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MONITORED THIS ISSUE:

RESTART OHI REACTORS

On May 29, the Japanese Prime Minister Noda has announced his decision to order the restart two nuclear reactors in the town of Ohi in the prefecture of Fukui in Western Japan. He also claimed that nuclear energy will remain an important source of energy for Japan also in the future, thereby reconfirming Japan's nuclear energy policy. Noda even increased political pressure in a televised broadcast to the nation on June 11 by saying: No nuclear power – no Japan: "Japanese society cannot survive" without restarting Ohi reactors 3 and 4.

(751.4245) WISE Amsterdam - Prime Minister Noda claimed on May 29, that the central government is winning the understanding of local authorities. On June 1 over a 1,000 people demonstrated outside the prime minister's office. A few days later 4,000 people marched in Tokyo against the restart and more than 7.5 million Japanese people signed a petition for a nuclear-free Japan. A call for international solidarity and pressure on the Japanese government by sending faxes to the local Japanese embassies, not to restart nuclear reactors comes from the large anti-nuclear organizations CNIC, FoE Japan, Green Action, No Nukes Asia Forum, Peace Boat and Shut Tomari.

On June 12, a group of 134 residents in eight central and western prefectures filed a lawsuit demanding that the Japanese government order a halt restart of operations of Ohi 3 & 4, claiming that the reactors have not even met existing quake-resistance standards that are now under review.

Pressure to okay restart

In a meeting in April, Prime Minister Noda and Cabinet ministers concerned, confirmed the safety of the Ohi reactors and concluded that restarting the reactors is appropriate, but the reactivation process came to a standstill. Then things took a turn: During a meeting on May 30 of the Union of Kansai Governments, nuclear disaster management minister Goshi Hosono reaffirmed the reactors' safety and vowed to create a special monitoring system that would see a senior vice industry minister and

other government officials stationed at the Ohi plant.

In response, the Union of Kansai Governments issued a statement demanding the restart of the reactors be only a "limited" measure, apparently indicating the union would accept the reactivation if the reactors operate during the summer only. However, Fukui Gov. Issei Nishikawa vehemently opposes Osaka's Mayor Toru Hashimoto, who previously led the opposition to restarting the reactors, saying that his suggestion to run the reactors only in the summer "arbitrary and opportunistic, and [his opinion] is hardly worth discussing." Noda ruled out temporary restart, too.

Over the past few months, intense lobbying of political leaders by Kansai Electric Power Co. and threats by major corporate supporters to relocate outside the region were cited by the Union of Kansai Governments as reasons for caving in. Osaka Mayor Toru Hashimoto admitted defeat but said he had done all he could as mayor. "The pressure from Kansai's corporate leaders to restart the reactors was really strong," said Shiga Gov. Yukiko Kada, who had been one of the staunchest opponents of the restart. "Kepco put a lot of pressure on companies in the Kansai region, telling them that without the Ohi reactors, they would face rolling blackouts. Those firms, in turn, pressured Kansai-area politicians, saying that if there were blackouts they would have to relocate outside the Kansai region," according to Shigeaki Koga, a senior member of a committee appointed by Osaka Mayor

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Toru Hashimoto to look into the city's energy strategy.

More than 30 percent of lawmakers from the Democratic Party of Japan have expressed opposition to the central governments push to restart two nuclear reactors. A letter of opposition signed by 117 DPJ members, including former party leaders Ichiro Ozawa and Yukio Hatoyama, was submitted to Prime Minister Yoshihiko Noda on Tuesday, urging him to exercise "greater caution". "Most of the public are of the opinion that we should overcome this summer's energy needs through conservation and flexibility," the petition said, adding that the party remains split on the issue.

The prime minister and three cabinet members with final say on the restart may give the go-ahead as early as June 16, the Kyodo News agency reported, citing unnamed officials. Including

inspection and maintenance, it will take about 1-1/2 months for the two reactors at the Ohi plant to operate at full capacity.

According to a June 12, editorial of the Mainichi newspaper, Noda's statements that "the livelihoods and daily lives of the Japanese people cannot be sustained if reactors are only restarted for the summer," and "from the energy security point of view, nuclear power is very important", leave true national debate on this issue behind in the dust. The newspaper continued by saying that of course lives could be at stake if Japan is hit with sudden blackouts from a lack of electricity and industry will also be affected, however, it is known for more than a year that the country needs measures to deal with summer power shortfalls, and both the government and Kansai Electric have been negligent in developing those measures. "And though these parties ought to be

reflecting on and apologizing for their negligence, all we see them doing is fanning the flames of anxiety." Concluding: "there is a major push on now to save electricity, cut down on peak usage, and create flexibility in the power system. To force the restart of the Ohi plant reactors even amid all these efforts would be to crush the fragile bud of energy reform now growing in society."

Sources: The Daily Yomiuri, 1 June 2012 / Reuters, 1 June 2012 / Enformable, 7 June 2012 / Bellona Foundation, 11 June 2012 / International Business Times, 11 June 2012 / Mainichi, 12 June 2012

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JORDAN'S NUCLEAR PROGRAM DERAILED?

On May 30, during a Lower House session, 36 out of the 63 MPs present voted in favor of a recommendation by the Energy and Mineral Resources Committee to bring to a standstill Jordan's nuclear program which, it said, "will drive the country into a dark tunnel and will bring about an adverse and irreversible environmental impact". Jordan Atomic Energy Commission Chair Khaled Toukan, under pressure because of insulting nuclear opponents, stated Jordan's nuclear program will be unaffected.

(751.4246) WISE Amsterdam - On January 10, 2012, after a debate in Parliament about the cost of the nuclear reactor, a majority of deputies voted down a request to form an investigative committee into the nuclear program, opting instead to refer the case to the House Energy and Mineral Resources Committee for examination.

In its final report, which was released the week before, the Energy Committee accused the Jordan Atomic Energy Commission (JAEC) of deliberately "misleading" the public and officials over the Kingdom's nuclear program by "hiding facts" related to the cost of the project. Specifically, the Energy and Mineral Resources Committee has accused JAEC of understating the costs of the nuclear reactor. The commission has said that a 1,000-megawatt reactor will cost US\$5 billion, but the committee says it has provided no information on the costs of water cooling, the electricity to operate the project, nuclear waste storage and decommissioning.

Ahead of the May 30 vote, several deputies insisted that the "hazardous and costly" nuclear program be suspended, calling on the government to switch to other environment-friendly energy-generating projects such as the solar and wind power.

Citing Jordan's lack of water resources, Balqa MP Mahmoud Kharabsheh, who launched the inquiry into the nuclear program, said that the project will add new burdens to the already fragile budget, and called for resorting to clean alternatives to address the country's energy dilemma. "Financially and geographically speaking, Jordan is incapable of starting a nuclear program," said Irbid Deputy Zeid Shqeirat who voiced his "wholehearted" support for all the committee's recommendations.

At the same day, May 30, a majority of deputies voted for approving the Energy Committee's recommendation to suspend uranium exploration in the

Kingdom until a feasibility study is conducted. In its report, the parliamentary committee also accused JAEC Chairman Khaled Toukan of issuing misleading statements that emphasize the economic feasibility of uranium mining in Jordan "despite the fact that no feasibility study has been conducted yet".

"Observing the principle of confidentiality of information, as stipulated in the agreement with AREVA, cannot be an excuse to keep deputies in the dark unless there is something JAEC intends to hide from the people and the Lower House," reads the report.

The government is required to abide by the committee's recommendations that were approved by a majority of deputies.

A nice example of how to neutralize opposition can be found in the reaction of the Jordan Atomic Energy Commission. The JAEC says it supports the stipulations set by the legally binding motion,

but say Jordan's nuclear program will be unaffected by the motion because the project's activities fall in line with lawmakers' demands.

JAEC chairman Khaled Toukan said the motion will not impact ongoing uranium exploration efforts in the central region, noting that an economic feasibility study, due to be completed in August, will be the deciding factor in the uranium mine's construction. Toukan described the call for halting all work to construct the nuclear reactor as "premature", noting that the commission has yet to narrow in on a reactor site or vendor. "As far as we are concerned, we support this vote and we will continue as planned." Toukan said.

Khalid Tougan

Meanwhile, Khalid Toukan, chief of Jordan's nuclear commission and godfather of the kingdom's nuclear program has come under increasing pressure to resign for allegedly making an insulting reference to local tribes. Toukan, a former deputy prime minister and of education, is accused of calling the tribal leaders and other opponents of the country's ambitious nuclear program "donkeys" and "garbage collectors." The remarks occurred in a recording of unknown origin and are directed at local tribes in north Jordan for opposing the nuclear program. The record was

probably made a year ago but leaked out only now, spreading in local media like wildfire.

Toukan has questioned the authenticity of the recording, saying it was fabricated as part of a smear campaign targeting the kingdom's nuclear drive.

He played the 'foreign involvement' card (like many do under the same circumstances) by accusing a cabal of international powers, comprising some 14 foreign governments and multinational companies (!), of conspiring against the kingdom to abort the program.

Parliament scheduled a session on May 29, in which it was supposed to vote on the dismissal of Toukan from his post after the accusations emerged. But, according to government sources, it backed off at the last minute under pressure from the royal court. Despite the palace's intervention, the pressure to strip Toukan of his post and put him on trial for alleged corruption and mismanagement is unlikely to let up.

Nuclear program off track

Jordan's nuclear energy program has already been delayed considerably. In April 2007, the parliament decided to allow the construction of nuclear reactors and establish a nuclear program.

Plan was to have a first reactor online in 2015. A year later construction was planned to start in 2012 and Aqaba was named as location. In early 2012, Mafrqa, 40 km northeast of the capital Amman was named as site for the first reactor.

In March 2010, Toukan announced that Jordan would select the technology for its first nuclear reactor "within the next year". Currently Jordan is scheduled to announce the site of its first nuclear reactor and the technology to be used by the end of 2012. The final agreement to build the nuclear reactor is scheduled to be signed in the second half of 2013.

In April, the JAEC shortlisted Russia's Atomstroyexport and a French-Japanese consortium consisting of Areva and Mitsubishi Heavy Industries as candidates to build the country's first nuclear reactor.

Environmentalists have been opposing the nuclear program over the last years, staging demonstrations and organizing people.

Sources: Trouw (NI), 26 August 2007 / Xinhua, 22 December 2008 / Jordan Times, 15 February 2012 / Jordan Times, 16 & 30 May 2012 / Xinhua News Agency, 30 May 2012 / Jerusalem Post, 2 June 2012

'STOP NUCLEAR POWER IN AFRICA'

On May 29, Greenpeace Africa activists dressed in nuclear emergency suits dumped marked nuclear waste bags and placed look-a-like nuclear barrels at the entrance of the Industrial Development Corporation (IDC) building. Greenpeace demanded a halt to discussions aimed at expanding nuclear power generation not only in South Africa but also the rest of the African continent.

(751.4247) WISE Amsterdam - In the early morning protest, Greenpeace Africa activists blockaded the premises of the IDC where the conference on 'Nuclear power's future for Africa' was taking place. The conference was to be opened by South Africa's Energy Minister Dipuo Peters and attracted high-ranking delegates from across Africa. Shortly after chaining themselves to the gates, aggressive security guards beat the locks to break them and forcefully dragged activists off into their security office. Meanwhile as different activists offloaded nuclear bags to further block the entrance, security guards began flinging bags around, and started using them for a pillow fight with journalists and photographers. Shortly after it was announced inside the conference venue

that the Minister of Energy would no longer be attending the conference, and her speech was read by a representative.

"Minister Peters' support to expand nuclear power in Africa is extremely irresponsible given the socio-economic challenges prevalent on the continent" said Greenpeace Africa climate and energy campaigner Ferriall Adam. "As a continent we should be learning from what history has shown about nuclear power: It is a dirty and dangerous source of energy, and one that will always be vulnerable to the deadly combination of human errors, design failures, and natural disasters," added Adam. "In South Africa, the nuclear process has been marked by secrecy

and non-transparency. Key questions around the design, cost and safety are unanswered. The government's dream of becoming a nuclear power will end up as a nuclear nightmare and should stop now before it is too late."

At the conference, Deputy President Kgalema Motlanthe stressed the necessity of replacing coal with other energy sources, particularly nuclear energy. With that in mind, the country would build a large nuclear plant, Motlanthe said in a video message to the conference. He highlighted the need to produce electricity in other parts of the country to spread the electricity production points around the national grid. "This is a strategically sensible approach, which requires us to use

other energy sources in addition to coal. Nuclear power is ideal in this sense, because we can build large nuclear power plants at points around our southern coastline, and potentially elsewhere in the future," he noted, ignoring the fact that it is obvious large nuclear power plants are not the best way to decentralize electricity production. (Developing

the smaller high temperature reactors – PBMR- in South Africa failed miserably.)

In its integrated resource plan, the South African government aims to increase the nuclear output to 9.6 GW by 2029. South Africa has the African continent's only nuclear power station at Koeberg, with two reactors (total 1.8 GW).

Sources: iafrica, 29 May 2012 / Xinhua, 29 May 2012 / IAEA, PRIS Country details South Africa
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FINANCING REACTORS AND THE FUKUSHIMA DISASTER

Investors in nuclear power are being sold precarious and potentially damaging investments because the industry's risks are regularly being overlooked or underestimated. Using the enormous economic losses surrounding the triple meltdown at Tepco's Fukushima Daiichi nuclear plant as an example, a new Greenpeace/BankTrack report shows how financial valuations and investment decisions had not taken well-known and systemic problems into account.

(751.4248) Greenpeace & BankTrack - The report 'Toxic Assets: nuclear reactors in the 21st century', looks at the March 2011 Fukushima nuclear disaster from an investors' point of view. It identifies the long-known technological, management, governance and other institutional deficiencies that were instrumental in turning a predicted natural misfortune into a nuclear nightmare. The owner of the Fukushima Daiichi plant, Tokyo Electric Power Company (TEPCO), lost 90% of its market capitalization, had its bonds rated as junk and is currently in the process of being at least partly nationalized. Investors and financiers of nuclear utilities all over the world saw their investments eroded.

Had analysts and credit-rating agencies looked beyond short-term cash flows and paid attention to the many early warnings, they would have been able to save investors from major losses. These red flags included warnings about:

- * Crucial vulnerabilities in the Fukushima reactor design;
- * Substantial governance issues and weak management characterized by major frauds and cover-ups;
- * Collusion and loose regulatory supervision; and
- * Well-understood and ignored earthquake and tsunami warnings.

All of these warnings had been publically highlighted years, often decades, before the nuclear disaster, and should have been taken seriously not only by nuclear authorities but by analysts and investors as well. Still, Tepco continued to benefit from high credit ratings, supportive analyst recommendations and cheap financing right until the Fukushi-

ma nuclear accident. Like Japanese nuclear authorities, financial 'authorities' also missed the many opportunities to force changes on the company. It seems regular dividends were enough to relax the vigilance of analysts who simply ignored major 'fundamental' risks and their fiduciary duty towards their investor clients.

Investors and financiers kept throwing good money after Tepco. Dozens of banks provided Tepco with at least €54bn of low-cost capital through bond issues, corporate loans and a share issuance between 2000 and 2011. The potential for similar catastrophic nuclear disasters and disastrous investment decisions is not limited to Tepco or Japan. Existing and planned new reactors all over the world are inherently at risk from any combination of:

- * Similar mistakes in technology design that proved devastating at Fukushima;
- * Substantial governance and management issues, and human error;
- * The lack of effective independent supervision; and
- * The threat of earthquakes, tsunami, floods and other natural disaster risks.

Nuclear power plants are potentially toxic assets for their investors and financiers. Quite uniquely, they can give rise to liabilities that can exceed their owner's equity a hundred-fold or more. The probability of a devastating accident is around one major disaster in a decade based on the five core meltdowns since the 1950s, and this number does not even take into consideration the growing risks of ageing reactors.

Nuclear assets are also dangerous for investors even in the absence of a nuclear disaster. New reactor builds have been a clear investor 'no-go' for at least a decade. Recently, even existing plants have come under increasing pressure from phase-out decisions, early retirements, large-scale regulatory and liability changes, and shrinking taxpayer and government support. The future of nuclear energy will be highly influenced by three tectonic changes:

- * Post-Fukushima regulations that will require additional safety investments, shorter lifespans, higher operating and decommissioning costs, and stricter liability systems;
- * Renewable energy, with falling costs and more installed capacity than nuclear plants¹, is pushing nuclear out from the merit order and leading to lower plant utilization; and
- * A strong reduction in subsidies, credit guarantees and other state supports to nuclear of earlier generous, but now highly indebted governments.

The report 'Toxic Assets: nuclear reactors in the 21st century' is written by Gyorgy Dallos & Lauri Myllyvirta and available at: www.greenpeace.org/international/toxicassets

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INTERNATIONAL ANTI-NUCLEAR CAMP AND NETWORK GATHERING

From July 30 to August 3, 2012 you are invited to join the international Anti-nuclear Camp and Network Gathering in Döbeln, Middle Saxony, in Germany: five days of workshops and presentations, skill-sharing and networking, excursions and public events. It will be a chance to meet activists and interested people from several regions across Europe to share experiences and ideas with each other and network for mutual projects and actions.

(751.4249) Nuclear heritage Network - Everyone is welcome at the anti-nuclear camp to offer workshops or presentations on topics they are working with. Please feel invited to talk about your current struggles, upcoming campaigns and actions. The gathering also aims to share our skills together in the fields of action, campaigning, investigating etc. It would be wonderful if you have issues you want to bring up.

We plan to visit an abandoned uranium mine at the Czech border not too far from the camp. There we will meet critics and learn about the challenges connected to uranium mining.

At the project house in Döbeln you will also find the International Network Office and the Morsleben Archive, a great independent collection of documents on the Morsleben nuclear waste dump. The ecological garden will provide us with vegetables and fruits.

How to join the camp?

To be here on time, you should arrive at least one day earlier, July 29. Please announce your participation as early as you can. Some days before the camp start date we will send you the booklet with program and information about the gathering. You can stay at the camp site and help cleaning up until August 4. A basic setting of vegan food will be

provided. We will ask you for donations based on your own understanding of costs for participating in the camp. We will cook together. You also can buy drinks like lemonade and juices from the local foodco-op. If you can't afford your travel costs, contact us to talk about the possibility of an option to cover a share of your travel expenses.

Anti-nuclear Action Summer

We invite you to make this summer an anti-nuclear action summer. A number of international events and actions will take place between July and September in Central and Northern Europe, partly organized by activists of our network, too.

An anti-nuclear camp will take place in Lubiato, in the Pomerania Region of Poland on July 23 -29 close to the proposed site of the first Polish atomic power plant. Taking a bus on July 28 will bring you on time to the international gathering in Germany.

Directly after the camp in Germany, you can travel together with other activists to Finland to the Blockade and Action Camp in Olkiluoto. We will travel by bus and ferry to arrive in time for the protest camp on August 6-13 with a publicly announced blockade of the Olkiluoto nuclear power plant on August 11.

An anti-nuclear sailing trip and bike tour starts ten days later in Stockholm across the sea to Greifswald (D). Between August 26 and September 9, the sailing boat and at the same time a bike tour on land will inform, do actions and meet local activists.

The Nuclear Heritage Network is an international informal network of anti-nuclear activists. We want to connect activists worldwide, provide information regarding nuclear issues and anti-nuclear activities in many countries whilst developing projects and campaigns. Big actions like the Olkiluoto Blockade and the 2010 Baltic Sea Info Tour were results of our gatherings.

We, the organizers of this gathering, are active with several anti-nuclear grassroots groups and organizations across Europe. Connected through the Nuclear Heritage Network, we arranged several network gatherings in the past - in France, Germany, Slovenia, Finland and Czech Republic.

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EPR: OUTSTANDING DESIGN ISSUES

In both the United States and United Kingdom, the EPR-design is awaiting approval from the nuclear regulatory bodies. A whole list of outstanding issues have to be addressed by EDF and Areva in the UK and in the US, a new revised schedule shows the EPR is unlikely to receive design certification by the nuclear regulator before the end of 2014.

(751.4250) WISE Amsterdam - On 14th December 2011 the United Kingdom's Office for Nuclear Regulation (ONR) and Environment Agency granted interim Design Acceptance Confirmations (iDACs) and interim Statements of Design Acceptability (iSoDAs) for the UK EPR and the AP1000 reactor designs. The ONR's interim approval for the UK

EPR came with a long list of caveats - 31 so-called "GDA Issues".

UK: Generic Design Assessment

Since then EDF and Areva have closed out only one of the 31 "GDA Issues" According to the ONR's latest Generic Design Assessment (GDA) quarterly report - issued on 24th May for the

period ending March 31 - EDF and Areva have fallen substantially behind in the number of responses to the GDA Issue resolution to date. ONR said the shortfalls in deliverables "are having an effect on our progress and on our ability to use the (outside) technical support contractors we had programmed to support our work, as their availability is

not always guaranteed when the original assessment dates have been missed."

The GDA Issue resolution plan Areva and EDF agreed to with ONR called for all GDA Issues to be resolved by November 2012. This will now extend into 2013. Areva and EDF have committed to deploy additional resources and submit a revised GDA Issue resolution plan, but ONR is still waiting to receive it. Building magazine reported in its May 25 issue, that the process is three months behind schedule.

Among the 30 remaining GDA Issues that have yet to be closed is one on the EPR's control and instrumentation (C&I) system, which was the subject of an unprecedented joint regulatory letter from the UK, France and Finland in 2009. The French safety regulator, the Autorité de Sûreté Nucléaire, on April 16 removed its reservations about the digital C&I system for the EPR, but the ONR is still waiting for some deliverables due from EDF and Areva on the C&I GDA Issues. The process of working to close out the 31 "GDA Issues" is leading to some design changes, according to ONR. "We have received a number of modification proposals to amend the EPR design to take account of the solutions proposed to some of the GDA Issues," ONR said in its latest quarterly report, citing two examples. There are two related design changes to the main coolant loop pipework and both improve the quality of inspection achievable during construction and operation.

US: delay EPR certification

Design certification in the US is also likely to be delayed: the EPR is unlikely to receive design certification by the US nuclear regulator, NRC, before the end of 2014, and even that will "present a challenge". Design certification for the EPR had earlier been targeted for June 2013. Areva submitted its application for certification of the EPR design in December 2007 aiming to clear the way for reactors of that generic type to be built anywhere in America subject to site-specific licensing procedures and the issue of a combined construction and operating licence (COL). Four COL applications referencing the EPR have already been submitted to the NRC.

The NRC has issued a new review schedule to allow Areva to respond to outstanding technical issues previously raised by the NRC and to provide additional information related to new post-Fukushima requirements issued by the commission in February.

Under the revised schedule, Areva is expected to submit to the NRC, by 30 August 2013, details about how the EPR design meets the post-Fukushima requirements and all outstanding technical issues should be resolved by 1 November 2013.

Matthews told Areva that there is "no margin" in the schedule to allow for the timing of "critical milestones" to be changed and still achieve certification

by the end of 2014. He added, "While the staff has increased its attention to meeting the schedule, we will ensure that the design meets all applicable NRC regulatory requirements before we proceed to certification rulemaking."

In July 2010, the NRC highlighted two areas of concern related to the EPR design. These centered on design complexity and independence issues: each safety division within the system must be able to perform its function without relying on data from outside and must also be protected from adverse external influences. Areva needs to demonstrate to the regulator's satisfaction that these issues have been addressed, and show that data exchange between systems will not adversely affect safety.

Areva has already described proposed design changes intended to reduce the level of complexity as well as to address some of the intercommunication issues. However, Areva has notified the NRC of some areas where its feels that design changes are not advisable, and these appear to be the areas which the regulator feels may not meet its standards.

Source: NuClear News No.41, June 2012 / World Nuclear News, 31 May 2012

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WATER SUPPLY – A LIMITING FACTOR IN ENERGY PRODUCTION

Higher water temperatures and reduced river flows in Europe and the United States in recent years have resulted in reduced production, or temporary shutdown, of several thermoelectric power plants, resulting in increased electricity prices and raising concerns about future energy security in a changing climate. Thermoelectric (nuclear or fossil-fuelled) power plants, supply 91% and 78% of total electricity in the US and Europe respectively, thus disruption to their operation is a significant concern for the energy sector.

(751.4251) IIASA - A study published June 3, 2012 in *Nature Climate Change* projects further disruption to supply, with a likely decrease in thermoelectric power generating capacity of between 6-19% in Europe and 4-16% in the United States for the period 2031-2060, due to lack of cooling-water. The likelihood of extreme (>90%) reductions in thermoelectric power generation will, on average, increase by a factor of three.

Compared to other water use sectors (e.g. industry, agriculture, domestic use), the thermoelectric power sector is one of the largest water users in the US (at 40%) and in Europe (43% of total surface water withdrawals). While much of this water is 'recycled' the power plants rely on consistent volumes of water, at a particular temperature, to prevent overheating of power plants. Reduced water availability and higher water temperatures - caused by increa-

sing ambient air temperatures associated with climate change - are therefore significant issues for electricity supply.

According to the authors, while recirculation (cooling) towers will be affected, power plants that rely on 'once-through cooling' are the most vulnerable. These plants pump water direct from rivers, lakes, or the sea, to cool the turbine condensers, water is then returned to its source, often at temperatures

significantly higher than when the water entered the plant, causing yet another problem, that of downstream thermal pollution.

"Higher electricity prices and disruption to supply are significant concerns for the energy sector and consumers, but another growing concern is the environmental impact of increasing water temperatures on river ecosystems, affecting, for example, life cycles of aquatic organisms," says Michelle van Vliet, from Wageningen University and Research Center in the Netherlands.

Both the US and Europe have strict environmental standards with regard to the volume of water withdrawn and the temperature of the water discharged from power plants. Thus warm periods coupled with low river flows can lead to conflicts between environmental objectives and energy production. Additionally, given the substantial investments and the long-life expectancy (50-60 years) of thermoelectric power plants, such projections are important for the electricity sector such that it can adapt to changes in cooling water availability and plan infrastructure investments accordingly.

One adaptation strategy is to reduce reliance on freshwater sources and replace with saltwater, according to co-author Pavel Kabat, Director/CEO

of the International Institute for Applied Systems Analysis (IIASA). "However given the life expectancy of power plants and the inability to relocate them to an alternative water source, this is not an immediate solution but should be factored into infrastructure planning. Another option is to switch to new gas-fired power plants that are both more efficient than nuclear- or fossil fuel- power plants and that also use less water."

The study focused on 61 power plants in central and eastern U.S. and 35 power plants in Europe, both nuclear and coal-fired power plants with different cooling systems were included. Considering the projected increase in demand for electricity in these regions and globally, the study reinforces the need for improved climate adaptation strategies in the thermoelectric power sector to ensure future energy security and environmental objectives are not compromised.

The projections are based on new research that combines hydrological and water temperature models over the twenty-first century with an electricity production model. The models consider two contrasting scenarios for the energy sector - one of low levels of technological change in the energy sector and one that assumes environmental sustainability and a rapid transition to renewable energy.

The peer reviewed full report is available at: www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate1546.html

The research was undertaken by an international team of scientists from the Earth System Science and Climate Change Group, Wageningen University and Research Centre; The Netherlands, The Department of Civil and Environmental Engineering, University of Washington, Seattle, USA; Forschungszentrum Jülich, Institute of Energy and Climate Research-System Analyses and Technology Evaluation, Jülich, Germany; and the International Institute for Applied Systems Analysis, Laxenburg, Austria.

Reference: Vulnerability of US and European electricity supply to climate change. Michelle T. H. van Vliet, John R. Yearsley, Fulco Ludwig, Stefan Vögele, Dennis P. Lettenmaier and Pavel Kabat. *Nature Climate Change*, 10.1038/NCLIMATE1546, June 3 2012

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SWEDISH N-WASTE FUND GROSSLY UNDERFINANCED

The Swedish Nuclear Waste Fund is showing a deficit of at least 30 thousand-million SEK (€ 3.4 bn), perhaps more. The deficit was turned up by a study group under the auspices of the Swedish Nuclear Safety Authority (SSM). It was to report its findings to date to the Government 31 May, but has now asked for a one-year extension. The group strongly recommends tripling the fees producers of nuclear energy pay into the fund, from 0.02 SEK/kWh to 0.06.

(751.4252) WISE Sweden - The study, carried out in collaboration between SSM, the Nuclear Waste Fund and the National Debt Office, was commissioned in October 2011. The actual purpose of the study was to evaluate the need to revise the laws pertaining to the financing of Swedish nuclear waste management, but in the process the deficit and its implications became a major concern. The purpose of the extension is to allow time for a more global evaluation of the deficit and possible need to revise the law. The issues are intertwined. It would be wrong, they argue, to treat the issues separately. The new deadline is 31 May 2013.

In Sweden, all aspects of nuclear waste management – interim and final storage of nuclear fuel waste, the costs of decommissioning and demolition of nuclear reactors, the costs of regulatory authorities pertaining to nuclear waste management, and the entire EIA process surrounding plans for the final repository – are paid for through drafts on the Nuclear Waste Fund.

The balance of the Fund – 48 thousand-million SEK at present – is made up of the sums paid in by the nuclear power companies, based on a fee of 0.02 SEK/kWh. The fee is calculated on the basis

of an expected reactor life-time of 40 years. The 0.02 SEK fee – raised by the Government from 0.01 SEK/kWh as recently as December 2011 – is only half the rise recommended by the regulator in October of that year.

Management of the fund is closely regulated; investments are limited to government bonds, which currently offer very low interest rates. Low interest rates are one of two major factors behind the critical deficit. But essentially, the simple fact is that too little money is being paid in. There is no buffer, and Daniel Barr, vice-chair of the Nuclear Waste Fund and head of department at the

Debt Office, doubts that the specified guarantors will be able to fill the gap in any meaningful way.

Legislative background

The Swedish approach to financing follows the 'polluter pays principle'; each company pays into the Fund according to the amount of waste its operations give rise to. A memorandum issued by the SSM in 16 May, recalls two key passages in the documents surrounding the two laws in focus here:

"The aim of the financing system shall be, to the extent possible, to minimize the risk that the government will have to assume the financial responsibilities that the law assigns to the concession holders [owners of nuclear reactors]" (Government Bill 2005/06:183 p 21);

and
"The fundamental principle for financing of nuclear waste management is that the nuclear industry – not the tax-payers – shall cover the costs" (SOU 2004:125 p 9).

The memorandum also points out that the financial responsibility extends up to and through the final closure of

the repository, whether or not nuclear energy is still being produced in Sweden. Finally, Swedish law authorizes the government to require the companies to specify guarantors that will step in, should the companies be unable to meet their financial responsibilities.

Controversial

Sveriges Radio reports that the nuclear industry – where government-owned Vattenfall is a key player – reacted strongly to the recommendation of a 0.06 SEK/kWh fee, which would cut deeply into the companies' profit margin and thus make them less attractive to investors.

The Government's reception of news of the deficit has been cool. Questions have been raised as to whether the mandate of the study group actually extends to the issue of the Fund's balance. Minister for the Environment Lena Ek told news reporters at Sveriges Radio that she would prefer not to raise the fee until 2014, the next regularly scheduled opportunity to adjust the fee. (The Government can, however, adjust the fee whenever it deems necessary.)

The day after the SSM requested the one-year extension, Daniel Barr, warned: "Unless the nuclear operators' fees are raised, Swedish taxpayers will have to foot the bill for managing nuclear fuel waste." Which would amount to substantial subsidization of nuclear energy on the part of present and future generations.

Sources: SSM Request for postponement, 10 May 2012 (SSM 2011-4690-3) (in Swedish only), MKG Regeringen höjde inte kärnavfall-savgifterna lika mycket som SSM ville. www.mkg.se. News release posted 22 December 2011, SSM Memorandum 16 May 2012: Nuclear waste fee for reactor owners (SSM2011-153-25) (in Swedish only), Sveriges Radio, Ekot 31 maj 2012 (morning radio news), Sveriges Radio, Ekot 1 juni 2012 (morning radio news)

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IN BRIEF

Nigeria signs agreement with Rosatom. Last issue we made a funny remark about Nigeria's announcement that it selected two sites for the construction of nuclear power reactors, but only a few days later the country signed a cooperation accord with Russia's Rosatom towards the construction of its first nuclear power plant. Rosatom chief Sergei Kiriyenko signed a memorandum of understanding with the chairman of the Nigerian Atomic Energy Commission, Franklin Erepamo Osaisai. Its terms will see the two countries "prepare a comprehensive program of building nuclear power plants in Nigeria," including the development of infrastructure and a framework and system of regulation for nuclear and radiation safety. Sergei Kiriyenko is quoted in Leadership newspaper to have said that the contract would cover the building of nuclear power plant (1200MW) worth about US\$4.5 billion (about N697 billion). In 2010 Nigeria said it aimed to have 1000 MW of nuclear generation in place by 2019 with another 4000 MW online by 2030. Although not all contracts Rosatom signed have materialized in the past, however, Nigeria is, one of the very few African countries pursuing a nuclear energy program.

World Nuclear News, 4 June 2012 / Leadership Newspapers (Nigeria), 13 June 2012

Fear nuclear safety is in stake in harsh competition for sales. Nuclear-reactor makers are offering prices too low to cover costs to win orders abroad in a strategy that puts earnings at risk, according to Andre-Claude Lacoste, head of the French Autorite de Surete Nucleaire regulator. "Export contracts for nuclear plants are being obtained at pure dumping-level prices," Lacoste fears that nuclear safety could be compromised in trying to win tenders. "Prices accepted by vendors and obtained by buyers are unsustainable," he said. "There aren't many tenders, which is why competitors are ripping each other off. It's already a serious matter, and we need to make sure that there's no dumping on safety on top of that."

Bloomberg, 6 June 2012

Academic study on IAEA. Just published: a new research report Unleashing the Nuclear Watchdog: Strengthening and Reform of the IAEA, by Trevor Findlay. The report is the outcome of the two-and-a-half year research project on "Strengthening and Reform of the IAEA" conducted by the CCTC and CIGI. The project aimed to carry out a "root and branch" study of the Agency to examine its current strengths and weaknesses and make recommendations for bolstering and, if necessary, reforming it. According to the preface this academic study of the Agency "is needed not just in the light of accumulating challenges to the IAEA's future and the increasing demands made on it by its member states, but because the Agency itself is demanding more

support and resources. At a time of financial stringencies, many of the countries that traditionally have offered such support seek proper justification for any increases." Findlay concludes that the IAEA is irreplaceable: "like the United Nations itself, if it did not exist it would have to be invented".

However, this report is a good source for general information about the Agency that was founded to "accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world," while ensuring, "so far as it is able," that this does not "further any military purpose".

Unleashing the nuclear watchdog is available at: www.cigionline.org/iaea

China: nuclear safety plan but no approval for new projects yet. China has approved a nuclear safety plan and says its nuclear power plants meet the latest international safety standards, though some plants need to improve their ability to cope with flooding and earthquakes, state media said on May 31. But the government has not made any decision on when to start approving new nuclear plant projects.

China suspended approvals of new nuclear power plants in the wake of Japan's nuclear crisis in March 2011 following a devastating tsunami, and ordered nationwide safety checks on existing plants and construction sites. It also pledged to review its nuclear power development plan. The State Council, China's Cabinet, now approved a nuclear safety plan for 2011-2015 in a meeting chaired by Premier Wen Jiabao. China also aims to enhance nuclear safety standards and lower the risks of nuclear radiation by 2020, the report said.

A nine-month safety inspection of China's 41 nuclear power plants, which are either operating or under construction, showed that most of China's nuclear power stations meet both Chinese and International Atomic Energy Agency standards, according to the report. However, some individual power plants need to improve their ability to prevent damage from serious accidents such as earthquakes, flooding or tsunami, it said.

Reuters, 31 May 2012

Switzerland: court rejects Mühleberg extension. BKW, the operator of the Mühleberg nuclear power plant, must submit a full maintenance plan, or shut down the plant in June 2013. The Federal Supreme Court has rejected BKW's request for an injunction, after earlier this year the Federal Administrative Court pulled Mühleberg's right to an unlimited permit. Federal environment officials had reasoned BKW could have an indefinite operating permit so long as the Federal Nuclear Safety Inspectorate was monitoring site maintenance and safety issues. The court ruled BKW needed to submit maintenance and safety plans, especially with known concerns over the site's cooling system, and cracks in the core shroud.

World Radio Switzerland, 29 May 2012

Lithuania opposes construction of N-plants close to its borders. On May 28, Lithuanian Foreign Minister Audronius Azubalis blasted plans by Russia and Belarus to build nuclear power plants close to its borders, accusing both of lax safety and environmental standards and "bypassing international safety and environmental standards." "This is not just an issue for Lithuania... it should be a matter of concern to all countries in this region. We should do everything possible to make these two projects develop according to international standards. It is vital," Azubalis said, following talks in Riga with Latvian Foreign Minister Edgars Rinkevics. Rinkevics offered a cautious endorsement of Azubalis' concerns. Asked by AFP what proof Lithuania had concerning the safety of the Russian and Belarusian projects, Azubalis said he had yet to receive satisfactory responses to written requests for information through official channels including the International Atomic Energy Agency (IAEA) and Espoo Convention Committee. The Lithuanian foreign ministry provided AFP with a document dated May 4 expressing "deep concern" over an alleged recent accident at Russia's Leningrad NPP-2 nuclear facility, which is still under construction. "The incident in Leningrad NPP-2 raises a number of serious questions about the safety of this and two other planned (plants) near Lithuanian borders and the capital Vilnius which are projected to be based on the same technology and possibly the same means of construction," the document states.

Lithuania and Latvia, together with Estonia and Japanese company Hitachi, have putative plans of their own to construct a joint nuclear power plant at Visaginas in northern Lithuania to replace the Soviet-era Ignalina facility which was shut down in 2009.

AFP, 28 May 2012

Flying into trouble at Sellafield. Unusual pathways by which radioactivity routinely escapes the confines of nuclear sites are well documented with one recent example to hit the headlines being the 6000 mile transportation of radioactive contamination by bluefin tuna from the polluted waters around the crippled Fukushima nuclear power plant to the coasts of North America. An even more recent case has however turned up very much closer to home – at Sellafield.

No stranger to unusual pathways for radioactivity - as 2000 Cumbrian feral pigeons and a host of seagulls will know to their cost - the site's latest victims have been identified as a number of swallows which, gorging on the mosquitos that flit over the waters of Sellafield's radioactive storage ponds, have taken up residence in Sellafield's transport section. As confirmed by the Environment Agency last week to a meeting of the Environmental Health Sub-Committee of the West Cumbria Sites Stakeholder Group, the

birds' droppings from around their roost/nesting sites have been found to be radioactively contaminated. Whilst neither the contamination levels nor the number of swallows involved was provided, the Environment Agency told the Committee that measures were being taken by Sellafield Ltd to tackle the mosquito problem.

CORE's spokesman Martin Forwood commented; "These much-loved and now radioactive birds and their offspring will unwittingly be carrying a highly toxic message from Sellafield when they migrate back to Southern Africa at the end of the summer - a distance at least equivalent to that recently undertaken by the bluefin tuna."

CORE press release, 6 June 2012

U.K.: Chernobyl restrictions sheep lifted after 26 years. Twenty-six years after the April 26, 1986, explosion at Chernobyl reactor 4, restrictions remained on 334 farms in North Wales, and eight in Cumbria. But as of June 1, the Food Standards Agency (FSA) regulations on these farms were lifted. In the aftermath of the 1986 Chernobyl disaster, when radioactive rain swept the UK, farmers saw their livelihoods and even their families threatened. Some 9,700 farms and four million sheep were placed under restriction as radioactive cesium-137 seeped into the upland soils of England, Scotland and Wales.

Before June 1, any livestock for breeding or sale had to be assessed with gamma monitors by officials from Defra or the Welsh government. Sheep found to exceed the legal radiation dose (1,000 Becquerel per kilo) were moved to the lowlands before sale, and had the farmers wanted to move their flock, they had to seek permission.

The FSA said the restrictions had been lifted because "the current controls are no longer proportionate to the very low risk". No sheep in Cumbria have failed the monitoring criteria for several years, and less than 0.5 per cent of the 75,000 sheep monitored annually in North Wales fail. But not everyone agrees with lifting the restrictions. An anonymous farmer with a flock of 1,000 ewes, was quoted in the Independent saying: "The feeling I have is that it should still be in place. The food should be kept safe."

Independent (UK), 1 June 2012

Australia: at last: Kakadu Koongarra victory. The Kakadu National Park in the Northern Territory is set to be expanded, with the inclusion of land previously earmarked for uranium mining known as Koongarra. The Northern Land Council (NLC) has agreed for a 1,200 hectare parcel of land containing rich reserves of uranium to be incorporated into the park. This looks like the final step in a long battle that Aboriginal traditional owner Jeffrey Lee has waged to protect his land from mining. The uranium-rich mining lease Koongarra was excised from Kakadu when the conservation area was established in the late 1970s. The lease is held by French company Areva, which wanted to mine the area for uranium. Two years ago, Mr Lee, the sole traditional owner of the land, called on the Federal Government to incorporate it into Kakadu. The Government accepted the offer and referred the matter to the NLC. The NLC conducted consultations and its full council has agreed to endorse Mr Lee's wishes. The council and land trust will now move to enter an agreement with national parks to incorporate Koongarra into Kakadu. The Koongarra area includes the much-visited Nourlangie Rock (Burrunggui/Anbangbang) and is important in the Rainbow Serpent and Lightning Man stories.

In June 2011, the Koongarra site was added to the World Heritage List during a meeting of the Unesco World Heritage Committee in Paris. The French nuclear energy company Areva, had unsuccessfully asked the committee to remove Koongarra from its agenda.

It is not known if Areva will attempt to take any action over the decision to include Koongarra in the Kakadu national park

Nuclear Monitor, 1 July 2012 / ABC, 1 June 2012

Japan: Smartphone capable of measuring radiation. On May 29, the Japanese company Softbank Mobile unveiled a smartphone capable of measuring radiation levels in a bid to respond to growing demand for dosimeters in the aftermath of the Fukushima nuclear disaster. Users can measure radiation levels by pressing and holding a button on the phone, and the device can be set to a constant measurement mode or plot readings on a map, according to Softbank.

The Pantone 5 107SH, manufactured by Sharp Corp., is equipped with a sensor that can measure between 0.05 and 9.99 microsieverts per hour of gamma ray in the atmosphere. The product is aimed at "alleviating as much as possible the concerns of mothers with children," the mobile operator said in a statement, adding it will go on sale sometime in mid-July or later.

Mainichi (Japan), 29 May 2012

Public acceptance – what holds back the nuclear industry? "Multiple structural barriers inside the nuclear industry tend to prevent it from producing a united pro-nuclear front to the general public. Efforts to change public opinion worldwide must deal with these real-world constraints." In an article called: Public acceptance – what holds back the nuclear industry? Steve Kidd (deputy director-general of the World Nuclear Association) is asking if "we have probably begun to reach some limits in employing a fact-based strategy to improve public acceptance of nuclear. Huge efforts have been made to inform people about nuclear by freely providing a lot of good information. But the message doesn't seem to hit home with many." He is explaining why and how to overcome this in an article in the May issue of Nuclear Engineering International.

In the next episode he will look at the possibilities of increasing public acceptance in more detail.

The article is available at: www.neimagazine.com/story.asp?sectioncode=147&storyCode=2062367

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.

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