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NUCLEAR LOBBY AT POZNAN COP-14: SNEAK IN THROUGH THE BACK DOOR

The threat of climate change has become central to the nuclear industries survival strategy. Faced with terminal decline from the late 1980's onwards, they seized the opportunity during the climate negotiations that began after the signing of the Kyoto Protocol in 1997. The critical area of Kyoto for the nuclear industry was Article 12 on the Clean Development Mechanism (CDM), a credit mechanism for industrialized countries where they could finance mitigation projects in developing countries in return of certified emission reductions credits (CERs), to be used to offset their own reduction targets.

(681.5911) Jan Vande Putte - After years of careful preparation, with highlights at the Conferences in The Hague and Bonn, nuclear lobbyists were effectively defeated in Marrakesh in 2001, with a leading role of the AOSIS countries (The Alliance Of Small Island States), being highly critical of the nuclear waste and plutonium shipments from and to Japan through their region as well as by the EU, OPEC and the Central-European countries. A diplomatic compromise was found stating that industrialized countries could not use the credits from nuclear power, thus avoiding an explicit rejection of nuclear technology as such, but effectively blocking it from being part of the game. The congratulations to the NGO folks involved were certainly well-deserved.

Long commitment periods needed

After being kicked out of the Kyoto financing mechanisms, the nuclear industry tried to minimize its defeat, by stating that after all, it would not have made any difference. The analysis was that the commitment period was too short, in fact from 2005 (entry into force of Kyoto) till 2012, not being enough to significantly soften the huge upfront investment risks of a nuclear power plant. Although this explanation was in the first place aimed to cover their defeat and to minimize the political stigma of not being part of the solution, it would be a mistake to overlook its deeper significance. In recent discussions on pro-nuclear strategies to get full recognition in the so-called post-Kyoto 'financial architecture', long commitment periods of some 15 years are seen as a minimum to effectively contribute to the nuclear industry's financial problems. Something to keep in mind, given the rumors at Poznan of shortening the next two commitment periods to 5 years.

Lessons from the CDM

Quite a lot has been published on the future of CDM in the post-2012 area, as well as on proposals for new financing mechanisms. It is rather generally recognized that CDM had a very poor performance. The Climate Action Network's position paper is clear: it has a net negative impact on the reduction of greenhouse gasses. This is because industrialized countries are offsetting a part of their own reduction obligations by buying credits generated by projects which are not really 'additional', meaning that e.g. Japan is buying credits from a large hydro power plant in China which was going to be built anyway, even without the credits, while the domestic targets of Japan can be lowered because of the credits. Furthermore,

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projects often neglect environmental criteria or disrupt local communities and most CDM projects are in the largest developing countries such as China or India, with only few projects in Least Developed Countries. Management of the whole CDM is far from kosher. It is done through an 'Executive Board' which members are either defending national or business interests or both. Even UNEP is pretty critical on CDM.

But behind the closed doors of the 'informals' during the Poznan Conference, diplomats continue a cynical discourse. It's worth listening carefully to friendly diplomats reporting from it, in order to understand where they are heading to post-2012. Just to look at three key players. Japan is pushing to 'streamline' the CDM system, to have even less power with the board, less time to approve projects, and going for a much larger-scale application in order to go for large-scale offsetting of its obligations. China on the other hand is looking forward to big volumes of cash from selling credits from large-scale projects and avoiding the bureaucracy of the Bonn-based Board. And Europe is mainly playing a hypocritical game: pushing for an improved system and stricter sustainability criteria knowing that between China and Japan they have little chance, and thus accepting to go for large-scale offsetting as well, thereby avoiding their own domestic responsibilities.

Towards the post-Kyoto financial architecture

The political game around CDM is probably the best indicator of where the whole system is heading to. CDM as such will probably be continued as a project-based system, with renewed attempts to remove the nuclear exclusion in the post-2012 'extended' CDM. But the key countries see its limitations, even with a 'streamlining' of the bureaucracy. Approving each project remains a slow process in what could potentially become a trillions-dollar market after 2012. Several new mechanisms have thus been proposed, amongst the most well-known is the so-called Sectoral No-Lose Target (SNLT). This would e.g. recognize the whole Chinese electricity sector as one big 'project' (to use the analogy with CDM). It would begin with an analysis of the projected business-as-usual emissions profile of the whole sector for the crediting period, followed by a calculation as to the effect of existing domestic policies and measures on that emissions profile, which would establish a 'baseline'. Any further reductions below this baseline would then generate credits which would be eligible to be sold on the carbon market. Such approach falls under the group of 'Target and Timetables' approaches. The 'no-lose' qualification refers to the voluntary nature of the target for China, meaning that there are benefits if the emissions remain under the baseline and no penalties if not.

The SNLT approach certainly has some advantages for the nuclear industry. While the CDM, as a project-based mechanism, is now effectively blocking nuclear projects, such would be far more complex under a sectoral approach which is not looking into the details of how emissions reductions in the sector are realized. Nuclear trade between the French state-owned Areva, selling EPR's to China would thus generate profit for Areva and loads of credits for China, selling them on the carbon market, to be bought by France to comply with its post-Kyoto commitments (supposing they reach an agreement in Copenhagen or thereafter). It looks much like the closed fuel cycle. Whereas in the case of CDM, there are many loopholes in the mechanism, the SNLT-type of systems could become the loophole. Options to exclude non-sustainable technologies such as nuclear power are certainly conceivable, but might be politically hard to win.

A very different approach than setting Targets and Timetables is the Technology Transfer. Given the uncertain nature of the carbon market (e.g. the crash of the European ETS - the Emission Trading Scheme- market), and short commitment periods, the nuclear industry might be looking also into international, regional or even bilateral agreements for technological 'innovation'. Likeminded partners could create niche markets, e.g. developing EPRs in S-Africa. At a broader level, the Generation IV Forum could be financed through a Technology Transfer agreement, with an active participation of countries such as India, Brazil, Argentina, the US, Japan and the EU.

Filling the gap will be hard

The three described post-2012 financial instruments are illustrative of a much larger number of options. This might seem to be an impressive nuclear 'coup' with the objective to have a prominent role of nuclear power in the post-Kyoto world. However, the main mechanism of carbon trading will remain rather incompatible with the needs of the nuclear industry to get long-term commitments and stable and high carbon prices. Without this, banks might remain skeptical on funding new reactor projects. Technology Transfer agreements might be very focused on specific projects or programs, but it looks rather unlikely this could generate the thousands of billions to fuel a real nuclear 'renaissance'.

Conclusions

It is hard to come up with any clear conclusions. The debate on the post-2012 financial architecture is still at an early stage, fragmented and all options seem to be open. The nuclear industry is however looking very serious into this issue and developing a well-targeted strategy to get nuclear power in as many mechanisms as possible. Furthermore, serious efforts are being put into getting the recognition it missed in 2001 in Marrakesh. As an example, lot of efforts have been put in making the IPCC Assessment Reports more pro-nuclear, by generating biased data through the Nuclear Energy Agency on the costs of nuclear power. This ground-laying work should not be underestimated.

Meanwhile, more realistic figures on the capital cost of new nuclear power plants are more and more frequently published in the financial press, with even the World Nuclear Association recently recognizing a cost tag of around 7000 $/kWe installed capacity. These figures, some 2-4 times higher than what the NEA was still publishing earlier this year, will now be trickling down from the more specialized media to the more popular, and to decision makers and the larger public. The IAEA at Poznan started to anticipate this

criticism by publishing itself some updated cost figures showing a lower generation cost range for wind than for nuclear. This might be the reason why the nuclear industry is now stressing that its the 'cheapest low-carbon *baseload* technology'.

This looks like a decisive race for the nuclear industry, to get things arranged in time before the truth haunts down its self-fabricated reputation to be the major 'low-carbon' technology. This race might be a close one, and the role of the NGOs exposing the historical failure of the nuclear industry might be decisive. Apart of exposing its excessive costs in terms of climate mitigation, environmental NGOs should also continue to stress its fundamentally unsustainable nature, especially its unresolved waste problems and proliferation risks. During the first week of the Poznan conference, more than 300 NGOs co-signed a position paper to keep nuclear out of CDM, including all main international environmental NGO's. It is encouraging that the environmental movement stands firm against nuking the climate.

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FRENCH NUCLEAR INVASION OF U.S. HITS MAJOR ROADBLOCKS

Areva, the French nuclear power giant whose incessant, bubbly, techno-pop commercials on cable news shows have made it increasingly well-known in the United States, has ambitious plans to expand its presence in the U.S. These include construction of four, and likely six, new EPR reactors through its conduit UniStar Nuclear; construction of a uranium enrichment plant in Idaho; and construction of a large components forging facility in Virginia. But it faces new challenges to its flagship reactor project at Calvert Cliffs, Maryland and an increasingly muddy, and potentially nasty, fight over the future of its U.S. utility partner Constellation Energy.

(681.5912) NIRS Washington - UniStar Nuclear is half-owned by Constellation Energy and half by Electricite de France (EdF). It exists to bring Areva EPR (Evolutionary Power Reactors) reactors to the United States. UniStar has submitted applications to the Nuclear Regulatory Commission for new reactors at Constellation Energy sites at Calvert Cliffs and Nine Mile Point in New York, and through other utility partners in Missouri and Pennsylvania. And UniStar owns Amarillo Energy in Texas, which reportedly has plans to build two new EPRs on a greenfields site near Amarillo.

Calvert Cliffs is first in UniStar's line, and is intended to serve as the lead application for all of the rest of its reactors. But despite the support of Maryland's Democratic governor Martin O'Malley, Calvert Cliffs is encountering more resistance than UniStar expected. Already facing a challenge to its permit application before Maryland's Public Service Commission, UniStar learned on November 19 of a challenge to its NRC application from four organizations: NIRS, Public Citizen, Beyond Nuclear and a newly-formed citizens group in Calvert Cliffs home at Calvert County, Maryland (where it had counted on overwhelming public support), SOMDCARES.

The groups' intervention has sparked creation of an NRC Atomic Safety and Licensing Board (ASLB) that will rule on the contentions raised by the environmental coalition, including that the project violates the Atomic Energy Act's prohibition against foreign ownership, domination or control of a nuclear power project; that Constellation's fragile economic status means it cannot guarantee adequate decommissioning funding; that the application does not consider the cumulative impacts of adding yet another reactor dumping radioactive and chemical materials into the Chesapeake Bay, which already suffers from the releases of 11 reactors across the mid-Atlantic region; that the application does not adequately consider the possible effects of a catastrophic fire at a nearby Liquified Natural Gas terminal; and that the proposed facility has not demonstrated that there is anywhere to put either its high-level or "low-level" radioactive waste (the full petition can be read at http://www.nirs.org/nukerelapse/calvert/cc3interventionpetition.pdf).

The ASLB won't decide on a hearing schedule, or even exactly what contentions it will hear, for a few months. But the intertwined trio of Areva, UniStar and EdF faces another unforeseen problem that could bring down all of its plans.

In September, Constellation Energy (the 50% owner of UniStar and the necessary U.S. component of the trio), which has both regulated and unregulated subsidiaries, fell victim to the economic collapse, particularly the failure of the Lehman Brothers investment firm, with which it was closely allied. Some reports suggest that Constellation was one day short of complete bankruptcy. In stepped the legendary bargain hunter, billionaire Warren Buffett and his MidAmerican Energy Holdings Company, which, in a hurried process agreed to buy Constellation--valued at more than US$20 billion in January 2008, for US$4.7 billion, or less than ½ the estimated cost of the Calvert Cliffs-3 reactor alone. Buffett saved Constellation's existence by fronting US$1 billion (750 million euro) in cash to keep the company going pending shareholder and regulatory approval of the merger.

Constellation's largest shareholder is EdF, which owns 9.5% of the company, and EdF apparently is nervous about Buffett's intentions--although so far Buffett has indicated support for the UniStar concept. But last year Buffett spent US$10 million investigating the possibility of building a new reactor in Idaho and scrapped the project saying that it wouldn't be beneficial for either ratepayers or MidAmerican Energy.

So in early December, EdF came up with a counter-offer: it would pay

US$4.5 billion to buy just 50% of Constellation Energy's current and aging nuclear assets, which consists of two existing reactors at Calvert Cliffs, two reactors at Nine Mile Point, and the Ginna reactor in New York. In addition, it would offer to buy up to US$2 billion worth of non-nuclear Constellation power plants. To many Constellation shareholders, who are aghast at how their stock has plummeted over the past year and who feel that Buffett's offer undervalues the company, EdF's offer seems attractive.

While EdF's offer might not pass muster under the Atomic Energy Act, most Constellation shareholders have probably never heard of the foreign ownership/domination/control prohibition. And if EdF is successful in its offer, that issue could be tied up in court for years --but EdF would essentially control the company and its UniStar subsidiary in the interim. After all, EdF is certainly not going to do an evaluation of a nuclear project that would result in its cancellation.

For its part, Constellation's board of directors continue publicly to say they favor MidAmerican's offer, but on December 8 announced that they are now also talking to EdF. A shareholder's meeting is scheduled for December 23 to consider Buffett's offer, which MidAmerican Energy says it has no interest in increasing. If the offer is rejected there, the EdF offer likely will be accepted later on. Although, if the Buffett offer is rejected, the uncertainty over Constellation's future could lead to further reductions in the company's value.

Meanwhile, activists are also gearing up for the December 23 meeting. The Chesapeake Safe Energy Coalition plans to be there to alert shareholders to the problems of UniStar and EdF and Areva involvement in Constellation and Calvert Cliffs. They'll also be presenting thousands of petition signatures to Warren Buffett, calling on him to close the company's UniStar subsidiary if he is successful in taking over Constellation.

And the issue has become further muddied before the Maryland Public Service Commission, where some 30 entities, including NIRS and other environmental groups, have intervened in the proceedings over the MidAmerican/Constellation buyout. While some of the entities appear interested only in getting the best possible deal on electric rates, others, such as EdF, seem to want to scuttle the deal. NIRS and its allies are seeking a condition that would force Buffett to close UniStar if he doesn't do it on his own, and are seeking re-regulation of Maryland's failed effort at deregulating the state's electricity sector, which has led to sharply-higher electric rates and reduced regulatory oversight, while providing no new competition in the electricity sector. Hearings on that process are scheduled to begin in early 2009. And it is increasingly likely that the entire electricity deregulation issue will be revisited by the Maryland legislature, whose session begins in January 2009. Indeed, the Maryland Public Service Commission (PSC) issued a report early December that recommended at least partial re-regulation be instituted in the state.

In the face of all these pressures, the future of Areva and EdF's French nuclear invasion of the United States is very much up in the air.

Source and contact: Michael Mariotte, NIRS Washington

ESKOM CANCELS PWRS: MAJOR BLOW TO NUCLEAR EXPANSION

In the first major blow to ambitious global nuclear newbuild plans since the escalation of the financial crisis since September, South Africa announced on December 5 that it is canceling its plans to build new generation pressurized water reactors (PWR). Government owned utility Eskom decided against the Nuclear-1 project "due to the magnitude of the investment," according to a statement it released. This investment was increasingly impossible to justify, with a plunging rand, global lines of credit frozen, and a new government with potentially different priorities. South African ambitious nuclear plan has been one of the strategically most important battlefields - it is one of the leading developing countries that many others follow.

(681.5913) WISE Amsterdam - South Africa's plans to increase nuclear production capacity from 1,800 megawatts now to 20,000 MW by 2025 has grown increasingly unlikely all year as both the country and Eskom encountered strong economic headwinds. With the rand on a roller-coaster ride, Eskom's planned capital spend of R343 billion (US$33.5 billion) was increasingly unstable, and on Augustus 11, credit rating agency Moody's downgraded Eskom, pointing to the "execution risk (cost and time) and funding risks associated with the program". South Africa is in talks with the World Bank for a loan of some US$5 billion, but that institution has a policy against funding nuclear projects. While suffering multiple outages over the past year, Eskom applied to regulators to raise electricity charges by 61%, but was allowed an increase of just 27.5%. Complaining of the troubled company, newly elected President Kgalema Motlanthe in December said, "Eskom and the energy crisis are proving to be a tsunami - an albatross around our neck, a burden too heavy to carry."

Beyond the gloomy economic outlook, politics may also have come into play in the Eskom decision. The nuclear industry lost a major advocate when Motlanthe replaced the former minister of the Department of Public Enterprises (DPE), Alec Erwin, on September 25. Erwin had been a vocal advocate of a massive nuclear expansion, but he was also a loyalist of the previous South African president, Thabo Mbeki, a bitter rival of Motlanthe's patron Jacob Zuma. It remains unclear whether his replacement, Brigitte Mabandla, will deviate from the former cabinet's decision - in which she participated as minister of justice -- to support a strong

nuclear expansion. Mabandla's political performance has always been regarded as poor by commentators.

Although the Eskom decision was far from unexpected in South Africa, it came as a blow to the two consortia that had been bidding on the project, led, respectively, by France's Areva and by Westinghouse, the US-based subsidiary of Japan's Toshiba. Although the Westinghouse bid was alleged to have been less expensive, Areva seemed confident that it would gain the contract due to prior links with Eskom, its predecessor Framatome having built Koeberg. Areva still provides Koeberg's nuclear fuel and trains numerous Eskom operators. Areva boss Anne Lauvergeon also has a seat on President Motlanthe's international investment advisory council.

Consequences for PBMR-program

The Nuclear-1 project was established after the very ambitious scenario for development and construction of the Pebble Bed Modular Reactor (PBMR) failed to meet even the most modest time schedule. It was expected in 1998 that work on construction of a PBMR demonstration plant would begin in 1999 and be complete before 2003 to allow commercial orders soon after. Eskom projected that the market could be about 30 units per year, about 20 of which would be exported.

In March 2007, a PBMR (Pty) Ltd spokesman admitted that construction on the demonstration plant could not start before late 2008 or early 2009. And this turns out to be a highly optimistic estimate. In a 2007 report, (see *Nuclear Monitor* 655.5796: "The Status of the Pebble Bed Modular Reactor Development Program") Steve Thomas expected that the demonstration model would not produce any power before mid-2014. This is now over 10 years later than was forecast when the PBMR program was announced in 1998.

In the wake of severe power shortages in the Western Cape province following a serious error in the maintenance of the existing Koeberg nuclear power plant, Minister Alec Erwin announced in April 2006, that he had asked Eskom to examine the possibility of building a 'conventional nuclear power station'. By February 2007, these plans had been firmed up sufficiently that it was forecast that a large plant would be on line by 2014 with a total of 2000-3000MW to be completed in the 'near-term'. Recent estimates placed the price of this plant at between US$9bn and US11bn.

In a 'Message from the CEO' (the 'Pebble Brief'), PBMR (Pty) Ltd CEO Jaco Kriek is desperately trying to see the bright side of the current developments: "I therefore appeal to you to regard this development as an opportunity which should be seized with enthusiasm" and concludes: "we are living in exciting times!" The first part of his letter, however is very optimistic: PBMR Ltd has funds to cover costs until March 2010, "if we exercise due care with our spending patterns". He writes: "PBMR - in close cooperation with government - is therefore reviewing and assessing its strategic intent and value proposition, given the current economic crisis and the economic priorities established by the government."

According to Frost & Sullivan analyst Van der Waal, the halt to Eskom's nuclear program will delay the planned commercialization of the PBMR by up to four years to 2020. This has also been strongly hinted at in public statements by the director-general of public enterprises Portia Molefe, on December 5. Despite delays, the PBMR demonstration plant at Koeberg and pilot fuel plant at Pelindaba were unlikely to be cancelled by the halt to Eskom's conventional nuclear plans. Molefe insisted the government is not abandoning its ambitions for developing the PBMR. However she pointed out that the PBMR has two possible uses, one for generating electricity and one for generating "process heat". The latter can be used directly, she said, in processes such as winning oil from oil sands, and it may be that the process heat application will be the way to go. A decision on the future of the PBMR was to be made soon. "In terms of its time scale, there has been a time shift. We shall make an announcement shortly." But she indicated that the department was looking at ways of speeding up the PMBR process, not slowing it down "We are certainly not sounding the death knell for PMBR," she said.

Former minister of public enterprises Alec Erwin said in 2005 that the government was looking to produce between 4 000 and 5 000 megawatts of power from pebble bed reactors, which equates to between 25 and 30 modular nuclear reactors of 165MWe each.

However, just the cost of building the pilot fuel plant and the 165MWe demonstration plant by 2013 (very optimistic even before the current crisis) has recently doubled to some US$3 billion, according to *Uranium Intelligence Weekly*. These figures include the building of the fuel plant to manufacture the pebbles, as well as the building of demonstration plant, but do not cover the reactor's operations, decommissioning, waste disposal or insurance costs.

In a press release, the anti-nuclear Pelindaba Working Group thinks there is little reason for over optimism about Eskom's decision because the government remains committed to its nuclear power program: "There remains a deliberate silence over the ill-conceived experimental Pebble Bed Modular Reactor (PBMR) which has already cost taxpayers over R16 bn (US$1,5 bn) (some estimates now put this figure closer to R32 bn), and the nuclear industry's stated intention to re-launch uranium enrichment plant at Pelindaba and "reprocess" radioactive waste to fund nuclear power projects."

Officials are hastening to reassure Areva and Westinghouse that more affordable arrangements may be considered in the medium term, with local industry providing materials which would have been imported. These assurances, along with continued support for the PMBR project, indicate a level of continuity that may yet see the implementation of Eskom's earlier plans.

However, while Eskom, Mbeki and Erwin intoned the mantra of "no alternative" to nuclear, the recent cancellation of the PWR plans may give South Africa a chance to pause to reconsider its energy future. In a recent

speech (December 2) to the statutory National Economic Development and Labour Council, President Motlanthe announced the government plans to reinstate "social dialogue", in contrast to the unconsultative style of the former Mbeki regime. If this is correct, it may open the path to a national energy debate involving all stakeholders, in which alternatives to nuclear and coal can be tabled and even prioritised. This debate will only come about if there is concerted effort on the part of civil society to set its terms.

Sources: Uranium Intelligence Weekly, 8 December 2008 / Business Report (SA), 7 December 2008 / Pebble Brief, 15 November 2008 / iAfrica, 5 December 2008 / Press release Pelindaba Working Group, 5 December 2008

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FRANCE'S EDF BUILDS NEW AND PATCHES UP OLD

In recent announcements to investors and media, the French nuclear giant EdF proved its dedication to a desired nuclear revival by presenting ambitious time tables for commissioning of new EPRs in France, China, the US and the UK. However, costs are ever-rising, a shortage of skilled personnel is close and the existing EdF nuclear fleet is held on life support as long as possible.

(681.5914) Greenpeace International - Early December 2008, EdF presented the updated construction costs of the EPR (European Pressurised Reactor) being built in Flamanville, France, at an investors meeting in London. Flamanville-3 will be at least 20% more expensive than the original estimate, building costs rising from €3.3 billion in 2005 to €4 billion in 2008 (US$ 5.3 billion). Consequently, the electricity generated in the new nuclear power plant will cost €54/MWh instead of €46/MWh. According to EdF, the causes of the increased costs are higher raw material costs and 'technical and regulatory evolutions' - probably code for technical difficulties and regulatory strictness encountered during construction.
Inspections by the French nuclear safety authority ASN confirm that construction problems continue to emerge at Flamanville-3. The ASN inspection on 7 November 2008 gave rise to a 'notice of serious infraction' and identified the need for improvement of control and quality management in the welding operations. EdF is urged to take several preventative and corrective measures, to demonstrate to ASN that the final quality of the liner satisfies requirements and to ensure quality management of the subcontractor who is in charge of the liner welds.

EPRs worldwide

EdF plans to invest up to €50 billion in new nuclear power plants worldwide by 2020. The company's own share of investment would have to be between €12-€20 billion, while the rest should be provided from project financing debt, joint venture partners and cash flow generated in new plants. Main target countries are the UK, US, China, Italy and South-Africa (shortly after EdF's announcement South-Africa's main utility Eskom announced cancellation of its nuclear plans). Target dates for commissioning are ambitious: despite continuous troubles at Flamanville-3, EdF desperately clings to the target date of 2012 for connection of the new EPR to the grid. Subsequently, the first EPR in China will start up in 2013 (Taishan-1), the first one in the US in 2016 (Calvert Cliff-3, see story: *'French nuclear invasion of U.S. hits major roadblocks'* in this issue) and the first in the UK in 2017 (two EPRs are planned in Hinkley Point and two in Sizewell).

EdF already announced that a second EPR in France would not benefit from a 'learning curve' from Flamanville-3. On the contrary, the second EPR would be even more expensive due to a likely increase of component prices and 'possible site-related costs'. EdF projects a price between €55-€60/MWh for electricity from the second EPR. In an interview EdF's CEO Pierre Gadonneix said that French electricity prices should continue to rise in order to match the costs of building nuclear power plants. Still, EdF claims that in the US the EPRs will be able to compete in the long run, but 'federal guarantees and support will still be needed for the first few new nuclear power plants'.

Lifetime extension

Crucial for EdF's investment plans and financial position is probably its intention to extend the existing plants' operating lives beyond 40 years, possibly even up to 60 years. An estimated investment of €400 million per reactor could result in a multibillion euro windfall - a welcome and possibly crucial financial buffer. Between 2015 and 2020, 18 nuclear power plants in France will reach the age of 40. Continued operation would push back investment costs in new units, and smoothen the flow of commissioning new units - the latter being a 'true industrial challenge' according to EdF. EdF not only faces an industrial challenge, but also the challenge of maintaining its expertise and human resources. About 40% of EdF's managers ad engineers, experts in generation, engineering and R&D, retire by 2015.

Sources: EdF Press Release & Presentation, Investor Day, 4 December 2008 / Platts Nuclear News Flashes, 4 December 2008 / ASN 0945-2008, letter to Director of Development Flamanville 3, 14 November 2008 / Dow Jones Newswires, 9 December 2008 / Financial Times 6 December 2008

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EU COMMISSION GOING HIGH SPEED FOR DYSFUNCTIONAL NUCLEAR SAFETY DIRECTIVE

As published in the last *Nuclear Monitor*, the European Commission is trying to re-submit parts of the so called "nuclear package", a set of EU nuclear legislation from 2003 that aimed to ease the path of development of nuclear power, but that was smashed in the European Council.

(681.5915) EU policy campaigner Greenpeace - Different, however, than the impression that the European Voice was giving of the fate of the proposed Framework Directive on Nuclear Safety, and that was quoted in the Monitor, this attempt has not been shelved again - the Commission is using unprecedented haste in pushing it through the required procedures and on the way is willing to give in to all pressure from nuclear states and the nuclear sector. Procedures that excludes binding opinions from the European Parliament, because the Euratom Treaty does not require this, and that are based mainly on so called "expert" input. If anything, this Framework Directive exposes the complete lack of democracy in the Euratom Treaty.

On 1 December, the European Commission adopted a "Proposal for a Council Directive (Euratom) setting up a Community framework for nuclear safety", which was directly sent for information to the European Council and was tabled on 15 December at the Atomic Questions group, a gremium of nuclear bureaucrats from the Euratom Member States.

Nuclear regulators independent but unaccountable

Giving in to pressure from the nuclear sector, the Commission stopped short of making any improvement in the status quo. In this, national nuclear regulators are the final authorities on nuclear safety rules. This situation has led to outdated new reactor programs like the Mochovce project in Slovakia and Cernavoda in Romania to go ahead in spite of issues like missing secondary containments and positive void factors respectively. It led to the projection of new nuclear power stations in seismic active areas like Belene in Bulgaria and Krsko in Slovenia. It led to unpunished infringements of construction regulations in Temelı¡n in the Czech Republic and Olkiluoto in Finland. The proposed framework directive will make it only more difficult to improve this situation because weak regulators will be able to hide behind it.

The Commission argues that the Directive will strengthen national regulatory infrastructure by demanding sufficient financial and monetary capacity for regulators, as well as full organizational independence from the nuclear lobby. It does not improve the problematic situation of low accountability of national regulators, however, leaving the door open to abuse of power and corruption and seriously undermining the spirit of independence that the Commission claims it seeks.

Global common lowest denominator the safety rule

The reference to shelving in the European Voice, quoted in the last issue of the WISE/NIRS Monitor, only related to prescriptive safety rules. The Commission only fixes in the proposal the 2006 IAEA safety guidelines in law - the lowest global common denominator - and argues that it has discussed this with a broad group of stakeholders: the European Economic and Social Council, the Euratom art. 30 expert group, the High Level Group on Nuclear Safety (ENSREG) and it quotes the European Nuclear Energy Forum supporting adoption of EU legislation on nuclear safety, based on "common fundamental safety principles for nuclear installations". It forgets, however, to give the full quote from the Forum's conclusions, which add "based on best available technology and best regulatory practice". That is a hell of a lot further than what the Commission proposes now.

Piebalgs in a hurry

Sources within the Commission and around the Council give as reason for the sudden haste that Energy Commissioner Piebalgs wants to leave a legacy - his term ends in 2009 and he is not opting for a second term.
It currently looks that there will such a majority in the Council, unless key countries that in the past have shown a clear critical attitude towards nuclear safety will step on the breaks. Sources in the Council point out that strong objections to the proposed directive have been voiced by a group of member states, most noteworthy by Germany, but that a country like Austria has remained silent.
In the following months the proposal will go for a non-binding opinion to the European Parliament and make a round along the representatives of the Member States for input. It is likely that parts of the text will change considerably still before a final proposal will be tabled to the Council of Ministers in summer under the Swedish presidency - or if the current speed continues, still in March under the Czech presidency.

It is now clear that the European Commission tries to push through this fundamentally flawed idea cost what may, and that nuclear safety has become the play-ball of political games and deal-making. In order to increase its chances, it already based the proposal on a part of Euratom that only requires a qualified majority, instead of full consensus from the Member States.

Given the fact that the Commission also is making preparations for a directive on nuclear waste, this does not bode well for the coming months. The largest hope rests now with Member States that do not like these kind of plays with nuclear risks and can stop the Commission in its tracks once more.

More information on the proposed Directive:
The proposal as sent to the European Council:
http://register.consilium.europa.eu/pdf/en/08/st16/st16537.en08.pdf
Impact assessment of the directive:
http://register.consilium.europa.eu/pdf/

en/08/st16/st16537-ad01.en08.pdf
Summary impact assessment:
http://register.consilium.europa.eu/pdf/en/08/st16/st16537-ad02.en08.pdf

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NUKE PURSUIT ANYTHING BUT POWERWISE

As Canada's industrial centre, Ontario needs a lot of electricity. At one time, it got most of this power from water-driven turbines, hence the name Ontario Hydro. But the name has changed to the Ontario Power Authority, an indication of the province's increasing reliance on other sources of electricity, especially nuclear power. Because Ontario's demand continues to grow, it's assumed that supply must also continue to grow - and nuclear has been touted as the most reliable source of that increasing power.

(681.5916) David Suzuki - I've always thought it was crazy to plan on steady growth forever. It can't be maintained in a finite system such as our biosphere. Energy conservation makes a lot more sense, and it has been proven to be effective. After the rolling brownouts engineered in California by Enron in 2001, the state embarked on a conservation program that slashed usage and saved billions of dollars.

With that in mind, I approached Ontario Premier Dalton McGuinty last year and told him that, with enough inspiration and information, the public was ready to do its part. He directed me to PowerWise, the province's energy-conservation program, and I agreed to appear in a series of TV spots and billboards for PowerWise. (Neither I nor my foundation received any payment for my participation.) We took a humorous approach to encourage viewers to do things such as add insulation to their homes or replace wasteful incandescent light bulbs with efficient CFLs to conserve energy and save money.

I'm proud of the ads. They were immensely popular and were even used by conservation programs in other provinces. And according to PowerWise, they worked.

So it's with great disappointment that I've decided to stop appearing in them. I'm doing this to protest the Ontario government's intention to pursue nuclear power.

Building new plants will be incredibly costly. Every nuclear power plant built in Ontario so far has had huge cost overruns, has been behind schedule, has failed to deliver the amount of electricity promised, and has had a shorter lifespan than promised.

It gets worse. About half of Ontario's power plants have had serious problems that have led to shutdowns. So taxpayers paid even more to repair the plants and to purchase electricity from other regions during the shutdowns. Nuclear energy has turned out to be the most expensive form of electricity in Ontario by far. (And that's not even mentioning the usual concerns, such as terrorism risks and radioactive waste!)

If Ontario's nuclear power plants were any other kind of high-priced product, customers would demand a refund and complain to the Better Business Bureau. And you can bet they wouldn't be hoodwinked into making the same purchase again.

Yet, that's exactly what's happening.

Energy analysts have shown that Ontario doesn't need to build more nuclear power plants and, in fact, could replace the energy provided by existing facilities with a combination of energy-conservation programs and expanded green-power projects. The government can get a jump-start by replacing its aging nuclear reactors with alternative green energy sources now. In March, Ontario's energy and infrastructure minister will have to decide whether or not to rebuild the aging Pickering B nuclear station or to mothball it. I think he should close it and invest the money saved in alternative green-energy generating facilities.

By focusing on renewable energy, Ontario could create a huge number of sustainable jobs and put clean energy onto the grid immediately. It could retool the manufacturing sector and retrain workers to be part of an innovative green-collar workforce. It could export these products and expertise to other parts of the world.

It's already starting to happen ... just not here.

Some European countries have transformed their economies and workforces by pursuing renewable energy. U.S. president-elect Barack Obama will undoubtedly follow their lead.

Ontario has the opportunity to become a leader in this growing field, and use its influence as Canada's most populous province to inspire other provinces. But the province is falling behind by relying on outdated, dangerous, and expensive nuclear power.

And we all know what happens to players in the global economy who fail to innovate, implement cheaper and more efficient solutions, and create new industrial sectors.
They get left behind.

(David Suzuki, co-founder of the David Suzuki Foundation, is a scientist, environmentalist and broadcaster in Canada)

Source: This opinion column was published in the Toronto Star, Canada, 15 December 2008

CLIMATE CRISIS WILL BE AT TOP OF OBAMA'S ENERGY/ ENVIRONMENTAL NOMINEES AGENDA --BUT WHAT ABOUT NUCLEAR?

It is clear now that President-elect Barack Obama is serious about addressing the climate crisis--if there is one thing his energy and environmental nominees have in common, it is an understanding of climate and the need for fast, effective action.
What is less clear are the details of that action, and especially what role--if any--nuclear power will play in the Obama administration's vision of the U.S. energy future. Also unclear is exactly who is in charge here--who will ultimately make the major climate/energy decisions that are planned for the near future.

(681.5917) NIRS Washington - Media accounts have led with the selection of Dr. Steven Chu as secretary of energy; but it may be more relevant to start with the appointment of former Environmental Protection Agency (EPA) administrator and Al Gore ally Carol Browner as climate and energy "Czar."

After all, a Czar wouldn't be needed if the administration intended that the major climate and energy initiatives would come from the Department of Energy. In this case, it appears that Obama has chosen Browner to oversee the efforts of several agencies--and perhaps the entire federal government--on climate and energy issues.

How that will work in the notoriously turf-protecting federal agencies is so far unstated: will Browner have the authority to direct policy to meet administration goals or merely coordinate the efforts of all relevant agencies?

Unlike the other energy/environmental appointees, as a former EPA administrator, Browner has top-level federal agency experience and broad contacts in the environmental and other affected communities, two factors that would seem to place her a notch above the other nominees.

The most important of these is Dr. Steven Chu, who is surely the first Nobel Prize winner (for Physics) ever to become Secretary of Energy, and probably Secretary of Anything.

Chu is currently chief of Lawrence Berkeley Laboratory, one of a string of DOE-funded science labs across the country, most of which are involved primarily in various aspects of nuclear weapons/radioactive waste work--as is DOE itself.

But Chu has focused on energy efficiency and solar energy due to his belief that the planet needs to take strong action to address the climate crisis--also a first for the Department of Energy. His frequent speeches and presentations over the past several years have been emphatic assertions of the reality of climate change and how energy efficiency and renewable energy sources are the primary means of addressing the climate issue. Some environmental groups have issued strong statements of support for Chu for that reason.

But Chu signed onto a statement from the various DOE labs in August that called for a greater reliance on nuclear power, and he has issued statements supporting more research into so-called Generation IV reactors. The lab statement supported opening of the proposed Yucca Mountain high-level radioactive waste dump, though Chu's own statements on Yucca have been less assertive. Senate Majority Leader Harry Reid (D-Nev.) has said publicly that no energy secretary nominee who supports Yucca Mountain will be brought to the Senate floor, so it remains to be seen if Chu will agree to oppose Yucca--which was Obama's campaign position--or whether Reid will back down.

Chu also has issued statements that appear to support more research into reprocessing of irradiated fuel. On the other hand, he has openly questioned nuclear power's role in addressing climate, noting in various speeches--as have others--that to play a meaningful role in reducing carbon emissions a new reactor would have to be built every two weeks for the next 50 years, an impossible task.

Then there is Obama himself, who frequently has said that he will call the shots. In the campaign, while he called for "harnessing safe nuclear power," he also said that no new reactors should be built until safety and waste problems are solved.

More problematic than either Browner or Chu may be the U.S. Congress, which despite Democratic gains in the November elections, still has a significant number of members who are ardently pro-nuclear, and an even-larger number who still know little about nuclear power, its high costs, routine radiation releases, ongoing safety and radioactive waste problems, and its inability to be an effective climate change solution. It is these new members who may end up holding the balance of power on energy issues, and it will be essential for grassroots constituencies to be in close contact with them early and often.

Source and Contact: Michael Mariotte, NIRS Washington

CHILD LEUKEMIA DEATH RATES INCREASE NEAR U.S. NUCLEAR PLANTS

New York, . Leukemia death rates in U.S. children near nuclear reactors rose sharply (vs. the national trend) in the past two decades, according to a recent study. The greatest mortality increases occurred near the oldest nuclear plants, while declines were observed near plants that closed permanently in the 1980s and 1990s. The study was published in the most recent issue of the European Journal of Cancer Care.

(681.5918) Radiation and Public Health Project - The study updates an analysis conducted in the late 1980s by the National Cancer Institute (NCI). That analysis, mandated by Senator Edward M. Kennedy (D-MA), is the only attempt federal officials have made to examine cancer rates near U.S. nuclear plants. Study authors were epidemiologist Joseph Mangano MPH MBA, Director of the Radiation and Public Health Project and toxicologist Janette Sherman MD of the Environmental Institute at Western Michigan University. They analyzed leukemia deaths in children age 0-19 in the 67 counties near 51 nuclear power plants starting 1957-1981 (the same counties in the NCI study). About 25 million people live in these 67 counties, and the 51 plants represent nearly half of the U.S. total).

Using mortality statistics from the U.S. Centers for Disease Control and Prevention, Mangano and Sherman found that in 1985-2004, the change in local child leukemia mortality (vs. the U.S.) compared to the earliest years of reactor operations were:

* An increase of 13.9% near nuclear plants started 1957-1970 (oldest plants)
* An increase of 9.4% near nuclear plants started 1971-1981 (newer plants)
* A decrease of 5.5% near nuclear plants started 1957-1981 and later shut down

The 13.9% rise near the older plants suggests a potential effect of greater radioactive contamination near aging reactors, while the 5.5% decline near closed reactors suggests a link between less contamination and lower leukemia rates. The large number of child leukemia deaths in the study (1292) makes many of the results statistically significant.

The Mangano/Sherman report follows a 2007 meta-analysis also published in the European Journal of Cancer Care by researchers from the Medical University of South Carolina. That report reviewed 17 medical journal articles on child leukemia rates near reactors, and found that all 17 detected elevated rates. A January 2008 European Journal of Cancer article that found high rates of child leukemia near German reactors from 1980-2003 is believed to be the largest study on the topic (1592 leukemia cases).

The carcinogenic effects of radiation exposure are most severe among infants and children. Leukemia is the type of childhood cancer most closely associated with exposures to toxic agents such as radiation, and has been most frequently studied by scientists. In the U.S., childhood leukemia incidence has risen 28.7% from 1975-2004 according to CDC data, suggesting that more detailed studies on causes are warranted.

The Radiation and Public Health Project is a non profit group of health professionals and scientists based in New York that studies health risks from radioactive exposures to nuclear reactors and weapons tests. RPHP members have published 23 medical journal articles on the topic.

A copy of the child leukemia article is available at http://www.radiation.org/reading/pubs/ecc_948.pdf

Source: Press release, Radiation and Puyblic Health Project, 11 November 2008

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IN BRIEF

THTR: 5.3 billion euro for 423 days of electricity

After being delayed for almost half a year, the report on the costs of decommissioning the Thorium High Temperature Reactor at Hamm-Uentropp, Gerrnany, was published in December 2008. It is estimated that costs for safe enclosure of the reactor till 2033, and decommissioning from 2030-2044 will cost 460 million euro.

In 1971 construction of the THTR began and in 1985 the reactor was opened. The reactor faced serious safety problems and in May 1986 (a week after the Chernobyl accident), radioactive gas escaped from the cooling system, after graphite-fuel balls stuck in the fuel inlet. Other problems occurred when fuel balls were damaged and with sticking control rods. In 1989 the reactor was permanently closed due to economic and political reasons.

The total price tag for the proto-type reactor will rise to 5.3 billion euro: 2.39 for development; 2.04 construction; 0,42 closure and enclosure till 2009; 0,11 enclosure 2009-2030 and decommissioning 2030-2044 0.34 billion. Keeping in mind the reactor supplied electricity only 423 days, this could well be the most expensive electricity ever produced!

Press Release BI Hamm, 9 December 2008

Looking beyond nuke bickering in the Baltics. Deep cuts in fossil fuel reliance, 20 percent average improvements in energy efficiency, aggressive acceleration of latent renewable and biomass potential, and ZERO reliance on nuclear - this is the sunny prognosis for an achievable Baltic electricity scenario by 2020, as elaborated in the recently published Baltic Sustainable Energy Strategy. The strategy was developed by the Stockholm Environmental Institute's Tallinn office in conjunction with environmental NGOs, and comes as public bickering between the three Baltic states over the proposed 7.5 billion euro (US$ 10.2 bn) successor to the Ignalina nuclear power plant in Lithuania intensifies.

Estonia's stake in the proposed new reactors at Visaginas is on a knife-edge, with both the prime minister and the head of the national energy company - Eesti Energia - expressing scepticism about the project's reliability. Meanwhile in Lithuania, and following changes in the government after October's elections, legal wranglings over the setting up of the company - Leo LT - to head the project and high profile resignations are besetting the Baltic nuke project.

Chief among these, in November Rymantas Juozaitis, the chairman of the board of governors of Leo LT, stepped down from his post, citing family reasons. Observers of the Lithuanian energy scene have been quick to point out a certain incongruity attached to the resignation - Juozaitis is widely credited to have been one of the key instigators of the Visaginas project and has been one of its most vocal advocates.

The Baltic Sustainable Energy Strategy is available at: www.bankwatch.org/files/baltic-energy-strategy.pdf

Blackmailing helps: Lithuania gets extra credits for nuclear shutdown plan. Lithuania will get extra EU emissions trading scheme rights if the planned shutdown of its Ignalina nuclear plant by the end of 2009 leads to "very substantially increased emissions". On December 12, the 27 EU leaders reached a deal on the European Commission's controversial climate package which sets binding 2020 emissions and renewables targets and new rules for the European Union Emission Trading Scheme from 2013.

As part of the deal, Lithuania could be given extra emissions rights from the EU-ETS new entrant reserve. The extra rights would be calculated as the difference between Lithuania's verified emissions during 2013-2015 and the sum of the free EU-ETS allowances given to Lithuania's power plants, plus three eighths of the auctioning rights during that period. According to the EU leaders "Any excess in the allocations over verified emissions in 2008-2012 will be deducted from those additional rights". Latvia is also to benefit from additional emission rights "in due proportion," as it imports significant amounts of power from Lithuania.

Lithuania agreed to close its Ignalina nuclear plant by the end of next year in order to join the EU in May 2004.

Platts, 15 December 2008

Obsolete before they open? The US Government's Solar America Initiative aims to bring down the cost of solar energy to make it competitive with conventional electricity sources by 2015. This mean solar electricity may well cost about the same or less than nuclear electricity by 2015, before any new reactors have come on line. So there is a real risk new reactors will be economically obsolete before they are built. First Solar, the largest manufacturer of thin film solar panels, says its products will generate electricity in sunny countries as cheaply as large power stations by 2012. Arjun Makhijani of the Institute for Energy and Environment Research in Maryland, USA, says electricity costs from new reactors planned in the US are estimated at 10 to 17 cents per kilowatt-hour. This compares with 8 to 12 cents for wind. And new large solar plants in California are expected to yield electricity prices about the same.

Another innovative new technology, micro combined heat and power (micro-CHP), has significant potential to reduce carbon emissions, would replace conventional domestic central heating boilers, and produce electricity as well as how water for heating. Whilst new reactors are not expected to produce any power until around 2020 at the earliest, micro-CHP can be installed 1kW at a time, producing power from day one. The Baxi Group expects to introduce a micro-CHP boiler onto the UK market in 2009. In terms of capacity, if all domestic gas boilers are replaced (as they reach the end of their useful life) with micro-CHP, the UK could in theory install 1.5 million units every year. That is equivalent to 1.5GWe, or not far off the size of one nuclear power station in 2010, another in 2011 etc. By 2020, we could have the equivalent of ten new reactors powered

by micro CHP. And if it didn't work out for some reason, we could just stop installing them; on the other hand, with nuclear you have to commit to the whole £2billion (or more) price tag for a single station and if, after 10 years construction, it doesn't stack up, you have absolutely nothing to show for your money.
NuClear News, No 1, December 2008 (NuClear News is a new, free monthly newsletter designed to keep climate campaigners informed about nuclear developments in the UK, and anti-nuclear campaigners about climate issues. More at: http://www.no2nuclearpower.org.uk/nuclearnews/index.php)

Fuel Bank Initiative Receives EU Support. The European Union (EU) recently pledged Euro 25 million ($32 million) towards a nuclear fuel bank proposal to be placed under IAEA control. The offer is seen as a major boost for the initiative originally launched by the Nuclear Threat Initiative (NTI) in 2006. IAEA Director General Mohamed ElBaradei welcomed the EU's offer. "An IAEA fuel bank would guarantee supply of nuclear fuel and reactor services to bona fide States and protect them from politically motivated disruption of supply while at the same time minimizing the risk of nuclear proliferation." EU foreign policy chief, Javier Solana said: "We want the bank to be established very soon. In any case before the next NPT Review Conference in spring 2010. I am convinced that the creation of a fuel bank will have a positive impact on the general climate of the NPT Review Conference," he said. Aside from the original US$50 million contribution to the initiative made by NTI's advisor Warren Buffett in September 2006, so far the IAEA fuel bank initiative has received contribution pledges from the US, United Arab Emirates and Norway.
The NTI (co-founded in 2001 by CNN-founder Ted Turner) proposal of an LEU fuel bank, to be placed under IAEA auspices, is one among several multilateral nuclear approaches currently being proposed (GNEP -the U.S.-led Global Nuclear Energy Partnership being another one). Decision on location, organization, and conditions for access to an eventual fuel bank are the prerogative of the IAEA and its Member States. Enriched uranium provides the fuel for many of the world's nuclear power reactors, and the enrichment process is a vital process in a multi-step nuclear fuel cycle. The enrichment of uranium, while a necessary step in the creation of the fuel that power many of the world's civilian nuclear reactors, can also be employed for use in nuclear weapons.
IAEA Staff Report, 10 December 2008

Uranium in Greenland. A major rare earths orebody with uranium by-product has been confirmed in Greenland. Greenland Minerals & Energy (GME), an Australian-based company, has announced a major multi-element orebody with over 85,000 tons of uranium as a JORC-compliant resource. The Kvanefjeld deposit is eight kilometers inland from the coastal town of Narsaq, near the southern tip of the country. It has a deep water port. The Danish Atomic Energy Agency proved up 43,000 tons of uranium in the early 1980s, but the deposit was not developed. In 2007, GME acquired it and undertook further drilling - nearly double that on which the earlier estimate was made. In May, it announced the new inferred resource figures of over 85,000 tons of uranium at 0.25% U, and cut-off of half that. The 2008 drilling program is expected to move some inferred resources into the indicated category, and possibly increase the overall resource figure.
Since then, on 27 November, the country's 39,000 voters have voted in a referendum for self-rule, with 76% approving. In line with this, parliament has given strong support for uranium production as a by-product of rare earths, overturning a 20-year ban. Denmark, which colonized Greenland and almost 30 years ago granted home rule, is expected to maintain influence over foreign policy and defense, while allowing Greenland to take control of revenues from oil, gas and mineral resources.
Earlier attempts to mine uranium were met with fierce resistance.
World Nuclear News, 1 December 2008

The NUCLEAR MONITOR

The Nuclear Information & Resource Service was founded in 1978 and is based in Takoma Park, Maryland. The World Information Service on Energy was set up the same year and is housed 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.

The 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, a Ukrainian version is published by WISE Ukraine (available at www.nirs.org). Back issues are available through the WISE Amsterdam homepage: www.antenna.nl/wise and at www.nirs.org.

Receiving the Nuclear Monitor

US and Canadian readers should contact NIRS to obtain the Nuclear Monitor (address see page 11). Subscriptions are $35/yr for individuals and $250/year for institutions.

New on NIRS Website: www.nirs.org

Nevada intervenes in Yucca Mountain licensing; NRC licensing process in disarray--new briefing sheet; intervenors' challenges to Calvert Cliffs-3; new report on West Valley clean-up and the legacy of the failed US reprocessing program; and a new study from Stanford University rating nuclear and coal as the least effective technologies at addressing climate change. All new on NIRS front page!

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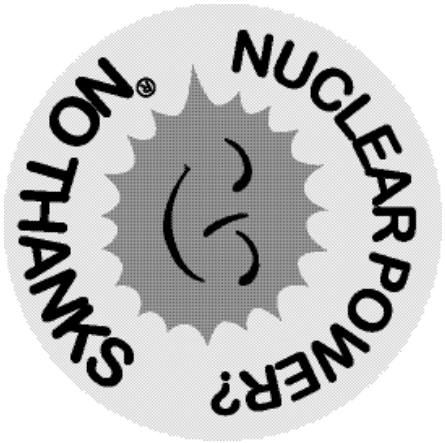

The NUCLEAR MONITOR

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