

KICK NUCLEAR & NUCLEAR TRAINS



Kick Nuclear



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The monthly mailing of Kick Nuclear *and* the Nuclear Trains Action Group of London Region CND.

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NEXT NTAG STALL AND LEAFLETING

Saturday July 22nd, 11am-2pm, outside Brixton tube station, near where nuclear trains from Dungeness cross over Brixton High Street. Part of a country-wide action in support of demo and leafletting outside a Direct Rail Services (who run the nuclear trains) Open Day being held by at their depot in Carlisle. Help welcome. Brixton event Organised by *NTAG*. Info about other events round the country available later

REGULAR FRIDAY SOLIDARITY VIGILS

Every Friday (since August 2012): leafletting outside the Japanese Embassy, 101-104 Piccadilly (Green Park tube) from 10am-12.30pm; and then outside Tokyo Electric Power Co. offices, 14-18 Holborn (Chancery Lane tube) from 1-1.30pm. Held in solidarity with the anti-nuclear movement in Japan. Organised by: *Kick Nuclear* and *Japanese Against Nuclear UK* (JAN UK)

NEXT JOINT KN/NTAG PLANNING MEETING

Monday July 3rd, 7pm, At CND Office. Address in masthead.

NUCLEAR POWER SITUATION WORLDWIDE

Producing a monthly newsletter sometimes leads to the position where nothing particularly noteworthy has happened since the previous newsletter. This seems to

be the position this month. So I'm taking the opportunity to report on the present state of play as far as nuclear power is concerned in major countries around the world (Entries in red for countries not reducing dependence on nuclear power, in green for those who are doing so or intending to do so.)

CHINA

Currently the country building the majority of the world's nuclear power stations. As of May 2017, it had 37 nuclear reactors operating with a capacity of 32.4 GW and 20 under construction with a capacity of 20.5 GW. Additional reactors are planned, providing 58 GW of capacity by 2020. However nuclear power currently produces less than 4% of China's electricity, though this proportion is planned to be increased to 6% by 2020.

However this increase is dwarfed by China's plans for the rapid expansion of electricity production from renewable sources. According to the International Energy Agency, China will install 36% of all global hydro electricity generation capacity from 2015-2021. Similarly, China will install 40% of all worldwide wind energy and 36% of all solar in this same period.

China has had problems with foreign-designed nuclear reactors. In April 2015, the two Electricité de France (EDF) EPR reactors had their start-ups delayed for safety checks after weak spots were discovered in the pressure vessel of the EPR being built in France; the two are now planned to be opened in 2017-2018, 3½ years behind schedule. Four Westinghouse AP1000 reactors under construction in China. were scheduled to be operational by 2016, but are reported to be running over two years late mainly due to key component delays and project management issues.

USA

The world's largest producer of nuclear power, accounting for more than 30% of worldwide nuclear generation of electricity. It currently has 61 nuclear power stations with 99 operating reactors spread among 30 states. They produce 19.5% of the country's electricity.

Nuclear is in increasing decline in the US, due particularly to the rise of cheap natural gas and wind energy which are making producing electricity from nuclear power uneconomic, and in the past few years, US companies have closed or announced plans to close eight reactors and it has been claimed that another 15 to 20 plants are at risk of closure over the next 10 years.

As if this wasn't enough, the bankruptcy of Westinghouse this year, resulting largely from immense losses on its attempts to build four of its AP1000 design at two sites in the US stands as a warning to other nuclear power companies and any others thinking of investing in nuclear power.

FRANCE

The country producing the largest proportion of its electricity from nuclear power, 75%. It currently France has 58 nuclear reactors in operation, with a total capacity of 63.2 GWe. However, almost all of these reactors are ageing, mostly built in the late 70s and early 80s, so they are already coming up to being 40-years' old, and are having their lifetimes extended after reviews every 10 years.

This can't go on indefinitely. So *are* they to be replaced and if so, what by? In July 2015 the National Assembly voted for the proportion of French electricity produced from nuclear to be reduced to 50% by 2025. But to date not a single nuclear reactor has been shut down towards achieving this target. But even keeping to the 50% target would mean many old nuclear reactors continuing to have their operating lives extended, or be replaced by new reactors.

Currently only one, albeit large, reactor is in construction - Flamanville 3, an EPR reactor being built by EDF. This began building in 2007, and was originally predicted to open in 2012. However, serious problems and delays mean the date of opening has been put back, currently to the end of 2018, and the total cost put at 10.5 billion Euros, up from an initial budget at 3 billion. There are no firm plans to build any further reactors in France.

GERMANY

After years of controversy over Germany's nuclear power policy, following the March 2011 Fukushima nuclear disaster the government permanently shut down eight of its 17 operating reactors, immediately reducing the proportion of electricity produced from nuclear power - from 24.4% in 2010 to 17.7% in 2011; and on 30th May 2011, amid massive demonstrations against nuclear power, the German government announced a plan to shut all nuclear reactors by 2022. This policy remains in force.

UK

Since 2008 the UK has had ambitious plans to build new nuclear power stations to replace existing ones. Eventually eight sites were chosen, with plans to build two reactors, sometimes more, at each site. However, to date, not a single one of these has started building. For long the front runner was Hinkley C, where EDF was to build the EPR design. This design received "Generic Design Approval" in 2012 and EDF struck a deal with the Government for a generous subsidy in 2013. Since then a bewildering succession of changes of ownership of the projects, legal action in the European courts over the state subsidy, serious doubts over the viability of two of the reactor designs chosen, the EPR and AP1000, and the bankruptcy of two of the firms involved, Toshiba and EDF, have cast serious doubts over all the projects. Meanwhile, the lifetimes of the UK's nuclear power stations is being extended. Originally all, except Sizewell B (built 1997; due to close in 2035) were

built between 1976 and 1989 and were due to close between 2008 and 2018. Their closure dates have been extended to 2023 and 2030.

JAPAN

Prior to the Fukushima nuclear disaster in March 2011, Japan had generated 30% of its electrical power from its 54 nuclear reactors and planned to increase that share to 40%. After Fukushima all remaining 50 reactors were progressively shut down for safety checks and seven were permanently closed. The current Japanese government is in favour of reopening as many of the 43 remaining as possible, in spite of strong public opposition, and, beginning in August 2015, five of the reactors have so far been reopened.

RUSSIA

Opened the world's first nuclear power station in 1954. Currently operating 36 nuclear reactors at 10 nuclear power stations, producing about 18% of Russia's electricity. Russia also has a further 7 reactors in construction and 11 more approved for construction by 2030, with an average of one large reactor per year is due to come on line to 2028, balancing retired capacity. Federal plan is for nuclear to be producing 25-30% of Russia's electricity by 2030; 45-50% in 2050 and 70-80% by the end of the century.

Russia is a major exporter of nuclear goods and services with over 20 nuclear power reactors confirmed or planned for export construction.

INDIA

By 1/17, India had 22 nuclear reactors in operation at eight power stations, with an installed capacity of 5,308 MW, while others reactors were under construction, expected to generate an additional 6,100 MW. Another 22 reactors were planned. After the Fukushima nuclear disaster in Japan, there have been mass protests against the French-backed 9900 MW Jaitapur Nuclear Power Project, which will involve building 6 EPR reactors of the type France, Finland and China have failed to build to schedule or budget, and the Russian-backed 2000 MW Kudankulam Nuclear Power Plant. Two out of four reactors at the Kudankulam power station have so far come into operation. The planned 9900 MW Jaitapur project would be the world's largest in terms of net electric power rating.

SOUTH KOREA

Has 23 reactors operating at 4 sites, producing 29% of its electricity. It has plans to increase nuclear's share of generation to 60% by 2035; with eleven more reactors scheduled to come on stream in the period 2012 to 2021. However this percentage was whittled down to 29% in 2013 and on June 19th 2017, South Korea's president Moon Jae-in has vowed to scrap all existing plans for new nuclear power plants and cancel lifetime extensions for aged reactors, to lead towards the end of nuclear power in South Korea.