

NUCLEAR MONITOR

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

wise
World Information Service on Energy
founded in 1978



FEBRUARY 12, 2009 | No. 683

WISE CELEBRATES ANNIVERSARY WITH CLEAR CALL: NO NUKES

Leading German Social Democrat no need for new nuclear power

A day after the IEA urged the Netherlands to quickly start building a new nuclear power station (as it does for many countries), Hermann Scheer visited the Netherlands to not only speech at the 30 year anniversary event of WISE but also visit Ministries, members of parliament, media and investors.

(683.5922) WISE Amsterdam - Scheer, member of parliament for the German SPD (Social-democrats) is famous for what he has achieved in Germany to increase the percentage of renewable energy in the total mix, for getting the support of not only the public and politics but also the big industries and workers unions for the special schemes which encourages individual households (millions by now) to engage themselves in decentralized and sustainable electricity production (the so-called *Erneuerbare Energien Gesetz (EEG) or feed-in system*).

In an outspoken response to the IEA Scheer stated that "the International Energy Agency is misleading governments for decades already. The call for a new nuclear power station is bullshit and the data the IEA works with are legendary bad".

His opinion is supported by the findings of a new report by the leading independent research authority Energy Watch Group, published in January of this year.

The report "Wind Power in Context - A Clean Revolution in the Energy Sector" identifies exponential growth in wind power capacity since the early 1990s. With net capacity additions of almost 20,000 Megawatts in 2007 the report suggests that, contrary to IEA forecasts, growth of wind power additions will continue and that it will be driven not just

by costs for fossil fuels and nuclear cost overruns - but by access to new wind resources, by new grid regulations, by an emerging world market for wind turbines and components and by ever cheaper and better wind technology.

"It is time to recognise that the many detractors of wind energy, including the IEA, have got it wrong. Unbundling in the power sector and a timely planning of new grids will put many regions of the world on the fast track for a renewable driven energy sector."

"With the renewables market being driven forward by the entrance of major commercial players, and experiencing the benefits of consolidation of services around the strengths of different primary energy sources, we believe that the growth of the wind sector, accompanied by solar and other renewables will continue. This is not about morals or environment but the commercial reality that wind, coupled with hydro, solar, biomass and geothermal energy is not only a rapid and cost effective alternative but one that could deliver all our energy requirements within the first half of this century. In times of rising supply disruption risks and rising cost renewable energy technologies are the only source which provides electricity predictable, in terms of economics and in terms of supply."

Wind power net capacity additions over

MONITORED THIS ISSUE:

WISE CELEBRATES ANNIVERSARY WITH CLEAR CALL: NO NUKES	1
GERMAN SUPREME COURT STRENGTHENS NUCLEAR OPPONENTS' RIGHTS	2
MEDICAL ISOTOPE PRODUCTION;	3
SIEMENS LEAVING AREVA; JOINING ROSATOM?	5
EPR-WASTE SEVEN TIMES MORE HAZARDOUS	7
SWEDEN: PHASE-OUT REMOVED; NEW-BUILD UNLIKELY	8
IN BRIEF	9

the last ten years (1998-2007) have showed a mean growth rate of 30.4 percent per year, corresponding to a doubling of net additions every two and a half years. High worldwide growth rates for wind power will continue, and wind power will conquer a large part of the energy market in the next foreseeable future (10-15 years). Over the last 25 years, the productivity of wind turbines grew one hundred fold and average capacity per turbine grew by more than 1000 percent.

According to the Dutch Minister of Environment, who also spoke with Scheer, the German experience and legislation should be acknowledged and implemented in the Dutch situation as well. Scheer, who travels the world to tell about the German success-story, could only applaud these words. In his

evening speech for a big crowd at the WISE-event he again stressed the importance of a vigorous and outspoken, self-confident and well-prepared anti-nuclear power movement. "Politicians lack courage. And that's the only reason why we keep talking about new nuclear power stations. The transition to a real sustainable energy situation will not only bring us winners. Current players (coal, nuclear, oil) will loose. And they fight for their survival; that's why they want us to first burn al their fossils before we go sustainable. That's why we should fight them and that's why we should for instance embrace the launch of the International Renewable Energy Agency (IRENA).

This new body was launched on January 26, 2009, and is intended to

provide a counterbalance to the International Energy Agency and the International Atomic Energy Agency, by becoming a driving force behind renewable technologies such as sun, wind, water and geothermal energy sources.

For more information on the feed-in system see:
http://www.bmu.de/files/english/renewable_energy/downloads/application/pdf/langfassung_einspeisesysteme_en.pdf

Sources: "Wind Power in Context - A Clean Revolution in the Energy Sector" at www.energywatchgroup.org / www.irena.org / Financier Dagblad (NL), 6 February 2009
Contact: WISE Amsterdam

GERMAN SUPREME COURT STRENGTHENS NUCLEAR OPPONENTS' RIGHTS

Germany's supreme court has handed down a ruling that nuclear opponents welcome as strengthening their rights. The group that has resisted nuclear waste dumping at the north German village of Gorleben for 31 years says the ruling, confirming the right of residents along the waste transport routes to litigate against the transports, is a clear reprimand of lower courts.

(683.5923) Diet Simon - The Lüchow-Dannenberg Civic Initiative for the Environment (BI) sees the ruling "strengthening the cause of the nuclear opponents". For years lower administrative courts had refused complainants along the route to Gorleben the right to challenge transport permits issued under nuclear law.

The supreme court now ruled in favour of two complainants who argued that their constitutional rights were breached because they were refused access to lower courts since 2003. The BI now contends that the judgment proves that "for years a gigantic police apparatus was used to transport nuclear waste to Gorleben on a questionable legal basis".

"We have always demanded that protection of the population must take priority over protection of purely financial interests of the atomic industry," commented a BI spokesman. Moreover, during the last transport (in November) the radiation minimisation regulation was breached because the

casks contained substantially more radioactive material and radiated significantly more.

That was why police leaders gave out the order beforehand that police should stay at least 6.5 metres away from a critical danger zone. "But what about the population, houses and plots along the transport route that are knowingly and directly exposed to the high radiation risk?"

The BI spokesman states that breaches of basic rights are regularly and knowingly committed whenever nuclear waste is transported.

On the agenda of breaches to enforce the transports against the interests of the population are the basic right to life and physical integrity (Art. 2), the right to freedom of assembly (Art. 8), the right to privacy of correspondence, posts and telecommunication (Art. 10) and the right to property (Art. 14). And finally, Article 19 assures every citizen: 'Should any person's rights be violated by public authority, he may have recourse to the courts.'

The supreme court said the female plaintiff's right to effective legal protection was violated because the lower court denied her access to appeal in an unacceptable manner. The BI is still waiting for a supreme court ruling on assembly bans along the transport routes.

In another development, nuclear opponents are furious that the Asse II nuclear dump in an old salt mine that is taking in water, is to be fixed at taxpayers' expense. Some 75% of the radiation of the waste stored in Asse, is coming from nuclear power plants. The companies of those plants -EnBW, Eon, RWE and Vattenfall- are, according to a proposed chance of the German Atomic Law are to be let off the hook. The repairs are to cost billions of euros

Sources: Diet Simon,
e-mail: info@ausgestrahltd.de

Contact: BI-Luechow Dannenberg,
e-mail: daniel.mettke@bi-luechow-dannenberg.de

MEDICAL ISOTOPE PRODUCTION;

Conversion from HEU to LEU based production and alternative methods

Since 1992 the US restricted its high-enriched uranium (HEU) exports to encourage other countries to convert civilian facilities to low-enriched uranium (LEU), which can't be used directly to make nuclear weapons. Instead in mid 2005 Congress passed the Energy Policy Act of 2005, which includes provisions relaxing restrictions on HEU exports for medical isotope production. The primary beneficiaries of the new law are producers of medical radioisotopes.

(683.5924) Laka Foundation - Last January the US Committee on Medical Isotope Production without Highly Enriched Uranium published a study that was motivated by this conflict between the non-proliferation objectives and the assurance of the supply of medical isotopes. The report is the product of a congressionally mandated study to examine the feasibility of eliminating the use of HEU in reactor fuel, reactor targets, and medical isotope production facilities. The report focuses on the use of HEU for the production of the medical isotope molybdenum-99 (Mo-99), whose decay product, technetium-99m (Tc-99m), is used in the majority of medical diagnostic imaging procedures, and on the use of HEU for research and test reactor fuel. Unfortunately the committee doesn't seriously discuss the use of techniques without the use of reactors and HEU or LEU targets for the production of medical isotopes. Interestingly, Canada - the world largest producer of Mo-99 - is considering this option.

Research and Test Reactors

Increasing concerns about the proliferation of HEU prompted the formation of the Reduced Enrichment for Research and Test Reactors (RERTR) program by the Department of Energy (DOE) in 1978. Over the 26-year initial period of the RERTR Program, only 38 U.S.-designed research and test reactors were converted from HEU fuel to LEU fuel, and not a single Russian-designed reactor was converted. During the same period, more than 200 research reactors, the majority fueled with HEU, permanently shut down because of obsolescence, problems with aging materials and facilities. Of the new reactors commissioned during this period only one of significant power, FRM II in Munich, Germany, as well as a few

Chinese Miniature Neutron Source Reactors were started up with HEU.

Presently, DOE's HEU elimination efforts are being carried out under the Global Threat Reduction Initiative (GTRI). This initiative is focused on the minimization of HEU in civilian research and test reactor fuels and targets. Research and test reactors that have defense-related missions and naval reactors used to power surface vessels and submarines are out of the scope of this program. The committee reports that DOE National Nuclear Security Administration (DOE-NNSA), in collaboration with several other organizations, has made substantial progress in converting reactor fuels and targets to LEU through GTRI. It recommends that the GTRI Program be continued until research and test reactors worldwide have converted their fuel and targets to LEU or have been permanently shut down and their HEU fuel has been returned to the country from which it originated.

Nuclear research and test reactors have been in operation for more than 60 years. They underpin the development of power and propulsion reactors and are used for research in amongst others the fields of nuclear physics and engineering, nuclear chemistry, materials science, and biology. Currently they have been widely considered as indispensable for the production of medical isotopes to supply a rapidly increasing demand for diagnostic and therapeutic procedures based on nuclear medicine techniques. According to the committee more than 700 research reactors are known to have been commissioned worldwide, and 240 of these are currently in operation in 55 countries. Another 9 reactors are in various stages of construction and several more are

planned. Since 1975 significantly more research and test reactors have shut down each year than have started up. Of the 240 operating research reactors, 203 are or were fueled with HEU, almost all of them supplied with HEU originated from the US or Russia. GTRI has a strategic plan to convert 125 of these reactors - still planned to be operating by 2018 - and thereby minimize the commerce in HEU for research reactors.

As of December 2008, the status of the conversion program is as follows: 58 reactors have been fully or partially converted and four reactors were shut down before conversion. Between 1978 and 2004 38 of these conversions took place and 20 conversions (including those of two Chinese reactors) took place between 2004 and present, representing an acceleration over the pre-GTRI conversion rates. 40 reactors are estimated to be able to convert using existing qualified LEU fuels; and 27 reactors are planned for conversion with advanced LEU fuels that still need to be developed and qualified. A new high-density fuel is under development that would allow the conversion of at least 19 of these reactors.

Molybdenum-99 production

Most of the world's production of Mo-99 is carried out by irradiating HEU targets in research and test reactors that are fueled with LEU. With one exception, the US is currently the world's primary supplier of HEU for Mo-99 production, either directly through DOE or indirectly through the Euratom Supply Agency (ESA). The US origin HEU that is used for Mo-99 production has an enrichment of about 93% U-235 and was originally produced for use in nuclear weapons. The exception is South Africa, which uses its own HEU (45% U-235) to produce Mo-99 in a

reactor that is also fueled with HEU but is in the process of being converted to LEU. ESA does not publicly disclose the sources of HEU used for the manufacture of targets for medical isotope production. Most of this HEU is probably of US origin, but some may also be of UK origin.

Almost all of the Mo-99 used worldwide is produced by just four companies, all using HEU

targets: MDS-Nordion (Ottawa, Canada), Mallinckrodt (Petten, The Netherlands), IRE (Fleurus, Belgium) and NTP Radioisotopes (Pelindaba, South Africa).

With the exception of the Belgian (BR2 in Mol) and the South African (SAFARI-1 in Pelindaba) reactors all of these producers use LEU-fueled reactors.

According to the compilers of the report approximately 40-50 kg of US HEU are used annually for medical isotope production, including annual US exports of about 15.5 kg of HEU to Canada. The major part of this amount is used by the large scale producers named above (except NTP in South Africa). Supposing the worldwide Mo-

99 production market shares of MDS Nordion (40%), Mallinckrodt (25%) and IRE (20%) are directly related to the consumption of HEU the annual US exports of HEU to the Netherlands and Belgium amount to minimally 8.9 and 7.8 kg respectively. Moreover the committee mentions that approximately 97% of the uranium originally present in the targets ends up in the process waste. Consequently, the accumulating waste from Mo-99 production contains substantial quantities of HEU.

Worldwide, tens of kilograms of this HEU waste are accumulating annually from Mo-99 production. The Ottawa Citizen mentions an amount of 100 kg HEU in Chalk River (Ontario, Canada). Meaning sufficient HEU in Canada, the Netherlands and Belgium to make one or more nuclear bombs.

Probably the most important findings of the committee are: "There are no technical barriers to conversion of Mo-99 production from HEU targets to LEU targets." [...] Production using LEU targets is technically feasible and in fact is being carried out by CNEA in Argentina and will be shortly by the

Australian National Nuclear Science and Technology Organisation (ANSTO) using CNEA technology. The committee sees no technical barriers to scaling up production for large-scale production." [...] "To the committee's knowledge, none of the major producers are doing much actual development work on LEU targets and process [..]. [...] Based on the information presented to it by producers, the committee did not see any evidence that such R&D was being carried out." Last but not least: "The committee judges that conversion within existing facilities could be carried out in as little as a few months to two years."

Alternative techniques without use of a reactor

Though it has been a little step forward to use LEU instead of HEU, the committee didn't seriously discuss the safest, cheapest and most reliable methods for the production of Mo-99. Recently a research scientist at Canada's national particle and nuclear physics laboratory is calling on the federal government to look into ways of delivering radioactive medical isotopes without the need for nuclear reactors. According to Thomas Ruth the current system of delivering medical isotopes does not meet the demands of hospitals. Reactor closures at the isotope production facilities in Canada and the Netherlands led and leads to shortages in the worldwide supply of medical isotopes, drawing public attention to the fragile nature of the industry. "There are no near-term or even long-term solutions being implemented that could provide a reliable and adequate supply for Europe and North America," he writes in Nature. He proposes two alternative methods the Canadian government should consider. The first method is the use of particle accelerator technology, in which an accelerator shoots photons at the relatively stable uranium-238 isotope. Scientists have concluded that such accelerators could be built. Ruth says that research has to verify those conclusions before such accelerators could become a reality. The second method is a move away from scans reliant on reactor-made isotopes and toward positron emission tomography (PET) scans. Though PET scans use isotopes with a shorter half-life than

IPPNW campaign to convert Radiopharmaceutical Production to LEU

As part of their International Campaign To Abolish Nuclear Weapons (ICAN) the International Physicians for the Prevention of Nuclear War (IPPNW) is campaigning to convert Radiopharmaceutical Production from HEU to LEU. Together with mayors, civil society groups, NGOs, churches and citizens, ICAN demand an end to nuclear weapons through a Nuclear Weapons Convention (NWC) which will make nuclear weapons illegal, banning their development, possession, use and threat of use. ICAN's priorities are the elimination of nuclear weapons in the same way comparable treaties have banned landmines and chemical and biological weapons; the immediate stop of upgrading, modernizing, and testing of new nuclear weapons; and to reduce the likelihood of nuclear weapons use.

"While it may seem like a small matter compared with the task of eliminating some 25,000 nuclear weapons from the world's arsenals," IPPNW states "the medical profession has a proliferation problem in its own backyard." As health care professionals they exert themselves to hasten the phase-out of medical commerce in HEU and so terminate one of the most vulnerable pathways to the much-feared "terrorist bomb", since there are no obstacles to convert to LEU sources for these radiopharmaceuticals. Among other things IPPNW urge the governments of Belgium, Canada, France, the Netherlands and South Africa, and Euratom, to require isotope production reactors within their jurisdiction, utilising HEU fuel or targets, to promptly be converted to LEU fuel and targets. They urge the governments that supply HEU to institute compelling incentives - preferably coordinated - for radiopharmaceutical producers to convert to LEU in the near future.

More information on the IPPNW-campaign at:

<http://www.ippnw.org/Programs/ICAN/HEU.htm>

reactor-produced isotopes, these isotopes can be created in hospital-run cyclotrons. Because less than 15% of nuclear medicine installations in the US are equipped with PET scanners, Ruth expects that PET scanners and cyclotrons would have to come down in cost for this to be an attractive option. Both proposals were first made in a report produced after a task force met in Vancouver in the fall of 2008 to discuss time lines and costs. The construction of an accelerator would take three to four years and, depending on the technology used, would cost between C\$50 and C\$125 million to build. In a recent budget the Canadian government called for C\$351 million in funding to Atomic Energy of Canada Ltd. for its operations, including the development of the Advanced Candu Reactor, while there was no mention of any budget toward alternative means of producing medical isotopes. Just two days before Ruth's announcement the Chalk River facility was again in the news as opposition members of parliament grilled the government

about two separate leaks at the AECL reactor. The Nuclear Safety Commission issued a statement saying that "at no time was the public or the environment at risk" and that no radioactive material leaked into the Ottawa River. But, recently AECL (Atomic Energy of Canada Ltd) announced plans to dump radioactive water in the Ottawa River. So, after assuring the Canadian House of Commons and the public that "no radioactivity has been *leaked* into the Ottawa River", the nuclear establishment is planning to *dump* the radioactive heavy water (containing radioactive tritium) into the Ottawa River *deliberately*.

Sources: "Medical Isotope Production Without Highly Enriched Uranium" (Prepublication Copy). Committee on Medical Isotope Production without Highly Enriched Uranium; Nuclear and Radiation Studies Board, Division on Earth and Life Studies; National Research Council of the National Academies. The National Academies

Press, Washington, D.C., 2009. ISBN: 0-309-13040-9, 240 pages. <http://www.nap.edu/catalog/12569.html> / Ottawa Citizen, 28 January 2009: "Canada needs to find a safer, reliable supply of isotopes" / Sierra Club Canada News Release, 6 February 2009: "Stop Dumping Radioactive Water in the Ottawa River" / Ruth, Thomas; "Accelerating production of medical isotopes", Nature 457, 29 January 2009 / "Making Medical Isotopes", Report of the Task Force on Alternatives for Medical-Isotope Production, TRIUMF, University of British Columbia, Advanced Applied Physics Solutions, Inc., 2008 available at: <http://admin.triumf.ca/facility/5yp/com m/Report-vPREPUB.pdf>

Contact: Laka Foundation, Ketelhuisplein 43, 1054 RD Amsterdam, The Netherlands. Tel: +31 20 6168294 E-mail: info@laka.org www.laka.org

SIEMENS LEAVING AREVA; JOINING ROSATOM?

Vladimir Putin has invited Siemens to enter into discussions with Rosatom, the umbrella agency for the Russian nuclear power industry. A tie-in now looks likely. The discussions follow Siemens' announcement that it wishes to leave its nuclear plant construction partnership with Areva. The Areva group will buy back Siemens 34% stake in Areva NP before the end of January 2012. "We will have to negotiate with Areva over the details" of a separation agreement "beginning right away", Siemens announced.

(683.5925) WISE Amsterdam -

According to Siemens the cooperation between it and Areva has been good, but that the minority stake "considerably limits the entrepreneurial maneuverability of Siemens within the joint venture." Siemens CEO Peter Loescher said "it was not possible" for Siemens to participate in the global nuclear power plant market through its partnership with the French firm. Loescher said Siemens was committed to doing business in that market. The company's main role in Areva NP has been heavy involvement in the conventional islands for Areva nuclear power plants - the steam turbines, generators and main systems apart from the reactor building. The company said it wanted to continue to offer its products for nuclear plants, including systems for operation and control.

Siemens

According to sources close to the company, Siemens will explore setting up an equal partnership with Russian industry that would allow Siemens to participate in what the German company believes will be a major global expansion in nuclear power plant construction. But according to Nucleonics Week, some board members have voiced caution that partnering with Moscow-controlled firms is risky, and there is no consensus so far that Siemens should take that risk. In 2007, Siemens and Russia's Federal Agency for Atomic Energy, or Rosatom, signed a memorandum of understanding for future cooperation. That MOU, which is dormant at the time, could become the basis of a future partnership in which Russian VVER technology could be

joined with Siemens' technology for energy production and distribution systems, sources said.

By cooperating with Rosatom, Siemens could even gain a re-involvement in reactor technology, which it packaged into Areva NP. Russian nuclear technology could gain a valuable image boost, while a joint venture would allow Russia some interest in Western markets.

Siemens has already cooperated with AtomStroyExport to build the two pressurized water reactors at Tianwan in China, supplying the control systems. Atomstroyexport, a Rosatom subsidiary, is incorporating Siemens instrumentation and control in all its export nuclear power plants, and there are plans to use it in domestic Russian reactors as well. Siemens will also

partner with Areva to supply electronic equipment for two new Russian reactors at Belene in Bulgaria.

The Siemens move is no surprise. More than a year ago, in November 2007, the Nuclear Monitor published an article called: 'Rebuilding the Areva group - End of German Reactor Constructor?' in which was announced the likelihood of Siemens leaving the Areva-group. Reason for the departure would be the reconstruction of Areva.

The merging of nuclear construction capacities and the know-how of the two leading West European nuclear constructors Siemens and Framatome in 2001 was meant to help to survive economically and to push for a new generation of nuclear reactors. In 2001 Siemens houses its nuclear section, Siemens Nuclear Power (SNP) in the subsidiary of Areva, Framatome. Since the first of March 2006 this subsidiary trades under the name of Areva NP.

At the time the Siemens nuclear section became part of the Areva company, it was agreed that the French state has the right to takeover the German shares in 2009 at the soonest and in 2011 at the latest. The legal effectiveness of the Areva/Siemens deal would thus be on January 1, 2012.

Areva NP is currently heavily involved in promotion of its EPR pressurized water reactor worldwide, with four planned for the UK and six under discussion for the USA. Announcements are expected soon regarding deployment in India. The units are already under construction at Flamanville and

Olkiluoto, while work will start soon on two more units at Taishan in China.

Besides its involvement through Areva NP, Siemens is a consortium partner at Olkiluoto 3 in that it provides the entire conventional island. Siemens has also signed a letter of intent to cooperate on EPR deployment in the UK and should provide the conventional islands for any forthcoming EPRs in that country. Meanwhile, French rival Alstom is contracted to provide turbine islands for Flamanville 3, the two EPRs at Taishan and the three proposed Unistar Nuclear Energy EPR projects in the USA.

Areva NP

Delays at Olkiluoto-3 and Flamanville-3, cancellation of South Africa's nuclear plant tender, and "uncertainties about the US program" are elements that could lower the value of the Areva NP business plan and future cash flow projections, Vignon, former president of Areva NP predecessor Framatome said. That could result in Areva lowering its estimate for what it owes to Siemens for the 34% stake in the joint venture. According to a January 28 report in French financial newspaper Les Echos, Siemens management evaluated the Areva NP stake at between 2 billion and 3 billion euro. But independent sources say it is 500 million less than 2 billion euro.

Areva announced net debt of 2.4 billion euro at the end of June 2008 and is scheduled to release its full-year financial results on February 25. Finnish utility Teollisuuden Voima Oy, or TVO, is seeking 2.4 billion euro in

compensation from Areva and Siemens. The money is for delays in startup of the Olkiluoto-3 EPR that forced TVO to buy electricity in the market. Areva and Siemens, in turn, are seeking 1 billion euro in compensation from TVO for the utility's delays in processing project documentation.

According to industry observers quoted in Nucleonics Week, Siemens' announced exit from the Areva NP joint venture with Areva puts the Paris-based vendor under "tremendous financial stress" that could force it to rein in its ambitious investment plan and strain its ability to raise more money. Areva is engaged in a vast investment program that some outside the company have estimated as high as 14 billion euro (US\$18.5 billion). The program includes two uranium enrichment plants, a new UF6 conversion complex, new uranium mining projects, construction of a reactor components plant in the US and similar facilities in France. Areva CEO Lauvergeon told the government in January that her company needs some 3 billion euro to support the investment program in this year alone.

Industry observers say the move will force the French government, which owns about 84% of Areva, to clarify the company's ownership structure. It will force a government decision on whether to pump more state money into the company, organize a merger with turbine maker Alstom, promote the entry of oil giant Total, or a combination of those options.

Meanwhile, Total, which is seeking a

Nuclear Reaction

The nuclear industry is always running late, is extremely high maintenance, constantly stealing from your wallet, and very likely to be ruining your life for years to come. If it was your boyfriend or girlfriend you'd have changed your name and fled to another country years ago.

So, want to hear about the nuclear reactor built in an earthquake zone? Or the one built with watery concrete? Or how taxpayers across the world will be financially (not to mention physically) liable in the event of a nuclear accident? What about how, if we want to reduce carbon dioxide emissions by just five percent with nuclear power, we need to be building a new reactor every week until 2030?

Want to meet the politicians, denialists and apologists with

the 10,000-year radioactive legacies? See through their false promises and false hopes? Maybe find out how easy it is to build a 'quick and dirty' reprocessing plant capable of turning black market nuclear waste into a bomb's worth of plutonium every day?

Then join us. You'll laugh. You'll cry. You'll wish we were making it up.

Nuclear Reaction, Greenpeace's blog, where we'll be recording for history the meltdown of that most over-rated, over-subsidised and over-confident of industries, the nuclear industry.

Join us at: <http://weblog.greenpeace.org/nuclear-reaction>

double-digit percentage stake in France's second EPR nuclear plant, stated that it also wants to play an active role in its construction. "We want to acquire expertise in the nuclear sector in order to one day become a true nuclear plant operator," Chief Executive Christophe de Margerie told

French daily les Echos in an interview. "We do not want to be just a financial partner in this new EPR plant. We would like a significant stake, a double-digit stake, but we are also industrialists and our wish is that EDF gives us the opportunity to participate actively in the construction of the

second French EPR," he said. **Sources:** Nucleonics Week, 29 January 2009 / World Nuclear News, 27 January & 4 February 2009 / Nuclear Monitor 662, 8 November 2007 / Reuters, 9 February 2009

Contact: WISE Amsterdam

EPR-WASTE SEVEN TIMES MORE HAZARDOUS

Greenpeace has uncovered evidence that nuclear waste from the European Pressurised Reactor (EPR), the flagship of the nuclear industry, will be up to seven times more hazardous than waste produced by existing nuclear reactors, increasing costs and the danger to health and the environment. This was revealed -one day after French President Sarkozy's decision to build a second EPR in France- in an exclusive story in International Herald Tribune (IHT)

(683.5926) WISE Amsterdam - The alarming evidence was buried in the environmental impact assessment report from Posiva, the company responsible for managing waste at the world's first EPR under construction at Olkiluoto in Finland ("Posiva's Expansion of the Repository for Spent Nuclear Fuel, Environmental Impact Assessment Report", 2008), and in EU-funded research (Nagra Technical report 04-08: "Estimates of the Instant Release Fraction for UO₂ and MOX-fuel at t = 0").

This means that not only will spent nuclear fuel produced by the EPR be more dangerous than is acknowledged by the French nuclear industry, but also storage and disposal will be more expensive than the industry and governments proclaim, and will increase the overall cost of nuclear energy. The French nuclear companies Areva and EDF, which aggressively market the EPR as safe and cheap, have completely ignored the implications of the increased hazards," explained John Large, an independent nuclear consultant.

No appropriate waste facilities exist or are being planned in Finland, France, or any of the countries considering buying the EPR, including the UK, the US, Canada and India. In Finland the plans awaiting approval for burying the nuclear waste are inadequate for preventing interim and long-term health risks and will pass on huge financial liabilities to future generations.

"Nuclear energy is fast becoming the most expensive way to produce

electricity and its highly radioactive waste poses an ever-increasing problem. Despite the French government's global marketing of the EPR as cheap and safe, the evidence proves otherwise," stressed Dr. Rianne Teule, Greenpeace International Nuclear Campaigner.

The EPR is designed to extract more energy from nuclear fuel than any commercially operating reactor (high burn-up), in order to maximise electricity output. This causes the amount of readily released radioactive substances in spent fuel to increase disproportionately. The storage of the hazardous waste will be more costly for a range of reasons including required greater distances between canisters increasing the repository size, more extensive and longer-term monitoring and increased security.

Another aspect of the high burn-up of the fuel was published by the British daily Independent on Sunday. The revelations -based also on the documents by the nuclear industry itself - calls into doubt repeated assertions that the new EPRs will be safer than the old nuclear power stations they replace. Instead those documents suggest that a reactor or nuclear waste accident, although less likely to happen, could have even more devastating consequences in future; one study suggests that nearly twice as many people could die.

Information in the documents shows that the EPRs produce very much more of the radioactive isotopes technically known as the "immediate release

fraction" of the nuclear waste, because they could get out rapidly after an accident. Data in one report, produced by EDF, suggests that they would produce four times as much radioactive bromine, rubidium, iodine and caesium as a present-day reactor. Information in another - by Posiva Oy - indicates that seven times as much iodine 129 is produced. And material in a third, by the Swiss National Co-operative for the Disposal of Radioactive Waste (Nagra), implies that they will give rise to 11 times as much caesium 135 and 137.

This happens because the reactors are designed to burn their nuclear fuel almost twice as thoroughly as normal ones. Independent nuclear consultant, John Large, says that this "changes the physical characteristics of the fuel" and increases the immediate danger if the radiation should escape. After comparing the consequences of an accident at the new EPR being built at Flamanville, Normandy with one at an existing reactor nearby, he found that, in the worst case, it would increase the number of deaths from 16,000 to over 28,000.

(See also "Too hot to handle: The truth of high burn-up fuel", Nuclear Monitor 671, 17 April 2008)

Sources: Greenpeace Press release, 31 January 2009 / Independent on Sunday, 8 February 2009

Contact: Rianne Teule, Greenpeace International Nuclear Campaigner, Van Walbeekstraat 17, 1058 CG Amsterdam, The Netherlands
Tel: +31 (0) 650 640 961
E-mail: rianne.teule@greenpeace.org

SWEDEN: PHASE-OUT REMOVED; NEW-BUILD UNLIKELY

On Thursday February 5, the Swedish Government announced its new energy and climate policy. Both in Sweden and around the world focus of the media was that Sweden is reversing the policy of phasing out nuclear power. The decision appeared sudden and came to many as a shock. But what really happened? And how likely is it that Sweden will build new nuclear power?

(683.5927) MKG - The Swedish Government is a coalition of four parties with widely different views on nuclear power. The Liberals (Folkpartiet) have for a number of years had a pro nuclear agenda. The Center Party on the other hand is strongly anti-nuclear and has been working together with the Social Democrats and the Left Party with the phase-out of nuclear power. The Conservatives (Moderaterna) have leaned towards nuclear but understand that new nuclear is not economical. The Christian Democrats are much more against than for.

Since over a year the Government has been pressed to reach an agreement on a joint energy and climate agenda. It is vital for the Government that there is a common policy before the Swedish chairmanship of EU starts in July. Sweden is to lead the EU in the important negotiations at the Copenhagen climate conference in the autumn.

In the beginning of February the issue had become critical. The Liberals had made an ultimatum that nuclear power had to be in the policy. In order to get a strong policy paper with a focus on renewable energy and efficiency measures the Christian Democrats and the Center Party had to give with great convulsions in both parties. A yearlong huge publicity campaign by the Confederation of Swedish Enterprise for nuclear power made the decision easier. There is presently an unfortunate and false general perception in Sweden that nuclear power is necessary to combat climate change.

But the deal that was brokered, and still needs parliamentary approval, is not pro-nuclear. It is focused on a large-scale effort to support renewable energy and energy efficiency measures. As an example Sweden's wind power supply is to increase from 2 to 30 TWh until 2020. This represents about half the present nuclear power supply. If this policy was continued Swedish wind power would be bigger than nuclear power by 2030. And all this energy would part of an enormous overcapacity. The nuclear power plants are at the same time being upgraded and their lifetimes are extended into the 2030s. And the electricity use in Sweden is expected to fall due to efficiency measures.

But the legal ban on building new nuclear power reactors will be removed as will the still-existing phase-out law that the Centre Party had so far refused to remove. But the total number of reactors cannot be more than the ten that exist today. They cannot be constructed on other sites than the three now used (Forsmark, Ringhals and Oskarshamn). Thus no reactors can be built on the Barsebäck site near Denmark where the two reactors that have been phased out used to be. No state support can be given to nuclear power. And as the nuclear industry plans to keep the present reactors until the 2030s nothing will happen for a very long time with regards to Swedish nuclear new-build.

All other statements are just happy-talk, wishful thinking or propaganda. In the Parliament only the Liberal Party is in support of new-build.

The Government's new policy has forced the three opposition parties to show their cards. The Social Democrats, Left Party and Greens, who hold a relatively large but shrinking lead in the polls, have announced a common policy of not supporting new nuclear power. They will examine the possibility of continuing the phase-out if they win the elections in 2010.

Suddenly there is a nuclear divide in Swedish politics. Nuclear power is debated strongly and the media interest is high. Nuclear power may become an election issue at the next elections in September 2010. Opinion polls have been showing a clear lead for the opposition. How the Government's new nuclear policy will affect the public opinion remains to be seen.

Will we see new Swedish nuclear reactors being built in the 2030s? It's very unlikely. The Swedish mainstream politics and general public prefer renewable energy and energy efficiency. Which are real today.

Link to the document by the Swedish Government: "A sustainable energy and climate policy for the environment, competitiveness and long-term stability"
<http://www.sweden.gov.se/sb/d/2031/a/120088>

Source and contact: Johan Swahn. Director MKG - Swedish NGO Office for Nuclear Waste Review. Box 7005, SE-402 31 Göteborg, Sweden
E-mail: johan.swahn@mkg.se

IN BRIEF

South-Africa: PBMR Ltd. in trouble. According to a PBMR Ltd press release, the global financial crisis and related impact on funding - particularly on the South African electricity utility Eskom - has prompted the Pebble Bed Modular Reactor company to "consider near-term market opportunities based on customer requirements to service both the electricity and process heat markets", as they call it. Basically it will be a shift towards non-power options. One of the considerations is the modification of the design planned for the Demonstration Power Plant project at Koeberg near Cape Town to also service potential customers such as the Next Generation Nuclear Plant (NGNP) project in the US, which is funded by the US Department of Energy, oil sands producers in Canada (to produce the temperature and associated pressure needed to extract bitumen from oil sands) and the South African petro-chemical company Sasol (to either produce process steam and/or hydrogen to upgrade coal products). Another potential application is the use of the PBMR's waste heat for desalination. According to Jaco Kriek, CEO of PBMR (Pty) Ltd, discussions are underway with suppliers to put certain contracts on hold "to prevent unnecessary spending", although he emphasises that no contracts have been cancelled. But it is clear that business is not running smoothly (nothing new one can argue). The development of the PBMR is way behind schedule and in December Eskom cancelled the construction of pressurized water reactors (see Nuclear Monitor 681, 18 December 2008)
Press release PBMR Ltd, 5 February 2009

Japan: Nuclear industry rebuked for misleading advertising. On 25 November 2008 the Japan Advertising Review Organization (JARO) sent a letter to the Federation of Electric Power Companies of Japan (FEPCO) regarding a complaint concerning an advertisement placed by FEPCO in a Japanese magazine in April 2008. The complaint claimed that the following words in FEPCO's advertisement were incorrect and inappropriate: "Nuclear power ... is a "clean way of producing electricity", which does not release CO₂ when generating electricity." The complaint pointed out that these words could mislead consumers. JARO judged that the word "clean" does not fit well with nuclear energy. It said that many consumers would have misgivings about the claim that nuclear energy is "clean", on the sole grounds that it does not emit CO₂ during electricity generation, when there is no accompanying explanation about safety or radioactive waste. JARO recommended that claims that nuclear energy is "clean", without adequate explanation of safety and the effect of nuclear energy on the environment, should not be made in future. For most people JARO's conclusion is plain common sense, but it is refreshing to see the nuclear industry rebuked by an advertising watch dog for misleading advertising. JARO's letter was supposed to be confidential, but it was reported in the media.
CNIC, 6 February 2009

Asian Development Bank Energy Policy Paper. The Asian Development Bank will maintain its current policy of non-involvement in the financing of nuclear power generation. That is the conclusion in the Bank's Energy Policy Paper, published in January 2009. ADB writes (page 30/31): "Nevertheless, in spite of its sustainable and operational benefits, nuclear power development faces a number of barriers, such as public concerns related to nuclear proliferation, waste management, safety issues, high investment costs, long lead times, and commercial acceptability of new technologies. Overcoming these barriers is difficult and open public debate will be required to convince the public about the benefits of nuclear power. MDBs have traditionally avoided financing nuclear power plants. In the context of the former Soviet Union states, the EBRD's current energy policy includes financing safety measures of nuclear plants, decommissioning and environmental rehabilitation, and promoting an efficient nuclear regulatory framework. In view of concerns related to nuclear technology, procurement limitations, proliferation risks, fuel availability, and environmental and safety concerns, ADB will maintain its current policy of non-involvement in the financing of nuclear power generation."
<http://www.adb.org/Documents/Policies/Energy-Policy/W-Paper-Energy-Policy.pdf>

Pakistan: Khan released from house-arrest. On February 6, a Pakistani court freed Abdul Qadeer Khan from house arrest, lifting the restrictions imposed on him since 2004 when he publicly confessed to running an illicit nuclear network. Khan, 73, considered in the West as a rogue scientist and a pariah who sold technology to North Korea, Libya and Iran, is revered as a national hero in Pakistan for his role in transforming the country into a nuclear power. The ruling to set him free seemed as much a political decision as a legal one, intended to shore up support for the government of President Asif Ali Zardari, which has been derided in the Pakistani press as being too close to the U.S. The government has been under intense domestic pressure to free Mr. Khan, and that outweighed the backlash that Mr. Zardari knew the action would cause in Washington. The ruling was accompanied by a secret agreement between Mr. Khan and the civilian government, the contents of which were not disclosed, which may continue to place restrictions on him. It was not entirely clear whether Mr. Khan would be free to leave the country. The Foreign Ministry said Pakistan had investigated Khan's past proliferation, shared its findings with the IAEA, and put in tight controls to prevent anything similar from happening again. "A. Q. Khan is history." The US State Department condemned the move: "He's still a proliferation threat. We're very troubled by this." The civilian government had eased the restrictions placed on the scientist in 2004. Right from the time of Khan's confession,

the US has been persistently demanding permission to question him on his alleged proliferation activities. Pakistan has been equally consistent in denying this permission.

New York Times, 6 February 2009 / AP, 8 February 2009 / The Hindu, 9 February 2009

ITER could cost twice as much as budgeted. According to the British newspaper The Guardian, the experimental ITER fusion reactor could cost twice as much as governments had planned for. The project, which absorbs almost half of Britain's energy research budget (!), will test complex machinery needed to make the world's first operational fusion power plants. ITER was originally planned to cost 10bn, but the rising price of raw materials and changes to the initial design are likely to see that bill soar. The warning came as scientists gathered in Finland to unveil the first component of the reactor, which will effectively act as its exhaust pipe. The reactor is currently expected to take nearly 10 years to build and is scheduled to be switched on in 2018.

The Guardian (UK), 29 January 2009

Ukraine to join International Uranium Center. The Russian government has approved a request by the Rosatom corporation for Ukraine to join the international uranium enrichment project set up by Russia and Kazakhstan. The International Uranium Enrichment Centre would see uranium from member countries enriched at Angarsk in Russia under international supervision. The scheme is not yet finalised, but in theory it would offer member countries assured supplies of nuclear fuel under some sort of arbitration by the International Atomic Energy Agency (IAEA). An additional possibility is that such a scheme would take back highly-radioactive used nuclear fuel from client countries for reprocessing and recycling or for permanent storage.

The concept of an international fuel cycle has come to the fore in recent years partly due to suspicions that Iran's uranium enrichment facilities were once part of an undeclared nuclear weapons program. Countries that agree to abide by the global non-proliferation regime and within which the IAEA is confident nuclear power is only used peacefully would be guaranteed supplies of uranium fuel. The theory is that those countries would never need to develop their own uranium enrichment or reprocessing facilities, which otherwise could potentially be misused for weapons production.

The international uranium project is only one of the several Multilateral approaches, the US GNEP (Global Nuclear Energy Partnership) and the IAEA Fuel Bank, being two other initiatives.

World Nuclear News, 10 February 2009

In Memory of Oscar Shirani, Nuclear Safety Whistleblower (1956-Dec. 24, 2008)

It is with deep shock and sadness that we have learned of the sudden, unexpected death of Oscar Shirani.

Shirani had long worked in the nuclear power industry, first at Stone and Webster nuclear engineering, then at Commonwealth Edison in Chicago, and most recently on the U.S. MOX program in France. He performed quality assurance (QA) audits of nuclear safety systems. Oscar issued the first "Stop Work Order" in history against General Electric Nuclear Engineering for its QA failures on 52 safety related design calculations, implicating boiling water reactors across the U.S. But when Commonwealth Edison merged with Philadelphia Electric to form Exelon Nuclear, the GENE vice president who verbally abused Oscar in front of a room full of people was hired to become Oscar's new boss, so his days at Exelon were numbered. When Oscar, leading a nuclear utility consortium audit of the design and manufacture of Holtec high-level radioactive waste storage/transport casks, discovered countless QA violations and attempted to issue another "Stop Work Order," the harassment he suffered at Exelon intensified dramatically, and he was run out of the company a short time later. He was then blacklisted by the U.S. nuclear power industry ever after. The U.S. Nuclear Regulatory Commission and U.S. Department of Labor, which are supposed to protect nuclear safety whistleblowers, completely abandoned Oscar, save for NRC dry cask storage inspector Dr. Ross Landsman, who fully supported Oscar's safety allegations about the Holtecs.

Oscar then reached out to Union of Concerned Scientists, Public Citizen, and NIRS for help. From 2003 till now, Shirani spoke out at numerous anti-nuclear events. In late November, 2008, Oscar calmly "skewered" a room full of 150 NRC and industry officials as they schemed how to lower QA requirements for safety significant nuclear parts. Oscar served as a tireless fount of expert engineering analysis on radioactive risks from reactor power uprates to radioactive waste storage, serving those concerned about atomic safety throughout the country and even overseas.

Oscar is survived by his wife, his two daughters, and extended loving family in the U.S. and Iran.

Kevin Kamps, Radioactive Waste Watchdog, Beyond Nuclear.

WISE/NIRS NUCLEAR MONITOR

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

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

Receiving the WISE/NIRS Nuclear Monitor

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

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

WISE AMSTERDAM/NIRS

ISSN: 1570-4629

Reproduction of this material is encouraged.
Please give credit when reprinting.

Editorial team: Dirk Bannink and Peer de Rijk.

With contributions from: WISE Amsterdam, Diet Simon, Greenpeace, Beyond Nuclear, MKG Sweden and Laka Foundation.

Next issue of the Nuclear Monitor (#684) will be mailed out on February 26, 2009.

Please note:

The "Elfi Gmachl Foundation for a Nuclear-free Future" / PLAGE-Salzburg supports the Nuclear Monitor financially.

WISE/NIRS offices and relays

WISE Amsterdam

P.O. Box 59636
1040 LC Amsterdam
The Netherlands
Tel: +31 20 612 6368
Fax: +31 20 689 2179
Email: wiseamster@antenna.nl
Web: www.antenna.nl/wise

NIRS

6930 Carroll Avenue, Suite 340
Takoma Park, MD 20912
Tel: +1 301-270-NIRS
(+1 301-270-6477)
Fax: +1 301-270-4291
Email: nirsnet@nirs.org
Web: www.nirs.org

NIRS Southeast

P.O. Box 7586
Asheville, NC 28802
USA
Tel: +1 828 675 1792
Email: nirs@main.nc.us

WISE Argentina

c/o Taller Ecologista
CC 441
2000 Rosario
Argentina
Email: wiseros@ciudad.com.ar
Web: www.taller.org.ar

WISE Austria

c/o Plattform gegen Atomgefahr
Roland Egger
Landstrasse 17
4020 Linz

Austria

Tel: +43 732 774275; +43 664 2416806
Fax: +43 732 785602

Email: post@atomstopp.at
Web: www.atomstopp.com

WISE Czech Republic

c/o Jan Beranek
Chytlaky 24
594 55 Dolni Loucky
Czech Republic
Tel: +420 604 207305
Email: wisebrno@ecn.cz
Web: www.wisebrno.cz

WISE India

42/27 Esankai Mani Veethy
Prakkai Road Jn.
Nagercoil 629 002, Tamil Nadu
India
Email: drspudayakumar@yahoo.com;

WISE Japan

P.O. Box 1, Konan Post Office
Hiroshima City 739-1491
Japan

WISE Russia

P.O. Box 1477
236000 Kaliningrad
Russia
Tel/fax: +7 95 2784642
Email: ecodefense@online.ru
Web: www.antiatom.ru

WISE Slovakia

c/o SZOPK Sirius
Katarina Bartovicova
Godrova 3/b
811 06 Bratislava
Slovak Republic
Tel: +421 905 935353
Email: wise@wise.sk
Web: www.wise.sk

WISE South Africa

c/o Earthlife Africa Cape Town
Maya Aberman
po Box 176
Observatory 7935
Cape Town
South Africa
Tel: + 27 21 447 4912
Fax: + 27 21 447 4912
Email: coordinator@earthlife-ct.org.za
Web: www.earthlife-ct.org.za

WISE Sweden

c/o FMKK
Barnängsgatan 23
116 41 Stockholm
Sweden
Tel: +46 8 84 1490
Fax: +46 8 84 5181
Email: info@folkampanjen.se
Web: www.folkampanjen.se
c/o FMKK

WISE Ukraine

P.O. Box 73
Rivne-33023
Ukraine
Tel/fax: +380 362 237024
Email: ecoclub@ukrwest.net
Web: www.atominform.org.ua

WISE Uranium

Peter Diehl
Am Schwedenteich 4
01477 Arnsdorf
Germany
Tel: +49 35200 20737
Email: uranium@t-online.de
Web: www.wise-uranium.org

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

TPG Post

Port betaald

WISE/NIRS NUCLEAR MONITOR

c/o WISE Amsterdam
PO Box 59636
1040 LC Amsterdam
Netherlands

**PRINTED MATTER
MATTÈRE IMPRIME**

