

# NUCLEAR MONITOR

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## IF NUCLEAR IS THE ANSWER, THE QUESTION IS NOT ABOUT CLIMATE POLICY

In The United Kingdom, environmentalists have recently started coming out in favor of nuclear, citing climate concerns as the reason. But this ideological u-turn ignores the realities of nuclear power. The United Green Parties of Europe (the European Greens) reacted.

(684.5928) **European Greens** - The steady drip of converts to the 'nuclear renaissance' continued as four prominent environmental activists in UK outed themselves as having found a heart for nuclear. In an Independent February 23 article, Stephen Tindale, former director of Greenpeace; Lord Chris Smith of Finsbury, chairman of the Environment Agency; Mark Lynas, author of the Royal Society's science book of the year, and Chris Goodall, a Green Party activist and prospective parliamentary candidate announce a policy u-turn.

However, while they claim that climate change is the reason for their atomic shift, they fail to explain how nuclear power can contribute to our current efforts to combat climate change.

Before getting into any analysis of nuclear power, it is important to look at what the challenge of climate change is. According to the officially accepted scientific advice of the UN IPCC, greenhouse gas emissions need to peak by 2015 and start to decline thereafter if we are to have any chance of limiting warming to 2 degrees and, thus, preventing dangerous, runaway climate change.

The IPCC advice to policy makers is that industrialized countries should reduce their emissions by 25-40% (based on 1990 levels) to have a 50:50 chance of preventing 2 degree warming (which new research suggests would be too great an increase anyway). A lot of the more

recent peer-reviewed science goes far beyond this, calling for much more deep and immediate reductions. Clearly a 40% reduction by 2020 is the very least the EU can credibly commit to as part of a meaningful international climate agreement.

So, we have ten or eleven years to act. Even if you were to ignore (which is not a good idea) all the other persisting problems of nuclear power (proliferation, safety, cost etc), what can nuclear power contribute to this urgently-needed emissions reduction effort in the EU?

Very, very little.

The nuclear industry in the EU is in decline. The number of nuclear reactors being operated in EU member states stood at 146 at the end of 2007, having decreased from 177 in 1989. The average age of those reactors still operating continues to rise, with the result that many will be decommissioned over the coming years.

Coupled with the fact that the nuclear 'fleet' is ageing and being retired, there is the long lead-in for any new build and the lack of skilled workers. The average lead time for a new reactor is 8-10 years. So, even if the decision were made today to build 50 reactors in Europe to ensure a growth in nuclear power, they would not be online in time to contribute to our 2020 emissions reduction targets.

The flagship project of the European (French) nuclear industry is the new

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European Pressurized Reactor (EPR) currently being built at Olkiluoto in Finland. However, the latest estimates suggest that it will be delivered more than 3 years past deadline.

This brings us on to the lack of skilled workers. A major nuclear expansion would only be possible with the required amount of workers with relevant skills to operate these reactors. However, even the nuclear industry has expressed concern about "competence renewal", with an ageing workforce and low numbers of graduates in the relevant disciplines to this highly specialized field. Long story longer, who will man these reactors?

All of this, of course ignores the unresolved issues of proliferation, safety, cost and so on. This is not because they have gone away or because they are not important.

**Greenpeace writes:** We've disagreed with Stephen Tindale, the former head of Greenpeace UK about nuclear power for a while now, because it's clear to us that nuclear power can't solve the problem of climate change.

In 2008 the total number of nuclear reactors connected to the world's electricity grids fell by one. In January two more were taken offline. The first attempts to construct third generation nuclear reactors are massively delayed and over budget. The nuclear industry is in no position to provide a solution to anything, certainly not climate change, and not even to its own problems with radioactive waste and proliferation. We need technologies that can deal with the world that exists in reality, not fantasy.

Meanwhile China installs a new wind turbine every two hours (in 2008 China added 6300 MW of wind capacity; one 1,5 MW turbine every 125 minutes).

The world needs an energy revolution built on renewable energy and energy efficiency. The first and most effective action is to use our energy more efficiently. Imagine if the billions wasted on the nuclear industry had been spent instead on energy efficiency and renewable energy.

Then we'd really be matching our big problems with big solutions.

Clearly, any increase in nuclear power would increase the risk of proliferation. The question of how to deal with the highly dangerous radioactive nuclear waste is no closer to being resolved (while reprocessing is also responsible for radioactive contamination and is unviable). The huge costs associated with nuclear power - such as on liability and decommissioning - that are inevitably borne by the taxpayer are also unchanged

The main purpose is merely to point out that, regardless of what these new nuclear acolytes claim, if nuclear power is the answer, the question has nothing to do with climate change.

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## SELLAFIELD MOX PLANT: STUCK ON THE ROAD TO NOWHERE

**The poor prognosis for the crippled Sellafield MOX Plant (SMP) by its owners the Nuclear Decommissioning Authority (NDA), in its Plutonium Topic Strategy document of January 30, is now confirmed by the Guardian Newspaper (February 17) which quotes 'well placed industry sources' as saying that there was little chance the plant would stay open. This will come as little surprise to observers who have watched SMP's wretched performance since it opened in 2002 - with perhaps the only surprise being that the plant has survived this long.**

**(684.5929) CORE** - The NDA's Plutonium Topic Strategy document states that SMP provided neither the capacity nor the longevity to be used for converting the UK's civil stockpile of plutonium (now in excess of 100 tons) into reactor-useable MOX fuel - an inference that its MOX fuel making days were numbered - and that the plant might in future be utilized 'in a meaningful manner' for producing low specification MOX fuel as a means of transforming plutonium stocks into a waste form for eventual disposal.

SMP, built between 1994 and 1997 at an original cost of BP 470 million (in 1997 1 BP was US\$1,6) and currently employing some 800 workers, has been dogged by controversy since the initial planning application was submitted by

British Nuclear Fuels plc to Copeland Borough Council in 1992. Ten years later, following five Public Consultation exercises and a number of legal challenges, the first plutonium dioxide powder was introduced into the plant in April 2002. Designed to manufacture 120 tons of MOX fuel per year by utilizing the plutonium recovered at the Thermal Oxide Reprocessing Plant (THORP) from foreign customers' Light Water Reactor (LWR) fuel, gremlins in SMP's highly complex process have resulted in its production capacity being officially downsized, first from 120t/yr to 75t/yr and then to around 40t/yr. Even that reduced target is clearly beyond the capability of the plant as performance figures for the plant since it opened in 2002 testify.

In a February 2008 Parliamentary answer on SMP production, the UK Government's Secretary of State Malcolm Wicks confirmed that SMP, having produced no MOX fuel in its first two years of operation, produced 0.3 tons in 2004/05, 2.3 tons (2005/06) and 2.6 tons (2006/07) - a total of just 5.2 tons in 5 years. This completed tonnage of fuel formed part of a longstanding order from the Swiss Beznau PWR power station, and the order of 12 MOX fuel assemblies, at 314 kg per assembly, were transported by sea to Switzerland in three shipments between 2005 and November 2006.

The most recently available production figures show a similarly poor performance with little sign of any improvement in getting to grips with the

production process, described at the outset by BNFL as its own Short Binderless Route (SBR) process '*which gives major benefits for the fabrication process and subsequent fuel performance*'.

Consisting effectively of 3 production stages of fuel pellet, fuel rod and fuel assembly production, the system has repeatedly suffered from problems at each of the production stages - with a major bottleneck at the rod production stage - bringing the whole fabrication process to a virtual standstill.

With the Swiss order completed and delivered to Beznau by 2006, SMP was reconfigured to manufacture MOX fuel for Germany's Grohnde PWR power station in early 2007. Unlike the Swiss fuel which is configured in a 14x14 layout within the assembly, the German fuel is configured in a 16x16 layout, within fuel assemblies of 536kg each. Every change in layout necessitates a reconfiguration of SMP which takes 'weeks, if not months' to complete.

By the end of 2008 Sellafield confirmed that just 2 MOX fuel assemblies for Grohnde had been completed, and the latest projection is that '*SMP aims to have produced enough material for around eight fuel assemblies by the end of the Financial Year*' (by March 31, 2009). This claim must be viewed with some suspicion as the plant's past performance shows that, as a result of serious bottlenecks throughout the production system, *producing enough material for 8 MOX fuel assemblies is a far cry from actually completing finished fuel assemblies.*

In the unlikely event that 8 assemblies for Grohnde are indeed completed by the end of the financial year, and assuming a plutonium mix of 6%, it would add only another 4.25 tons of MOX fuel to SMP's overall output, making a grand total of 9.5 tons since operations started 7 years ago. This represents an average rate of some 1.3 tons of MOX fuel per year - a far cry from the 40t/yr target (at best) now acknowledged by the industry.

A measure of the extent of SMP's failure can be further gauged from its original order book and the fact that the

rationale for building the plant was predicated on securing a majority of its MOX fuel orders from Japanese utilities. No firm orders from Japan have materialized and none featured in the original order book which consisted of contracts with European customers only. Of these orders - from Switzerland, Germany and Sweden - a number have already had to be sub-contracted between 2002 and 2005 to rival MOX fabricators in France and Belgium.

A further measure can be seen in the NDA's highly optimistic 2005/06 Life Cycle Base Line (LCBL) forecast on SMP which projected, for example, a total Grohnde contract of 64 MOX fuel assemblies, with the first 16 assemblies being delivered in 2008 (just 2 had actually been produced in SMP by 2008) and further shipments of 16 assemblies each being made in 2009, 2010 and 2012 respectively. Similarly, the LCBL projected orders of 44 assemblies (532kg each) for the German Brokdorf power station, the first 12 to be delivered in 2007, and an order of 88 assemblies (200kg each) for Sweden's Oskarshamn BWR power station, the first 24 also to be delivered in 2007. Clearly these orders must now be seen as lost causes and a large proportion are likely to have been lost or similarly sub-contracted since 2005.

Two further comparisons are also worth noting. Firstly the comparison with Sellafield's significantly smaller MOX Demonstration Facility (MDF) which cost £26 million and operated between 1993 and 1999 before being closed as a commercial production plant by the Regulators following the 'falsification scandal' in 1999 which saw bored workers at the plant falsifying quality assurance data on fuel manufactured for a Japanese customer. Records show that during its 6-year life, the 8 ton per year demonstration facility produced 36 assemblies totaling around 18 tons of MOX fuel - twice the tonnage produced by SMP in 7 years of operation.

The second comparison relates to the granting by the Regulators of a 'Consent to Operate' for SMP. The Consent effectively marks the end of the active commissioning of the plant and the start of full commercial

production, and implies that both the Regulators and the operators of the plant are satisfied with the safety and reliability of the production process.

The Health & Safety Executive's Nuclear Installations Inspectorate (NII) are quoted as expecting to have given this Consent in 2004, some 2 years after the introduction of the first batch of plutonium into the plant. As SMP has lurched from one crisis to another, hopes of gaining the Consent to Operate have been put back year on year and Consent is not now expected to be applied for by the operators until 2010 at the earliest.

Because of 'commercial confidentiality' restrictions, little detail is known about additional and unexpected costs incurred by SMP. With the use of some creative accounting, the original construction cost of £470M was written off as a sunk cost - leaving independent consultants, commissioned by Government, to conclude that the plant had a Net Positive Value (NPV) of some £200M (US\$290 million). Had the construction costs been properly included, SMP would have been a loss maker from day one. Additional costs since then, including confirmed lost revenues on every order that has had to be sub-contracted to Europe, mean the overall costs to SMP will have spiraled significantly, up to the £2 Billion as quoted in the Sellafield area's local newspaper (Whitehaven News, February 18, 2009). A January 2009 meeting of local liaison committee was told that due to the complexity of the design and build of the plant '*SMP is unlikely to meet planned throughput without further investment*'.

Whilst those who opposed SMP, from its first appearance in BNFL's 1992 planning application and through all subsequent consultations and legal challenges, had correctly forecast the likely shortcomings of the plant, including the highly suspect economic case put forward by BNFL, the complexity of the production process and the thin order book secured by SMP, its owners (NDA) and operators (Sellafield Ltd) only now appear to recognize the hopelessness of the plant's operational and financial

position.

In retrospect, even they now appear to concede that the plant's process system was too complex to succeed as projected (as admitted by the Secretary of State in 2008 - 'SMP was based on unproven technology'), that BNFL had only limited experience of manufacturing MOX fuel for overseas LWR's, that the plant's inherently weak business case was never properly scrutinized, and that hopes of securing large orders from Japan have virtually evaporated as a result of the loss of trust by Japanese utilities following the 1999 MOX falsification scandal.

When it took ownership of SMP in April 2005, the NDA advised that the plant's future was under review. It has remained under review ever since, but apart from the published (but heavily redacted) reports commissioned from independent consultants Arthur D Little in 2005 and 2006, all other reviews have been carried out behind closed doors by the NDA and its in-house contractors, and have remained unpublished - despite the former's promise of openness and transparency.

It is perhaps not surprising that the NDA is keen to keep the full extent of SMP's current state from public scrutiny given that ADL, in its last published report (2006) had come to some damning conclusions. Commenting on the downgrading of production from 120t/yr to 40t/yr, ADL

said that the plant's operators had not yet been able to demonstrate that SMP was capable of sustaining continuous operation at a level needed to meet customer requirements and that because of operational difficulties holding back fuel production, SMP's NPV (£200M) had been '*substantially eroded*'. Further, that the prospect of fully automatic operation for SMP was '*only a remote possibility*', and that the plant had a potential throughput of only a few tons of plutonium a year at best.

This ADL reference to plutonium volumes is itself overly optimistic, given that even at the original SMP design production rate of 120t/yr, the plant was predicted by BNFL to utilize at most around 7 tons of plutonium recovered from THORP each year. In reality, with just 12 MOX fuel assemblies already fabricated for Switzerland, and with a possible further 8 assemblies 'on the go' for Germany, the total plutonium utilized in SMP to date (at an incorporation rate of 6% in MOX fuel) will amount to just half a ton of plutonium utilized in 7 years of operation.

The latest in-house review, consisting of a technical, strategic and operational assessment of SMP is due to go before the NDA Board of Directors in March 2009 and then on to UK Government. There is as yet no indication as to how the new Parent Body Organisation (PBO) in charge at Sellafield views the current crisis with SMP.

Taking over the management of Sellafield's commercial operations in November 2008 under contract to the NDA (the contract worth an estimated £22 Bn over 17 years), the PBO Nuclear Management Partners (NMP) consists of the US Washington Group International Limited, UK's AMEC Nuclear Holdings Limited and France's AREVA NC.

Given AREVA's relative success in manufacturing MOX fuel in France for many years, it remains to be seen whether they will advise 'turning off the life support machine' for SMP, perhaps suggesting instead the construction of a new MOX plant at Sellafield or alternatively reaching an agreement to transfer plutonium stocks to France where it could be fabricated into MOX fuel. Such an agreement would be hampered not only with operational difficulties both in the UK and France - Sellafield for example has no official export route for THORP plutonium - but would incur political and international condemnation at the prospect of shipping 100 tons of prime terrorist material in an era of heightened terrorist risk.

Clearly recognizing Sellafield's inability to manufacture MOX fuel on anything like a commercial scale, the local MP Jamie Reed (an ex BNFL PR man) and the site's workforce and trades unions are pressing for a new MOX plant to be constructed at Sellafield. As one

#### **Nuclear Monitor needs more contributors**

The Nuclear Monitor exists for more than three decades already. In 1978 the first issue was produced, although it was called "The WISE News Communiqué" at that time.

Since 1978 many things have changed, but to produce 20 issues of the magazine annually is still a struggle. And equally important for that matter. Our readers (you) value both quality and quantity.

The Nuclear Monitor is produced by a very small group of people. We do not pay for articles being written for us, we never did and it's hard to imagine we ever will. But that small group is looking for some help.

In short: we are looking for people, especially in Asia and Africa, but also in Australia and the America's, who are willing to write about local and regional developments

concerning (anti-) nuclear issues.

We think that currently the content of the magazine leans too much on West-European sources and contributors. To have a more balanced and global perspective, we need people with knowledge of, and access to, non-English and/or non-German sources and background. There are so many things we are not aware of, even in this digital highway day and age. It is simply not enough to read all the wires from the big agencies, we want the stories from the ground, the grassroots fighting the nuclear industry, the reports of actions and campaigns, the incidents and accidents that not make it to the mainstream media, the analysis no-one wants to make because they are 'too difficult'

So, if you want to contribute - be it regularly or sporadic- to the Nuclear Monitor, or want to become more involved in the (production) of the magazine please contact WISE-Amsterdam at wiseamster@antenna.nl

independent observer has noted 'it is good to hear that our elected representatives are keeping up the tradition (in the nuclear field) of only advocating investment in proven failure'.

A decision on a new plant could be

made only by Government Ministers, following advice of the NDA who are currently grappling to resolve the fate of Sellafield's embarrassing stockpile of plutonium.

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# NUCLEAR POWER AND WATER CONSUMPTION

**The amount of water used in uranium mining is similar to that used in coal mining, and the problems of water pollution are also similar. However, uranium requires much more processing than coal to become a usable fuel for electricity production. The process of converting uranium ore to finished reactor fuel involves several steps that use water, including milling, enrichment and fuel fabrication. These additional processing steps make uranium a much more water intensive fuel than coal, per unit of electricity produced.**

**(684.5930) Laka Foundation** - The above citation is from a newly released report in which it is stated that nuclear power needs large amounts of water: for example four times as much water compared to a combined cycle gas plant. Table 1 (on page 23 of the report) shows the Water Consumption in Thermoelectric Power Plants, which tells us that nuclear power plants need 2,700 liters per MWh. Conclusion of the report in short: increasing pressure on Freshwater resources will require more efficient water use in the extraction, transformation and delivery of energy

Water is increasingly moving from an operational issue to one of strategic significance, according to Thirsty Energy: Water and Energy in the 21st Century, a new report by the World Economic Forum and Cambridge Energy Research Associates (CERA). The report warns, "Energy's share of water is likely to be squeezed in the future in many parts of the world." According to Climate of Hope (a documentary produced in 2007 by Scott Ludlam and Jose Garcia for the Anti-Nuclear Alliance of Western Australia) the Olympic Dam mine in South Australia consumes 33 thousand tons of water a day, making it one of the largest water users in the country.

'Thirsty Energy' offers a broad perspective on water's role in energy production, the energy used in water provision, and the new risks and opportunities inherent in the "ancient relationship" between energy and water. The report illustrates water-

related challenges and potential solutions with perspectives from distinguished leaders in energy, water provision, engineering, and academia, concluding that local solutions must be found to optimize the use of both of these resources around the world. "Water availability and water stress are local issues, and the possible impact of water scarcity on the energy industry is similarly local," according to the report.

Accidentally, water use of nuclear power is one of the arguments opposing the proposed new nuclear reactor which the government of Jordan is pushing hard for. Jordan is the 4th most water poor country in the world, "we do not have the luxury of wasting our precious resource on cooling the reactor", writes the Jordan Royal Marine Conservation Society (JREDS). The JREDS is asking for assistance in trying to develop and launch a campaign to oppose the nuclear plans by the government of Jordan. Since Jordan has a huge potential for renewable energy production (wind & solar) there really is no justification for

nuclear, writes Princess Basma bint Ali. Although the report is commissioned by the World Economic Forum (not the most progressive forum, to put it mildly) it offers some interesting figures. Another very interested (not-nuclear related) figure on page 27 ('Efficiency loss due to Carbon Capture and Storage at Typical Power Plant') says that "Capturing and sequestering CO<sub>2</sub> emissions can cost a power plant about 30% of its power."

The report 'Thirsty Energy: Water and Energy in the 21st Century' is available at [http://www2.cera.com/docs/WEF\\_Fall2008\\_CERA.pdf](http://www2.cera.com/docs/WEF_Fall2008_CERA.pdf)

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Water Consumption in Thermoelectric Power Plants per unit of Net Power Produced		
Closed-loop Cooling		
	Litres per MWh	Gallons per MWh
Nuclear	2,700	720
Subcritical Pulverized Coal	2,000	520
Supercritical Pulverized Coal	1,700	450
Integrated Gasification Combined-cycle, slurry fed	1,200	310
Natural Gas Combined-cycle	700	190

Source: *Water Requirements for Existing and Emerging Thermoelectric Plant Technologies*. US Department of Energy, National Energy Technology Laboratory, August 2008.

# U.S.: ANOTHER SPECTACTULAR US\$50 billion NO NUKES VICTORY

**For the third straight year, against all odds, a national grassroots No Nukes campaign has stripped out of the federal budget a proposed US\$50 billion (39 billion Euro) boondoggle for new atomic reactors. The victory gives a giant boost to solar, wind, efficiency, mass transit and other Solartopian technologies that can solve global warming sustain real economic growth and bring us a truly green-powered Earth.**

**(684.5931) Harvey Wasserman** - This latest victory came February 11, as a top-level Congressional conference committee ironed out the last details of the Obama stimulus package. The loan guarantee scam was slipped into the Senate version by Republican Bob Bennett in cooperation with Democrat Tom Carper. The loan guarantees would have backed a Department of Energy program supporting new reactor construction, despite a report from the Government Accountability Office warning that such projects would bankrupt more than half the utilities that might undertake them.

A national grassroots campaign involving virtually all major environmental organizations dealing with energy once again underscored the overwhelming green opposition to atomic power. The Nuclear Information & Resource Service, Beyond Nuclear, Physicians for Social Responsibility, Environment America, NukeFree.org, Greenpeace, the Natural Resources Defense Council, IEER, Center for American Progress, Taxpayers for Common Sense, Friends of the Earth, Sierra Club, Rainforest Action, Rainforest International and more than 200 national and local environmental and taxpayer organizations joined in opposition to the guarantees.

A similar victory was won in the fall of 2007 when a \$50 billion loan guarantee was slipped into the national energy bill by then-Senator Pete Domenici (R-NM). The campaign prompted a song from Bonnie Raitt, Jackson Browne, Graham Nash, Ben Harper and Keb Mo posted at [www.nukefree.org](http://www.nukefree.org). With the help of Moveon.org, it delivered more than 120,000 signatures to Congress in less than three months.

In 2008 the industry was forced to withdraw a blank check loan guarantee program when the banking system collapsed.

The No Nukes victory came within hours of the passing of Guy Chichester, a legendary founder of the Clamshell Alliance and National Green Party. Chichester helped lead the mass demonstrations at the Seabrook (NH) nuclear site that thrust the atomic power issue into the global limelight. In the 1977 'Last Resort' ([www.gmpfilms.com](http://www.gmpfilms.com)) Guy became one of the first to speak on film about a green-powered Earth, arguing that the money being squandered on Seabrook should instead go to renewable energy which would create thousands of jobs and save the planet. As a green pioneer, Chichester's innumerable - often humor-filled- non-violent arrests

were matched only by his great heart and loving spirit.

Ironically, this latest push for reactor subsidies coincides with what may be a death blow to the proposed Yucca Mountain radioactive waste dump. Opposed by both Reid and President Obama, the multi-billion-dollar project may be defunded. After a half-century, the US has no high level nuke waste repository, and none planned.

No one expects an end to the industry's relentless assault on the taxpayer trough. New reactor cost estimates have tripled since 2007 and are likely to at least double again. Michael Mariotte of NIRS says pro-nukers now want atomic energy labeled "green" in a national renewable energy standard. As Kevin Kamps of Beyond Nuclear points out, additional attempts to get money are likely to follow in upcoming debate on an Energy Bill and other legislation.

But as renewables and efficiency and the movement supporting them surge ahead, the Solartopian vision of a truly green planet, free of fossil/nuke power, becomes ever more real.

**Source and contact:** Harvey Wasserman, The Free Press, ([www.freepress.org](http://www.freepress.org)), 12 February 2009

**U.S. Nuclear Industry Seeks Yucca Alternative.** The Nuclear Energy Institute is urging the Obama Administration to approve a nuclear waste commission. The commission would be used to find alternatives to burying radioactive fuel at Nevada's Yucca Mountain. An NEI official presented a proposal to state utility regulators, which would allow the Department of Energy to continue pursuing construction of the Yucca repository, but would make the commission a fallback if the Yucca Mountain project is halted. President Obama and Energy Secretary Steven Chu have already endorsed the idea of a plan B, saying it's necessary to review the safety and efficacy of disposing used nuclear fuel. During the presidential elections both Democrats-candidates Obama and Hillary Clinton opposed the Yucca Mountain repository. However, Energy Secretary Steven Chu told a group of state officials on February 18, he favors moving toward licensing a nuclear waste repository in Nevada, although whether it would ever be built is another thing altogether.

But... according to the Nuclear Energy Institute blog, several people who were at the 20-minute session said Chu stressed that President Barack Obama doesn't want the Yucca repository, "and I work for the president."

**Latest:** On February 23, Congress proposed slashing Yucca Mountain's funding by nearly another US\$100 million (80 million Euro) for the remainder of fiscal 2009, severely gutting the project and potentially forcing several hundred job layoffs. The House proposes US\$288.3 million annualized for the remainder of the fiscal year, down from US\$386.4 million approved for the project last fall. Funding already had been cut more than 20 percent over the past two years. Workers at the project's headquarters in Summerlin have been bracing for layoffs. Many of them are already leaving.

**KXNT Radio, Texas, US, 17 February 2009 / [www.neinuclearnotes.blogspot.com](http://www.neinuclearnotes.blogspot.com) / Las Vegas Sun, 23 February 2009**

# E.U.-STATES PLAN A EUROPEAN REPOSITORY DEVELOPMENT ORGANISATION

**A series of 14 European states has set up a working group to consider establishing a European Repository Development Organization (ERDO) to collaborate on nuclear waste disposal. The Working Group (the ERDO-WG) held its first meeting in Brussels on January 28, 2009, with the objective of completing its deliberations by mid-2010.**

**(684.5932) Laka Foundation** - The ERDO proposal stems from the SAPIERR Project (Strategic Action Plan for Implementation of European Regional Repositories), funded by the European Commission (EC). On January 27, at the final conference of this project in Brussels the results on the viability of shared, regional European geological repositories were presented to 50 participants from 21 countries. The different aspects of the project included organizational and legal issues, economic impacts, safety and security considerations, and public and political attitudes to multinational repositories. Project Manager of the Netherlands waste agency COVRA Ewoud Verhoef, who coordinated SAPIERR-2 explains the meaning of ERDO-WG.

In the period 2003 to 2005 the SAPIERR I (Support Action on a Pilot Initiative for European Regional Repositories) was devoted to pilot studies on the feasibility of shared regional storage facilities and geological repositories, for use by European countries. This Pilot Project was initiated by the Association for Regional and International Underground Storage (Arius). This organization was founded in 2002 to promote the concept of regional and international facilities for storage and disposal of all types of long-lived nuclear wastes. One of the main objectives of SAPIERR I was to explore ways of providing shared storage and disposal facilities for smaller users. Meaning a scientific sequel to a 2002 EC Directive stating that geological disposal of radioactive wastes was preferred and that "A regional approach, involving two or more countries, could also offer advantages especially to countries that have no or limited nuclear programs, insofar as it would provide a safe and less costly solution for all parties." The

main conclusions of the nuclear waste agency's were: the potential benefits of multinational, regional repositories are recognized widely; and shared repositories would lead to substantial reductions in expenditure; problems faced by regional repository initiatives are common to those being tackled by national disposal programs, in particular concerning the task of siting the facility.

SAPIERR II was aimed to propose a practical implementation strategy and organizational structures that will enable a group of countries to create a formalized, structured organization - a European Development Organization (EDO). An organization that could be established from 2008 for working on shared EU radioactive waste storage and disposal activities in parallel with national waste agencies. The main tasks within the project were among others: preparation of a management study on the legal and business options for establishing an EDO; a study on the legal liability issues of international waste transfer within Europe; a study of the potential economic implications of European regional stores and repositories; first considerations of the safety and security impacts of implementing regional repositories; and a survey of public and political attitudes towards regional stores and repositories and of approaches to involving communities in decision making.

The 14 countries backing the ERDO proposal are: Austria, Bulgaria, Czech Republic, Denmark, Estonia, Ireland, Italy, Latvia, Lithuania, Netherlands, Poland, Romania, Slovakia and Slovenia. The secretariat will be provided by Arius, based in Switzerland, and the administration by the Netherlands waste agency, COVRA.

Ewoud Verhoef, Project Manager of COVRA, states that ERDO-WG is the political sequel of SAPIERR Project: "Based on the findings of SAPIERR the Working Group has to facilitate a consensus on political level. First step is working on the terms of reference and the decision-making process, using the SAPIERR findings as a starting point, with the objective of completing its deliberations by mid-2010. At that stage, the participant countries will decide whether to go ahead and establish the ERDO and, if so, with what national membership." Asking what would be the next step Mr. Verhoef responds: "The next step is how the waste repository (or repositories) will look like and to define the criteria of the waste repository (or repositories), including social aspects. This process will take 10 to 25 years, after which a set of measures have to be presented that would be attractive for municipalities - with appropriate site locations - to accept. After all it can be a slow process, there has to be reached political consensus." Verhoef added that he expects that the building of the storage facility and the agreements on it will be politically seen the most difficult issues. Further he stresses that the storage facility will be built in one of the participating states.

**Sources:** World Nuclear News, 11 February 2009 / Arius:  
<http://www.arius-world.org/> / SAPIERR Project: <http://www.sapierr.net/> / Telephone conversation with Verhoef, 23 & 24 February 2009  
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# 'REFERENCE MAN' RADIATION PROTECTION STANDARD FAIL TO PROTECT OTHER GROUPS

**The Institute for Energy and Environmental Research (IEER) states that U.S. radiation protection regulations heavily rely on "reference man," white, male, adult standard. But women and children often get higher doses and are a greater cancer risk. The U.S. Environmental Protection Agency (EPA) says it "does not believe in continued use of Reference Man" but has made no regulatory changes.**

**(684.5933) IEER** - A major new study released in January shows that U.S. radiation exposure regulations and compliance assessment guidelines often fail women and children because they are based on "Reference Man," a hypothetical 20 to 30 year old "Caucasian male". At least three federal agencies in the United States -- the Environmental Protection Agency (EPA), Nuclear Regulatory Commission (NRC) and Department of Energy (DOE) -- still use Reference Man in radiation dose regulations and compliance assessment, including the Clean Air Act and some safe drinking water rules, despite evidence that it fails to adequately protect many groups.

"The use of Reference Man standard is pervasive in U.S. radiation protection regulations and compliance guidelines," said Arjun Makhijani, Ph.D., author of the IEER report. "This is wrong because it often fails to adequately protect groups other than young, adult white males. Children, for instance, frequently get larger, and hence more dangerous, doses of radiation from the same environmental conditions. Moreover they often have a higher risk of cancer per unit of dose. In such cases, they suffer a double whammy - greater dose and greater risk per unit of dose. Reference Man needs to be replaced with a framework that better protects all members of the public."

Dr Makhijani noted that women are 52 percent more likely to get cancer from the same amount of radiation dose compared to men. Children are at even greater risk than adults. A female infant has about a seven times greater chance of getting cancer than a 30-year old male for the same radiation exposure. Pregnant women and the developing fetus are particularly vulnerable to radiation exposure. Yet,

non-cancer reproductive effects are generally not part of the U.S. regulatory framework for radiation protection.

In May 2008, then-Senator Barack Obama and House Oversight and Government Reform Committee Chairman Henry Waxman sent a letter to the EPA asking about the agency's use of "Reference Man." In its response, EPA stated that it "does not believe in the continued use of Reference Man," but admitted that it is still being used in some guidelines. But it also made the sweeping statement that "current standards and guidance are protective."

"This is not a hypothetical problem -- it affects real people," said Cynthia Sauer, who lived with her husband and three young daughters near two nuclear power plants in Illinois. "I became aware of and concerned about the use of Reference Man in radiation standards after my daughter was diagnosed with brain cancer." Mrs. Sauer's 7-year old daughter was among other cancer-stricken children in the area. "I started asking questions when I read about the leaks at the Dresden and Braidwood nuclear power plants that released more than six million gallons of radioactive waste into our groundwater," Mrs. Sauer said. "Government agencies could not answer my question as to what levels were safe for a 7-year-old, 40-pound girl. The fact is, current standards are not protecting the most vulnerable members of our society and this must be changed."

The report recommends that compliance with radiation protection always be estimated by calculation doses for those most at risk and calls for a significant reduction in the maximum allowable dose to the general

public from 100 millirem per year to 25 millirem per year. It also recommends a revamping of EPA's guidance documents to reflect doses received by males and females of all ages. "If the EPA truly 'does not believe in continued use of Reference Man,' as it said in its letter, then it should carefully examine the continued use of this model and change the regulations and compliance assessment guidance documents," said Dr. Makhijani. "We hope that the incoming Obama administration, with its commitment to health and environmental protection, will do so with dispatch. The NRC and DOE also need to make significant changes."

Other recommendations of the report include tightening of radiation protection for women in radiation workplaces who declare their pregnancies and the development and publication of official federal guidance on *in-utero* dose estimation methods, including in the early stage of pregnancy.

The full report (46 pages) is available at: <http://www.ieer.org/reports/referenceman.pdf>

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## IN BRIEF

**Greenpeace: illegal state aid Romania and Bulgaria.** On February 25, Greenpeace has filed complaints to the European Commission over alleged illegal state aid for the construction of two nuclear reactors in Romania and two in Bulgaria. The environmental organization argues that both countries violate EU competition rules. Jan Haverkamp, EU energy campaigner for Greenpeace, said: "We have been investigating for many months the unfair competition conditions that have been granted to the nuclear sector in Romania and Bulgaria. We have now submitted the evidence we have collected to the European Commission, and are calling for urgent action to correct these flagrant market distortions."

The Romanian government earmarked 220 million Euro for the Cernavoda 3 and 4 nuclear power plant. On top of this, the state spent EUR350 million in taxpayers' money for the purchase of heavy water for the new power station, as well as EUR800 million to increase the capital of state utility S.N. Nuclearelectrica - S.A., with the purpose of supporting its financial contributions to the project.

The Bulgarian government has invested 300 million Bulgarian Leva (154 million Euro) in state utility NEK for the construction of the Belene nuclear power station, as well as another 400 million Leva (205 million Euro) in NEK's parent holding BEH, partly also meant for Belene. According to Greenpeace, all of these investments are in violation of EU competition law.

**Press release, Greenpeace EU Unit, 25 February 2009**

**EDF debt increased to nearly 25 billion Euro.** French energy group and the world's biggest operator of nuclear power stations, EDF could be forced to sell some of its power stations in France to help to fund its £12.2 billion acquisition of Britain's nuclear industry. EDF shocked investors by unveiling a fall of nearly 40 per cent in annual profits (slipped to 3.54 billion euro in 2008, compared with 5.6 billion Euro in 2007) and warning that its debt pile had increased to nearly 25 billion (US\$ 32 billion) after a string of acquisitions, including those of British Energy and America's Constellation Energy. EDF, which is 85 % owned by the French State, is aiming to cut its debt by at least 5 billion Euro by the end of 2010 and much of this would be achieved through asset sales. A number of foreign energy companies, including Enel, of Italy, have previously expressed an interest in entering the French power market.

**The Times (U.K.), 13 february 2009**

**GDF Suez pulls out of Belene!** An important victory and another sign that the Belene project is too risky! French utility GDF Suez has decided to pull out of Bulgaria's planned nuclear plant of Belene. GDF Suez's Belgian subsidiary Electrabel had been in talks to take part in German utility RWE's 49-percent stake in Bulgaria's 4 billion Euro plant. RWE confirmed it had not reached an agreement with GDF Suez but said it would continue to develop the project as planned. "Financial, technical, economic and organization questions are in focus and safety of course comes first in all our considerations," a RWE spokesman told Reuters. Sources familiar with the Bulgarian nuclear project have said the global financial crisis and tighter liquidity have made raising funding extremely difficult and that it was likely the plant's starting date would go beyond the planned 2013-2014.

GDF Suez is focusing on its other nuclear projects, a company spokesman said. The company is trying to grab a share of the nuclear revival with plans to take part in the second and possibly the third new-generation French nuclear reactors as well as in nuclear power projects in Britain, Romania and in Abu Dhabi.

**Reuters, 28 February 2009**

**More delays for Rokkasho.** The commercial start-up of Japan's Rokkasho reprocessing plant has suffered a further delay. On January 30, its owner, Japan Nuclear Fuel Ltd (JNFL), filed an application with the Ministry of Economy, Trade and Industry (METI) to change its construction plan, pushing the scheduled completion date of the plant back to August 2009. A few years ago JNFL had planned to commence full operation of the plant in November 2007.

Groups and individuals have been campaigning against this plant ever since 1985, when Aomori Prefecture agreed to allow it to be constructed. If the Rokkasho reprocessing ever operates at full capacity, it will reprocess 800 tons of spent fuel and extract about 8 tons of plutonium per year. In the course of regular operations, when spent fuel assemblies are cut up (shearing), radioactive gases are released from the chimney stack. These include radioactive isotopes of krypton, xenon, iodine, cesium, etc.. Later in the process, other radioactive materials are released into the sea as liquid waste. These include tritium, carbon-14, iodine-129, plutonium, etc.. It is said that a reprocessing plant releases as much radioactivity in one day as a nuclear reactor releases in one year.

In addition, there are international concerns that the operation of the Rokkasho reprocessing plant will accelerate trends towards nuclear proliferation. The process used at Rokkasho will produce a 1:1 mixed oxide of plutonium and uranium. The Japanese government says that it is difficult to produce nuclear weapons from this. However, this is not true. Scientists in the US, and also the International Atomic Energy Agency, recognize that this material can readily be transformed into nuclear weapons.

**Nuclear Engineering International, 18 February 2009 / Nuke Info Tokyo (CNIC)**

**U.K.: Leaked for 14 years.** Radioactive waste leaked from a decontamination unit at the Bradwell nuclear power station for 14 years, Chelmsford Crown Court was told late January. The operators, Magnox Electric, were found guilty of allowing

unauthorized disposal of radioactive waste from 1990 to 2004 when the problem was discovered. The court was told the leak was caused by poor design and no routine inspection or maintenance. Chief inspector for the Nuclear Installations Inspectorate, Mike Weightman, said it was not possible to "inspect or check every feature of a complex plant" but once the leak was discovered regulators took quick action.

**N-base 601, 11 February 2009**

**Iraq takes first step to nuclear power, again....** On February 22, Iraqi Electricity Minister Karim Wahid says Baghdad is taking initial steps to construct the country's first nuclear power plant in cooperation with France. "I am willing to enter into contacts with the French nuclear agency and to start to build a nuclear power plant, because the future is nuclear," said Wahid. Iraq had sealed a contract with France to construct a nuclear reactor during Saddam Hussein's regime in 1976. The construction of the Osirak reactor however remained unfinished after Israeli warplanes bombed the facility in 1981. Tel Aviv accused the regime of building nuclear weapons. In the 1990 Iraq was accused of having a secret nuclear weapons program. Already in 1991 in the first few days of Gulf War I Iraqi nuclear energy capability (research reactor, hot-cells, etc.) was said to be destroyed by the US-led international coalition. However, in the decade that followed Iraq was still accused of having a covert nuclear program, but in search of such a program, after the Gulf War-II in 2003 nothing was found.

**Press TV (Iraq), 22 February 2009 / Laka Foundation, sources 1992 & 2003**

**France: TV show reveals radioactive risk.** Fears that radioactive material taken from France's old uranium mines has been used in construction have been raised by a TV documentary. According to investigators for the program *Pièces à Conviction* (Incriminating evidence), there are many sites where radioactive material is a potential health risk including schools, playgrounds, buildings and car parks. Very little uranium is now mined in Europe, but France carried out mining from 1945 - 2001 at 210 sites which have now been revealed by IRSN, the Institute of Radioprotection and Nuclear Safety on its website. Problems stem from millions of tons of reject rock which contained small amount of uranium which are still stocked at some of the sites along with 50 million tons of waste from extraction factories.

The documentary on France 3 also revealed that some reject rock has also been used as construction rubble in areas used by the public, that there have been some radioactive leaks into the environment from waste and that some "rehabilitated" areas where building has been taken place had been contaminated with radon. Before the program went out Areva had lodged a complaint about it with the Conseil Supérieur de l'Audiovisuel concerned that its intention was to make accusations against the firm. The program makers said they had "opened a national debate on uranium waste in France".

**The Connection (Fr.), 13 February 2009**

**Largest Pu transport ever from Europe to Japan.** Secret preparations are underway in Britain and France for shipping 1.8 tons of plutonium, the largest quantity of plutonium ever shipped by sea. The plutonium is contained in 65 assemblies of MOX (mixed plutonium and uranium oxide) fuel and is being shipped to Japan for use in the nuclear power plants of three Japanese electric utilities. No details have been revealed, but it is reported that the fuel will be transported by two British-flagged vessels, escorting each other.

The vessels are to depart Europe anytime on or after March 1st. Neither the hour of departure nor the maritime route to be used will be revealed before the ships depart. The United States must approve the transport plan before the shipment can proceed. The MOX fuel to be transported has been fabricated in France by Areva NC. The three possible routes for the shipment are around the Cape of Good Hope and through the South Pacific, around South America, or, through the Panama Canal.

Japanese electric utilities hope the fuel to be shipped will start its troubled MOX fuel utilization program which was to begin a decade ago in 1999. Many more shipments are scheduled to follow and could take different routes.

**Green Action (Japan) Press Release 24th Feb 2009**

**IAEA: Syrian uranium-traces manmade.** The International Atomic Energy Agency (IAEA) has said traces of uranium taken from the site of an alleged nuclear reactor in Syria were manmade. The report by the IAEA on the Dair Alzour site puts strong pressure on Damascus as it rejects the Syrian explanation for the presence of uranium.

The IAEA-report says that after an initial visit in June 2008, which revealed the presence of processed uranium, inspectors had not been allowed back to Dair Alzour and other sites where debris might have been stored, on the grounds they were "military installations".

IAEA denounces the Syrian government for its lack of cooperation with the agency's inquiry. "Syria has stated that the origin of the uranium particles was the missiles used to destroy the building," the IAEA report says. "The agency's current assessment is that there is a low probability that the uranium was introduced by the use of missiles as the isotopic and chemical composition and the morphology of the particles are all inconsistent with what would be expected from the use of uranium-based munitions."

The IAEA says Israel also failed to cooperate, but its findings give weight to the Israeli and US allegation that Dair Alzour was a secret reactor intended for eventual production of weapons. The report explicitly questions Syria's denials.

Circulation of the IAEA-report is restricted; it cannot be released to the public unless the IAEA Board decides otherwise.

However, it can be found at: [http://isis-online.org/publications/syria/IAEA\\_Report\\_Syria\\_Feb\\_2009.pdf](http://isis-online.org/publications/syria/IAEA_Report_Syria_Feb_2009.pdf)

**Guardian, 19 February 2009**

## WISE/NIRS NUCLEAR MONITOR

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

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

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# Nuclear Monitor needs more contributors

The Nuclear Monitor exists for more than three decades already. In 1978 the first issue was produced, although it was called "The WISE News Communiqué" at that time.

Since 1978 many things have changed, but to produce 20 issues of the magazine annually is still a struggle. And equally important for that matter. Our readers (you) value both quality and quantity.

The Nuclear Monitor is produced by a very small group of people. We do not pay for articles being written for us, we never did and it's hard to imagine we ever will. But that small group is looking for some help.

In short: we are looking for people, especially in Asia and Africa, but also in Australia and the America's, who are willing to write about local and regional developments concerning (anti-) nuclear issues.

We think that currently the content of the magazine leans too much on West-European sources and contributors. To have a more balanced and global perspective, we need people with knowledge of, and access to, non-English and/or non-German sources and background. There are so many things we are not aware of, even in this digital highway day and age. It is simply not enough to read all the wires from the big agencies, we want the stories from the ground, the grassroots fighting the nuclear industry, the reports of actions and campaigns, the incidents and accidents that not make it to the mainstream media, the analysis no-one wants to make because they are 'too difficult'

So, if you want to contribute - be it regularly or sporadic- to the Nuclear Monitor, or want to become more involved in the (production) of the magazine please contact WISE-Amsterdam at [wiseamster@antenna.nl](mailto:wiseamster@antenna.nl)

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