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SAYONARA TO NUCLEAR POWER

An estimated sixty thousand people took to the streets in Tokyo on September 19 to say Goodbye to nuclear power. It was the largest anti-nuclear demonstration ever in Japan. On September 11, exactly six months after the earthquake, tsunami and nuclear meltdowns, many thousands already had demonstrated all over Japan to vent their anger at the government's handling of the nuclear crisis. Three young men and a woman started a 10 day hunger strike in front of the Ministry of Economy Industry and Trade, the planner and sponsor of nuclear power.

(733.6166) WISE Amsterdam - In one of the largest protests on September 11, an estimated 2,500 people marched past the headquarters of the plant's operator, Tokyo Electric Power Company, and created a "human chain" around the building of the Trade Ministry that oversees the power industry. Protesters called for a complete shutdown of nuclear power plants across Japan and demanded a shift in government policy toward alternative sources of energy.

Japan can switch off all nuclear plants permanently by 2012 and still achieve both economic recovery and its CO2 reduction goals, according to a new Greenpeace report. Released on September 11, the Advanced Energy [R]evolution report for Japan, shows how energy efficiency and rapid deployment of renewable technology can provide all the power Japan needs.

The report - with calculations by the German Aerospace Center (DLR) and the Institute for Sustainable Energy Policies (ISEP) - shows that Japan's wind and solar generation capacity can be ramped up from the existing 3,500 MW to 47,200 MW by 2015. This represents around 1000 new wind turbines deployed per year, and an increase in the current annual solar PV market by a factor of five, supplying electricity for around 20 million households. At the same time, load reduction strategies would cut Japan's energy demand by 11,000 MW, equal to the capacity of 10 to 12 nuclear reactors.

Japan Prime Minister Yoshihiko Noda's effort to win public support for restarting nuclear reactors faces a setback after his minister in charge of the industry was forced to resign just nine days into the job. Yoshio Hachiro stepped down as head of the Ministry of Economy, Trade and Industry on Sept. 10, under fire for using 'towns of death' to describe the evacuation zone around the Fukushima Dai-ichi nuclear plant and joking about radiation.

The full Greenpeace Advanced Energy [R]evolution Report for Japan can be found at:
www.greenpeace.org/japan/Global/japan/pdf/er_report.pdf

Sources: Bloomberg, 11 September 2011 / Reuters, 11 September 2011
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International antinuclear conference, January 2012. Nongovernmental organizations, including Peace Boat, Greenpeace Japan and the Citizens' Nuclear Information Center, will hold an international conference in Yokohama on Jan. 14 to 15 to call for the elimination of nuclear power generation in the wake of the crisis at the Fukushima Daiichi power plant. Environmental groups from across the world as well as residents of Fukushima Prefecture who have been forced out of their homes due to radioactive contamination will be invited as guests to the meeting to draw up policy recommendations for Japan and the rest of the world toward phasing out nuclear power, the NGOs said.

MONITORED THIS ISSUE:

LITHUANIA AND BELARUS ATTACKING NUCLEAR PROJECTS

After two years of fruitless talks with its eastern neighbor, Lithuania has finally brought its complaint over Belarus' building a nuclear power plant right on its doorstep to the authority that enforces the Espoo Convention – an international agreement covering industrial projects that may potentially bring environmental harm across state borders. Both Lithuania and Belarus are Espoo signatories, but Belarus denies any violations and threatens a retaliatory complaint over Lithuania's own nuclear project. With the two countries attacking one another's project's safety claims, at least one clear conclusion emerges from the conflict: What nuclear technologies are capable of generating besides power is serious safety concerns.

(733.6167) Bellona Foundation -
The UN's Economic Commission for Europe's Convention on Environmental Impact Assessment in a Transboundary Context – or the Espoo Convention, called so because it was signed in the Finnish town of Espoo in 1991 – is the main international legal act serving as the basis for evaluations of transboundary ecological risks carried by this or that industrial project implemented in an individual country.

Using the provisions of this document, Lithuania was trying to negotiate with Belarus the best advisable location for Belarus's controversial nuclear power plant project, a first that this Eastern European state is attempting to the dismay of many among its own population and criticism on the part of environmentalists and a number of European governments. Belarus intends to build its plant with Russia's help in a town of Ostrovets, in Grodno Region – only a handful of kilometres away from the European border and Lithuania's capital, Vilnius.

Fed up with two years of futile talks insisting that Belarus move its construction site away from the Lithuanian border and produce full and truthful information about the potential impact the plant may have on Lithuania's environment and population health, Vilnius finally submitted a complaint to the Committee for the Implementation of the Espoo Convention. The complaint was sent on June 7.

Lithuania's seven-page statement requests that the Implementation Committee and the Espoo Secretariat apply their mandate to convince Belarus to do two things, both of principal significance: Commission a new environmental impact assessment (EIA) study that could provide a more objective evaluation of the plant's potential risks and dangers, and find another site for the NPP's construction.

Environmental risks
The existing EIA document, compiled by official Belarus, has been the subject of vigorous criticism by Belarusian, Lithuanian, and Russian environmentalists, who say the document downplays considerably the harm it could inflict on the region's environment and population.

Stating its displeasure over Belarus's choice of location, Lithuania forwards a number of hefty arguments. One is that Ostrovets is only 50 kilometres away from downtown Vilnius. In an official note sent to Belarus via diplomatic channels last autumn, Lithuania wrote that Belarus's decision to build such a site in such close proximity to the Lithuanian capital undermined the very foundations of Lithuania's national security: Should a severe accident occur at the new NPP, followed by a massive discharge of radioactive substances, Lithuania will be forced to evacuate all of its governing bodies and institutions.

Vilnius is also the largest Lithuanian city and the estimated toll that a forced evacuation would take on its inhabitants and the country may well be worth the concern.

The Lithuanians also cite in their complaint the International Atomic Energy Agency's (IAEA) fourth safety principle (see IAEA's Fundamental Safety Principles, SF-1, 2006), which stipulates that "for facilities and activities to be considered justified, the benefits that they yield must outweigh the radiation risks to which they give rise."

Lithuania also refers to the estimations done by researchers from its Institute of Physics (now, Centre for Physical Sciences and Technology) in their 2010 Expert Evaluation of the Nuclear Power Plant in Belarus (Annex 5), which show that an adverse event arising from a range of accident scenarios at the NPP would, under unfavourable circumstances, subject the health of the population of Vilnius and neighbouring territories to a real and unacceptable threat.

Another argument that Lithuania is using against the current choice of the future NPP's location is that the water the plant will be drawing to cool its reactors will be from the river Neris. The Neris, which is called Vilia in Belarus, is the second largest river in Lithuania and flows through Vilnius. Lithuania is understandably concerned over the potential environmental damage the river may be subjected to during the plant's operation, including not just the thermal impact of the service water, but also what Belarus's official EIA assessment refers to as radioactive and chemical contamination "within allowable limits."

Procedural violations
But the major part of the Lithuanian complaint is focused on allegations that Belarus has committed a number of violations of the Espoo Convention while pursuing its Ostrovets NPP project. According to the Lithuanians, Belarus did not follow proper procedure when estimating the potential environmental impact of its future plant and has withheld key information about the project from its neighbour.

In particular, the complaint says, Lithuania has not received from Belarus the full version of the EIA study regarding the new station. The materials in question – some three and a half thousand pages – were submitted for a state environmental assessment in Belarus and were also in February 2010 made available, though with significant restrictions applied, to a public commission that sought to conduct an independent environmental evaluation of the project. But Lithuania is still waiting to see these documents, despite having notified Belarus of its wishes.

The Lithuanian complaint now states

that by failing to produce the documents, Belarus is violating the Espoo Convention, which stipulates that when initiating an industrial project that may have cross-border impact, the country that starts it – so-called "Party of Origin" – must ensure that the communities of the states that become exposed to potential risks – so-called "Affected Parties" – are all afforded the same opportunities to receive information about and discuss the relevant environmental impact documentation.

According to Lithuania's complaint, Belarus is actually yet to give a clear answer as to which of the many decisions regarding whether or not it will even build the plant has been chosen as the final one, which "causes various misunderstandings and misinterpretations."

Belarus threatens retaliation

As it happens, Belarus has its own grievances to air with respect to its western neighbour's own nuclear plans.

On the eve of 2010, Lithuania pulled the plug on Ignalina nuclear power plant in Visaginas, a Soviet-built station with two RBMK-1500 reactors that the European Union stipulated had to be to shut down as a prerequisite to this country's ascension to the union. But Vilnius is looking to build new reactors at Visaginas to replace Ignalina, something that contributes to an ever tightening diplomatic tangle in a region now trapped in what environmentalists fear is fast becoming a deadly nuclear noose – with Belarus' Ostrovets, Lithuania's Visaginas, and Russia's Baltic NPP, under construction in Kaliningrad Region, all pursued with unrelenting zeal.

And despite the fact that it has been several years since Lithuania completed its own environmental impact assessment procedure, the Visaginas project has, for Belarus, remained a sizable axe to grind – though one that it has only now chosen to make use of. Belarus, while not without grounds for a complaint over its neighbour's EIA consultations, has kept its resentment to itself until the very moment the Lithuanians decided to take theirs to the Espoo authorities. It was only at the press conference on July 19 in Minsk that the Belarusian Ministry of Natural Resources and Environmental Protection's head of department for state environmental impact studies Alexander Andreyev announced Belarus would make sure that the Espoo Secretariat received a counter-complaint from Minsk over the project in Visaginas.

The new NPP, just like its predecessor Ignalina, would be built in the same town of Visaginas, if only at a different site than the old station. As such, it will be located near the Lithuanian-Belarusian border and, like Ignalina, will draw cooling water from Lake Drisviaty (Druksiai, in Lithuanian), which, like the Neris, is shared by the two countries. This, the potential damage that the nuclear power plant will do to Lake Drisviaty, is among the main of Belarus's grievances.

According to Andreyev, Lithuania has yet to acknowledge any of Belarus's repeated demands to make an assessment of the thermal impact on the lake as compared to those values that were obtained before the 1978 built Ignalina was put into operation.

Likewise, said Andreyev, Lithuania has still not provided information on the cumulative impact that the sites in Visaginas – both the old station and the new nuclear infrastructure – have effected on Belarus and, in particular, the area of Braslav Lakes, an erstwhile ecologically pristine recreational parts popular with the Belarusians.

Last but not least, Belarus is not happy over the fact that the three-kilometre-wide sanitary protection zone around the new plant is expected to overlap with Belarusian territory.

In a claim mirroring that of Lithuania, Andreyev says the EIA report for the new Lithuanian plant fails to provide the kind of key information that would be needed to evaluate its full potential impact on the environment and population health in Belarus. "The EIA report on the Visaginas nuclear power plant that Lithuania has made available to Belarus examines a number of reactors – the US-Japanese AP100, the French EPR-1660, the Canadian ACR-1000, as well as the Russian-made NPP-91/99, and other models, but no final choice has been made. How does one assess environmental impact without having chosen the reactor?" Andreyev said in comments to Bellona.

Besides, said Andreyev, the American-Japanese and French models mentioned in the Lithuanian EIA report have not yet been built anywhere in the world. Ironically, this is the same point of concern that both Russian and Belarusian environmentalists keep bringing up with respect to the Ostrovets project, where Russia's new and yet untested in commercial operation NPP-2006 project is expected to be used.

As this dragged out dispute goes on, one thing is becoming clear – that today's nuclear technologies are no more reassuring than old nuclear power plants, those in which the world that has seen Chernobyl and Fukushima may no longer have much confidence.

Both Lithuania and Belarus are well aware of the risks even as the arguments each side is using against the other's project reflect concerns it would rather ignore while pursuing its own.

But the "golden principle" of NPP siting, for which much was argued in Soviet-time research institutes of the Belarusian Academy of Sciences – "farther away from me, closer to my neighbour" – is fast losing purchase in a modern reality where industrial practices are bound by international obligations and closely monitored by independent third parties.

Whether or not Belarus or Lithuania find support within the Espoo and Aarhus authorities to promote their own nuclear interests and block those of their neighbour, there is a third solution, one of which environmental organisations of Belarus, Lithuania, and Russia keep reminding their governments: Choose the non-nuclear path.

Source Bellona Foundation, 1 September 2011 Tatyana Novikova, translated by Maria Kaminskaya

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THE TROUBLED RECENT HISTORY OF NUCLEAR POWER IN SOUTH AFRICA

Six days after the nuclear catastrophe at Fukushima in Japan in March 2011, South Africa's Minister of Energy Dipuo Peters declared her country's intention to add 9,600 MW of nuclear electricity - or six new nuclear reactors. On September 15 she said she had signed off on a proposal for new nuclear power plants and said it would be presented to cabinet soon. Peters said she expects the cabinet to decide on the plan by the end of this year and the bid process to start early in 2012. The last attempt to build a nuclear plant, led by state-owned power utility Eskom, was scratched on funding woes.

(733.6168) Greenpeace South Africa - Speaking at the second regional conference on energy and nuclear power in Africa in Cape Town on May 30 this year, Ms Peters went even further, trumpeting the development of a nuclear-export market to the rest of Africa, supported by both the International Atomic Energy Agency, and the African Union.

South Africa spent 13 years pursuing the Pebble Bed Modular Reactor, wasting billions of rands in the process (R9-billion was spent on research and development and another R22-billion would have been needed to complete a demonstration model) as investors across the world shied away from having anything to do with it. Eventually the state cancelled the project and wrote off the monies it had spent. The government and its wholly owned power utility Eskom remain hell bent on securing what it believes will be a cheap and sustainable nuclear solution for its energy supply crisis.

By 2006, South Africa was beginning to run short of power generation capacity. It was clear that the PBMR would not be available to order for a long time. Eskom began to talk about ordering 'conventional' nuclear power plants. First in line were the EPR supplied by the French company, Areva and the AP1000 supplied by the Japanese owned company, Westinghouse. Eskom's implication was that such designs were well proven. In fact, at that point, only one order had been placed for an EPR and none for the AP1000. By 2011, there were four orders for EPRs, two for China, one for France and one for Finland and four for AP1000s, all for China. None of these orders were in service by 2011 and the two EPR orders for France and Finland were seriously over budget and late.

In 2006, the South African government forecast that a new unit could be on-line between 2010 and 2012. By mid-2007, Eskom was targeting construction of 20,000 MW of new nuclear capacity by 2025, although completion of the first unit had slipped to 2014. It expected an overnight construction cost of US$2,500/kW. (Overnight cost is the cost of a construction project if no interest was incurred during construction, as if the project was completed "overnight.")

In January 2008, Eskom received two bids in reply to its call for tenders from November of the previous year for 3,200-3,400 MW of new nuclear capacity in the near term and up to 20,000 MW by 2025. One bid was from Areva for two EPRs (plus 10 more for the long-term) and the other from Westinghouse for the three AP1000s (plus 17 more in the long term).

It was later reported that the bids were for around US$6,000/kW (overnight) – more than double the expected price. It was therefore no surprise when Eskom abandoned the tender in December 2008 on the grounds that the magnitude of the investment was too much for it to handle. This was despite the willingness of Coface, the French government's loan guarantee body, to offer export credit guarantees and despite Areva's claims that it could have arranged 85% of the financing.

Eskom in crisis

Three weeks into January 2008, Eskom had hit a brick wall. It could no longer meet all the country's electricity demands without melting the national grid. Eskom turned to the bulk users, and appealed to them to ration their demand. Even so, for some months the country faced a series of electricity outages (euphemistically called "load shedding"). Not only was this a blow to businesses, agriculture, schools, hospitals and households, but it coincided with global recession.

Eskom had also run out of money and its credit ratings were reduced. Eskom could no longer afford to invest in new infrastructure, without massive extra income. It would take three years before it could make new orders, and until then the board was saying no to new investments. The biggest blow to the nuclear industry was the decision to scrap the tender process for Nuclear-1, the first of a number of new large-scale reactors. The government had to inform vendors Areva and (Toshiba-owned) Westinghouse that their bids would not be considered for the meantime. The policy was not being suspended, but the orders were temporarily shelved.

Newly appointed CEO Brian Dames tried to rebuild Eskom's reputation and finances. A big hurdle was the steady loss in Eskom's credit ratings. Eskom hoped to raise electricity tariffs substantially, despite this being opposed by the trade union movement and other sections of civil society. The National Energy Regulator reduced Eskom's application for 35% increases for three years to 25%, amounting to a doubling of tariffs over the same period, hitting poor and middle-class households, who objected strongly to the sweetheart commercial deals which Eskom had made in the past with smelters and other large users to be charged minimal tariffs.

The government then guaranteed Eskom's massive investment in two giant coal-fired power stations. Medupi, the first of the two to be built, will be funded by the World Bank despite the enormous carbon emissions the 4,800 MW plant will produce. The loan of US$3,75 billion, was strongly opposed by local NGOs, and even caused countries like the Netherlands, Britain, the US, Norway and Italy to abstain from voting at the bank's decision making committee.

To help Eskom get funding for its future nuclear power stations, companies like Areva have said they will help to intercede with the French government to release development finance. The potential Chinese bidders for Nuclear-1 (China Guangdong Nuclear Power Group) have linked up with the Standard Bank of South Africa, 20% owned by a

Chinese bank (Industrial and Commercial Bank of China), in order to assist Eskom to purchase future reactors.

As a result, Eskom's financial woes are less of an obstacle to re-launching the bids for Nuclear-1.

2010 onwards
The South African government seemed to assume that cheap reactors can be found, if only they could be identified. This led it to look at a design offered by Korea, which had won four orders for the Unityed Arab Emirates (UAE) with a bid worth about US$4,000/kW (overnight costs), well below the levels offered by Areva and Westinghouse, but 60% above the level assumed by the South African government in 2006.

Despite the precariousness of the Korean option, the South African government has had discussions with the Korean government about the supply of such reactors.

The other design being considered by South Africa is the one that makes up the majority of Chinese orders. China dominates the world market for nuclear power plants accounting for 25 out of 38 of the reactors on which construction has started since January 2008. Of the 25, 19 are supplied by Chinese companies and this CPR-1000 design is based on the design China imported from France in the 1980s. This is the same design as is already installed at Koeberg. Some updating will have taken place, for example taking advantage of better IT equipment, but it is clear that it is fundamentally a 40 year old design. The South African government has also been talking to the Chinese government about importing such reactors.

However, a number of assumptions seem to underlie this attempt:
• That the reactors would be much cheaper than more modern designs, partly because they are older and partly because they would be manufactured in China;
• That China has the spare component manufacturing capacity to export plants; and,
• That the NNR would be comfortable licensing a design that fell well short of the requirements of Western regulators, for example on protection against impact by aircraft.

Eskom seems remote from this process and it is not clear whether it supports the idea of importing older technology. As with its reservations with the PBMR, Eskom could be uncomfortable raising any concerns about South African government policy.

The lessons from the Fukushima disaster in March 2011 have yet to be fully identified, but there does seem to be a strong probability that older designs will be seen, worldwide, not just in the West, as inadequate for new orders. In particular, designs with a greater level of 'passive' safety – ones that in an emergency situation do not require the operation of engineered safety systems to bring them to a safe condition – will be required. Even the French EPR does not incorporate strong passive safety features and the Chinese and Korean designs certainly do not have passive safety.

The new call for nuclear tenders
The call for tenders expected for 2012 is based on the Integrated Resource Plan 2010. The rationale for the integrated resource planning process is that it should identify the lowest cost way to meet electricity demand by considering all resources including energy efficiency measures. The plan includes 9,600 MW of new nuclear capacity to be completed between 2023 and 2030. Whether this nuclear capacity really represents the least cost way of meeting demand depends on the accuracy of the assumptions made on the cost.

The IRP 2010 bases its assumptions on a report commissioned from the US Electric Power Research Institute (EPRI, 2010), a US research organisation funded primarily by US electric utilities. Nuclear power costs are dominated by the costs associated with the construction of the plants, the overnight cost of construction and the cost of borrowing, which is related to the discount rate. For the construction cost, the EPRI report gives an overnight cost of R28,375/kW for an Areva EPR and R33,235/kW for a Westinghouse AP1000. If we assume an exchange rate of US$1=R6.75, this equates to about US$4,200/kW and US$4,900/kW. It is hard to understand why the South African government should assume costs that are only 70-80% of the prices bid two years earlier. There is certainly no evidence that estimated nuclear costs have gone down since then.

The discount rate of 8% adopted by the South African government also appears too low. For example, the UK government assumed a discount rate of 10% in 2008 when it assessed the economics of nuclear power. The discount rate is effectively a tool to allocate the limited quantity of capital available as profitably as possible. It should ensure that only projects that achieve the given rate of return on capital – the discount rate – are pursued. If nuclear power is assessed using too low a discount rate, it is likely that relatively unprofitable projects will be pursued at the expense of more profitable projects. The use of too low a discount rate is particularly serious because one of the key reasons the previous tender failed appears to have been because affordable finance was not available. Cape Times reported that Rob Adam, CEO of Necsa, has said:

'The country's nuclear programme had been canned in 2008 because "we couldn't get a bank to lend the money for long enough. Commercial banks' time frames are too short. So now the vendor must come with a bank or financial institution", and South Africa would repay this over time.'

It appears the South African government did not learn from the previous tender when it assumed far too low a construction cost and proceeded with a call for tenders that had to be abandoned because the prices bid could not be financed. The government also seems heavily involved with the process, with ministers and sometimes the president conducting negotiations and signing agreements with governments of potential suppliers. These efforts have been particularly intense with France with whom an undertaking to explore an intergovernmental agreement on spent-fuel management, co-operation between the countries' nuclear safety authorities, and implementation of the agreement on nuclear R&D between the Necsa and its French counterpart have been agreed.

Sources: This article (except the lead) is reprinted from a new Greenpeace South Africa report, called 'The true costs of nuclear power in South Africa'. It is available at: http://www.greenpeace.org/africa/en/News/news/The-True-Cost-of-Nuclear-Energy/
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NUCLEAR LOBBY DELAYING ENFORCEMENT OF POST-9/11 SAFETY REQUIREMENTS

A decade ago, nineteen suicidal terrorists hijacked airliners and turned them into weapons by flying them into the World Trade Center and the Pentagon. Since those horrific attacks, the U.S. Nuclear Regulatory Commission (NRC) and the nuclear industry have repeatedly claimed that nuclear plants were not vulnerable to a similar attack. Nothing could be further from the truth.

(733.6169) Greenpeace/UCS - Rather than reduce the risks posed by nuclear power plants and their deadly wastes, nuclear bureaucrats have trafficked in half-truths about the vulnerability to a 9-11-type attack. When former NRC Chairman Dale Klein was asked what would happen if Al Qaeda flew a plane into a nuclear reactor, Klein's response was that, "in general…the plane would bounce off."

Unbelievable! Documents the NRC scrubbed from its own web site after 9-11 come to a very different conclusion. The report prepared by Argonne National Labs contradicts the NRC and industry claims of invulnerability and details accident sequences in which, "the core would most probably be headed for serious damage if not total meltdown."

But the radiation from a meltdown of the reactor is not the only threat. The waste pools that store the highly radioactive fuel rods are also at risk. According to NRC's own study, one third of U.S. nuclear reactors "do not appear to have any significant structures that might reduce the likelihood of aircraft penetration [of the spent fuel pool].

The NRC has now dithered for a decade while suicidal terrorists have eye balled U.S reactors and their radioactive wastes as "nice targets."

Rather than merely portray nuclear plants as hardened targets, the nuclear regulators should force the industry to move radioactive wastes into hardened on site storage and thereby reduce the potential consequences of a terrorist attack on a nuclear power plant. Ten years after 9-11 both the Bush and Obama administrations have failed to do so and have failed to adequately protect the American people.

But how come?

Stonewalling after 9/11

A document recently made public by the Nuclear Regulatory Commission (NRC) sheds some light on the response of the U.S. nuclear industry to the vulnerabilities in nuclear power plant security and preparedness that became evident following the September 11, 2001 terrorist attacks.

The vast majority of information on this subject is not available to the public. Although there is a legitimate interest in protecting information that could be useful to terrorists planning attacks, in our view the NRC cast an overly broad net over information related to nuclear power plant security after 9/11. This has inhibited the ability of the public to independently evaluate the claims made by the NRC and the nuclear industry that the security upgrades undertaken after 9/11 were implemented rapidly and were adequate in scope to deal with threat of radiological sabotage.

The recently released document clearly illustrates how the nuclear industry uses secrecy to its advantage to engage in private conduct that was completely at odds with the image it presented to the public. The document, entitled *The Evolution of Mitigating Measures for Large Fire and Explosions: A Chronological History From September 11, 2001 Through October 7, 2009* provides an extensive, detailed account of the delaying tactics used by the Nuclear Energy Institute (NEI) to prevent the NRC from enforcing requirements that it imposed on the nuclear industry soon after the 9/11 attacks. This is one of the most substantive public documents on post-9/11 activities by the NRC and the industry that we have seen. The document had been marked "Official Use Only—Security Related Information," but those markings have now been crossed out.

The bottom line revealed in this document is that the NRC issued orders on February 25, 2002 to all nuclear plant licensees to immediately upgrade security in a number of areas by August 31, 2002. Among those areas was Section B.5.b of the order, which required "licensees to adopt mitigation strategies using readily available resources to maintain or restore core cooling, containment and spent fuel pool cooling capabilities to cope with the loss of large areas of the facility due to large fires and explosions from any cause, including beyond design-basis aircraft attacks."

However, the lack of specificity in this requirement, including the meaning of "readily available," led to differing positions between the industry and the NRC as to what, if anything, was actually required by B.5.b. As a result of extensive arguments on these points and others, it took nearly five years before the NRC and NEI came to agreement on what actually was required and how those requirements could be met.

These final requirements appear to have been significantly watered down from the NRC's original proposal. One key issue is that the industry succeeded in avoiding the requirement that the B.5.b measures be incorporated into the site security, emergency, and guard-training plans. As a result, the B.5.b measures were never integrated into the overall plant emergency and security response plans.

The legacy of this has now been revealed by the NRC's post-Fukushima inspections of B.5.b measures, which found multiple gaps and weaknesses. Without integration of the B.5.b procedures into the other emergency procedures, it is unclear how and when the measures would actually be carried out during an emergency, and if the measures might actually conflict with other important emergency procedures. As a result, many of the measures could be essentially worthless in practice.

After the NRC and NEI reached

agreement on the B.5.b requirements, it then took another two years before the licensees complied with the finalized requirements and the NRC completed its inspections. Thus, it took more than six years after the initial compliance date of August 31, 2002 before the requirements of the orders were actually implemented and inspected.

But in April 30, 2009, the staff reported that there were still a range of unresolved issues resulting from the site inspections.

Another interesting fact revealed by this document is that behind the scenes, the NRC apparently worried much more about the risks to spent fuel pools than it was willing to admit publicly. The NRC apparently made mitigation of risks to spent fuel pools more of a priority than mitigation of risks to reactors and containment buildings, and reordered the development of B.5.b measures to address spent fuel pools first. The document cites this change as a "response to heightened public and congressional interest in the potential vulnerability of the SFPs. This heightened interest stemmed from the January 31, 2003, paper by Robert Alvarez and Ed Lyman, called Reducing the hazards from stored spent power-reactor fuel in the United States.

Of particular note in the document is the partial resolution of a mystery that has long plagued us here at UCS: the failure of the NRC to follow through on its decision to impose a new regulation on pressurized-water reactors with ice condenser containments and on boiling-water reactors with Mark III containments to ensure there would be backup power to hydrogen igniter systems in the event of a station blackout.

In 2000, Sandia National Laboratories found that the probability of containment failure from hydrogen explosions at these types of plants following a station blackout (such as what happened at Fukushima) was very high—up to nearly 100 percent for certain plants. The reason is that these plants have relatively small and weak containment systems that could be ruptured by hydrogen explosions, and therefore they require hydrogen igniter systems to burn off hydrogen during a severe accident before it builds up to an explosive concentration. However, these systems require AC power to operate—power that would not be available in a station blackout.

In 2003, the NRC conducted a cost-benefit analysis of this issue and determined that the cost of requiring these plants to add additional backup AC power was less than the benefit. This means that the NRC could proceed with imposing a new regulation that would compel these plants to install additional backup AC power for the igniters.

But this regulation was never implemented. According to the NRC, the reason was that the licensees all promised to install such backup power as a "voluntary" commitment. Even so, it was highly irregular for the NRC to reverse its decision to impose a new regulation, and it was never clear why this happened. Substituting voluntary commitments not enforceable by the NRC for regulatory requirements generally leads to inadequate outcomes—a fact that has become apparent post-Fukushima, as NRC reviews of the nuclear industry's voluntary procedures for coping with severe accidents have revealed major problems.

Now we know from the recently released history that behind the scenes the NRC was engaged in a major conflict with NEI over this issue. It turns out that because this was a security as well as a safety issue, the NRC apparently decided in 2006 to "promptly require" BWR Mark III and PWR ice condenser reactors to obtain additional power supplies for the igniters, and directed the staff to issue orders to that effect. However, NEI did not believe such requirements were appropriate, and responded by requesting a private meeting between the NRC Commissioners and the Chief Nuclear Officers of the affected plants. While the record does not show whether this meeting ever occurred, one can surmise that this concerted effort by the industry to derail the requirements ultimately prevailed.

The legacy of NEI's stonewalling is now apparent in the report of the NRC Fukushima Task Force. Many issues identified as safety weaknesses at nuclear plants today stem from the compromises that the NRC made during the development of B.5.b requirements.

Thus, the fact that nuclear plants are neither as safe nor as secure as they need to be today is a direct result of NEI's strategy of fighting the B.5.b requirements tooth and nail.

Sources: Blog Greenpeace.org, 9 September 2011 / All Things Nuclear, Ed Lyman Union of Concerned Scientists, 9 September 2011
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CARNEGIE ENDOWMENT AS PR-FIRM FOR NUCLEAR INDUSTRY

The Carnegie Endowment for International Peace turns out to be nothing more than a PR-machine for the global nuclear industry. In what they call 'unprecedented Principles of Conduct' a voluntary, non-legally binding set of rules has been articulated, meanwhile adopted by nine companies based in Canada, France, Japan, Russia, South Korea and the United States.

(733.6171) WISE Amsterdam - The Carnegie Endowment began this initiative in early 2008 by contacting each company that it knew to be exporting nuclear power plants at the time. The list was expanded subsequently in response to market developments. If, in the future, additional companies seek to export nuclear power plants, they "will be invited to subscribe to the Principles and participate in their future review and implementation."

The 'Principles of Conduct' was announced on September 14 as follows: "Please join the Carnegie Endowment for International Peace in-person or by phone for the announcement of an unprecedented initiative in the nuclear power industry." Well, we don't receive an invitation like that every week, so we couldn't wait.

"No such voluntary, comprehensive, export-oriented code of conduct has previously existed in the nuclear industry", according to the Carnegie Endowments on September 15.

The Carnegie Endowment for International Peace is a private, nonprofit organization dedicated to "advancing cooperation between nations and promoting active international engagement by the United States". Founded in 1910, its work is nonpartisan and dedicated to "achieving practical results". The Carnegie Nuclear Policy Program is "an internationally acclaimed source of expertise and policy thinking on nuclear industry, nonproliferation, security, and disarmament."

The first line of the Preambule of the Principles explains a lot: "Considering that responsible use of nuclear power plant technology is vital to help meet global energy requirements and address climate change in a sustainable manner."

And the last lines read: "These Principles are voluntary, create no legal duty, and are not legally binding, but nevertheless reflect the genuine aspiration of the participants to apply these principles and make a good faith effort to achieve these goals."

But what are those goals? Well, it is stated in the Preambule too: "Committing to export strictly in compliance with Nuclear Suppliers Group guidelines and with the laws and policies of Vendor and Customer States".

So there it is: a voluntary, non-legal binding set of principles to follow the "laws and policies" of states and "strictly" in compliance with international guidelines.

So, whats to be excited about?

One more quote: "This initiative is unique in the history of the nuclear industry, helping to enhance confidence in the commercial nuclear power plant sector," said Jessica T. Mathews, President of the Carnegie Endowment for International Peace. "While recognizing the preeminent regulatory role of governments, these companies are reaffirming their own vigilance as responsible stewards of nuclear technology."

Or could this be more than just a PR-thing? Is this the beginning of a movement away from international treaties and State laws, and a first step towards the direction of 'self-regulation' by the nuclear industry.

Sources: Press releases Carnegie Endowment for International Peace 14 & 15 September 2011 / Website www.nuclearprinciples.org

GERMANY'S PHASE-OUT: SIEMENS FOLLOWS

Europe's largest engineering company, Siemens, decided to withdraw entirely from the nuclear industry. Chief executive Peter Loescher told Spiegel magazine it was the firm's answer to "the clear positioning of German society and politics for a pullout from nuclear energy". Siemens was responsible for building all 17 of Germany's existing nuclear power plants, and some abroad

(733.6170) Laka Foundation - Siemens has been active in nuclear power for decades, for the most part under the name of KWU (Kraftwerk Union AG). KWU was established on April 1, 1969, by Siemens and another Germany firm AEG. The first (foreign) order was signed on that same day, the construction of the 450MW PWR at Borssele, The Netherlands. As a matter of fact an option for the construction of a second reactor was signed too, but never materialized. Other foreign reactor construction contracts signed were with Brazil, Iran, Argentina, Switzerland and Spain

On January 1, 1977 Siemens bought the AEG 50% KWU share and 10 years later, on October 1, 1987 KWU ceased of being an independent company and became part of Siemens concern.

In early 1989 Siemens started talks with Framatome, the French builder of PWRs. Which resulted in the joint venture Nuclear Power International (NPI). In 1991 a technical reactor concept was decided called the European Pressurized Water Reactor (EPR). "EDF and the major German utilities decided early 1992 to support the strategy and streamline their separate development of future reactors on the basis of this Franco-German cooperation", as Jean-Claude Leny Chairman and CEO of Framatome put it in a March 1993 article

in the German industry magazine Atomwirtschaft. The key milestone in the marketing of the EPR would be 1998 when first pouring of concrete was expected for the first EPR. EDF would place orders to Framatome and "hopefully" the German utilities to Siemens for EPR units to be built in Germany. "Framatome, Siemens and NPI will market and supply the EPR export markets", which was considered to be the main market.

Well as we know it didn't work out as planned.

In August 2000, Framatome and Siemens agreed to a new joint venture formally merging their nuclear activities into a new company called Framatome ANP, subsequently renamed Areva NP. Framatome would hold 66 per cent of the stock and Siemens the rest.

Continued delays to EDF's order led Areva NP to switch to Finland as the focus for its marketing. In May 2002, the Finnish Parliament approved the construction of a fifth nuclear unit in Finland. In December 2003, the Finnish utility TVO signed a turnkey deal with Areva NP for a 1600MW EPR at a cost, including interest during construction and two fuel charges of €3bn with first power first half 2009. Again, that didn't work out as planned: online not before second half of 2013 and costs expected to double.

In 2009 Siemens used an option to exit Areva SA. But an arbitration tribunal in May this year ordered Siemens to pay 648 million euro (more than US$900 million) to Areva after it failed to meet contractual obligations.

Due to the decision to withdraw entirely from nuclear, Siemens will cancel the long-planned joint-venture with Russian nuclear-power company Rosatom Corp. in the field of reactors. although Mr Loescher said he would still seek to work with their partner "in other fields". There are no financial implications linked to Siemens's retreat, according to spokesman Alfons Benzinger.

The German government's decision marked a complete U-turn by the chancellor, who only in September 2010 had announced that the life of existing nuclear plants would be extended by an average of 12 years. Siemen's move, announced on September 18, is also a turnaround. In 2009, the firm withdrew from the joint venture with Areva, because the German firm had ambitions to expand its own competence to build entire nuclear plants. "In view of global climate change and the increasing power demand worldwide, for us nuclear energy remains an essential part of a sustainable energy mix," Mr Loescher had said at the time.

Siemens has gradually scaled back its nuclear-power operations in recent years, after helping build some of the world's largest reactors in the latter part of the last century. While Siemens is pushing renewable-energy sources such as wind turbines and solar power, the company will continue to build steam turbines that can be used both in conventional as well as nuclear facilities.

The German engineering company makes products including high-speed trains, medical scanners, and factory-automation equipment. The entire energy division is Siemens's second-largest by revenue, generating 6.77 billion euros ($9.34 billion) in the most recent quarter.

Sources: Groene Amsterdammer (NL), 16 November 1977 / Financial Times, 28 February 1989 / Frankfurter Allgemeine Zeitung, 14 April 1989 / Atomwirtschaft,: Franco-German Cooperation in Nuclear Development, March 1993 / Nuclear News 'Siemens/Framatome nuclear merger completed' August 2000 / Nuclear Monitor 719/720, 12 November 2010 / Bloomberg, 18 September 2011 / BBC News, 18 September 2011
Contact: WISE Russia

IN BRIEF

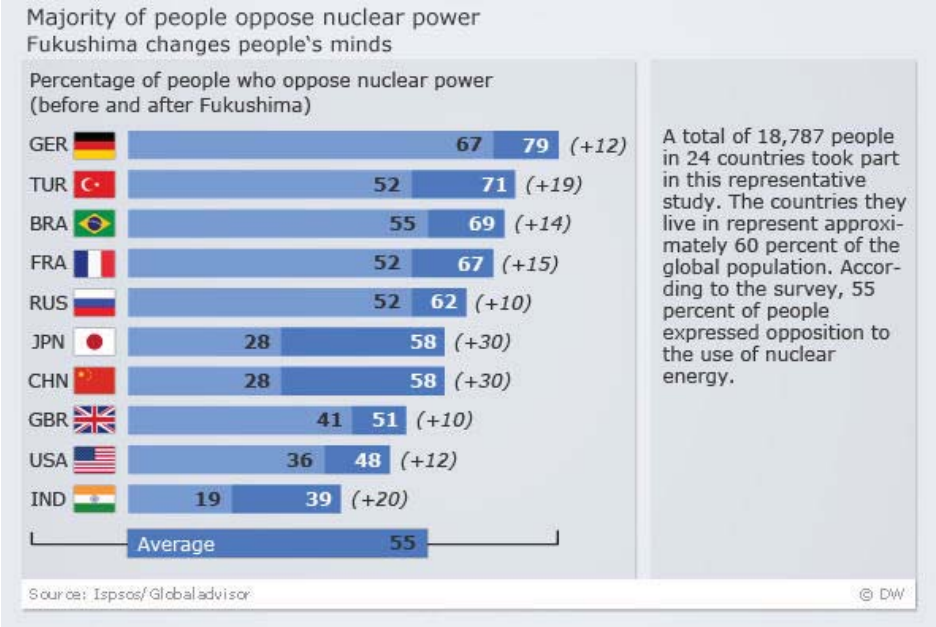
Dounreay area never cleaned up completely. Radioactive contamination that leaked for more than two decades from the Dounreay nuclear plant on the north coast of Scotland will never be completely cleaned up, the Scottish Environment Protection Agency (Sepa) (a Scottish government agency) has admitted. At a September 20, board meeting the Scottish government's environmental watchdog opted to encourage remediation "as far as is practically achievable" but to abandon any hope of removing all the radioactive pollution from the seabed and to give up on its aim of returning the seabed near the plant to a "pristine condition" (a recommendation it made in 1998).
Tens of thousands of radioactive fuel fragments (socalled 'particles') escaped from the Dounreay plant between 1963 and 1984, polluting local beaches, the coastline and the seabed. Fishing has been banned within a two-kilometer radius of the plant since 1997.
The most radioactive of the particles are regarded by experts as potentially lethal if ingested. Similar in size to grains of sand, they contain caesium-137, which has a half-life of 30 years, but they can also incorporate traces of plutonium-239, which has a half-life of over 24,000 years. The particles are milled shards from the reprocessing of irradiated uranium and plutonium fuel from two long-defunct reactors. They are thought to have drained into the sea with discharges from cooling ponds.
In 2007, Dounreay, which is now being decommissioned, pleaded guilty at Wick sheriff court to a "failure to prevent fragments of irradiated nuclear fuel being discharged into the environment". The plant's operator at the time, the UK Atomic Energy Authority, was fined £140,000 (US$220,000 or 160,000 euro)
The Guardian, 21 September 2011

Urenco: "No impact from Fukushima"; shareholders want to sell. Urenco, the uranium enrichment company has dismissed concerns about the impact on its business from the Fukushima nuclear disaster. The chief financial officer of Urenco said that less than 10 per cent of its forecast orders for the next two years were with Japan, and that the group "had not detected any sign that customers in other countries, other than Germany, would scale back their nuclear plans." The CFO declined to give precise figures or comment on the UK Government's planned sale of its stake. The British government has been looking into a sale of their stake since 2009. It is thought that the UK Treasury, which hopes to raise BP1 billion (US$ 1.57 bn or 1.15 bn euro) from the sale, will

appoint an investment bank in September to handle the disposal.
The remainder of Urenco is split between the Dutch Government and E.ON and RWE, two German utility companies. German energy giant RWE has appointed advisers for a 'strategic review' selling its Urenco part. RWE is increasing its sell- off program from 8bn (7bn) to 11bn in the next three years. The company, which has about 27.5bn of net debt, was put under further pressure by the German government's decision to phase out nuclear energy. RWE is also in final negotiations with Gazprom over a potential split of its assets and operations, including Npower in the UK. The deadline for any agreement with Gazprom runs out on October 15. The UK energy company could be split up and sold to other buyers, such as Centrica, if no deal is agreed with Gazprom. E. ON, too, is planning to sell its stake in Urenco, German daily Handelsblatt reported on Sept. 7, citing unnamed sources.
Divestment by any party would require the approval of Urenco's other owners, and the newspaper indicated the Dutch government may try to stop the potential sales. In the past (1999-2000) the Netherlands had plans to sell (part of) its stake in Urenco but decided not to. Areva wanted to buy parts of the Dutch and RWE shares, but later it was decided to sign an agreement to cooperate in Enrichment Technology Company (ETC; 50 % Areva, 50 % Urenco).
The Times (UK) 27 August 2011 / www.kernenergieinnederland.nl / WISE Uranium / Reuters, 7 September 2011)

Areva suspend U-production due to Fukushima.
French nuclear company Areva is suspending uranium production at two plants because of low demand from Japanese power stations in the wake of the Fukushima disaster, a spokeswoman of the company said September 15. Production at subsidiary Comhurex's Malvesi and Tricastin sites will be suspended for two months. "This decision is based on the events in Japan, which today has led to a drop in deliveries to Japanese power producers and short term downward pressure on prices in this market," Areva said in a statement.
Comurhex, which is 100 percent owned by Areva, uses a two-stage process to transform mined uranium into uranium hexafluoride, the raw material for the enrichment process that eventually produces reactor-grade fuel.
Areva said there were no plans to suspend or lay off the less than 600 workers from the plants, who will be asked to attend training sessions or use up holiday allowances while their plants are taken off-line. A number of other plants were shut down following the Fukushima accident and currently only 11 of 54 Japanese reactors are in operation.
AFP, 16 September 2011

Call for Nominations for the "2012 Public Eye Awards".
The Berne Declaration and Greenpeace Switzerland are once again searching far and wide for corporations that pursue profits without regard for social and/or environmental harm. To succeed, we need your support and the critical eye of civil society!
Whether inhumane working conditions, reckless environmental sins, deliberate disinformation, or the disregard for human rights by corporations: In the run-up to the World Economic Forum (WEF) in late January 2012 in Davos, Switzerland, the worst corporate sins will appear on the 2012 Public Eye Awards short list. We thereby place corporate offenses in the international spotlight and help NGO campaigns succeed. A number of firms have already felt the considerable pressure from the unwelcome exposure in the media and the social Web! Over 50,000 people worldwide took part in the online voting for the People's Award last year.
In 2008 Areva won the Award. It won't be bad if the nuclear industry gets some extra attention this year.... Please act quickly as the deadline for nominations is September 30!
Go to http://www.publiceye.ch/en/ and vote.



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). 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.

Receiving the WISE/NIRS Nuclear Monitor

US and Canada based readers should contact NIRS for details of how to receive the Nuclear Monitor (address see page 11). Others receive the Nuclear Monitor through WISE Amsterdam.
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