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The China File: China and Nuclear Power in the UK

A deal is widely expected to be formally signed by David Cameron when China's President Xi Jinping visits the UK in October which will see two Chinese nuclear companies - China National Nuclear Corp (CNNC) and China General Nuclear Power Corp (CGN) - providing around 40 per cent of the £24.5bn investment costs for two EPR reactors to be built at Hinkley Point in Somerset. (1) In return it is thought the Bradwell site in Essex, next to the former nuclear power station, could be given over to a Chinese firm to build and run its own nuclear reactor design. (2) The China General Nuclear Power Group (CGN) has said it intends to apply in 2016 for a Generic Design Assessment (GDA) (3) to be carried out by the Office for Nuclear Regulation and the Environment Agency for the 1150 MWe Hualong One reactor design, with a view to building it at Bradwell. (4)

What are the wider implications of these deals for Britain and is China really the sort of trading partner we want?

According to Amnesty International:

- China is the world's worst executioner – putting to death more people than the rest of the world put together;
- The country has some of the most brutal internet and press censorship in the world, and anyone who threatens that control is promptly stifled;
- More than 230 lawyers and activists have been targeted and branded as a 'criminal gang' by the Chinese authorities;
- Speaking out or criticising the government is a dangerous business;
- China has a depressing track record when it comes to arresting and jailing the lawyers who defend activists, dissidents and even ordinary people attempting to get justice;
- China is one of the major players in a booming torture trade which should have been confined to history. (5)

In June 2014, David Cameron met his Chinese counterpart, Li Keqiang, in London. Cameron signed an agreement which stated that: "*The UK Government welcomes investment and participation from Chinese companies in the Hinkley Point C project and progressive involvement more generally in the UK's new build nuclear energy programme. This could include leading the development of other nuclear power station site(s) in the UK and the potential deployment of Chinese reactor technology in the UK, subject to meeting the stringent requirements of the UK's independent nuclear regulators.*" (6)

Foreign Office Human Rights Report

We know the Prime Minister, the Chancellor and DECC ministers all deem China excellent partners to develop new nuclear in the UK. But not all departments have such sanguine assessments of China's Political governance. Here is part of what the latest Foreign Office annual human rights report, released in March this year, says of China, in its section 'countries of concern':

"Of principal concern were detentions of human rights defenders (HRDs) for the peaceful expression of their views. These continued as part of an ongoing clampdown on freedom of expression, association and assembly. There were particular spikes in detentions, including in the run-up to the 25th anniversary of the clearance of the Tiananmen Square protests; and the Hong Kong protest movements, which began in September. Suppression of ethnic unrest in Tibet and Xinjiang also continued.... it is believed that China executes the largest number of people in the world. It retains 55 capital offences, including for non-violent and economic crimes." (7)

Writing in *The Observer*, columnist, and chair of the Big Innovation Centre, Will Hutton said:

"Britain must be an open trading nation, welcoming inward investment just as it seeks to invest in others. But prostituting one's security and economic interests to a country whose values, practices and interests are wholly at odds with one's own is not openness but recklessness."

We are basically asking the Chinese Communist party to build nuclear power stations for us. And we cannot expect them to make sure as much work as possible is sourced in Britain. Hutton said Chinese state-owned companies are a byword, not least in China, for inefficiency, loss-making and politicisation of decision-making. He continues:

"Transparency International [has] declared that China's companies were the least transparent of any it surveyed. The Chinese nuclear industry is a black box unpenetrated by independent Chinese scrutiny, let alone foreigners. But you can be certain that the regulatory processes and decision-making will be as politicised as everything else. This is China's strategic and military heartland, central to one-party control." (8)

Little Consideration for Communities

Beijing is spreading its influence by stumping up the cash to build desperately needed infrastructure around the world, but often with little consideration for communities, says *The Independent*. (9) This article refers to Asia, but would the situation be any different in the UK?

The newspaper continues:

"...in the villages around the Lower Sesan 2 Dam [in Cambodia], the drawbacks of this Chinese largesse soon become apparent. Typically, it is being brokered by the two nations' elites with little consideration of local communities."

Poor Health and Safety Record

An explosion at a chemical plant in the eastern Chinese province of Shandong shortly before midnight on 31st August was the second to occur at a chemical plant in Shandong province in a matter of days. Although no casualties were reported, the blast happened about a fortnight after explosions in the port city of Tianjin, northern China, which killed over 145 people.

The incident is the latest to thrust China's health and safety standards under the spotlight, as industrial accidents are all too common in the nation which has experienced three decades of fast economic growth. In the wake of the Tianjin blast, the Communist Party has sacked the head of China's safety regulator, who was previously the vice mayor of the city. Shortly after, 12 government officials and company executives were detained. (10)

According to Ben Chu, author of *'Chinese Whispers: Why Everything You've Heard About China is Wrong*, the disaster in Tianjin was the latest consequence of a system that places personal profit before public safety. He says in China today behind every industrial accident lies a reeking morass of corruption. Chinese state media reported that the son of a former local police chief was secretly a joint owner of the Tianjin warehouse that went up in a devastating fireball last week, killing 145 people, injuring 674 and damaging some 17,000 homes. He used his official connections to obtain licences for the warehouse, even though it flagrantly breached regulations prohibiting the storage of hazardous chemicals (sodium cyanide in this case) near residential areas. (11)

Does this also apply to nuclear safety? In May leading Chinese scientist He Zuoxiu described China's plans for a rapid expansion of nuclear power plants as "insane". He said the country had not invested enough in safety controls after lifting the post-Fukushima disaster moratorium on new reactor construction. He particularly criticised plans to build reactors inland, because if there was an accident it could contaminate rivers that hundreds of millions of people rely on for water and taint groundwater supplies to vast swathes of important farmlands. He also spoke of risks including "*corruption, poor management abilities and decision-making capabilities*" "*China currently does not have enough experience to make sound judgments on whether there could be accidents,*" he said. Rather than encouraging debate to expose weaknesses, the government tries to stamp it out, and in a country where challenging officials is risky, there is no mechanism to encourage or protect whistleblowers. The safety watchdog is not independent. (12)

The Chinese Government has now ordered nuclear companies to undertake safety inspections into all the existing nuclear power generation facilities, following the explosion at a chemical warehouse at the port of Tianjin last month. The Ministry of Environmental Protection said that the inspections are intended to make sure that the manufacturing and utilization of nuclear equipment and technology, equipment used at uranium mines, and nuclear radiation are safe and under control. The safety checks on more than 50 nuclear power generating units, which are currently in operation or under construction in the country, are scheduled to be carried out by November. (13)

Whilst some might say that health and safety failings in China should not affect reactors in the UK, it is also worth noting that as far as Hinkley Point is concerned the participation of Chinese companies in the project will not be purely financial. EDF has already signed agreements with Chinese firms who will supply equipment for the nuclear station. (14)

A pernicious kleptocracy

Ben Chu gives several other examples of corruption leading to health and safety breaches. In 2008 a massive earthquake struck the western Sichuan region. Many rural school buildings collapsed, crushing hundreds of children to death. It emerged that many of the schools had been built with substandard materials. Local officials had apparently cut costs when they commissioned the buildings, pocketing the saving from the public budget for themselves.

Chu says Corruption is endemic. Officials the length and breadth of the country have used their position to extort money for personal profit. He quotes Minxin Pei, an expert on governance in the country who says "*a pernicious kleptocracy has taken root in China.*"

One point which emerges from many of these stories is that to Chinese officials it is not the quality of investments that is important but the GDP growth which they promote. This is an attitude which seems to apply to Chinese investments abroad too. So, for instance roads constructed in Cambodia are badly built and the bridges are already cracking. Not a good attitude for would-be nuclear operators.

Why do the Chinese want to invest in the UK?

The UK Government appears to be so desperate to get Hinkley Point C built that it is prepared to accept finance from a country whose values, practices and interests are wholly at odds with our own. When people as diverse as the Chancellor's father-in-law and the editors of the *Financial Times* are telling them the project is misconceived it is difficult to fathom their motives. (15) Perhaps at this late stage it is just a question of saving face.

The Times points out that the Government seems to be itching to give away billions of pounds we don't have to France and China. (16) So the motives for the Chinese are clear. After all, consumers could end up sending a share of £40 billion in subsidies in their direction over the next 35 years. (17) But the real prize for the Chinese will be if in return for financing an EPR reactor at Hinkley they can get their indigenous reactor design - the Hualong One – through the UK's Generic Design Assessment, and built at Bradwell in Essex. The hope is that by gaining the imprimatur of the UK's Office for Nuclear Regulation they can go on to sell their reactor design across the globe.

- (1) Wright, O, *Deal to build Britain's first nuclear plant in quarter of a century set to be signed in weeks*, Independent 4th August 2015 <http://www.independent.co.uk/news/uk/home-news/deal-to-build-britains-first-nuclear-plant-in-quarter-of-a-century-set-to-be-signed-in-weeks-10438556.html>
- (2) Lodge, W *Chinese deal to build new nuclear plant at Bradwell edges closer*, East Anglian Daily Times 9th September 2015 http://www.eadt.co.uk/business/chinese_deal_to_build_new_nuclear_plant_at_bradwell_edges_closer_1_4225235
- (3) See <http://www.onr.org.uk/new-reactors/index.htm> for an explanation about the GDA process.
- (4) Nuclear Power in the United Kingdom, World Nuclear Association, last updated September 2015 <http://www.world-nuclear.org/info/Country-Profiles/Countries-T-Z/United-Kingdom/>
- (5) Amnesty International 31st July 2015 <http://www.amnesty.org.uk/china-beijing-2022-olympic-games-human-rights>
- (6) Joint Statement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of the Peoples Republic of China on Civil Nuclear Co-operation, 17th June 2014 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/327758/uk_china_joint_statement_civil_nuclear_energy_co_operation.pdf
- (7) China - Country of Concern, Foreign and Commonwealth Office 12th March 2015 <https://www.gov.uk/government/publications/china-country-of-concern--2/china-country-of-concern>
- (8) Hutton, W *George Osborne in China – wide-eyed, innocent and deeply ignorant*, Observer 20th October 2013, <http://www.theguardian.com/commentisfree/2013/oct/20/osborne-chinese-charm-offensive-ignorance>
- (9) Denyer, S *China's financial power play: How a £530m dam in Cambodia symbolises the growing, sometimes ruthless, influence of Beijing across Asia*, Independent 6th September 2015 <http://www.independent.co.uk/news/world/asia/chinas-financial-power-play-how-a-530m-dam-in-northeast-cambodia-symbolises-the-evergrowing-and-sometimes-ruthless-influence-of-beijing-across-asia-10488927.html>
- (10) Gander, K *Dongying chemical plant explosion: Blast shakes eastern Chinese province of Shandong*, Independent 31st August 2015 <http://www.independent.co.uk/news/world/asia/dongying-chemical-plant-explosion-blast-shakes-eastern-chinese-province-of-shandong-10480428.html>
- (11) Chu, B *China's flawed corruption crusade: How the Tianjin disaster was the latest consequence of a system that places profit before public safety*, Independent, 22nd August 2015 <http://www.independent.co.uk/news/world/asia/corruption-in-china-the-tianjin-explosion-offers-a-glimpse-of-how-the-country-really-works-10466255.html>

- (12) Graham-Harrison, E. *China warned over insane plans for new nuclear power plants*, Guardian 25th May 2015 <http://www.theguardian.com/world/2015/may/25/china-nuclear-power-plants-expansion-he-zuoxiu>
- (13) *China to start nuclear safety inspections following chemical warehouse explosion*, Energy Business Review 15th September 2015 <http://nuclear.energy-business-review.com/news/china-to-start-nuclear-safety-inspections-following-chemical-warehouse-explosion-150915-4670738>
- (14) *Chinese firms to supply equipment for Hinkley Point – EDF* Reuters 12th May 2015 <http://www.reuters.com/article/2015/05/12/edf-britain-china-idUSL5N0Y31PT20150512>
- (15) See Stop Hinkley Press Release 13th August 2015 <http://www.stophinkley.org/PressReleases/pr150813.pdf>
- (16) Osborne, A *Nuclear option is a huge over-reaction*, Times, 21st August 2015 <http://www.thetimes.co.uk/tto/business/columnists/alistaiosborne/article4533532.ece>
- (17) Pagnamenta, R. *Hinkley Point subsidies could hit £40 billion*, Times, 10th September 2015 <http://www.thetimes.co.uk/tto/business/industries/utilities/article4552404.ece>

Annexe – The Hualong One Design

Beijing has successfully used its domestic energy market to entice international suppliers into the country such as Areva and Westinghouse. The demand created by its vast nuclear expansion is a tantalising prospect for traditional Western suppliers of nuclear technology. A very significant part of the agreements with Areva and Westinghouse was a massive transfer of technology and knowledge. Ultimately this led to the two Chinese state-owned companies using the acquired intellectual property to develop their own reactor designs for export.

Now officials in Beijing have forced China National Nuclear Corporation (CNNC) and the China General Nuclear (CGN), to merge their reactor designs into a standardised version, which has led to the creation of the *Hualong One*. Although each firm still has its own supply chain, this process of ‘rationalisation’ prevents competition and makes the business of nuclear exports more streamlined.

Bilateral deals with several countries including Argentina, Pakistan and Romania are paving the way for future exports of Chinese technology. China could be starting to wrest the nuclear export industry away from dominant Western suppliers. Having used the lure of its domestic market to good effect, it has won technology transfers and is now starting to sell technology to a group of largely Western-sceptic states and emerging market economies but an important obstacle remains before China can achieve global dominance.

Until China demonstrates that its technology is tried and tested, sceptics will remain wary of fully committing to the *Hualong One*. But if Beijing can prove its credentials as a responsible nuclear supplier, with the help of Britain the Chinese could develop a significant nuclear export market.

See: Cottee, M *China takes strides in aim to lead world in nuclear power* Financial Times 15th April 2015 <http://blogs.ft.com/beyond-brics/author/matthewcottee/>
 And Nuclear Power in China, World Nuclear Association, August 2015 <http://www.world-nuclear.org/info/Country-Profiles/Countries-A-F/China--Nuclear-Power/>