# nuClear news

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# 1. Hinkley deal – just plain bonkers

A recent report by Moody's is very bad news indeed for the Department of Energy and Climate Change, say Tom Burke, writing in *The Guardian*. Wholesale electricity prices have fallen over 40% since 2011, and Moody's expect power prices to remain this low until at least 2020. They attribute the price fall to rising renewable output and falling demand.

What with pressure to reduce demand further caused by the situation in the Ukraine and no sign of the momentum driving renewable energy falling, these numbers make nuclear look like a very bad economic bet and much too slow to make a useful contribution to reducing carbon emissions. A combination of energy efficiency and renewables will reduce carbon pollution faster and more cheaply.

It was always difficult to see what was attractive about the proposed deal with EDF to build a nuclear reactor at Hinkley Point in Somerset – giving 35 years of index-linked tax receipts to the French government to buy electricity at twice its current price. But this news from Moody's makes the deal look just plain bonkers.

1. Guardian 10th July 2014 http://www.theguardian.com/environment/blog/2014/jul/10/edf-nuclear-deal-is-a-bad-economic-bet

# 2. Nuclear waste liabilities drain taxpayers

In the same week that the big guns of the energy efficiency world, including the Energy Saving Trust and the Association for the Conservation of Energy, called for energy saving to be declared a top infrastructure priority, and spending increased to £4bn per year to tackle fuel poverty and climate change, (1) the Nuclear Decommissioning Authority (NDA) has announced that its undiscounted nuclear waste liabilities have increased by £6.6bn to £110bn (2) but warned that next year the total would "*increase significantly*" once it had fully assessed a new "performance plan" for the Sellafield site. (3)

The biggest increase this year has resulted from a reassessment of the work required at Sellafield, which is now estimated to cost £79.1bn to clean up – 72% of total liabilities. The £6.6bn increase appears to be made up of a £5.4bn increase in costs after the introduction of the new performance plan for Sellafield; £0.7bn due to accounting changes; and £0.5bn as a result of the additional scope of work to be carried out at Dounreay.

John Clarke, the NDA's chief executive, told the FT that "*In Sellafield we've got large concrete boxes that had radioactive waste tipped into them from the 1950s*," he said. "*Now we have to figure out what's in these facilities, and how to get it out and treat it*."

When the original White Paper proposing the establishment of the NDA was published in 2002 (4) undiscounted liabilities were estimated to be £48bn. Although costs were expected to "*increase still further in the short term as the full extent of what needs to be done is identified*", in the longer term they were expected to come down as a result if competition driving down costs. Today, more than a decade later costs have more than doubled with no sign of reductions in the near future.

In the NDA's most recent Annual Report and Accounts which first announced the £6.6bn increase in liabilities, it is not the tanks containing extremely dangerous heat-generating liquid high level waste at Sellafield that appear to be the focus of concern. Despite the fact that after 9/11 a Parliamentary Research Report found that a terrorist attack on these tanks could cause an accident serious enough to require the evacuation of an area between Liverpool and Glasgow and cause 2 million fatalities, (5) it seems to be "Legacy Ponds and Silos" that most worry the Authority's Chairman, Stephen Henwood. Chief Executive John Clarke highlights ponds where spent nuclear waste fuel from Britain's First Generation of nuclear reactors known as Magnox reactors was stored. Some of this waste was so corroded it formed a sludge at the bottom of the pond. The construction of a Sludge Packaging Plant was completed this year. Once retrieved from these high hazard facilities, this waste will then have to be encapsulated and stored.

In 2002 *The Observer*, reported on a document released by the now defunct nuclear waste agency – Nirex - which discussed this same category of waste that continues to concern the NDA today. *The Observer* translated the carefully worded Nirex document as meaning that "*almost 90 per cent of Britain's hazardous nuclear waste stockpile is so badly stored it could explode or leak with devastating results at any time*" (6). Two government advisory committees which no longer exist - the Radioactive Waste Management Advisory Committee (RWMAC) and the Nuclear Safety Advisory Committee (NuSAC) also reported in 2002 that by 1998 only 12% of existing Intermediate Level Waste (ILW) had been conditioned, and that some historic wastes:

"*… may be poorly characterised. Physically and chemically degraded and held in old facilities subject to deterioration. Considerable effort is often needed to find suitable means of retrieving, conditioning and storing these wastes. Attention has also been drawn to other challenging wastes, including material where effective immobilisation is difficult, and materials with inherent hazards (such as reactive metals and high fissile content)*."(7)

Despite John Clarke's upbeat assessment of progress since then, the National Audit Office's description of the situation at Sellafield in 2012 suggests progress since 2002 has been extremely limited:

*"Some of the older facilities at Sellafield containing highly hazardous radioactive waste have deteriorated so much that their contents pose significant risks to people and the environment. The highest risks are posed by the ponds and silos built during the 1950s and 1960s to store fuel for early reprocessing operations and radioactive waste … the exact quantity and type of hazardous material on the site had yet to be fully investigated."* (8)

The NDA's contractor for the Sellafield site – Sellafield Ltd run by a consortium of companies made up of URS of the US, France's Areva and Amec of the UK – has recently submitted a new plan for the site. This makes clear that the expected characteristics and estimated volumes of the waste material are based on very limited samples from an unknown and not fully documented inventory. Consequently, significant uncertainties will remain in the capability and capacity of the treatment plants required to handle all wastes until such time as the last waste is removed. In other words, we don't really know what sort of waste we have to deal with at Sellafield, nor do we know how much there is. This means that future costs are subject to high levels of uncertainty. John Clarke says it is likely that the £110bn estimate

"*…will increase significantly as we complete our scrutiny of the plan and better understand the ranges of uncertainties within it. It is also clear that it may take several iterations of the Sellafield plan before this level of uncertainty can be reduced to a level where cost estimates become more stable*."

## High Level Liquid Waste

Meanwhile, Friends of the Earth West Cumbria and North Lakes has been asking why - given that in 2008 the Office for Nuclear Regulation (ONR) declared that new storage tanks for the high-level liquid waste stored at Sellafield were needed "*with the utmost urgency*" (9) - ONR hasn't ordered an end to the reprocessing of spent nuclear waste fuel which generates the dangerous liquids? In 2000 ONR's predecessor, the Nuclear Installations Inspectorate (NII) warned that the tanks needed to be emptied and the waste solidified "*as soon as reasonably practicable*", and levels must be reduced to a buffer level by 2015. Any shortfall would be "*publicly unacceptable*" (10).

By 2012 it was realised that there was no prospect of reducing the stocks of liquid to a buffer level by 2015 and new tanks couldn't be provided until at least 2018, (11) yet new liquid waste continues to be generated at Sellafield.

ONR's response to FoE is that it has a number of priorities including but not limited to reducing high level waste stocks – implying that there must be safety concerns on the Sellafield site which

are more worrying than the possibility of a terrorist attack or accident involving the high-level waste tanks.

Clarke mentions in the Annual Report that operations in the Vitrification Plant, which converts High Level Liquid Waste (Highly Active Liquor or HAL) into a glass form for storage, were hampered by the consequences of an unplanned loss of power to the facility.

## Dounreay

£0.5bn of the recently announced cost increases are due to a decision by the NDA to transfer breeder fuel, containing weapons-grade plutonium, and other so-called exotic fuel, from Dounreay to Sellafield –mostly by rail over the next few years. (See Waste Transports to Cumbria here http://www.no2nuclearpower.org.uk/scotland/dounreay/ ) This will require significant preparation and handling operations, and will add transport and associated security costs. Eventually it is hoped this will save money because it removes the need to modernise stores at Dounreay and substantial security costs from long-term care and maintenance of the Dounreay site. (12)

Our report for Friends of the Earth North Lakes and West Cumbria is here http://www.no2nuclearpower.org.uk/wp/wp-content/uploads/2013/03/Towards_a_Safer_CumbriaMarch2013.pdf

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# 3. Sleepwalking to nuclear proliferation?

Because of the ease with which nuclear materials can be diverted from civil nuclear programmes into military programmes, by spreading nuclear technology in the hope of mitigating the affects of burning fossil fuels on our climate, we will, in fact, be spreading the capability to make nuclear bombs. This runs the risk of provoking multiple mini cold wars around the world.

Of around 60 countries who have expressed an interest recently in obtaining nuclear technology, (1) thirteen are in the greater Middle East. (2) Some of these countries appear to be moving down the nuclear path in response to Iran's pursuit of uranium enrichment raising the prospect of a Sunni/Shia arms race – a "*proliferation chain reaction*". And tensions between Sunni and Shia have worsened as the war in Syria spreads across the border into Iraq. Beyond the Middle East there is a possibility of civil war in nuclear-armed Pakistan, leading to state failure and the possibility of nukes falling out of the hands of an effective central government. India and Pakistan's nuclear standoff is deeply unstable, not least as a result of the interaction with non-state actors. The potential for danger is compounded by the variety of groups: the Pashtu-related Pakistani Taliban, Kashmiri-related groups, and Jihadi militants from the core provinces of Punjab and Sind. Their common characteristics are extreme radicalism, high levels of operational proficiency, and shared enmity of India.

The election of Narendra Modi and the Hindu nationalist BJP Party in India might mean that another a major terrorist incident traced back to, or blamed on, Pakistan, could inflame nuclear tensions on the sub continent; (3) Pakistan has been forced to step up security around nuclear facilities after 10 Taliban militants brought chaos to Karachi airport. (4) Other recent worrying developments include Japan's failure to disclose the existence of 640kg of plutonium which has aroused China's concern; (5)

A new report on non-proliferation and nuclear power called "*Moving beyond the Pretense*" (6) has been published by the Non-Proliferation Policy Education Center (NPEC) in Washington. International non-proliferation policies assume that the dangers of nuclear weapons proliferation attendant to the further spread of nuclear energy programmes are manageable. Research commissioned by NPEC reassesses this assumption.

The research finds that nuclear weapons proliferation is more likely to occur with the spread of civilian nuclear technology representing a threat to international security. Civilian nuclear power programmes actually afford a major leg up for any nation seeking development of a nuclear weapons option. Optimism that we can easily persuade states to forswear making highly enriched uranium and separated plutonium because of the cost and complexity doing so is misplaced.

40 years after Presidents Gerald Ford and Jimmy Carter tried to defer the commercial use of plutonium-based fuels both domestically and abroad, uranium enrichment centrifuges are now relatively easy to hide, and much more readily available than they were in the 1970s. And little thought has been given to how a small dedicated covert reprocessing plant could be built. It was presumed 40 years ago that if illicit nuclear activities were detected, swift, effective international enforcement would follow. But recent experience with Iran and North Korea suggests otherwise.

Defenders of substitute recycling – using MoX in conventional reactors rather than fast reactors - insisted that it posed no proliferation problem because "reactor grade" plutonium was contaminated with unwanted isotopes and thus unusable for weapons. But Victor Gilinsky, former commissioner of the U.S. Nuclear Regulatory Commission from 1975-84, reminds us that in 1976 U.S. President Gerald Ford launched a study on the proliferation dangers of nuclear power programs and what could be done to keep them from contributing to proliferation. This concluded that:

"*The root of the problem [is that] the same plutonium produced in nuclear power plants can, when chemically separated, also be used to make nuclear explosives.*"

In 1977, with the encouragement of the Electric Power Research Institute, an expert team at the Oak Ridge National Laboratory designed a small reprocessing plant that a country with minimal industrial base could build quickly and secretly. The Oak Ridge exercise's objective was to show that even if power reactor plutonium could be used for bombs, it was not going to do any good to ban commercial reprocessing, because a country could quickly build a small clandestine reprocessing plant, using essentially off-the-shelf components, and use it to produce militarily significant numbers of warheads.

But this "*undermined the Ford-Carter assumption that LWRs with no commercial reprocessing was a safe proposition. If a country with LWRs but no commercial reprocessing could secretly build a small "quick and dirty" plant to reprocess LWR spent fuel, then—contrary to conventional wisdom—it could rapidly separate enough plutonium for nuclear weapons, likely before the IAEA inspection system could set off a timely alarm*", says Gilinsky.

NPEC is not anti-nuclear power, and so the report finishes by asking what a proper set of non-proliferation rules would look like if one did not put nuclear power sales and promotion first, but instead emphasized security? It lists five guiding principles for promoting nuclear power without proliferation. Firstly every country must to be presumed a member of the NPT, including India, Pakistan and Israel - no-one is allowed to leave as North Korea did. Secondly there has to be restrictions on the kinds of technology that are acceptable for non-military use. Thirdly countries involved with nuclear energy must accept that the inherent international security dangers such involvement implies require them to relinquish a considerable degree of sovereignty to international security organizations, in particular the International Atomic Energy Agency (IAEA) inspectorate. In view of the concerns about clandestine facilities, both with respect to enrichment and reprocessing, countries have to agree to essentially unlimited inspection rights for international inspectors. Fourthly the NPT needs an established enforcement mechanism to deal with Treaty violations in a predictable way. And finally all nuclear weapons states have to participate in weapons reductions.

But the IAEA is already finding it challenging to maintain existing nuclear non-proliferation controls, so the chances of tightening them appear remote.

It is clear that countries enriching uranium for fuel, or separating plutonium from their spent fuel in order to recycle it as nuclear fuel, have the means to produce nuclear explosives for bombs. The list of candidate countries that could, if they wanted, design and manufacture bombs given the necessary nuclear explosives continually expands. It is less obvious but nevertheless true that even countries lacking commercial enrichment or plutonium

separation plants still have quite a leg up on making bombs if they have nuclear power plants or related research reactors.

Patrick S. Roberts - an associate professor in the Center for Public Administration and Policy in the School of Public and International Affairs at Virginia Tech - says nuclear power will likely spread to new countries and new kinds of facilities in the coming years. Even a modest expansion of nuclear power will require more safeguards inspections, which at the very least raises budgeting problems for the agency. Even if money were no obstacle, however, it is not clear that the agency could simply scale up its operations to meet new demands.

Developing economies demand new energy sources, while North America and Europe are showing a greater resistance to the costs and potential consequences of nuclear power. Therefore, new nuclear reactors will likely be built in regions where the risks of proliferation are the highest.

By 2030**,** the IAEA expects global nuclear electrical generating capacity to grow by between 40 and 120 percent. It also expects between 10 and 25 new countries to attain nuclear power. Facilities in these countries, or expanded facilities in countries already with nuclear power, will require more inspections. This, at the very least, raises budgeting questions because IAEA member states are reluctant to approve budget increases.

The IAEA has a mixed history of preventing diversion of nuclear materials in a timely manner. Iraq (before the first Gulf War) North Korea, Iran, and Libya all engaged in illegal nuclear activities, and it is generally agreed that all embarked on some stage of an illegal nuclear programme. Nevertheless, the IAEA detected violations in only one case, Iraq, and even there, the evidence is mixed.

Pakistan's Daily Times on 24th June bemoaned the fact that the challenges facing non-proliferation efforts appear insurmountable. The newspaper said there is a desperate need for a comprehensive, universal, enforceable non-proliferation treaty. The possibility of such a treaty might seem impractical or utopian under present circumstances. But maybe it's time for the world to think about what is necessary rather than what is practical for a change. (7)

Isn't it time we thought about how the world could work together to tackle the twin threats of climate change and nuclear proliferation beginning with a phase-out of weapons useable nuclear materials, replacing them instead with sustainable energy to meet the world's need for energy in a way that promotes peace rather than threatening it.

Pete Roche has an essay called "*Civil Nuclear Power and Nuclear Weapons Proliferation*" in a new book edited by Anglie Zelter: World in Chains: The Impact of Nuclear Weapons and Militarisation, Luath Press. See http://www.word-power.co.uk/books/world-in-chains-I9781910021033/

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# 4. Japan – reactor re-start watch

Readers of nuClear News no.63 will have noticed a table of Japanese reactors reproduced from a *Reuters* briefing. This showed the prospects for each of the 48 reactors restarting. First on the list was Sendai 1 & 2 which *Reuters* said was likely to restart and was having the approval process fast tracked by the Nuclear Regulatory Agency (NRA). Reuters also claimed there was little local opposition. (1)

The *Asahi Shimbun* newspaper has since reported that over 1,000 protesters assembled outside the prefectural government building on June 13 to oppose moves to restart the nuclear power plant. If the Sendai nuclear plant were to go back online, it would mark the nation's first restart under new safety standards brought in after the March 2011 nuclear disaster in Fukushima Prefecture. The rally, which organizers deemed a "critical phase" in their anti-nuclear efforts, coincided with the start of the prefectural assembly session.

At the prefectural assembly session, Governor Yuichiro Ito said, "*The central government needs to guarantee the safety of the plant when it is restarted*." He reiterated a plan to hold meetings in five localities that are located within a 30-kilometer radius of the plant after the NRA completes its safety inspections. He intends to have NRA officials explain the results of the safety examination to gain the understanding of local residents. Last year, the NRA expanded the area that should be fully prepared for a possible nuclear accident to 30 km from 8-10 km. Local governments in the 30-km radius are expected to put emergency response measures in place. The governor and the prefectural assembly were not expected to debate whether they should give consent to the restart during the current session, which ended on July 4. (2)

The problem of coming up with a cogent evacuation plan has come into focus as procedures for the restart enter the home stretch in Ichikikushikino, a town 5 kilometers from the Sendai plant. Local authorities normally approve reactor restarts, but Ichikikushikino is only a neighboring town, so it does not get any final say in the matter. More than half Ichikikushikino's 30,000 residents have signed a petition opposing the reactor restarts.

Residents say key points have been missed from the evacuation plan. "*The (evacuation) plan itself is very sloppy, just slotting bits and pieces into a manual without giving any consideration to the special features of the area*," said Zenyu Niga, a Buddhist monk whose mountainside temple overlooks the Sendai plant. A narrow road designated as an evacuation route regularly floods at high tide. A day care center has no evacuation plan at all. One evacuation center is a run-down building with limited space. (3)

Now the plant could be restarted in the autumn without a crucial emergency facility in place to deal with a possible nuclear accident and evacuations of host communities. The Cabinet Office in September 2012 instructed all prefectures hosting nuclear power plants to ensure that off-site emergency centers are equipped with ventilation and other systems to prevent radiation contamination and are located between 5 and 30 kilometers from the nuclear plant. It also mandated host prefectures to designate multiple backup facilities in case the functions of the off-site centers are crippled by a disaster, which is what occurred during the Fukushima nuclear disaster that started in March 2011. The deadline for completion of the emergency off-site centers is September 2015. The NRA's safety screening focuses on the condition of the nuclear

power plant, not its off-site centers, so approval for a re-start could be given before the emergency centers are available. The prefecture plans to complete the installation of an anti-radiation ventilation system and an emergency power generator for the off-site center by mid-March 2015, and one of backup facilities for the off-site center will be constructed by mid-October. (4)

In Japan as a whole more than 90% of hospitals and 75% of social welfare facilities, including nursing homes around six nuclear power plants seeking to restart their reactors have not worked out evacuation plans according to a survey by the *Asahi Shimbun* newspaper. Many elderly people and patients died during the prolonged and chaotic evacuation process when the disaster at the Fukushima No. 1 nuclear power plant unfolded in March 2011. However, some municipalities say the government's demands are unrealistic, and they simply do not have the personnel or equipment available for such a large-scale task.

The six nuclear plants including Sendai as well as Tomari in Hokkaido; Takahama and Oi, both in Fukui Prefecture; Ikata in Ehime Prefecture; and Genkai in Saga Prefecture. In the nine municipalities around Sendai only one of the 87 hospitals and six of the 153 social welfare facilities have completed evacuation plans. In the United States, the Nuclear Regulatory Commission bans the operation of nuclear power plants unless plans are in place that can guarantee the safe evacuation of nearby residents. (5)

## Kashiwazaki Kariwa

Tokyo Electric Power had hoped to restart the Kashiwazaki Kariwa facility in Niigata Prefecture this year, but Japanese government officials no longer expect ths to be possible. Re-starting two of the reactors in world's biggest nuclear plant was a pivotal part of Tokyo Electric Power Co's attempts to shore up its finances. Now it is thought that the timetable could be pushed back by a year. (6)

Meanwhile work has started on the mile long, 82ft deep Fukushima ice wall. It will cost nearly £200 million, and rack up an electricity bill of £6 million a year. If it works, it will help to protect northern Japan from disaster. The underground wall of vertical tundra is intended to absorb radiation leaking from the stricken Fukushima Dai-ichi nuclear power plant. However, scientists opposed to the plan question its effectiveness, safety and cost. The "frozen earth barrier", as its creators call it, is intended to deal with one of the biggest problems at Fukushima - 400 tons of radioactive water that pass out of the broken reactors every day.

Most of this is natural groundwater that flows through the earth towards the sea and passes through holes in the reactors across molten nuclear fuel, where it is exposed to radiation. The Tokyo Electric Power Company (Tepco), which operates the plant, currently pumps it out to store in more than 1,200 huge tanks, from which there have been several accidental leaks.

It is hoped that the ice wall will prevent the groundwater from reaching the plant in the first place On top of the £186 million required to build it, the electricity bill will be equal to that of 13,000 households. Japan's nuclear regulatory authority expressed concerns that depriving the land of its water would cause the reactor buildings to subside dangerously, but these fears have, for the time-being, been allayed by surveys indicating that the ground is stable. (7)

Reports so far suggest the construction of the ice wall has not been going well. (8)

## Health impacts

Some 39 months after Fukushima, thyroid cancer rates among nearby children have skyrocketed to more than forty times (40x) normal. More than 48 percent of some 375,000 young people—nearly 200,000 kids—tested by the Fukushima Medical University near the smouldering reactors now suffer from pre-cancerous thyroid abnormalities, primarily nodules and cysts. The rate is accelerating. More than 120 childhood cancers have been indicated where just three would be expected, says Joseph Mangano, executive director of the Radiation and Public Health Project. (9)

Physicians from 19 affiliates of the International Physicians for the Prevention of Nuclear War (IPPNW) have published a critical analysis of the Fukushima report of the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). The efforts made by UNSCEAR committee members to evaluate the extensive and complex data concerning the Fukushima nuclear catastrophe are appreciated. The report shows that the Fukushima nuclear disaster was not a singular event, but is an ongoing catastrophe; that it is not confined to Fukushima Prefecture, but affects people all over Japan and beyond; and that it constitutes the largest single radioactive contamination of the ocean ever recorded. Based on the collective lifetime doses of the Japanese population, which are presented in the report, it must be expected that about 1,000 excess cases of thyroid cancer and between 4,300 and 16,800 other excess cancer cases will occur in Japan due to Fukushima radioactive fallout. It must be said, however, that predictions can only be as good as the presumptions and data they are based on. UNSCEAR attempts to downplay the true extent of the catastrophe. (10)

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# 5. German Waste

After a 30 year fight by anti-nuclear activists against proposals to build a deep geological repository at Gorleben in Lower Saxony, Germany passed a new law in July 2013 that mandates starting a new search for a repository site for high-level waste "*from scratch*." The process will consider all regions with a suitable geology including clay, crystalline and salt host rocks. Gorleben remains a potential option.

Prior to the site selection process, a Federal-state commission is being set up to deliberate the fundamental questions related to the disposal of high-level radioactive waste in Germany, including whether or not to aim for a deep geological repository.

The 33-member Commission for High Level Waste Disposal will be composed of eight scientists and eight representatives of civil society with voting rights, as well as eight representatives of the Bundestag and the state governments, plus a Chairperson, without voting rights.

The commission is to propose changes to the Site Selection Act, in particular regarding the process and public participation, and will also determine the site selection and exclusion criteria. Its recommendations are due at the end of 2015 or mid-2016. (1)

The Commission's recommendations will form the basis for determining the location of the site, such as which kinds of rock are best suited for the purpose and whether the waste should be stored above or below ground. Politicians insisted that nothing had been drawn on the map yet, but they emphasized that the waste would still be stored in Germany, not sent abroad. Jürgen Trittin, the Green party's parliamentary leader, announced that Germany was setting out "*to find the most secure final repository in Germany for the most dangerous type of waste.*" And the Christian Democrat Environment Minister Peter Altmaier added: "*This is a consensual settlement of the last contentious issue of the* [German] *nuclear era*."

It is still not clear what will happen to the vitrified waste currently at La Hague in France and Sellafield, which is due to be sent back to Germany this year.

Some environmental groups were critical of the approach. Heinz Smithal of Greenpeace Germany said that lots of things have already been decided preempting the work of the enquiry commission.

Anti-nuclear activists said the law should not be passed until the commission has reported its findings, but Altmaier has said that the bill will go through parliament before the summer recess. The search for the final repository site, however, will take rather longer; and it will probably be decades before the site becomes operational. (2)

In 2000, the ruling center-left government put exploration of the salt dome at Gorleben on hold for ten years. Then in 2010, with Angela Merkel at the helm, exploration was resumed. However in 2013 Peter Altmaier announced a halt to exploratory work on making the nuclear storage site at Gorleben permanent. He said the government was working on draft legislation to enable a nationwide search for a permanent storage facility for nuclear waste. The Commission is now expected to start holding public meetings between now and the end of 2015. (3)

See Radioactive Waste Management in Germany: Recent Developments Based on Lessons Learnt, Oko Institute 3rd June 2014 http://www.oeko.de/oekodoc/2039/2014-620-en.pdf

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# 6. Moorside Briefing

Cumbrians Opposed to a Radioactive Environment have published a new briefing on the proposed nuclear power station at Moorside adjacent to Sellafield.

The original date for a final investment decision was 2015, but this has now slipped three years to the end of 2018**.** Over the next four years NuGen plans to undertake a range of preparatory works, including regulatory, permitting and commercial activities. As well as preliminary studies for site layouts, stakeholder engagement and preparation for stakeholder consultations, the focus for 2014/15 will be the investigation of the 199 hectare site. This will include geotechnical surveys, groundwater sampling and soil sampling, geological & hydrogeological investigations and radiological direct measurements.

Full development of the site, projected to create between 14,000 and 21000 UK jobs would see 3.4GW generated by three Westinghouse AP 1000 reactors – with Toshiba claiming that each of the reactors *'will take approximately 4 years to build'*, that the first reactor is *'targeted for operation in 2024'* and that operation of all three new reactors would be *'delivered by 2026'*. These overly ambitious claims, as with the employment numbers, appear somewhat implausible and at odds with the current experience in the US where the construction of AP1000 reactors at Vogtle in Georgia and Summer in South Carolina (the first new-build in the US for 30 years) are already 12 months or so behind schedule and over budget. Similar delays – a hallmark of the so called global nuclear renaissance, are also reported for AP1000 construction in China at Sanmen and Haiyang.

The West Cumbrian pro-nuclear lobby has clearly taken no account of the many major hurdles facing the project – the first and foremost being the ruling expected later this year by the EU Competition Commission on the legality of the range of generous subsidies and underwritings offered to the UK's new-build developers by Government. Then there's the progress of the Regulators' Generic Design Assessment (GDA) of the Westinghouse AP1000. With only Stage 1 of the complex assessment process completed, further delays to the process are likely as evident from the Regulators' latest Progress Report (January - March 2014) which points to 51 *'technically challenging'* issues still to be resolved and that *'we expect the completion of GDA for the AP1000 reactor design to take a number of years'*. No nuclear 'island' construction can begin until the GDA issues have been resolved and the process completed.

Other issues likely to delay the project include connecting the reactor/s to the electricity Grid. NuGen's Head of Communications had told a local Business Cluster meeting last week that the National Grid will have to take a £2-3bn project themselves to upgrade the current Grid system and that '*will involve two lines going north to Carlisle and two going south to Heysham …. they might even have to put a tunnel under Morecambe Bay'.* Also likely to be problematic is the choice of cooling water source for the new reactor/s. For potential coastal sites, Westinghouse appears to favour a seawater source of coolant over abstraction from inland freshwater supplies.

1. CORE 6th July 2014 http://www.corecumbria.co.uk/newsapp/pressreleases/pressmain.asp?StrNewsID=339

# 7. Number of Energy Efficiency Installations Collapses.

The number of energy efficiency measures being installed to help homes save energy has collapsed as a result of government policies according to study by the Association for the Conservation of Energy for the Energy Bill Revolution campaign. (1) Meanwhile the Sustainable Energy Association has set out an ambitious programme of insulating buildings, and producing more energy directly from buildings themselves which could net savings to the economy averaging £12.1bn per year from now until 2050. (2)

The number of energy efficiency measures installed under national programmes fell 60% in the past year, down from a peak of 1.65 million in 2012/13 to 661,000 in 2013/2014. The measures, which include cavity wall, solid wall and loft insulation and new boilers, are expected to fall again by nearly a quarter (23%) this year, to 507,000.

Ed Matthew, director of the Energy Bill Revolution campaign, said: "*The government's energy efficiency policies are in free fall. As a result, fuel poverty is getting worse and people are dying. The government must make home energy efficiency an infrastructure investment priority to put the funding in place to end this scandal once and for all*." The government's flagship green deal programme, which provides loans to householders for installing energy saving measures, has been an abject failure. (3)

Unison, (4) the Citizens Advice Bureau (5) and the UK Green Building Council (UKGBC) (6) have all released incredibly useful reports this past month which make the case for a much more ambitious energy efficiency programme. All make the case for a much higher level of capital funding to make home energy efficiency a national infrastructure priority and at a scale which is ambitious enough to end fuel poverty.

Unison's report outlines the benefits of making every home in Britain reach a minimum energy efficiency standard over 15 years. Nearly 7 million homes in England are currently rated in the lowest three bands of E, F and G for energy efficiency, but these households could save £300-600 a year if they were insulated to at least a C rating. Unison argues the scheme would reduce winter related deaths. In the winter of 2012/13 31,000 people died from the cold or related illnesses like influenza, up 29% on the previous year. (7)

The Sustainable Energy Association (formerly the Micropower Council) has set out ambitious recommendations to all political parties on how the UK economy could save billions by placing buildings at the heart of energy policy. The Manifesto, published on 7 July, uses the Government's own online calculator to demonstrate how an ambitious programme of insulating buildings, and producing more energy directly from buildings themselves could net savings to the economy averaging £12.1bn per year from now until 2050. This is equivalent to a £189 saving per year, every year, for every UK citizen. The SEA manifesto calls on all major political parties to adopt a renewed approach to energy policy, focusing on: An Energy in Buildings Strategy; A major focus on the use of smart technology to treat buildings as an integral part of the energy system; A new approach to home heating, recognising the potential of the heating installer; A major infrastructure-based energy refurbishment of the UK's buildings. (8)

1. Eco and the Green Deal, June 2014, Energy Bill Revolution & ACE. http://www.energybillrevolution.org/wp-content/uploads/2014/07/ACE-and-EBR-fact-file-2014-06-ECO-and-the-Green-Deal.pdf
2. Sustainable Energy Association 7th July 2014 http://us4.campaign-archive2.com/?u=86b484d93966bfe51087a7111&id=7704348503&e=033193de25
3. Guardian 4th July 2014 http://www.theguardian.com/environment/2014/jul/04/home-insulation-installs-have-collapsed-because-of-uk-policies
4. Warm Homes into the Future, Unison, June 2014 http://www.energybillrevolution.org/wp-content/uploads/2014/06/Unison_report_2014.pdf
5. Raising Standards, Cutting Bills, CAB, June 2014 http://www.energybillrevolution.org/wp-content/uploads/2014/06/Citizens-Advice-Bureau-raising_standards_cutting_bills_june14.pdf
6. A Housing Stock fir for the Future, UKGBC, June 2014 http://www.ukgbc.org/resources/publication/housing-stock-fit-future-making-home-energy-efficiency-national-infrastructure
7. Independent 15th June 2014 http://www.independent.co.uk/news/uk/politics/coalition-accused-of-sleepwalking-into-an-energy-crisis-9538054.html
8. Sustainable Energy Association 7th July 2014 http://us4.campaign-archive2.com/?u=86b484d93966bfe51087a7111&id=7704348503&e=033193de25

# 8. European Energy Security – missed opportunities

The crisis in Ukraine has heightened worries about energy security, particularly for those countries in the eastern EU that rely heavily on Russian gas. The European Commission has explored recent and expected future trends to see how greater energy security could be achieved. (1) In May it issued an energy security plan which focussed on short term responses to supply cuts and measures to diversify import routes, replacing dependence on Russia with dependence on other fossil fuel providers, but broadly avoided the issue of reducing Europe's considerable overall addiction to energy imports. (2)Around 30% of the EU's gas comes from Russia with around half that flowing through Ukrainian pipelines. Now that Russia has finally acted on its threat and cut off supplies to the Ukraine it is the countries in central and Eastern Europe which will be worst hit, with Hungary and Slovakia relying on Russia for around a third of their energy. But the UK and Spain directly received almost nothing from Russia according to the 2012 figures, and Germany imported around 8% of its primary energy from Russia (working out at 36% of its gas imports). However, according to Gazprom, the UK could be indirectly buying 15% of its gas supplies from Russia via other countries. (3)

Poland's Prime Minister, Donald Tusk, became the *bête noir* of the environment movement when he called for Europe to make full use of the fossil fuels available, including coal and shale gas. (4) Coal supplies 90% of Poland's power so it is less reliant on Russian gas than some of its neighbours, burning half as much per capita as the neighboring Czech Republic, for example. Tusk argues that Europe needs to 'rehabilitate' coal's dirty image and use it to break Russia's grip on energy supply. Government support for coal in eastern Europe has prevented the EU from coming up with a unified strategy to meet its climate goals. Europe failed to reach a consensus on climate and energy strategy for 2030 in March and postponed the decision on emissions targets until the end of the year. To limit carbon-dioxide emissions Poland plans instead to build at least 1,000 megawatts of nuclear capacity in the next 10 years and 6,000 megawatts by 2035. The trouble is nuclear construction presents a huge expense the government can hardly afford, coal therefore remains the country's most affordable source of energy that also provides relative independence from Russia. (5)

Europe's leaders met on 26th and 27th June to discuss energy. But with the focus on simply shifting Europe from Russian supplies of fossil fuels to alternative supplies from elsewhere, and further investment in gas storage several recently published reports have argued that this is an expensive, inefficient and ineffective solution to the EU's import problem, with vested interests keeping Europe hooked on oil, gas and coal, and big energy companies remaining in control. There is little point in finding new ways to transport gas across continents if it is then wasted in draughty buildings and inefficient industrial processes.

One study, entitled *Macro-economic impacts of the low-carbon transition* (6), commissioned by the European Climate Foundation group of NGOs, assesses the potential economic effects of Europe's planned 2030 energy and climate strategy, which is currently the subject of intense negotiation in Brussels. An ambitious decarbonisation strategy could slash the EU's energy dependence, reduce the multi-billion euro cost of energy imports, and help tackle climate-

related risks, according to the study from consultancy giant EY. Under a business as usual scenario European oil import dependency will climb to almost 90% by 2050, while gas import dependency could soar from 64% in 2010 to almost 80% by mid-century. In contrast, hitting long-term decarbonisation targets – an 80% cut in emissions by 2050 - through greater use of renewables and shift to electric transport and heating would slash import dependency, reducing the bloc's annual fuel import bill by between €518bn and €550bn, saving European motorists up to €180bn in 2050, and reducing household energy costs by up to €474bn over the next 40 years. (7)

A report for Greenpeace, *A roadmap towards a sustainable and independent energy supply for Europe,* (8) which is part of its Energy [R]evolution series, compares the impact on EU energy imports of two approaches to 2030 climate and energy targets. This first approach is based on the Commission's proposal for a 40% cut in domestic EU carbon emissions (compared to 1990) and a 27% renewable energy share, without any specific target for energy savings. The second approach reflects demands by Greenpeace and other environmental organisations for a set of three targets including carbon emission cuts of at least 55% (compared to 1990), a renewable energy share of 45% and a reduction in primary energy consumption of 40% (compared to 2005). The report shows that, based on the Commission's proposed 2030 targets, even if the European Union exploits all of its own conventional gas, oil and hard coal, it would still have to import a total of 29,000 petajoules (PJ) per year in fossil fuels by 2030. By contrast, if EU leaders backed more ambitious 2030 targets, overall fossil fuel import requirements would be 45% lower. (9)

Similarly a briefing from E3G entitled "*Energy Efficiency as Europe's First Response to Energy Security*", argues that the EU's present climate and energy policies are insufficient to address persistent energy import dependence and, without urgent reform, will lead to an economy more prone to experience high and volatile international energy prices in the future. Attempts to reduce the political impact of Russian gas imports just by diversifying fossil fuel supplies does nothing to increase European economic resilience against volatile global prices. (10)

The European Commission has recommended that Europe aims for an energy saving target of 27% by 2030, despite calls for a more ambitious target of 40% from Environment Ministers from seven European countries. The ministers from Germany, Belgium, Denmark, Greece, Ireland, Luxembourg and Portugal say the crisis in Ukraine has highlighted the EU's reliance on imports. They argue that a binding target for energy efficiency would offer the "right impetus" to overhaul the continent's energy infrastructure. (11)

The European Commission itself estimates that a 25% target would only cut EU gas imports by 9% per cent; a 35% target would cut gas imports by 33%, and a 40% cut would reduce European gas dependency by an amount equal to current levels of Russian gas imports. (12) The EU already has a 20% energy efficiency target as part of its broader 2020 climate goals – but it is only voluntary. Germany has made energy efficiency a key component of its exit from nuclear energy. The country is aiming for a "virtually carbon neutral" building stock by 2050, and big cuts to energy consumption in the transport sector. Britain favours a robust goal for slashing greenhouse gas emissions but does not believe that a separate efficiency target should be obligatory, saying nations should be free to choose how they make their cuts. (13)

But the European Commission seems fixed on an unambitious energy efficiency strategy, according to Monica Frassoni, president of the European Alliance to Save Energy. (14) At the low end, a 27% target would actually represent a slowing of current levels of investment – a major concern if Europe is to keep its competitive edge against the US and China, which face much lower energy prices and are catching up on efficiency. (15)

The European countries most dependent on Russian gas are also the one with the worst energy efficiency per unit GDP. Energy security policy should incentivise delivery of least cost energy reductions, before it subsidises increased supply and interconnection. Reducing European gas use through efficiency is the best route to both re-establishing a balanced, market- based energy relationship with Russia and to strengthening European economies.

Between fracking East Sussex to insulating homes in Riga, policymakers can't seem to agree on the best course of action to secure Europe's energy supply. But it's clear that for both Europe's climate security and supply security ramping up renewables and implementing energy efficiency policies are clear winners. But as more politicians argue that climate objectives must be secondary to energy security, it may be worth asking what it is they're trying to secure. (16)

In October, EU leaders are due to discuss concrete measures to reduce energy dependence, as well as new targets to boost renewables, increase energy efficiency and cut carbon emissions by 2030. They will have to do much better if they are going to turn nice words on security and climate into tough action in the face of stiff resistance from big energy companies. (17)

On a positive note, although Poland is often portrayed as being reluctant to implement ambitious climate objectives, but taking a closer look at what is actually happening across Polish cities and local communities we see over 800 municipalities which have submitted applications to the National Fund for environmental protection and water management, seeking financial support for the development of low-carbon energy plans. There is a growing momentum accelerating the energy transition at the local level. 28 Polish cities have already adopted ambitious sustainable energy action plans, jointly pledging to meet, and for some even exceed, the EU $CO_2$ reduction target. (18)

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1. Carbon Brief 9th June 2014 http://www.carbonbrief.org/blog/2014/06/the-eu-energy-security-strategy-in-5-graphs/
2. Greenpeace Briefing 25th June 2014 http://www.greenpeace.org/eu-unit/Global/eu-unit/reports-briefings/2014/20140625%20briefing%20EU%20summit%20-%20link%20to%20the%20reportPDFfile.pdf
3. Energy Desk 17th June 2014 http://www.greenpeace.org.uk/newsdesk/energy/analysis/questions-answers-ukraine-crisis-and-energy-europe
4. FT 21st April 2014 http://www.ft.com/cms/s/0/91508464-c661-11e3-ba0e-00144feabdc0.html
5. Business Week 24th April 2014 http://www.businessweek.com/news/2014-04-23/poland-pushes-coal-on-europe-as-putin-wields-gas-weapon-energy
6. European Climate Foundation June 2014 http://europeanclimate.org/macroeconomic-impacts-of-the-low-carbon-transition/
7. Business Green 10th June 2014 http://www.businessgreen.com/bg/analysis/2349179/ey-decarbonisation-promises-to-slash-european-energy-import-dependence

8. A roadmap towards a sustainable and independent energy supply for Europe, Greenpeace June 2014 http://www.greenpeace.org/eu-unit/Global/eu-unit/reports-briefings/2014/Roadmap%20report%2020140625.pdf
9. Energy Desk 24th June 2014 http://www.greenpeace.org.uk/newsdesk/energy/news/how-boost-clean-energy-and-efficiency-europe-and-what-it-would-mean
10. E3G 24th June 2014 http://www.e3g.org/news/media-room/energy-efficiency-as-europes-first-response-to-energy-security01
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15. Euractiv 30th June 2014 http://www.euractiv.com/sections/energy/why-our-energy-efficiency-discussion-so-unambitious-303136
16. Carbon Brief 26th June 2014 http://www.carbonbrief.org/blog/2014/06/what-policy-responses-to-the-ukraine-crisis-reveal-about-eu-energy-security-priorities/
17. Greenpeace 27th June 2014 http://www.greenpeace.org/eu-unit/en/News/2014/Activists-protesting-at-EU-summit-released-from-police-custody/ See also http://www.greenpeace.org/international/en/news/features/europes-energy-cliffhanger/
18. Euractiv 18th June 2014 http://www.euractiv.com/sections/energy/polands-other-energy-story-taking-closer-look-302897

# 9. ESPOO and PLEX

As we reported last month, a decision by parties to an obscure Convention – known as the Convention on Environmental Impact Assessment (EIA) in a Transboundary Context, or the Espoo Convention - has huge implications for Europe's ageing nuclear reactors. All ageing nuclear power stations in Europe will now have to have an environmental impact assessment (EIA) before a licence renewal or the approval of a 10-year-periodic safety review. And the EIA will have to compare the potential impact of extending the life of an old reactor with supplying energy from alternative sources such as renewable energy. (1)

This is a groundbreaking decision. Until now, most European countries prolonged the lifetimes of their ageing nuclear reactors by only looking at whether prescribed safety standards are met. Normally, there is no further consideration about whether the increasing risk of potential large environmental impacts due to a severe accident at an ageing power station can be justified in comparison with other alternatives for generating electricity. The public is not consulted before old reactors receive another lease on life. This now has to change.

On 23rd June Caroline Lucas MP asked the Secretary of State for Energy and Climate Change what the timetable is for the next periodic safety review (PSR) of each of the UK's nuclear power stations and whether an environmental impact assessment is required as part of the periodic safety review procedure, and what opportunities exist for public involvement in such reviews.

The timetable for the next PSRs of each of the operating nuclear stations was given as below:

| **Station** | **Submission to ONR** | **ONR decision date** |
|---|---|---|
| Hinkley Point B/Hunterston B | January 2016 | January 2017 |
| Dungeness B | January 2017 | January 2018 |
| Hartlepool/Heysham 1 | January 2018 | January 2019 |
| Heysham 2/Torness | January 2019 | January 2020 |
| Sizewell B | January 2024 | January 2025 |
| Wylfa | October 2013 | September 2014 |

Michael Fallon replied that "*An environmental impact assessment is undertaken by each licensee covering the radiological impact of routine discharges. Such assessments are carried out separate to the PSR* [Periodic Safety Review] *submitted to* [the Office for Nuclear Regulation] *ONR by the licensee under Licence Condition 15, and are regulated by the appropriate UK environmental agency—the Environment Agency, Scottish Environmental Protection Agency, or Natural Resources Wales—in each case. While there is no legal requirement for public involvement in PSRs, the decision of whether to include public involvement is taken at the discretion of each station*

*licensee. ONR completes an assessment of the licensee's submission prior to the decision date to ensure it meets the expectations set out in its guidance and that it provides an adequate demonstration of the future safe operation of the plant.*"

This answer does not appear to be in line with either the Espoo or the Aarhus Conventions which both require public participation concerning any environmental impacts - not just on "routine discharges", but also emergencies and beyond-design accidents.

Under these conventions an assessment of whether a power plant is fulfilling the legal nuclear safety obligations is not sufficient. There also has to be a justification of the imposition of a risk of a large release of radioactive material to the environment and health and this needs to be compared with reasonable alternatives. In UK law, such an assessment is only done in an EIA.

The last Meeting of Parties of the Espoo Convention endorsed a finding by the Implementation Committee concerning the Rivne 1 and 2 reactors in Ukraine because a transboundary EIA was not carried out as part of the plant life-time extension process. The process is very similar to the process used for the upcoming Periodic Safety Reviews in the UK. The Committee asked Ukraine to remedy the situation before the next PSR in 2020. (2)

Meanwhile ONR has approved a change to rules which govern graphite bricks that line the core of the reactor at Dungeness. Over time, as a result of being bombarded by radiation, the bricks lose weight and can crack. The ONR strictly regulate the state of the bricks and don't normally allow them to lose more than 6.2 per cent before they are classed as having reached the end of their life – as they line the reactors core, they cannot be replaced which means the bricks signal the end of the power station's life. However, EDF, the station's owner, applied to the regulator to increase this limit to eight per cent in order to extend the life of the power plant. (3)

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1. Ecologist 9th June 2014 http://www.theecologist.org/News/news_analysis/2430353/europes_ageing_nuclear_reactors_will_have_to_undergo_environmental_assessments.html
2. Meeting of the Parties to the Convention on Environmental Impact Assessment in a Transboundary Context Implementation Committee Thirtieth session Geneva, 25–27 February 2014 http://www.unece.org/fileadmin/DAM/env/documents/2014/EIA/IC/ece.mp.eia.ic.2014.2_advance_edited.pdf
3. Kent News 27th June 2014 http://www.kentnews.co.uk/news/dungeness_b_given_the_green_light_by_regulator_1_3659119 Utility Week 30th June 2014 http://www.utilityweek.co.uk/news/change-to-dungeness-nuclear-safety-rules-approved/1026162

# 10. New Nukes – the bonkers scenario

On 6th May Neil Crumpton gave a presentation to Stop Hinkley supporters regarding the government's long term plans of escalating new nuclear. All the major UK political parties (except the Green Party) support the construction of new nuclear power stations claiming it will address climate change, generate cost-competitive electricity and provide energy security. Last year the Coalition's nuclear 'Pathways' report and statements from ministers and chief advisers made it clear the planned 16 GW by 2025 new build 'replacement' programme was now to be seen as just a 'first tranche'. The Pathways report detailed programmes of over 55 GW or more of light water reactors by 2040 and up to 75 GW by 2050, including possibly 20 GW of fast breeder reactors. This major escalation of the UK's nuclear ambitions, in its self-proclaimed quest to be a leader in a global nuclear renaissance, was the subject of the Stop Hinkley meeting. His presentation is available on the Stop Hinkley website (1).

1. Stop Hinkley 10th June 2014 http://stophinkley.org/Newsletter/NlJune2014.pdf

# 11. Office for Nuclear Regulation Safety Assessment Principles

In his report into the implications for the UK nuclear industry of the 2011 Fukushima accident, ONR's Chief Nuclear Inspector recommended a formal review of ONR's Safety Assessment Principles (SAPs). The SAPs are ONR's highest-level internal guidance to our inspectors for assessing safety. The review concluded that while no urgent changes were required, the SAPs should nevertheless be updated to reflect both learning from Fukushima and wider changes in the industry since the SAPs were last revised in 2006. Following extensive work by ONR inspectors, other regulators such as Environment Agency, Scottish Environment Protection Agency and the Defence Nuclear Safety Regulator, and other government departments, the project to revise the SAPs is now nearing completion, and proposals for an update have been drafted. Recognising that our safety assessment standards are important to the wider nuclear industry, ONR is offering site licence holders, non-governmental organisations and other interested parties an opportunity to comment on the proposals. The consultation is open until 11th August.

Of course, it would have been more in the keeping with openness and transparency if ONR had sought the views of stakeholders before producing a final draft of its proposals. (1)

Meanwhile ONR and the Environment Agency have reported progress made on the Generic Design Assessment (GDA) of Hitachi-GE's UK Advanced Boiling Water Reactor (UK ABWR), as well as preparation for potential other GDAs between January and March 2014. (2) They have also published a public and stakeholder engagement plan. (3)

1. ONR 16th June 2014 http://news.onr.org.uk/2014/06/consultation-launched-on-onr-safety-assessment-principles/
2. ONR 24th June 2014 http://www.onr.org.uk/new-reactors/reports/gda-quarterly-report-january-march-2014.pdf?ebul=gd-nuclear&cr=01/jun-14
3. ONR 24th June 2014 http://www.onr.org.uk/new-reactors/reports/public-and-stakeholder-engagement-june-2014.pdf?ebul=gd-nuclear&cr=02/jun-14

# 12. Nuclear Waste to be transported backwards and forwards across Scotland?

The Scottish Environment Protection Agency is consulting, until 3rd October, on an application by EDF Energy Nuclear Generation Ltd to vary the Authorisations for both Hunterston B and Torness Power Stations for the disposal of radioactive waste from both stations. (1)

The new authorisations would allow radioactive waste to be transported by road between Hunterston in Ayrshire and Torness in East Lothian. The company wants the flexibility to pack intermediate-level waste (ILW) from both stations into the same storage container to save money. This could mean waste containers being increasingly moved between the west and east coasts, increasing the risk of accidents.

The two applications seek permission for both stations to receive radioactive waste from other EDF Energy power stations for the purposes of interim storage, loading of containers and onward transfer.

"*The Scottish government should force EDF Energy to operate according to its sensible policy of requiring waste to be treated as near to where it is produced as possible instead of allowing this crazy plan putting the central belt of Scotland at risk*" said Pete Roche of No 2 Nuclear Power.

Rita Holmes, who chairs the official Hunterston Site Stakeholder Group, also feared that the risks of road accidents and radiation leaks would rise. "*EDF Energy wants to be able to ship dangerous radioactive waste to and fro across Scotland to save money on the way containers are used," she said. "Because waste from Hunterston and Torness will be mixed up in one container, it could make also it difficult to abide by the government policy of storing waste near where it was produced*."

A store for intermediate-level waste has recently been completed at Hunterston, but there is as yet no equivalent at Torness. (2)

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1. Consultation on proposed variations to both EDF Authorisations, SEPA, July 2014 http://www.sepa.org.uk/about_us/consultations.aspx
2. Sunday Herald 6th July 2014 http://www.robedwards.com/2014/07/nightmare-of-nuclear-waste-shipments-across-scotland.html

# 13. The Chinese are Coming

Controversial plans to allow Chinese investors to play a crucial role in the development of new nuclear power plants in the UK have taken a major step forward, after a visit to Britain by Chinese premier, Li Keqiang.

The UK government said the deal could be worth "*hundreds of millions of pounds to British companies over several years*". The deal paves the way for Chinese companies to invest in Hinkley Point C but also allows Chinese companies to own and operate a Chinese designed nuclear power station in the UK, provided it meets the Office for Nuclear Regulation (ONR)requirements. (1)

The key paragraph reads: "*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*." (2)

According to the *Sunday Times*, Hartlepool and Heysham are the two sites most sought after by the Chinese. It's not clear why Bradwell didn't get a mention.(3)

The Department of Energy and Climate Change (DECC) said that in addition to removing barriers to Chinese inward investment in nuclear projects it would also see the two nations co-operate "*on the wider nuclear fuel supply chain cycle by working together to develop and export innovative solutions in areas such as waste treatment and decommissioning which could be worth hundreds of millions of pounds to British companies over several years*". (4)

This second agreement, about enhancing co-operation in the field of civil nuclear industry fuel cycle supply chain, was between the UK government's Department of Energy and Climate change, the UK Nuclear Decommissioning Agency's International Nuclear Services business, the China Atomic Energy Authority and China National Nuclear Corporation. It says that INS and CNNC will co-operate on fuel cycle and transportation, decommissioning of nuclear facilities, and radwaste management and disposal, technical R&D, personnel training, and have regular meetings. It sounds suspiciously like there may be plans to help the Chinese develop reprocessing facilities, though quite why they should seek help from Sellafield is difficult to fathom.(5)

Rolls-Royce also signed a memorandum of understanding with China-based SNPTC to collaborate on civil nuclear power projects in the UK and other markets. The companies will work together in such areas as engineering support, provision of components and supply chain management. Rolls-Royce said it already services more than 70% of China's operating nuclear reactors as well as those being built. (6)

## EPR

Whilst China is moving quickly to become the first country to operate an EPR reactor at Taishan, France's nuclear regulator has complained that communication and cooperation on safety

measures with its Chinese counterparts are lacking. France has a lot riding on a smooth roll out of the two Taishan EPRs. "*It's not always easy to know what is happening at the Taishan site*," says Stephane Pailler, head of international relations at France's Autorite de Surete Nucleaire regulator. "*We don't have a regular relationship with the Chinese on EPR control like we have with the Finnish*." Calls and faxes to China's National Nuclear Safety Administration regulator seeking comment go unanswered, China General Nuclear Power Corp., the atomic operator that is building the reactor with the French, don't respond to queries.

The French regulatory agency has published hundreds of letters, reports and references on its own website about the Flamanville EPR, in Normandy. It has carried out 140 inspections since 2007 on building quality such as concrete, welding and cables, a regulatory spokeswoman said. Other probes were carried out on equipment suppliers, storage and design. The authority has ordered at least two construction halts after finding faults. In contrast, the Chinese regulator's website contains relatively little information about safety issues. The most recent post on Taishan is a 2009 report on the start of cement work at the reactor referring to "*problems left over from early-stage construction.*" It said all current work was up to standard, without elaborating. In total just nine posts on the website mention Taishan, and many are blank apart from the title. (7)

Tom Burke warns the UK's new nuclear programme may go up in flames if China's 'overwhelmed' nuclear regulators fail to prevent an accident. The prospect of the Chinese becoming owners, managers and even constructors of nuclear power stations in Britain has caused a lot of anxiety for a variety of reasons. But one truly substantial reason why we should worry about Chinese involvement in the nuclear industry is yet to be noticed by anyone but the French Nuclear Safety Authority. They have just complained publicly about the lack of communication with their Chinese counterparts. Explaining this to the French Parliament they pointed out that '*one of the difficulties in our relations is that the Chinese safety authorities lack means. They are overwhelmed*'. If the already stretched Chinese nuclear regulators prove unable to prevent a nuclear accident in China it will have direct repercussions here. This compounds the gamble that the British government is taking with Hinkley. Not only are we selling 35 years of index linked tax receipts to the French government in return for electricity at twice the price we are currently paying for it but we are also placing the security of our future electricity supply into the hands of China's 'overwhelmed' nuclear regulators.(8)

## Tainted Money

The Government has been accused in Parliament of "*accepting money tainted with blood*", after agreeing the Chinese deal. Campaigners are furious the Government has been wooing China without demanding improvements to the country's notoriously poor human rights record. Mr Li's Government was accused of placing "*arbitrary curbs on expression, association, assembly, and religion*" by Human Rights Watch in a recent report. Paul Flynn, the anti-nuclear power Labour MP for Newport West, motioned in the House of Commons last week for the Coalition to cancel any proposed nuclear agreements with China. "*This House… believes, in light of appalling human rights violations, that accepting money from the Chinese State Investment Bank to invest in UK new nuclear is accepting money tainted with blood*," said the motion. (9)

Will Hutton, formerly a stockbroker economics journalist and *Observer* editor, now Principal of Hertford College, Oxford, was excoriating in his appraisal of the deal done with Chinese

companies to support Hinkley C. He argued that while Britain must be an open trading nation, welcoming inward investment just as it seeks to invest in others, prostituting one's *security* and economic interests to a country whose values, practices and interests, he went on "*are wholly at odds with one's own is not openness but recklessness*." Geoffrey Lean said how's this for a turn-up for the books? A Conservative Chancellor, promoter of free markets and defender of national sovereignty, is boasting of "*allowing*" (a euphemism, it seems, for "begging") a totalitarian Communist country to build nuclear power stations in Britain. But not all departments have such sanguine assessments of China's political governance. Here is part of what the Foreign Office annual human rights report says of China, in May 2013. "*Journalists, bloggers and intellectuals continue to be harassed or detained for exercising their right to free speech. Many high-profile activists, including Nobel Peace Prize Laureate Liu Xiaobo, are serving long prison sentences for speaking out about political freedom and human rights*." (10)

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# 14. Renewables money running out

The pot of money that ministers have set aside to subsidise renewables is likely to run out much more quickly than previously thought, according to new research, placing green energy projects in jeopardy. An analysis by Aurora Energy Research suggests the government has its forecasts wrong on wholesale electricity prices. It says these will fall much more quickly over the next few years than Whitehall's models suggest. The lower the market price, the more the government has to subsidise low-carbon energy. Yet the subsidy total has been capped, meaning it could be used up more quickly than ministers predict. This could have worrying implications for many big offshore wind projects in development, which are heavily reliant on state incentives. The UK needs such projects to go ahead if it is to meet its legally binding target of generating 15 per cent of energy from renewable sources by 2020. Signs have emerged that concerns about the size of the subsidy are already having a chilling effect.

John Feddersen, Aurora's chief executive, said several offshore wind projects had recently been reduced in size "because people are uncertain about whether they're going to get the support". In its analysis, Aurora predicts the wholesale price of electricity will drop from the 2013 average of £51 per megawatt hour to about £46/MWh in 2020 and £41/MWh in 2030. The current price is below £40/MWh, partly because of the mild winter. RenewableUK, a trade body that represents the wind industry, echoed Aurora's warning, saying there were big concerns that the cap on the LCF was too low. "This is why the government should review the LCF cap every year to establish whether it's adequate, and look carefully at all its underpinning assumptions, including those on wholesale prices," said Maf Smith, RenewableUK's deputy chief executive.

"*It is good that a research company*", says Alan Whitehead MP "*has now told us that, as an instrument to facilitate and plan investment in renewables, the Levy Control Framework (LCF) is a fat dud, regardless of its efficacy as a method of stopping anyone spending more than a set amount of 'levy money' whether what you get for that spend is worth having or not. But a number of people (me included) have been making this point for a long time now. It is perhaps only now that Contracts for Difference are upon us, that the true fat dud-ness of the device can be uncovered.*"

Meanwhile, the solar industry is predicting that Government plans to halt subsidies for new solar farms next year are likely to spark a surge in investment that could almost double installed capacity to 9GW. Last month, the government announced it wanted to close the Renewable Obligation (RO) subsidy regime to solar farms larger than 5MW in a bid to refocus support towards rooftop schemes. Ray Noble, solar photovoltaic specialist consultant for the Solar Trade Association (STA) and the UK National Solar Centre, told *BusinessGreen* that he expected the changes to create a flurry of investment that would see another 4GW to 5GW installed over the next year. (3)

The Department for Energy and Climate Change (DECC) has been consulting on proposed changes to subsidies for solar power. DECC wants to end Renewable Obligation subsidies to solar farms with a capacity of more than 5MW, despite 85% of the public favouring the technology.

The Solar Trade Association (STA) arranged for a letter, signed by over 150 solar companies to be delivered to the Prime Minister's office. It argues that the proposed policy framework threatens the industry's potential to become 'subsidy-free' and contribute £78 billion per annum to the UK economy by 2020. "*The government is now proposing to tilt the playing field against large-scale solar, while not taking sufficient action to unlock commercial rooftop solar – that is unacceptable*," said the STA's chief executive Paul Barwell. (4)

Solar farms are quick to build, and the technology is available now. Solar energy is cheap and low-carbon and it helps Britain meet its renewable energy target. It is popular with the public, provides an alternative income stream for farmers, and is helping a growing number of schools to cut their energy bills. Yet a large number of longer-term investments will not go ahead under the Government's proposed changes. (5)

However, the government and leading solar industry players are working together to develop a range of new initiatives designed to encourage rooftop solar. Climate Change Minister Greg Barker will host a roundtable in early September with landlords, estate agents, lawyers, large retailers and solar developers, which aims to identify and overcome the barriers to the deployment of solar technolgies on commercial and industrial rooftops. (6)

And according to one company government attempts to curb the spread of solar farms by ending a lucrative subsidy scheme will not succeed because a replacement payment system is actually more attractive. Robert Goss, managing director of Conergy, said: "*It isn't at all clear that changing the incentives will actually reduce the number of solar farms being built*." He said that investors were simply speeding up some projects to complete them under the existing subsidy scheme, and would then build a new wave of projects under the replacement system. Conergy is sufficiently unfazed by the change that it has just bought a series of planned solar farm projects, including some that will be affected by the subsidy cut and are not yet in the planning system. It now plans to spend £200m building them. (7)

The balance of opinion on the solar-side seems to disagree. Jonathon Porritt asks ministers "*why are you about to shaft the UK's solar industry all over again, at exactly the point where it's beginning to make a substantive contribution to this country's energy needs, generating significant economic benefits, with strong support from the general public?*" (8)

On a more positive note Porritt says "*let's not get carried away*, *but it really could be time to get seriously excited about the prospects for community energy in England"*. Writing in *The Guardian* he says it's great to see the launch of Community Energy England (CEE). For some time now, there has been a real need for a new representative body to promote the interests of those running projects on the ground. The launch shows the sector is shifting from a niche activity run by hard-core pioneers to a potentially disruptive force that can be tapped into by any community. And then, somewhat less excitingly, we have to celebrate the launch of the government's community energy strategy in January. This was an important step that it was able to take because there was enough activity on the ground to make it look credible enough inside government (and particularly inside the Treasury!) and the rest of the energy sector. (9)

In Scotland new independent renewable projects have increased by 50% in a year, and now produce enough energy to power one million homes**.** More than £66 million was invested in independent schemes – projects not operated by the six largest power companies – in 2013. This generated around £234m of electricity, up from £191m in 2012, according to Smartest-

Energy, a buyer of power generated by the independent sector. Trade body Scottish Renewables said the rise showed independent electricity generators – including communities, businesses, farmers and public bodies – were increasingly taking their energy future into their own hands.

One of the latest projects is the £11.5m Loch Carnan community windfarm which is generating profits for reinvestment in South Uist, Benbecula and Eriskay by Stòras Uibhist, the community company which led Scotland's biggest land buyout in 2006. This year, the wind farm is expected to generate £2m gross revenue for the island community. Huw Francis, chief executive of Stòras Uibhist, said: "*This is the biggest community wind farm in Scotland with 6.9MW of capacity – but there has not been any real criticism of the turbines because people can see that the revenue they generate is staying in the community and helping us to maintain and enhance the environment of our islands.*" (10)

Keep up with news about independent energy projects across the UK by signing up to Microgen Scotland's weekly news. Have a look at the re-vamped website here: http://www.microgenscotland.org.uk/

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