Hinkley Point C will be developed via a joint venture by French-owned company Eletricité de France (EDF) and Chinese developer China General Nuclear (CGN). Fourthly, the reactor will

mark the induction of the next generation of technology into UK nuclear power sector since 1995, when Sizewell B (a Pressurised Water Reactor) was commissioned. "Hinkley C will consist of two 1.6 GW European Pressurised Reactors (EPRs), a so called generation III+ advanced reactor design." [2] This design is believed to have a longer operational life and reduced possibility of core meltdowns, among other technologically enhanced developments.

Given the costs involved, the issue of how the reactor will be paid for has been much debated. The developers, EDF and CGN, have been promised £92.50 for every hour of electricity that will be generated by the plant for the next 35 years after the plant is commercialised.[3]The cost to the common user of household electricty has not been made clear. An analysis suggests that "at £92.50/MWh and an average output at 90% of maximum capacity, Hinkley C will earn £81bn over 35 years."[4] This will be borne by all users. Evidently, EDF will receive the stipulated amount only when the plant is operational and commercialised and will have to invest in the cost of construction itself. To add to the expenses, a National Audit Office report also mentions, "taxpayers could be exposed to losses if the government guarantees to bear or share the project risks, such as cost overruns, and that risk subsequently materialises."[5] Hinkley Point C is an obvious expensive affair. But, the cost is not the only reason the new reactor has been under criticism.

Another subject of concern has been China's involvement in the project. It has been reported that CGN will have a 33.5 per cent stake in the project, which can be considered a rather large stake, although not enough to influence decision making with regards to the plant. After PM May took over as Prime Minister, it was observed that there were subtle hints of suspicion at the involvement of the Chinese developers. May's top policy advisors indicated apprehension about China's emerging influence on UK's energy security and also its history of cyber espionage. The emerging suspicion here is that China's involvement in the construction of UK's nuclear reactors may result in dabbling with cyber security risks and by extension, UK's national security risks, which may be difficult to manage. China's reputation of conducting cyber espionage is well-known. Therefore, Chinese involvement in UK's energy security strategy has has set off fears that China may build weakness points and shut down entire nuclear plants via a cyber attack. Many critics of the deal opine that no amount of investment and trade should justify any impending risk towards UK's critical infrastructure. It should be mentioned that China is looking to invest in more of Britain's civil nuclear projects, other than Hinkley C. Hinkley C is more of a green signal for China to pursue an earlier deal, that is, possibility of setting up a Hualong One reactor of Chinese-make at Bradwell in southern England. It is also expected that the China National Nuclear Cooperation

(CNNC), another Chinese nuclear developer, will share the stake in the Bradwell project.

Apart from the usual hue and cry that comes about with plans of construction of a new nuclear power plant (such as fears of improper nuclear waste management, radioactive leakage, and so on), the debates and criticism around Hinkley C has not stopped the British government from going ahead with the project which will take an estimated ten years to complete. This bold move is indicative of other scenarios that the British government may look forward to with optimism. Firstly, the large amount of investment that will be going in to the construction of Hinkley Point C shows that Britain is still attracting foreign investors post-Brexit. This is also an indication that the UK is looking to cement economic and political relationship with China, despite its concerns. PM May showed strong signals of control over the deal with the two month delay of reviewing and slight tweaking of the deal. The changes that have been made to the agreement after the two month review have also been welcomed by other British policy-makers. A few mentionable changes are: 1. EDF cannot sell its majority stake in the Hinkley Point C to its Chinese partners without getting a nod from the UK government. 2. Under the new changes to the Enterprise Act (2016)[6], the British government will have a stronger control over the partnership and may choose to prevent any ownership it finds "undesirable". This implies that the government can exert more influence if it wishes to.

According to the *UK Energy Statistics, 2015 & Q4 2015*[7], the total energy generated in the UK was 337.7 TWh (Terawatt hours) out of which 70.3 TWh was generated via nuclear power. A total of 304.0 TWh was consumed. The figures indicate energy surplus. Yet, the UK seems to be interested on embarking on a nuclear renaissance. To reiterate a point noted earlier, this is imperative, for the UK and for many nations, to tap in to clean and uninterrupted sources of energy. The UK will perhaps lead the western world to start rekindle nuclear power programmes as a means of dealing with the catastrophic implications of climate change.

Matthew Lynn, in his short piece in *The Telegraph*, sums up the UK's seemingly bold strategy somewhat accurately: "It sets the right tone for our post-Brexit economy: confident, outward-looking, international and determined. Throw in some electricity as well and that is probably enough to justify the £18bn price tag."[8] Presently, there are two nuclear power plants on the cards for the UK that will involve the Chinese. The fears may be real, but Britain's attention to its energy security may need Chinese investments and cooperation in order to link itself to the east, as PM seeks to build much-needed strong economic ties for the UK post-Brexit. Meanwhile, China seems to be following a new path of economic policies via off-shore

investments. Its involvement in Britain's reignited nuclear power programme can be seen as a stepping stone for China to bridge itself more to a larger energy market in the west.

(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])

Notes

[1]'Nuclear power in the UK', National Audit Office, The Department of Energy and Climate Change, Session 2016-17, 13 July 2016, see https://www.nao.org.uk/wp-content/uploads/2016/07/Nuclear-power-in-the-UK.pdf, p. 8. Accessed on 20 September 2016.

[2]Simon Evans, 'Q&A: The Hinkley C new nuclear plant', *Carbon Brief*, 28 August 2016, see https://www.carbonbrief.org/the-hinkley-c-new-nuclear-plant. Accessed on 20 September 2016.

[3] 'Hinkley Point: Bold move or white elephant?' *The Week*, 16 September 2016, seehttp://www.theweek.co.uk/60778/hinkley-point-nuclear-plant-will-go-ahead-after-all. Accessed on 19 September 2016.

[4]n. iii

[5]n. i

[6] "The purpose of the Enterprise Act is - 1) To make sure that Britain is the best place in Europe to start and grow a business and that people who work hard have the opportunity to succeed; and 2) cut red tape for business, encourage investment in skills, and make it easier for small firms to resolve payment disputes by setting up a Small Business Commissioner." For more on the Enterprise Act, see 'Enterprise Act becomes law', Press Release, GOV.UK, 4 May 2016, https://www.gov.uk/government/news/enterprise-act-becomes-law. Accessed on 20 September 2016.

[7]'UK Energy Statistics, 2015 & Q4 2015', National Statistics Department of Energy and Climate Change, p. 9, see https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/513244/Press_Notice_March_2016.pdf. Accessed on 22 September 2016.

[8]Matthew Lynn, 'Forget the economics of Hinkley Point, the politics are convincing', *The Telegraph*, 15 September 2016, seehttp://www.telegraph.co.uk/business/2016/09/15/forget-the-economics-of-hinkley-point-the-politics-are-convincin/. Accessed on 20 September 2016.