

# NUCLEAR MONITOR

A PUBLICATION OF WORLD INFORMATION SERVICE ON ENERGY (WISE)  
AND THE NUCLEAR INFORMATION & RESOURCE SERVICE (NIRS)

**wise**  
World Information Service on Energy  
founded in 1978



APRIL 4, 2012 | No. 745

## MONITORED THIS ISSUE:

## GERMANS GIVE UP ON UK NUCLEAR

The two German utilities, E.ON and RWE, have announced they have decided not to proceed with plans to develop their UK joint-venture, Horizon Nuclear Power. Instead they will look for a buyer for Horizon, which was planning to develop up to 6.6GW of new nuclear capacity across two sites – one at Wylfa on the island of Anglesey in Wales and the other at Oldbury in Gloucestershire, South West England.

(745.6243) **Pete Roche** – RWE said the global economic crisis has meant that capital for major projects is at a premium and nuclear power projects are particularly large scale, with very long lead times and payback periods. The effect of the accelerated nuclear phase out in Germany has led to RWE adopting a number of measures, including divestments, a capital increase, efficiency enhancements and a leaner capital expenditure budget. A combination of these strategic factors, together with the significant ongoing costs of running the Horizon joint venture, has led to a situation where capital investment plans have been reviewed. E.ON says in the UK, it will now focus on projects that will deliver earlier benefits, rather than the very long term and large investment new nuclear power calls for. Nevertheless E.ON and RWE both say they believe that for the right company Horizon remains an attractive project.

Despite promising that it would not subsidize new nuclear stations the UK Government has been working to implement an Electricity Market Reform program, which former Government advisor and Friends of the Earth Director, Jonathan Porritt describes as "...rigged in order to support nuclear power ... at great cost to UK consumers, UK businesses and the long-term interests of the entire nation... the Coalition Government's continuing pledge that any new nuclear programme will not get any additional public subsidy is now palpably dishonest".

According to one Labour MP, Alan Whitehead, a member of the House of Commons Energy and Climate Change Committee, what the Government is trying to do is to design a subsidy system without incurring any action on 'state aid' from the European Commission. But even the promise of subsidies was not enough for E.ON and RWE. Keith Allott, head of climate change at WWF-UK, said: "*Despite the Government's efforts to bend over backwards to support the nuclear industry, it is now blindingly clear that the economics just don't stack up.*" And Greenpeace's policy director Doug Parr said: "*The Government's energy strategy is crumbling. Not even the billions of pounds of taxpayers' money they have offered as incentives to the German and French nuclear industry are enough to make a new generation of power stations economically viable.*"

UK Energy Minister Charles Hendry attempted to play down the significance of the decision, insisting that it was based on pressures on the two Companies in Germany and not on any doubts about the role of nuclear in the UK. He claimed that Horizon represents an excellent ready-made opportunity for other players to enter the market. Whitehead says this idea is 'whistling in the dark' – it is pure whimsy. There are no new players. There are two other consortia already involved in the UK nuclear program. EDF Energy and Centrica are looking at building two EPR

<b>GERMANS GIVE UP ON UK NUCLEAR</b>	<b>1</b>
<b>AUSTRALIA: WASTE BILL PASSED; MUCKATY COMMUNITY DETERMINED TO STOP NUCLEAR DUMP</b>	<b>3</b>
<b>ANTI-KOODANKULAM STRUGGLE CONTINUES</b>	<b>4</b>
<b>SMALL MODULAR REACTORS: NO ADVANTAGES IN COSTS AND RISKS</b>	<b>5</b>
<b>BULGARIA PULLS PLUG OUT OF BELENE</b>	<b>5</b>
<b>UKRAINE SAFETY UPGRADE PROGRAM: PRECONDITION FOR LIFETIME EXTENSION</b>	<b>6</b>
<b>MOCHOVE: FURTHER DELAYS AND BANK AUSTRIA WITHDRAWS</b>	<b>8</b>
<b>IN BRIEFS</b>	<b>10</b>

reactors at both Hinkley Point in Somerset and Sizewell in Suffolk. NuGen – a consortium made up of GDF Suez and Iberdrola are planning up to 3.6 GW at a site called Moorside adjacent to Sellafield.

The Nuclear Industry Association says it fully expects a new consortium to come forward for the “viable” project. A number of investors and utilities are already said to be talking to each other about forming consortia to bid for Horizon. For some time, these potential buyers, who are geographically spread from Europe to Japan, have been looking to take stakes of 10-30 per cent in Horizon. All that has changed is that they now have to buy the whole venture.

Speculation about who might be persuaded to buy Horizon and progress the idea of building new reactors at Oldbury and Wylfa seems to range across the whole global nuclear industry. EDF says it has enough on its plate with building four EPRs at Hinkley and Sizewell without taking on Horizon. Vattenfall has been mentioned. The NuGen consortium Iberdrola and GDF Suez might be interested – their current site adjacent to Sellafield is a long distance from large populations centers and needs expensive new grid connections that might have to cross national park land, and it is recently emerged that mineral rights on the site are owned by someone else who wants to be paid for them. NuGen is saying publicly that it is not pursuing an interest in Horizon, but privately saying there is a “fair chance” it will look at what’s on offer because of the complications at Sellafield.

*The Daily Mail* (March 31 issue) was virtually apoplectic about the possibility that the Russian company Rosatom might be a potential buyer. It said the company is known to have been looking for a way into the UK for a while. Under a picture of Chernobyl the right of center daily says Government dilly-dallying has opened the floor to a bid from the Russian firm that built Chernobyl. “No one with an ounce of common sense could be entirely comfortable with that prospect.”

*The Financial Times* (March 29) says sovereign wealth funds and Asian utilities are seen as possible buyers. According to the Lancashire Evening Post (April 2) the Government is talking with global

sovereign funds in the Middle East and Far East about buying Horizon. According to *The Express*, Toshiba/Westinghouse is considering teaming up with GDF Suez. This could mean the construction of up to six AP1000s across the two sites. GE Hitachi is also said to be interested.

Some sort of consortium involving Westinghouse and funded by sovereign funds is perhaps most likely because the cancellation of these reactors would be a big blow to Westinghouse. The Company has been waiting for months for a decision from Horizon about which reactor design it would choose in the hope that its AP1000 reactor design would be selected. Many in the industry had assumed Horizon would choose Westinghouse, and the Government hoped to have two suppliers. But recent reports have hinted that Horizon might plump for Areva’s EPR giving the French - in the short-term at least - a monopoly on new British plants. The delay in the announcement by Horizon about its reactor choice was due at least in part to lobbying by Westinghouse, allegedly with officials from the US Embassy in tow. The reactor builder has even taken legal advice over whether it could mount a legal challenge on European competition grounds should it lose out to Areva in the Horizon bid. So the row threatened to develop into a full-blown legal confrontation.

The concern now is that, if no buyer is found, it will put EDF in an alarmingly powerful position. EDF is planning to make its investment decision about whether to go ahead with the first new nuclear station at Hinkley Point at the end of this year. The decision will hinge on whether the incentives the UK Government is prepared to countenance are large enough. As a result the French state-owned EDF will have the UK “over a barrel”. The current path will see the UK pay a French state-owned company to build new nuclear plants on what is effectively a “cost-plus contract.”

The UK Government is planning to introduce a new Energy Bill in Parliament in May which will include provision for a kind of feed-in tariff for nuclear known as a “contract for difference” which will guarantee nuclear electricity receives a certain price. That price is yet to be determined.

In a briefing note to Prime Minister David Cameron four former-Directors of Friends of the Earth argue that the Energy Bill will have significant implications for the future cost of electricity. It will replace our current liberalized market with one that is much more heavily planned and regulated, which is difficult to reconcile with the Government’s commitment to deregulation. They say even EDF cannot finance new nuclear in Britain on its own balance sheet and will rely on an implicit guarantee from the French and UK Governments to lower its cost of capital. The four former directors estimate that the Contracts for Difference Feed in Tariffs will provide a subsidy of £63 - £75 billion to EDF over the next 35 years –around £2bn (US\$ 3.2bn or 2.4bn euro) per year.

Of course many of the same economic forces which made the German utilities to pull out will apply to all the other companies as well. The unfavorable attitude of the ratings agencies towards nuclear power, for instance, stems largely from the scale of investment required, together with future uncertainties surrounding power prices. The risks are writ larger when you think of a nuclear project compared with other forms of generation, because construction and planning is that much more tortuous, construction risk is higher and from an operational point of view they have a high fixed cost base. Moody’s pays particular attention not only to nuclear power but to any large capital investment projects where the financial risk profile of a given utility may be affected by whether or not the project is completed on time and on budget.

Anglesey-based People Against Wylfa B spokesman Dylan Morgan said: “Now rather than focus on the fantasy that another consortium will come in [the Government] should follow the German lead and ditch nuclear altogether.”

For further information: NuClear News No.39, April 2012, available at <http://www.no2nuclearpower.org.uk/nuclear-news/index.php>

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# AUSTRALIA: WASTE BILL PASSED; MUCKATY COMMUNITY DETERMINED TO STOP NUCLEAR DUMP

**The National Radioactive Waste Management Bill passed the Australian Senate on March 13, and the amended legislation finally passed through the House of Representatives the next day. The legislation preserves the highly contested Muckaty nomination, which is currently the subject of a federal court challenge by senior Traditional Owners opposed to the plan. The dump would house a range of radioactive waste including spent nuclear fuel rods from the Lucas Heights research reactor and decommissioned reactor parts.**

**(745.6244) WISE Amsterdam** - The National Radioactive Waste Management Bill now passed in the Senate, was introduced two years ago and is strongly opposed by the Northern Territory government, Traditional Owners and a growing number of trade unions and civil society groups. Anti-nuclear protesters have tried to stop debate in Federal Parliament by disrupting the proceedings.

The Government has consistently stated the National Radioactive Waste Management Bill did not specify a site for the dump, but it has offered to give the Northern Territory Aus\$10 million if it accepts the waste dump. The Greens managed to get included an important amendment against international wastes being included. Greens spokesman on nuclear issues Scott Ludlam says he is confident the community will continue to fight any plan to use the Northern Territory site. The Greens will continue to fight the project: "The site is in an earthquake zone, it floods regularly, there are very long transport corridors, there are no jobs being applied and it's opposed from people on the ground, on the front line from Tennant all the way up to the NT Government and people around the country," he said. Donna Jackson, from the Australian Nuclear Free Alliance, says she is shocked the legislation has been passed while there is still a legal challenge before the courts about the ownership of the Muckaty site.

The Beyond Nuclear Initiative says radioactive waste management legislation passed this afternoon in the Senate is deeply flawed and will not slow down the campaign against the proposed Muckaty radioactive waste dump in the Northern Territory. The dump is earmarked for low and long-lived intermediate

level waste, including spent fuel rods and decommissioned reactor parts from the Lucas Heights nuclear facility in Sydney.

Minister Ferguson's legislation repeals three Department of Defence site nominations made by the Howard government- Harts Range, Mt Everard and Fisher's Ridge- but preserves the highly contested Muckaty nomination. Mitch, a spokesperson for Harts Range and Mt Everard said "It is almost seven years since the NT dump plan was announced. We are happy that Harts Range is now off the list but we support the Muckaty people to say no. This proposal is based on politics not science. This is a very sad day".

Muckaty Traditional Owners have launched a federal court case against both the federal government and the Northern Land Council, which nominated the Muckaty site in 2007. Muckaty Traditional Owner Penny Phillips said, "At the start Senator Nigel Scullion said 'not on my watch' will the waste dump happen. He should be fighting against it and look after people in the Territory. Its very confusing for us- the Senators are meant to represent us. Do they care about Traditional Owners, do they care about people in the Barkly, the cattlemen? The government should come and see this country. We have been inviting them many times and they have ignored us".

Beyond Nuclear coordinator Natalie Wasley concluded "Beyond Nuclear Initiative welcomes the passing of Senator Scott Ludlam's amendment that international waste cannot be stored at the facility, however, the rest of the legislation is neither new nor good. It builds on the mistakes of the Howard era and lacks credibility and consent. There are

still many hurdles for the government before a dump is up and running, and this proposal will be challenged every step of the way."

At its most basic, advancing the Muckaty site is a case of politicians in capital Canberra dumping the most dangerous and poisonous radioactive waste we produce on one of Australia's poorest and least resourced Indigenous communities. It has happened without transparent or democratic processes and in clear contravention of international obligations, including under the UN Declaration on the Rights of Indigenous Peoples. If Muckaty were to become home to Australia's radioactive waste it, would be a body-blow to the reconciliation process set in motion with the apology to the stolen generations.

It is crucial to realise that what is being proposed is Australia's new 'greenfield' approach to radioactive waste management. However, instead of developing a credible process the government has been obsessed with identifying a vulnerable postcode. To place Australia's worst radioactive waste on the lands of some of its poorest people - without broad community understanding or consent - is not cutting edge scientific thinking, robust policy or best practice.

**Sources:** Beyond Nuclear Initiative, Media Alert, 13 & 15 March 2012, Green Left Weekly, 13 March 2012 / Dave Sweeney, Australian Conservation Foundation, 28 March 2012

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# ANTI-KOODANKULAM STRUGGLE CONTINUES

**The state government of Tamil Nadu has finally succumbed to pressure by the Central government and decided to commission the operation of the two Russian built nuclear reactors in Koodankulam. It has carried out a major crackdown on the mass movement in and around Koodankulam in southern Tamil Nadu, outrageously slapping sedition charges on several people, and arresting close to 200 people in a pre-emptive show of intimidation and force.**

**(745.6245) PMANE** - Over the last six months in what has been the latest phase of a more than decade long struggle, tens of thousands of residents in and around Koodankulam have peacefully and non-violently demonstrated against the government's nuclear power plans. They have demanded that their concerns over issues of safety, environmental hazards and procedural violations of the AERB (Atomic Energy Regulatory Board) be fully and properly addressed. That their livelihood and life concerns should have been so casually ignored by a government that has even resorted to allegations of 'foreign manipulation' of what is an indigenous mass movement is extremely disturbing.

The People's Movement Against Nuclear Energy (PMANE) entered into a negotiation with the Tamil Nadu State officials on March 27, with the assistance of some credible and respectable mediators. As per that mediation, the Tamil Nadu State Government assured to release all the imprisoned people through due process and withdraw all the cases that have been registered against us.

But all the false and serious cases such as 'sedition' and 'waging war on the Indian State' have not been withdrawn yet. Instead all these cases that randomly include +3,000 people and +2,000 people are used to intimidate the local people. So people here live in fear and are very afraid to venture out of their homes and villages. We hear reports that the Tamil Nadu Government is still trying to arrest all the important leaders and functionaries as soon as possible.

Furthermore, personal vendetta is being taken by the State and Central agencies on some individuals and NGOs. On March 29, a team of Home Ministry officials from New Delhi descended on Udayakumar's family home at Nagercoil and inspected the SACCER Trust's account for 12 hours both at home and again at the Government Guest House

in Nagercoil. The small Trust with hardly any money runs a very small school of 217 children. [It is interesting to note that the central government's and state government's teams inspected the Koodankulam nuclear power plant for hardly a few hours, and not 12 hours at a stretch.]

On March 30, 2012, Udayakumar received a letter from the Passport Officer in Madurai that he has to return his Passport as I have criminal cases against me. [He wonder if all the politicians, bureaucrats, scientists, military leaders and businessmen with criminal record have received such a request and is approaching the court to verify this.]

The Tamil Nadu Government has sent the local police officers and constables from Koodankulam and Idinthakarai etc. to their respective villages on official duty to divide the local communities by instigating caste and religious hatred and group clashes. These police men spend all their time talking to their relatives and friends in their villages spreading rumors and causing fear and concerns among the people.

The Tamil Nadu Government is also using the Rs. 500 crore package to woo the corrupt and unscrupulous elements from the local villages, divide the communities and mobilize false support for the Koodankulam nuclear power project.

We would also like to highlight the fact that the KKNPP has been restarted without any kind of consent and cooperation of the local people and it grossly violates Article 32 of the Indian Constitution. The fears and concerns of the people have not been addressed in any meaningful manner by both the Expert Teams nominated by the Central and State Governments. These governments are blatantly violating the rights and entitlements of the local people in an arrogant and authoritarian manner.

The PMANE has concluded its 9-day indefinite hunger strike and has resumed its relay hunger strike on daily basis from March 28, 2012. It is not true that our struggle has been withdrawn just because we have decided to resume fishing, open the local shops and send the Idinthakarai children back to school.

On April 4 a police constable from Avaraikulam village beat up one Mr. Pathira Pandi from Koodankulam claiming the latter had asked the local shopkeepers to close their shops in support of our protest. Mr. Pandi suffered severe injuries on his face and chest. Since it is futile to complain to the local police about a local policeman, his family preferred not to file any complaint. They were also afraid of more police harassment including false cases. PMANE hears that the local police at Koodankulam are filing FIRs on every shopkeeper who does not open his shop. This is quite a new record on the Indian State's upholding of our civil rights. (a FIR is a First Information Record, a very important document as it sets the process of criminal justice in motion).

It is expected by the Tamil Nadu authorities the Koodankulam nuclear reactor will start producing in May. This will automatically lead to an increase of the protest and (most likely) more repression by the state and the need for (international) solidarity. Stay informed!

**Sources:** Solidarity statement for anti-Koodankulam nuclear power plant project activists - signed by 30 eminent citizens, 32 March 2012 / PMANE press release 1 April 2012 / Idinthakarai Update, 5 April 2012

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# SMALL MODULAR REACTORS: NO ADVANTAGES IN COSTS AND RISKS

**Early March, the US Department of Energy (DoE) has announced three public-private partnerships to develop deployment plans for small modular reactor (SMR) technologies at its Savannah River Site in South Carolina.**

**(745.4246) WISE Amsterdam** - The DoE said that it had signed three separate memorandums of agreement with Hyperion Power Generation, NuScale Power and Holtec International's SMR LLC subsidiary. Hyperion has designed a 25 MWe fast reactor, while Holtec and NuScale have designed small pressurized water reactors with capacities of 140 MWe and 45 MWe, respectively. However, the DoE stressed that the new agreements "do not constitute a federal funding commitment." It said that it envisages private sector funding to be used to develop these technologies and support deployment plans. The DoE added that the agreements are unrelated to its funding opportunity announcement for SMR cost-share projects announced in January.

According to their promoters, small modular reactors are the solution to the problems of high cost and risk. But they are not the nuclear nirvana that the industry seeks.

Having built small reactors to start with - Shippingport, the first commercial power reactor in the United States, was

just 60 MW - the industry went to 1,000 MW and even larger sizes precisely because of economies of scale. Reactor power output goes up much faster than the materials and fabrication costs as size increases. Economies of scale also apply to electric generators and steam turbines. So, the costs per kilowatt would tend to rise, not fall if reactor size is decreased greatly.

Proponents claim economies of scale would be offset by mass manufacturing small modular reactors. It is true that on-site fabrication is a cumbersome and expensive process. However, there have to be dozens or hundreds of orders before anyone will invest in a large factory to churn out reactors. Without that level of demand, small reactors will tend to be custom made - and costly.

Second, and even more importantly, building one or two small modular reactors on a site guarantees high costs. An entire security, administrative, control, and monitoring infrastructure must be built at every reactor location - making each kilowatt more expensive.

One approach would be to prepare a site and its infrastructure for a large number of small reactors. But, if they were all built at the same time, we are back to a large, risky project. If they are built one or two at a time, the first units will be very costly - far more than today's reactors - since a disproportionately large infrastructure would be necessary.

The hype about new reactors is hiding many difficult questions. Burning uranium and generating plutonium just to boil water was never a good idea; it was never destined to be cheap. Why would the U.S. government want to throw more tax dollars after a nuclear dream that is likely to dissolve into a harsh reality?

**Source:** World Nuclear News, 5 March 2012 / Iowa City Press Citizen, 9 March 2012, Arjun Makhijani

**Contact:** NIRS

## BULGARIA PULLS PLUG OUT OF BELENE

**Belene will not be constructed, the Bulgarian government announced on March 28. A few days earlier, Prime Minister Boyko Borisov said in a TV interview that Belene would never remain just a Russian-Bulgarian project and would not go forward without a European or American investor. But Finance Minister Simeon Djankov, admitted that Bulgaria has "almost given up on the project." And then, a few days later, the government officially pulled the plug.**

**(745.4247) WISE Amsterdam** - Construction of the two 1000MW Belene reactors started on January 1, 1987. And on March 28, 2012, the Bulgarian government confirmed that it officially is stepping out of the project. It will offer the Russian company Rosatom to buy the already produced reactor vessel and heat-exchangers and other big parts for a reactor in Kozloduy and plans to build a gas power plant in Belene.

The construction of the nuclear power plant by Atomexportstroy, a subsidiary of Russia's state owned Rosatom, had been delayed 15 times. Rosatom had

made it clear it is ready to agree on yet another extension of the contract with the Bulgarian government. The currently active extension of the 2006 deal between Bulgaria's National Electric Company NEK and Atomstroyexport was set to expire at the end of March 2012.

The greatest issue over which Bulgaria and Russia had been haggling for the past two years under the Borisov Cabinet was the price of the project, with Russia insisting it should be no less than 6.3 billion euro, while Bulgaria was demanding a price of no more than 5bn euro (US\$ 6.6bn).

After selecting the Russian company Atomstroyexport to build two 1000-MW reactors at Belene and signing a deal for the construction, allegedly for the price of 3.997bn euro, with the Russians in January 2008, in September 2008, former Prime Minister Stanishev gave a formal restart of the building of Belene. At the end of 2008, German RWE was selected as a strategic foreign investor for the plant. But construction was de facto frozen in the fall of 2009 when RWE, which was supposed to provide 2bn euro in exchange for a 49% stake, pulled out.

In mid-March 2011, apparently acting on concerns caused by the situation in Japan's Fukushima nuclear reactor, the European Commission confirmed that it wanted to reexamine the Belene project - once Bulgaria finds an investor for it - even though it already approved it back in 2007.

The project was already canceled once in 1992, after fierce local opposition on environmental grounds and an economic downturn after the fall of communism. When in 2002 plans were revived to construct Belene this again sparked strong local opposition. The situation became especially tense in 2004 when local organic farmer and Greenpeace activist Albena Simeonova received death threats after Greenpeace joined court proceedings against the flawed Environmental Impact Assessment.

PM Borisov a few days after the decision to cancel Belene, in an interview for the weekly political talk show of Darik radio, accused the previous cabinet of the Three-Way Coalition and his prede-

cessor Sergey Stanishev, leader of the opposition left-wing Bulgarian Socialist Party, BSP, of not signing the contract on Belene, and leaving the task of burying it to the next government. Borisov stated: "The softest definition I can use for this project is speculation, because it is actually a crime."

Heffa Schücking, from the German NGO *urgewald*: "The opposition to Belene went international from 2006 onwards when Western potential investors and financiers were approached. We had to fight against RWE as 49% strategic investor, who quit the project in 2009, as well as the involvement of French bank BNP Paribas, which finally withdrew its involvement in 2010. Other banks and utilities we had to pressure to stay out of the project included Deutsche Bank, UniCredit, Citi, E.ON, Electrabel and recently HSBC that acted as advisor to the Bulgarian government. Today is really a huge success and a great achievement for Bulgarian and international civil society."

HSBC is still preparing a report on the Belene contract. So there might still be unexpected turns and twists in this saga, Jan Haverkamp of Greenpeace warns, but he does not expect a resurrection of the project. "Congratulations to all who helped in this struggle over the last 25 years! We kicked out banks, we challenged the Environmental Impact Assessment for 4,5 years in court, we pushed and pushed for alternatives (which are being developed in Bulgaria, be it slower than possible). We endured attacks and threats. It was not in vain!"

**Sources:** Sofia News Agency, 28 March 2012 / Press release Greenpeace, 28 March 2011 / Press release BankTrack, 29 March 2012 / Sofia News Agency, 1 April 2012

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## UKRAINE SAFETY UPGRADE PROGRAM: PRECONDITION FOR LIFETIME EXTENSION

**In November 2010 the EBRD and the European Union's Euratom announced plans to finance what is called by Ukraine a safety upgrade project, but what is in fact a precondition for the lifetime extension of the reactors. European public money would therefore be used to expand the lifetime of Soviet-era nuclear reactors instead of investing in safe closure and decommissioning - costs which haven't been accounted for yet in Ukraine's plans.**

**(745.4248) Antonia Wenisch & Patricia Lorenz** – An expert review of Ukraine's Nuclear Power Plant Safety Upgrade Program, that is to be financed by Euratom and the European Bank for Reconstruction and Development (EBRD), shows that some of the measures included in the SUP are necessary for the lifetime expansion of the plants and not for their regular functioning until the initially planned term.

According to the ecological assessment (EA) report released in October 2011, the safety upgrade project (SUP) program costs around 1.34 billion euro, though EBRD estimates are upwards of 1.45 billion. The European Bank for Reconstruction and Development intends to grant up to 300 million euro (US\$ 400m) for the project, and 500 million euro (US\$ 665m) is to be provided by the Euratom loan facility. Currently both institutions are preparing loans and the EBRD's Board of Directors is scheduled

to decide on this loan on 18 September, 2012 and Euratom in May 2012.

The EBRD and EC have requested a strategic environmental assessment (SEA) for the SUP. However as early as the project's scoping stage, the public was informed that EBRD staff and Energoatom agreed only to an ecological assessment (EA) for the project in line with procedures outlined in European SEA Directive 2001/42/EC regarding public participation.

SUP includes measures for the safe modernisation of all of Ukraine's 15 operating nuclear reactors and should be implemented by 2017. Twelve of these reactors were designed to finish operations before 2020, and two units were supposed to be taken off the grid in 2010 and 2011 but received licenses to operate for additional 20 years. The SUP is therefore designed for nuclear reactors that face the end of their designed lifetime.

In 2005 Ukrainian nuclear power plants provided about 50 percent of the electricity produced in the country. According to Ukrainian energy strategy, this proportion of nuclear power should remain until 2030. This decision is justified by the presence of domestic uranium deposits, the stable operation of existing nuclear power plants and the high costs of constructing new nuclear power plants.

According to the Energy Strategy, by 2030 seven units will have received a license for a lifetime extension of 15 years, including Zaporizhia 3-6, Rivne 3, Khmelnytsky 1, South Ukrainian 3 and two units that started operation in 2004: the Khmelnytsky 2 and Rivne 4. In 2004 the Ukrainian Cabinet of Ministers approved the "nuclear reactors lifetime extension plan", which foresees extending the lifetime of all operating nuclear reactors by an additional 15 years.

Prolonging the operation of the nuclear power plants from 30 to 45 years requires a huge effort in terms of modernisation and safety improvements in order to reach internationally-acceptable status. The EA SUP however concerns only the safety improvements, and this is only one side of the development. The other side is the material degradation of reactor components of which the most important is the reactor pressure vessel (RPV). The RPV is the only component which cannot be replaced. Due to harsh conditions in the primary system (high temperature and pressure and high neutron flux), embrittlement, corrosion, cracks and abrasion weaken the primary cooling system material. A failure of primary system components could lead to a loss of coolant accident.

To prevent the development of a severe nuclear accident, so-called accident management measures are implemented. The SUP mentions such measures as guidelines for organisational activities and emergency measures.

Another important influence is from the European Union nuclear power plants "stress test" that Ukraine has agreed to participate. In its report the Ukrainian nuclear authority has already defined some measures that are to be completely implemented at the nuclear reactors, if the operators wish to apply for lifetime extension. The peer-reviewed results will not be known until May 2012 and may offer new insights and subsequently new safety measures to be required at the Ukrainian nuclear power plants.

In fact, Euratom and the EBRD have been asked to finance a program labelled only as 'safety upgrades', though it is impossible to argue this both technically and economically.

#### **SUP precondition for lifetime extension**

Proponent of the SUP, the Ukrainian state nuclear operator NEC Energoatom claims that SUP measures will address only safety measures and are not a precondition for the lifetime extension of reactors. However a new report shows this claim is misleading: SUP measures will be used to provide a sufficient safety level to extend operations and are not necessary for safely shutting down the reactors.

While the Ecological Assessment (EA) for the safety upgrade project claims that the planned safety upgrade measures are not part of extending reactor

lifetime beyond their designed 30-year lifetime, this study shows that the safety measures for 15 reactors are in fact connected to the lifetime extension program. SUP measures like those related to component integrity are conditions for extending the lifetime of reactors.

The reasons for this are as follows:

- Measures to address only safety issues and not lifetime extension simply do not exist. The EA SUP explains that "security systems and other essential safety equipment are kept operating until the final stop and first phase of the decommissioning, i.e. until the unloading of the spent nuclear fuel." The dates on which Ukraine's reactors reach the end of their design lifetime are indicative of the need of reactor's life-time extension one unit in 2012, two in 2014, two in 2015, two in 2016, two in 2017 and two in 2019.

- Economic viability - both loans need to be repaid, and Euratom cannot grant loans without a statement from the European Investment Bank (EIB) showing that the loans can be repaid, likely to be based on the future operation of those nuclear power plants.

Officially these European institutions have been asked to finance the programs labelled as safety upgrades, though it is impossible to argue this technically or economically. This claim seems to have been chosen because:

1. EBRD and Euratom financing conditions allow only for safety upgrade financing so the lifetime extension needs to be concealed;
2. this avoids a discussion about ageing problems of Soviet-era nuclear power plants once the lifetime extension plans for all 15 reactors by 15 years would become known
3. this avoids conducting an strategic environmental assessment (SEA); the SUP is not only called a safety upgrade program but also substitute sectoral policy by intending to modernise and prolong a whole nuclear power-producing sector; even pilot projects were run. A full SEA would require assessment of alternatives to reactors life-extension and transboundary involvement.

This report finds that no information about the SUP was provided outside of Ukraine, and it is probable that neighbouring states would demand full transboundary SEA and EIA (Environmental Impact Assessment) for such a sensitive topic.

Instead only the EA designed solely for the SUP was conducted in Ukraine without any transboundary assessment.

The report shows that this approach is far from best practice in the nuclear field and does not comply with international conventions like the ESPOO convention on transboundary impact assessments or the Aarhus Convention on access to environmental information, nor does it even come close to fulfilling EU legislation. The EU's SEA directive would have to be applied to assess alternatives to safety upgrades and lifetime extension; instead the EA concludes that there are no alternatives to safety upgrades and claims those measures are needed even for safe closure.

We expect Euratom, the European Commission and EBRD to follow their guidelines and to enforce good governance, public participation and information disclosure and good practice with respect to international conventions like the strategic environmental assessment protocol, Espoo and Aarhus.

More broadly nuclear energy today is causing even more concern than before the nuclear accident at Fukushima. European institutions should encourage project applicants to inform the public about their projects in line with all available tools like Espoo contact points. It is unacceptable that a major, high-risk project is being considered for financing from European institutions without the public in EU member states being informed.

One year after the Fukushima accident, the European public would welcome information about the lifetime extension of nuclear power plants that are already three decades old.

The SUP was prepared prior to the nuclear disaster at Fukushima, and it is not acceptable that decisions on the program are taken before the stress tests are completed and the EU draws its first conclusions about reactor safety. We believe that these institutions will not finance Ukrainian reactor safety measures before the peer review of Ukraine's stress test report has been prepared.

The EBRD and Euratom want to hide the fact that they are contributing both financially and politically to at least another 15 years of nuclear risk. The argument that Ukraine would go ahead and operate the reactors even without EBRD and EURATOM funding is troubling and implicitly alleges that the Ukrainian operator and regulator would act irresponsibly.

The Ukrainian authorities already licensed lifetime extensions at Rivne reactors 1 and 2 without first applying the Espoo Convention. The Espoo implementation committee is now inquiring about violations in this case. We expect both Euratom and the EBRD to withhold a decision about SUP pending a resolution to the Rivne 1 and 2 lifetime extension decision.

Some modernisation measures are "significant changes" e.g. the planned nuclear fuel exchange and call for EIA implementation. One of the first SUP objectives is the introduction of second generation fuel with improved cycles in order to reduce neutron fluence on the reactor vessel to mitigate embrittlement effects. The switch to longer fuel cycles is not mentioned in the SUP but

is an objective of the energy strategy. High fuel burn-up increases the risk of accidents, because it accelerates the accident progression.

The reliability of the Ukrainian nuclear safety programs are cause for concern. A 2006 EBRD press statement says "...a modernisation programme for all nuclear power plants in Ukraine currently being implemented will upgrade all 13 nuclear reactors to internationally recognised nuclear safety level by 2010." Thus the question of why are new programs, including the SUP within the „Comprehensive Safety Upgrade Program," necessary? This study provides an overview of the very non-transparent management of safety improvement programs in Ukraine. It seems that all safety measures not implemented by

2010 were merely incorporated into the SUP for the period 2010 to 2017.

**Source:** 'Critical Review of the "Ukraine NPP Safety Upgrade Program" - Why the European Bank for Reconstruction and Development and EURATOM should not finance the lifetime extension program of Ukrainian nuclear power plants'; March 2012 by Antonia Wenisch & Patricia Lorenz; Commissioned by CEE Bankwatch Network. Available at: <http://bankwatch.org/sites/default/files/Ukraine-SUP-review.pdf>

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## MOCHOVCE: FURTHER DELAYS AND BANK AUSTRIA WITHDRAWS

**Bank Austria, the Austrian subsidiary of the Italian UniCredit banking group, has confirmed that by mutual agreement it will terminate a financial facility granted to Slovenske Elektrarne (SE). SE will be the operator of the Mochovce nuclear reactors 3 & 4, currently under construction.**

**(745.4249) BankTrack** - The confirmation of the Bank Austria withdrawal came after enquiries by Global 2000 (Friends of the Earth Austria) and Greenpeace Austria. "Slovenske Elektrarne has boasted in public presentations that the credit provided by private banks for its ongoing operations were in fact indirectly used to build the scrap nuclear reactors at Mochovce," said Patricia Lorenz, nuclear campaigner for Global 2000. "This is in direct contradiction with assurances made by Bank Austria earlier on the use of their credit."

In a related development Mochovce NPP operator ENEL/SE also announced early March that the two nuclear units 3 and 4 will be completed one year later than previously planned. The construction of block 3 will now be completed by the end of 2013, and unit 4 not before the middle of 2014.

"We have warned the management of Bank Austria against this risky business for months and are pleased that our negotiations have now led to some results with the bank. The completion of Mochovce 3 and 4 is again pushed a bit further away," said Niklas Schinerl, nuclear expert for Greenpeace Austria.

The reactors planned for Mochovce 3 & 4 are Soviet-type VVER 440 2nd

generation reactors, which are designed without a full containment building and cannot be upgraded. As such there is a higher probability of severe accidents and the release of radioactivity.

The building of Slovakia's Mochovce 3 and 4 nuclear reactors is the longest running nuclear construction project anywhere in Europe. The reactors were designed by the Soviet Union back in the 1970s. Construction began back in 1987 but in 1992, soon after the collapse of the communist regime, it was suspended. Economic studies in 2000 showed the project to be a financial disaster.

Although operating since the mid 1980s in the Czech Republic, Slovakia and Hungary, four of the same model of reactor as Mochovce 3 and 4 under construction in East Germany, were cancelled in 1990 after the German reunification because the reactors did not meet basic safety standards.

Russia is the only supplier of nuclear fuel for this type of reactor which makes a mockery of the idea that nuclear power provides energy security. An estimated 22 tonnes of spent nuclear fuel is generated by each reactor every year.

The investment required to build Mo-

chovce 3 and 4 is expected to reach 2.775 billion euros. This will devour a massive 77% of SE's investment for new electricity generation 2007 to 2013. Due to the high financial risks for investors, the Slovak government provides generous state aid that is very likely illegal under EU legislation.

"The credit freeze and construction delay are new hurdles for SE and signal a victory in the fight against the building of these reactors" said Yann Louvel, climate and energy campaign coordinator for BankTrack. "As all banks financing SE know, money is fungible. They should do the same as Bank Austria and close down their credit lines with Slovenske Elektrarne to prevent the completion of Mochovce 3 and 4". BankTrack is the global network of civil society organisations targeting the operations and investments of large, international operating commercial banks.

**Source:** BankTrack, Press release 15 March 2012

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## IN BRIEF

**Construction of Ohma nuclear plant indefinitely delayed.** Japan's Electric Power Development Co has decided to delay the construction of its Ohma nuclear power plant indefinitely. The plant, which is under construction in Aomori prefecture (northern Honshu), was expected to be complete in late 2014. However, construction has been suspended since the Great East Japan Earthquake in March 2011. J-Power said in a statement that it is 'moving ahead to review safety enhancement measures in response to the accident at Fukushima Daiichi' and that it would incorporate any necessary measures.

Work started on the Ohma plant, a 1383 MW Advanced Boiling Water Reactor (ABWR) design, in May 2008. Originally due to start up in 2012, J-Power amended its scheduled start date to November 2014 towards the end of 2008. The Ohma plant has been designed to (eventually) run on a full mixed oxide (MOX) core. In 2009 J-Power entered into an agreement with Global Nuclear Fuel Japan to procure the MOX fuel for Ohman, which was to be manufactured in France.

**Nuclear Engineering International, news 3 April 2012**

**Vermont Yankee: 130 arrests.** More than 1,000 people turned up in Brattleboro to march the 6 km from the town common to Entergy's offices. Over 130 people trespassed on the company's property and were arrested. Signs carried by the 1,000 protestors had messages like "time's up" and "Entergy corporate greed". March 22, was a monumental day for residents of the tri-state area near the Vermont Yankee nuclear power plant. Forty years after the plant opened, its license expired the day before, but the plant continued to operate pursuant to a federal court order.

The plant's continued operation sets a precedent nationwide in the nuclear as well as in the legal realm. Earlier this year, federal Judge J. Garvan Murtha issued a ruling finding two Vermont laws requiring legislative approval for the plant to continue operating were unconstitutional as pre-empted by federal law. The plant hasn't received a new license to replace the one that expired this March. The Vermont Public Service Board has yet to issue an order on the new license and no one has ordered the plant to cease operating in the interim. Entergy does have a license from the Nuclear Regulatory Commission, but its state license is expired. The company argues state law allows it to operate while the Public Service Board proceeding to approve a new license goes on. Meanwhile the state and Entergy have appealed Judge Murtha's decision to the Second Circuit Court of Appeals. Legal experts say the case could have national ramifications. (More in Nuclear Monitor 741, 3 Febr. 2012: Showdown time for Vermont Yankee)

**EarthFirst Newswire, 23 March 2012**

**Bidding process starts for Olkiluoto-4.** The Finnish nuclear power company Teollisuuden Voima (TVO) has started a bidding process for their Olkiluoto 4 project as a part of the bidding and engineering phase. Bids for the new nuclear power plant are expected at the beginning of 2013. TVO reported on March 23, that there are five plant supplier alternatives at the bidding phase of the OL4 project, namely the French installation company Areva, the American GE Hitachi, Korea Hydro & Nuclear Power in South Korea, as well as Mitsubishi Heavy Industries and Toshiba in Japan. TVO is not willing to take a stand on whether the difficulties and problems experienced by the Olkiluoto 3 project will have any influence on the possibilities of Areva's involvement. TVO is to submit an application for a building permit by the summer of 2015. In April 2010, Finland's previous government decided to grant a permit to IVO for the construction of a new reactor in Olkiluoto. The decision was approved by Parliament in July 2010. According to TVO, the electric power of the new plant unit will be in the range of 1,450 to 1,750 MWe, while the projected operational life time of the new reactor is at least 60 years.

**Helsingin Sanomat (International edition), 23 March 2012**

**NRC approves COL for V.C. Summer.** The U.S. Nuclear Regulatory Commission (NRC) on March 30 approved the combined construction and operating licenses (COL) for the V.C. Summer nuclear power plant in South Carolina, just the second construction license approved for a nuclear plant since 1978. The NRC voted 4-1, just as the Commission did for the Plant Vogtle COLs. The NRC is expected to issue the COLs within 10 business days.

South Carolina Electric and Gas Co. and South Carolina Public Service Authority, or Santee Cooper, the owners and operators of the existing single-unit, 1,100 MW V.C. Summer plant, submitted the application for two new 1,117 MW Westinghouse AP1000 reactors to be built at the site in March 2008. The US\$10 billion project, adjacent to the company's existing reactor approximately 40 km northwest of Columbia, S.C., began in 2009 after receiving approval from the Public Service Commission of South Carolina.

The NRC did impose two conditions on the COLs, with the first requiring inspection and testing of squib valves, important components of the new reactors' passive cooling system. The second requires the development of strategies to respond to extreme natural events resulting in the loss of power at the new reactors.

**Power Engineering, 3 April 2012**

**Search for Jordan's reactor site expands after protests.** The search for a potential site for Jordan's first nuclear reactor in Mafraq has expanded by a 40 kilometer radius. Officials are searching for a site near the Khirbet Samra Wastewater Treatment Plant, which, according to current plans, is to serve as the main water source to cool the 1,000 megawatt reactor.

According to a source close to the proceedings, the government directed the Jordan Atomic Energy Commission (JAEC) to find an alternative to the initially selected site, Balaama, near Mafraq, after coming under political pressure from tribal leaders and prominent local residents. The announcement of the transferral of the planned site for the Kingdom's first nuclear reactor from Aqaba to Mafraq in late 2010 prompted a backlash from local residents, who held a series of protests and rallies over the past year urging decision makers to go back on their decision.

**Jordan Times, 19 March 2012**

**IAEA: safety concerns over aging nuclear fleet.** A 56-page IAEA document highlights safety concerns of an ageing nuclear fleet: 80% of the world's nuclear power plants are more than 20 years old, and about 70 percent of the world's 254 research reactors have been in operation for more than 30 years "with many of them exceeding their original design life," the report said. But according IAEA Director General Yukiya Amano nuclear power is now safer than it was a year ago. The report said the "operational level of nuclear power plant safety around the world remains high". "There are growing expectations that older nuclear reactors should meet enhanced safety objectives, closer to that of recent or future reactor designs," the Vienna-based U.N. agency's annual Nuclear Safety Review said. "There is a concern about the ability of the ageing nuclear fleet to fulfill these expectations."

**Reuters, 13 March 2012**

**Japan after Fukushima: 80% distrust government's nuke safety measures.** A whopping 80 percent of people in Japan do not trust the government's safety measures for nuclear power plants. The results are from a nationwide random telephone survey of 3,360 people conducted by The Asahi Shimbun on March 10-11. It received 1,892 valid responses. Fifty-seven percent of the respondents said they are opposed to restarting nuclear reactors currently off line for regular maintenance, compared to the 27 percent in favor. A gap between genders was conspicuous over whether to restart the reactors. Although men were almost evenly split, with 47 percent against and 41 percent in favor, 67 percent of women are opposed, compared with just 15 percent who support the restarts.

Regarding the government's safety steps for nuclear plants, 52 percent said they "do not trust so much," and 28 percent said they "do not trust at all." Although the government has been proceeding with computer-simulated stress tests on reactors, which are necessary steps to reactivate them, people apparently have a deep distrust of the government's nuclear safety provisions.

**Asahi Shimbun, 13 March 2012**

**Tepco: water level reactor #2 wrong by 500%.** Tepco is reporting that the results of an endoscopy into reactor #2 at the Fukushima Daiichi nuclear plant show that water levels are far lower than previously thought. The utility had estimated that water in the reactor, which is required to keep melted fuel cool and prevent recriticality, was approximately three meters deep. In fact, it is only 60 cm deep. Tepco insists that the fuel is not in danger of overheating, and continues to pump in nine tons of water every hour. However, experts say that the low water levels show that leaks in the containment vessel are far greater than previously thought, and may make repairing and decommissioning the crippled reactors even more difficult. Tepco attempted an endoscopy in January, but the effort failed because the scope used was too short.

**Greenpeace blog, Fukushima Nuclear Crisis Update 28 March 2012**

**Tokyo soil samples would be considered nuclear waste in the US.** While traveling in Japan in February, Fairewinds' Arnie Gundersen took soil samples in Tokyo. He explains: "I did not look for the highest radiation spot. I just went around with five plastic bags and when I found an area, I just scooped up some dirt and put it in a bag. One of those samples was from a crack in the sidewalk. Another one of those samples was from a children's playground that had been previously decontaminated. Another sample had come from some moss on the side of the road. Another sample came from the roof of an office building that I was at. And the last sample was right across the street from the main judicial center in downtown Tokyo."

Gundersen (an energy advisor with 39-years of nuclear power engineering experience) brought those samples back to the US, declared them through Customs, and sent them to the laboratory. And the lab determined that all of them would be qualified as radioactive waste there in the United States and would have to be shipped to a radioactive waste facility to be disposed of. <http://www.fairewinds.com/content/tokyo-soil-samples-would-be-considered-nuclear-waste-us>

**Canada: court case against 2 new reactors Ontario.** A group of environmentalists has gone to court to challenge Ontario's plan to build new nuclear reactors, arguing the environmental risks and costs involved haven't been properly assessed. Lawyers for Ecojustice and the Canadian Environmental Law Association have filed arguments in Federal Court on behalf of several green agencies, saying a review panel failed to carry out a proper environmental assessment on building new reactors at the Darlington station in Clarington, Ontario. Despite a push for green energy projects, Ontario remains committed to nuclear energy, which makes up 50 per cent of its energy supply, and is moving forward with the construction of two new reactors. But the groups, which include Greenpeace, Lake Ontario Waterkeeper, Northwatch and the Canadian Environmental Law Association, argue the government provided only vague plans to the federal government-appointed review panel, which nonetheless recommended the project be approved. They argue that, contrary to the requirements of the Canadian Environmental Assessment Act, the panel also didn't gather the evidence required to evaluate the project's need and possible alternatives.

The groups are asking Federal Court to order the review panel to take a second look at the project. A proper environmental study, the groups add, is especially important after lessons learned from the disaster at Japan's Fukushima nuclear plant. They also note that the government didn't select a specific type of nuclear reactor, making its possible impact difficult to assess. "Despite the profound lack of critical information regarding the project's design and specific means by which the radioactive waste it generates will be managed, the (joint review panel) report purports to conclude that no significant environmental effects are likely," said the court filing, obtained by The Canadian Press. That assumption implies that the "sizable information gaps" will be eventually considered by other bodies, and that "numerous to-be-determined mitigation measures" will be implemented. Such a "leap before you look" approach, the filing adds, "is the antithesis of the precautionary principle, and should not be upheld by this honourable court."

**CTV News, 21 March 2012**

Quote of the month:

*"Let me state unequivocally that I've never met a nuclear plant I didn't like. Having said that, let me also state unequivocally that new ones don't make any sense right now. And it won't become economically viable for the foreseeable future."*

John Rowe, retired early March 2012 as chairman and CEO of Exelon, the utility with the largest number of nuclear power plants (22) in the U.S. (quoted in: Forbes, 29 March 2012)

## WISE/NIRS NUCLEAR MONITOR

The Nuclear Information & Resource Service was founded in 1978 and is based in Washington, US. The World Information Service on Energy was set up in the same year and houses in Amsterdam, Netherlands. NIRS and WISE Amsterdam joined forces in 2000, creating a worldwide network of information and resource centers for citizens and environmental organizations concerned about nuclear power, radioactive waste, radiation, and sustainable energy issues.

The WISE/NIRS Nuclear Monitor publishes international information in English 20 times a year. A Spanish translation of this newsletter is available on the WISE Amsterdam website ([www.antenna.nl/wise/esp](http://www.antenna.nl/wise/esp)). A Russian version is published by WISE Russia and a Ukrainian version is published by WISE Ukraine. The WISE/NIRS Nuclear Monitor can be obtained both on paper and in an email version (pdf format). Old issues are (after two months) available through the WISE Amsterdam homepage: [www.antenna.nl/wise](http://www.antenna.nl/wise).

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For individuals and NGOs we ask a minimum annual donation of 100 Euros (50 Euros for the email version). Institutions and industry should contact us for details of subscription prices.

## WISE AMSTERDAM/NIRS

ISSN: 1570-4629

Editor: Dirk Bannink

With contributions of Peer de Rijk, Pete Roche, Greenpeace International, Jan Haverkamp, PMANE, Patricia Lorenz, Antonia Wenisch, BankTrack and Laka Foundation

Next issue (Nuclear Monitor 746) will be a special issue on radioactive waste management and will be mailed out April 20, 2012

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# WISE/NIRS NUCLEAR

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