As UK Inches Towards Chinese Reactor Project, China Sets Sights on New World Markets

John Shepherd

**Early** in January, as many of us in Europe were getting back into the routine of returning to work following the festive period, a new chapter in the history of nuclear energy was already starting to be written in the UK.

The UK government asked the country’s nuclear regulators, the Office for Nuclear Regulation (ONR) and the Environment Agency, to start a generic design assessment (GDA) of what is now known as the ‘UK HPR1000 reactor’ – which is set to be the first deployment of Chinese reactor technology outside China.

If the UK HPR1000 is eventually built in the UK, which would be at a designated site adjacent to the country’s former Bradwell nuclear power plant in Essex, on the eastern coast, the project will not only be a first for the use of Chinese nuclear technology in any other country, it will ironically make UK ties with France stronger – at a time when the UK is preparing to break away from the European Union.

This is because France’s state owned power utility and nuclear operator EDF will be a partner in the Bradwell project with China General Nuclear (CGN), through a company called General Nuclear Services.

The UK’s future nuclear relationship with China appears to have moved forward quickly since last summer, when new UK prime minister Theresa May, who came to office after David Cameron quit in the wake of the Brexit vote, had still not made up her mind about whether she wanted to commit to going ahead with building twin French EPR reactors at the Hinkley Point C plant in Somerset. May’s reticence was largely because of China’s involvement as a co-investor in that project.

China saw Hinkley Point as a first step into UK nuclear investment and as an important step towards achieving its wider ambitions for building a Chinese reactor in the country. In August, in a strongly-worded editorial, Chinese state media rejected UK “worries” about its role in Hinkley Point saying they were “as groundless as they are unnecessary”.

But fast forward nearly five months and it was UK energy and industry minister Jesse Norman who formally asked regulators to start the GDA of the UK HPR1000 on 10 January.

Norman said in a written statement to the UK’s parliament: “The government welcomes such investment. The nuclear industry in the UK is subject to a stringent regulatory regime to ensure safety, security and mitigation of any potential environmental detriment. Generic design assessment is now an established feature of the regulatory regime and is a respected process for rigorous and transparent nuclear regulation.”

The GDA process is the start of a long road before we could expect to see spades in the ground for the Bradwell development. In addition to GDA, which in itself can take around four years to complete, the proposed operator of the plant must obtain permission from regulators and government in the form of site licence and relevant consent to start nuclear-related construction from the ONR. Then the project will require environmental permits and, eventually, planning permission.

The reference plant for the Chinese design is the third unit of CGN’s Fangchenggang nuclear plant in China’s Guangxi Zhuang Autonomous Region, which has two construction phases.

Construction of two Hualong One units is under way at Fangchenggang. Those units are expected to start up in 2019 and 2020 respectively. The first pouring of concrete for unit four of Fangchenggang began in December 2016.

China’s government approved construction of pilot nuclear power plants using the ACP-1000 reactor technology, also known as Hualong One (or the HPR1000 – Hualong Pressurised Reactor), a Chinese third generation reactor design, in 2015.

CGN’s deputy general manager of international nuclear power business development, Yang Maochun, said in an interview just under a year ago: “We aim to have a minimum of 15 percent of our revenue coming from overseas by 2020, to be derived from nuclear power plant investment and engineering services, uranium mining and trading, besides non-nuclear clean energy generation.”

He said CGN had drawn up a three-phase approach to the “internalisation of its business”, by becoming a sub-contractor for foreign reactor developers’ overseas projects between 2009 and 2014, before gaining its own capability to handle large portions of a project overseas.

Today, CGN says it has 19 nuclear power units in operation with a total installed capacity of 20.38 gigawatts (GW) and nine reactors under construction with a combined installed capacity of 11.36 GW. CGN said this makes it “the world’s largest nuclear power construction company”.

But could China’s eventual construction at Bradwell really boost the country’s China’s chances for other opportunities for its indigenous reactor technology around the world? The chairman of CGN is optimistic. He Yu told the China Daily, investing in Bradwell “will also lead to more countries having confidence in the Chinese reactor and will push forward its global market development”.

CGN is right to be optimistic. Despite the initial uncertainty about the path the UK and China might take last summer, the Bradwell project is a bold step and could well encourage others to open their arms to similar deals with China. Certainly, while geopolitics are currently entering a new era as a new president settles into office in the White House, why not nuclear partnerships with China?

In the Chinese zodiac, 2017 is the year of the rooster. According to the characteristics of this particular zodiac sign, “roosters expect others to listen to them while they speak, and can become agitated if they don’t”. Roosters are also advised to “work very hard to benefit from scant opportunities”. Whether this could be an omen for China’s nuclear business fortunes in the world in 2017 remains to be seen.

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Links to reference sources:
- Interview with CGN deputy general manager Yang Maochun: http://bit.ly/2jrkF1c

Author: John Shepherd
nuclear 24
41a Beoley Road West
St George’s
Redditch B98 8LR, United Kingdom