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THREE MELTDOWNS AT FUKUSHIMA; EVIDENCE OF SEVERE DAMAGE BEFORE TSUNAMI HIT REACTORS

Despite the lack of coverage in the international media, the situation at the Fukushima Daiichi nuclear plant in Japan remains, in the words of the International Atomic Energy Agency's weekly bulletin, "very serious". Meanwhile, it's becoming more and more clear that, contrary to earlier assumptions, the reactors were damaged by the earthquake rather than the tsunami, although the earthquake "did not exceed design base values significantly".

(727.6132) WISE Amsterdam - According to the Tepco 6-9 months scheme to stabilize the Fukushima Daiichi reactors, announced on April 17, the utility expected a sustained drop in radiation levels at the entire plant by July. Following that, a cold shutdown of reactors No. 1, 2 and 3 may take place as early as October, the utility announced then.

But that was predicated on the notion that it could efficiently cool the fuel in several reactors – a harder task if water is leaking out. The company had long suspected that the containment vessels at two other reactors were breached and leaking, but it had hoped the No. 1 reactor was intact and therefore easiest to bring under control.

Tepco was able to better access the reactor on May 12, because workers had recently been able to get close enough to fix a water gauge. It showed that the water level in the reactor was much lower than expected despite the infusion of tons of water. Previous readings had shown the water level to be at 1.6 meters below the top of the fuel rods in the reactor core. As it turned out, these measurements were false. The actual water level was five meters below the top of the fuel rods, leaving them fully exposed.

Tepco has been pumping water into the pressure vessels of reactors 1, 2 and 3 for weeks in a bid to lower temperatures. The low level of water in reactor 1 indicates that the molten fuel might have created a hole in the bottom of the steel pressure vessel. Tepco general manager Junichi Matsumoto told a press conference: "There must be a large leak... The fuel pellets likely melted and fell, and in the process may have damaged... the pressure vessel itself and created a hole."

The discovery that the pressure vessel is leaking certainly complicates efforts to permanently stabilise the reactor and prevent the further spread of radiation.

Earthquake main reason for failures?
Meanwhile, evidence is growing that Unit 1's meltdown was initiated by the earthquake and only exacerbated by the ensuing tsunami. Bloomberg reports that a radiation alarm inside Unit 1 went off before the tsunami even arrived, indicating coolant already had been lost and fuel melting had begun. If true, this could also require a re-assessment of how quickly reactors can melt down. Tepco said May 16, that radiation levels inside Unit 1 were measured at 300 MilliSieverts/hour within hours of the earthquake - meaning that fuel melting already had begun. For melting to have begun that early, coolant must have been lost almost immediately. It's now believed that fuel melted and dropped to the bottom of the containment - melting a hole

MONITORED THIS ISSUE:

into it, within 16 hours. Most likely, a major pipe carrying cooling water to the core was damaged by the earthquake, which should lead to a new evaluation of the ability of key reactor components to withstand seismic events.

According to Arnie Gunderson (a former nuclear industry senior vice president, and energy advisor with 39-years of nuclear power engineering experience) of Fairewind Associates, who is citing a report by Siemens, Unit 4's fuel pool cracked from the earthquake, not from the tsunami.

The Nuclear and Industrial Safety Agency has so far said (as has the international nuclear industry) that the reactor withstood shaking but tsunami of an unexpected scale caused power loss, which led to an explosion.

On May 16, Tepco disclosed internal documents and data indicating the isolation condenser may have been manually shut down around 3 p.m. March 11 following the massive quake at 2:46 p.m. The plant was hit by tsunami around 3:30 p.m. The isolation condenser is designed to inject water into the reactor for at least eight hours after the main coolant system loses power, as happened March 11. "It is possible that a worker may have manually closed the valve (of the isolation condenser) to prevent a rapid decrease in temperature, as is stipulated by a reactor operating guideline," Tepco spokesman Hajime Motojuku told The Japan Times. A worker may have stopped the condenser to keep cold water from coming into contact with the hot steel of the reactor to prevent it from being damaged.

However, nuclear reactors are designed to withstand this procedure in case of an emergency, said Hiromi Ogawa, a former nuclear plant engineer at Toshiba Corp. According to Tepco, the isolation condenser's valve was confirmed open at 6:10 p.m. March 11 but it is unknown whether it was open between 3 p.m. and 6:10 p.m. The valve was confirmed closed at 6:25 p.m. and confirmed open again at 9:30 p.m. Finally, the condenser was shut down due to a pump malfunction at 1:48 a.m. March 12, roughly eight hours after the tsunami, matching the battery life of the isolation condenser.

Radiation leak before Tsunami?

Only a few days after the revelations about the failure of the cooling before the tsunami hit the plant, another revelation, with possible grave consequences, hit the media.

A radiation monitoring post on the perimeter of the Daiichi plant about 1.5 kilometers from the No. 1 reactor went off at 3:29 p.m., minutes before the station was overwhelmed by the tsunami that knocked out backup power that kept reactor cooling systems running, according to documents supplied by the company. The monitor was set to go off at high levels of radiation, an official said.

“We are still investigating whether the monitoring post was working properly,” said Teruaki Kobayashi, the company’s head of nuclear facility management. “There is a possibility that radiation leaked before the tsunami arrived.” Kobayashi said he didn’t have the exact radiation reading that would trigger the sensor.

Until recently Tepco said the plant stood up to the magnitude-9 quake and was crippled by the tsunami that followed. This early radiation alarm has implications for other reactors in Japan, one of the most earthquake prone countries in the world, because safety upgrades ordered by the government since March 11 have focused on the threat from tsunamis, rather than earthquakes.

So it's becoming more and more clear that, contrary to earlier assumptions, the reactors were already severely damaged by the earthquake before the tsunami hit the reactors. And that is despite the fact that the earthquake "did not exceed design base values significantly", according to an important Dutch nuclear lobbyist of the Technical University Delft Jan Leen Kloosterman, before news of damage before the tsunami even hit the reactors became public. He put it this way in a meeting on May 13: "If seismic data can be confirmed, practically all damage at Fukushima-Daiichi would have to be contributed to the tsunami." That would suit them well. Gunderson: "This wasn't, at Fukushima, that big an earthquake. It was, out at sea a nine, but by the time it got to Fukushima, they should have been able to ride out that storm, at least the seizmic issues of it. But what that says is that what we have been relying on in analyzing these plants may not be working. Two out of the four plants developed cracks from an earthquake and they should have been able to get through this."

On May 24, Tepco confirmed finally what everybody except Tepco and the international pro-nuclear community already knew: that fresh data from Units 2 and 3 indicate that fuel rods in those reactors are “in a similar state as that in reactor number 1”. That is: fallen into a lump at the bottom of the pressure vessel. Three melt downs confirmed.

More evacuations; and more to come?

More than 2 months after March 11, residents of Kawamatamachi and Iitatemura, both in Fukushima Prefecture, began evacuating on May 15, to avoid high-level radiation. Farewell ceremonies were held in both municipalities. About 1,200 residents in Kawamatamachi will evacuate from their homes. In Iitatemura, about 4,500 residents will move from the village to accommodations in Fukushima city, such as housing for local government officials and hot spring hotels. Most of Iitatemura is located more than 30 kilometers from the Fukushima No. 1 power plant.

Around 70,000 people, including 9,500 children aged up to 14, live in the area, "the most contaminated territory outside the evacuation zone," according to a report by France's Institute for Radiological Protection and Nuclear Safety (IRSN). Updating its assessment of the March 11 disaster, IRSN highlighted an area northwest of the plant that lies beyond the 20-km zone whose inhabitants have already been evacuated. Radioactivity levels in this area range from several hundred becquerels per square meter to thousands or even several million becquerels per square meter, the IRSN report, issued May 23, said. "These are people who are still to be evacuated, in addition to those who were evacuated during the emergency phase in March," Didier Champion,

Fukushima’s temporarily sarcophagus.

According to an article in the Daily Mail (U.K.) polyester tents will be placed over the Fukushima Daiichi nuclear reactors in a bid to try and contain the escape of radioactive substances into the atmosphere. In June Tepco will start work on installing the first cover at the Daiichi No.1 reactor. The Japanese government plans to erect a steel framework and place a giant polyester tent-like cover around the reactor building - similar covers will be placed around units 3 and 4. Work on the huge protective tents is expected to be completed by the end of the year.

IRSN's environment director, told AFP.

Internal contamination after visiting Fukushima
The engineering details of the Fukushima tragedy are beginning to be admitted publicly, while the biomedical details are still being glossed over. With fuel melting, vastly greater amounts of radio-active materials are released from the core than occur with the lesser types of fuel damage that had been postulated earlier.

Dozens of different species of radioactive materials were released in the form of vapours or particulates, susceptible for inhalation or ingestion by humans and animals, likely to be tracked into homes, schools and offices after being deposited in clothing, skin or hair.

The discovery that almost 5000 nuclear workers have now shown signs of internal radioactive contamination after simply visiting the Fukushima site guarantees that Japanese citizens of all ages from the nearby areas have also experienced some degree of internal deposition of radioactive materials in their bodies. Nursing mothers are now showing measurable amounts of radioactive contamination from Fukushima in their milk.

The decision of the Japanese government to allow children in dozens of schools to be exposed to levels of atomic radiation up to 20 millisieverts per year is irresponsible and deserves to be denounced. Not only are children much more susceptible to the harmful effects of radiation exposure than adults, but they are much more likely to track radioactive contaminants into their homes and schools in the form of dirt and dust, soiled hands and fingernails, and dirty play-clothes.

June 11: Global Day of Action
Meanwhile, anti-nuclear protest continue. On May 23, furious parents from the Fukushima region and hundreds of their supporters rallied in Tokyo against revised nuclear safety standards in schools (see also Nuclear Monitor 726). Japanese children can now be exposed to 20 times the radiation that was permissible before the March 11 earthquake and tsunami that caused meltdowns at Fukushima Daiichi. Around 400 protesters, many from areas around the stricken plant, flocked to the education and science ministry to demand a rethink on the new limit, which allows exposure of up to 20 millisieverts a year. A group of Fukushima residents submitted a letter for the education minister demanding the ministry do all it can to lower radiation levels at schools and offer financial support.

Many citizens and groups in Japan have started organizing June 11 actions like demonstrations or parades. The day marks three months after the Fukushima nuclear disaster triggered by the earthquake and tsunami. The plants are still spewing radioactive materials. No one wants such dirty electricity harmful to human and nature.

"Join Japanese groups on June 11th with million-people action throughout the world and let our voice be heard. We need your support to spread our message and hear from as many people on Earth as possible. We appreciate it if you decide to organize your own demonstrations, parades, gatherings, or anything on June 11th or 12th.
Our solidarity, if you are in Japan, in Asia, in Europe, in Americas, or anywhere in this world, will soon end this dark age of nuclear power generation".
Please, endorse the June 11 actions and list your own action at:
http://nonukes.jp/wordpress/?page_id=137
Endorsing groups or organizations will be publicized on the website.

Sources: Mainichi Daily News, 15 & 21 May 2011 / Godon Edwards CCNR, 24 May 2011 / AFP, 24 May 2011 / Japan Times, 17 May / Bloomberg, 12 & 19 May 2011 / Japan Today, 24 May 2011 / http://www.fairewinds.com/content/implications-fukushima-accident-worlds-operating-reactors / Daily Yomiuri Online, 16 May 2011 / NIRS updates / Jan Leen Kloosterman, presentation Fukushima 2011 on 13 May, The Hague, Netherlands, available at: http://www.nrg.eu/docs/kivi/2011/20110513-fukushima-ongeval.pdf (in English)
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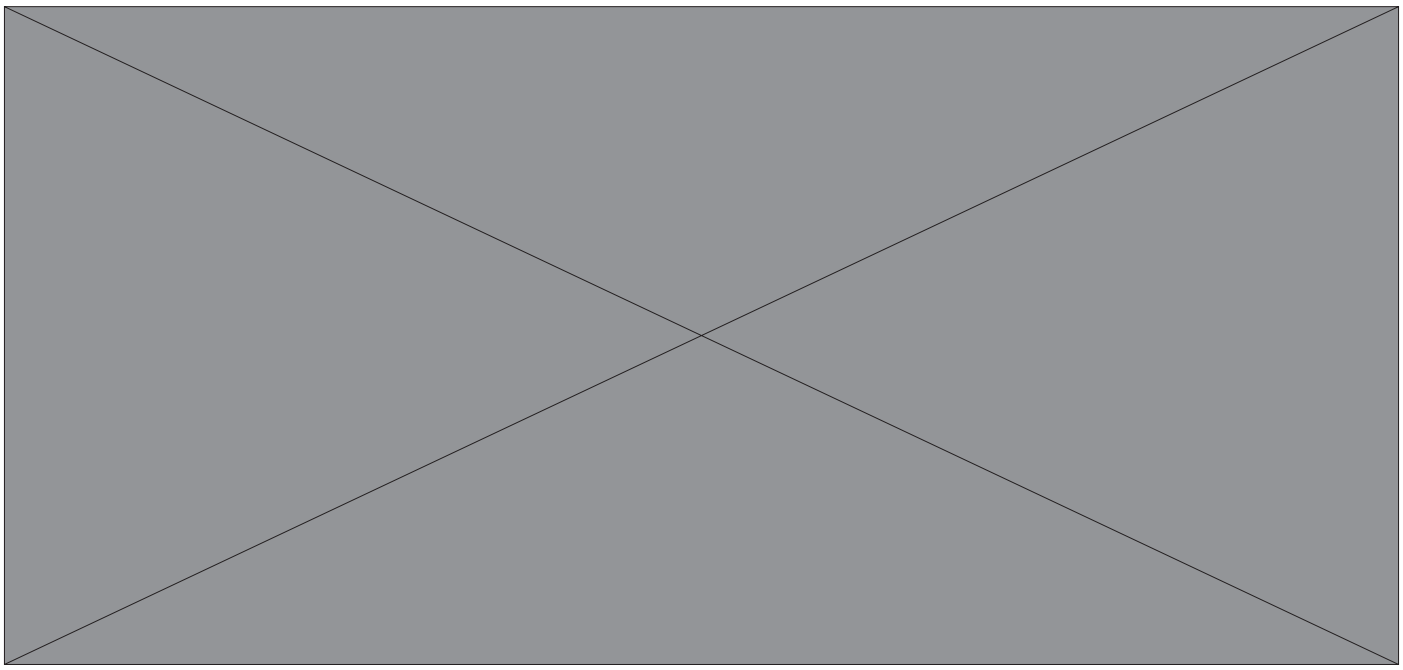

FUKUSHIMA'S BLAST WAVE IN FRENCH NUCLEAR DEBATE

A few months ago, any foreigner would have described France as the ever-lasting kingdom of the atom. In the French Republic, nuclear power appeared as one of the most representative remainders of absolute monarchy: only the case of the Prince and His close advisers, and not to be called into question. A broad political consensus maintained the status quo. From conservatives to the communists (except the Greens and some small left-wing parties), the whole political class would support nuclear power, in the name of national independence, industrial pride or faith in technology.

(**727.6133) Reseau 'Sortir du nucleaire' -** Many local antinuclear groups were active in local resistance, but without being taken seriously, and their influence was by no way comparable with the powerful nuclear lobby and its propaganda. Decades of nuclear brainwashing had succeeded in making the population, if not supportive, at least passive and resigned. After the tale of "the energy of the future", loads of "all-your-appliances-are-nuclear-and-so-what?"-advertisements in the nineties, the widely-spread myth of climate-friendly nuclear power, and even a 20-million-Euro luxurious animated movie ending with sexy young people dancing on Funky Town in a nuclear-powered party… no wonder that many people would think "Nuclear power ? Well, maybe it's not all clean, but we just cannot do without it!". Chernobyl? Well… it was in Soviet Ukraine, in a remote and backward state; it couldn't happen now in a modern country…"

A tsunami over nuclear France

And then the unexpected happened. On March 11, the tsunami and the earthquake did not crippled only the Fukushima nuclear power plant. The blast wave also hit the French media and public opinion.

Unlike after the Chernobyl accident, the media focused immediately on the catastrophe and on the internet information coul;d be found, which made it not possible for the nuclear lobby to set a information black-out. The usual nuclear promoters made a quite low profile, official safety authorities did not really denied the seriousness of the accident… while antinuclear groups and independent organizations like CRIIRAD (the Independent Research and Information Commission on Radioactivity, founded in 1986 just after the Chernobyl accident) were suddenly bombarded with enquiries by journalists. As a result, French nuclear issues were addressed: what about the safety of our facilities? Are they earthquake-proof? Shouldn't the older plants be closed? By the way, are there any plans to phase-out nuclear energy in France?

Suddenly, the myth of safe nuclear power broke into pieces, people realizing that the accident, after all, was possible everywhere. The latent feeling of being lied to by the political elite, which was already very strong, swelled again. Many people who had never been activists, or who had withdrawn themselves from any commitment, felt the need to take action. In the very week-end following the catastrophe, and in the days and weeks there after, antinuclear gatherings and protests proliferated.

A few months earlier, a call for action had been sent by the French antinuclear network "Sortir du nucléaire" to commemorate the 25th Chernobyl anniversary. With the Fukushima accident, this call got an echo like never before in the late history of the French antinuclear movement, with 366 actions all over the country. This bears no comparison with the huge demonstration happening in Germany at the same time, but in the French nuclear kingdom, it represents a lot.

Nuclear power becomes a political issue

With the Fukushima accident, the political class felt that it had to take a new stance on nuclear power. Of course, the ruling right-wing Union pour un Mouvement Populaire stuck stubbornly to the nuclear option. President Sarkozy (also UMP), one of the most enthusiastic nuclear power advocates, even made a trip to Japan only three weeks after the beginning of the catastrophe, to express clearly that nothing would change its plan to promote nuclear power worldwide. He even claimed that phasing out nuclear power would be like cutting one's arm, vilifying the fools who wanted to "go back heating themselves with candles".

On the other hand, the debate divided the social-democratic Socialist Party. The few antinuclear voices got more self-assured, and First Secretary Martine Aubry even expressed herself in favour of nuclear phaseout within 20 to 30 years. However, some other heads of the party, reacting quite violently, immediately tried to marginalise this point of view, claiming it not to be representative of the Party. The socialist program for the 2012 presidential elections therefore appeared as a battlefield where the few energy experts had tried to push nuclear phase-out in, before more influential elected representatives re-wrote it, adding long praises to an industrial flagship that should not get lost. This conflict reflects the growing gap between party elites and their electoral basis, now mostly supporting the end of the nuclear age.

However, possible change could happen in the coming months. The Strauss-Kahn affair put offside the "natural" socialist candidate, maybe leaving a chance for Martine Aubry and the more antinuclear wing of the party. Above all, the bargaining phase between the Socialists and the rising Green party Europe Ecologie-Les Verts, in the perspective of legislative elections next year, could play a key role. Some may have told that, for some years now, the nuclear issue did not stand in the forefront of the Green program, with the rise of newer issues like global warming and the party's attempt to address people with no specific environmental background in the frame of "Europe Ecologie". But it seems that this era is over now: nuclear phaseout has become the main point, strongly endorsed by all potential candidates. It is now seen as the very issue on which Europe Ecologie-Les Verts won't give in, in any agreement with the socialists.

Is France "resilient"?

Finally, another thing that is still not clear is the question whether, after the shock, nuclear power will remain an important issue in French political debates, given that environmental problems have never been allowed a big place in France. If the media slowly forgets the still ongoing catastrophe and other issues come in the forefront, like unemployment or the ugly arguments about "national identity" pushed by the extreme-right, then the need to phase-out nuclear power could shift to the background again.
In late March, a leaked Powerpoint presentation from Areva mentioned a

"resilient public opinion". It is now up to the French antinuclear organizations to make sure that a nuclear phase-out does not remain only an environmental issue, but becomes a social issue.

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GERMANY: POPULAR RESISTANCE FORCES 2022 PHASE-OUT; MOVEMENT WANTS IT FASTER

Only four of Germany's 17 nuclear plants are in operation after some reactors were shut down for maintenance on May 21. Some antinuclear organizations even warn for staged black-outs. Germany's seven oldest reactors were shut down after the March 11 Fukushima disaster and five more have been halted for planned maintenance. Another hasn't been in operation for years. Power generated from nuclear energy in Germany has fallen to under 10 percent, about half of what is produced from sun, wind and hydro, from 23 percent of the total before March.

(727.6134) WISE Amsterdam - On Saturday 26 March, only 2 weeks after the Fukushima accident started, an unprecedented 250.000 people took to the streets in four cities in Germany. Since Chancellor Merkel decided to revoke the 2000 phase-out scenario last year, the German anti-nuclear power movement became even stronger than it already was. Since that decision to prolong the life of nuclear power in Germany every Monday evening demonstrations ('Montagsdemo') took place in many cities and a 100,000+ demonstration in Berlin on September 18, 2010, but after Fukushima the movement changed gear with 'Montagsdemos' in several hundred (up to 840!) cities. For May 28, again large demonstrations in 21 cities are announced, which will most likely attract well over 150.000 people. Blockades are planned at two reactor sites (Biblis and Brokdorf) mid June just before the 3 months closure of the 7 oldest reactors ends. A decision whether to restart these 7 reactors has not been made yet.

Meanwhile, the pro-nuclear Angela Merkel changed her mind again and decided that a phase-out has to take place in about 10 years. The Bavarian faction of Chancellor Angela Merkel's conservative union, the CSU, set its first-ever target for Germany to stop using nuclear power late on May 20, suggesting a total withdrawal by 2022. The markedly conservative group that dominates Bavarian politics held a closed-door meeting for its top brass which ran several hours late as they debated the issue. German Chancellor Angela Merkel said the next day that 2022 was "a good time" for Germany to end nuclear power.

Germany had been scheduled to stop all nuclear power production by 2020 as part of a legislation introduced by Chancellor Gerhard Schröder's Social Democrat and Green coalition in 2000, until the current administration overturned this law in 2010 after winning the general elections.

The Green party, meanwhile, says the current government should complete a nuclear withdrawal before the end of the current legislative period in 2017.

(Note, on May 29, Germany formally announced the 2022 phase-out date.)

A draft report from Germany's ethics commission, set up by Chancellor Merkel to debate the pros and cons of nuclear energy in Germany, says the country could and should close down all its nuclear power stations by 2021. And it says this date could even be moved forward by some time.

Merkel's conservative Christian Democrats slipped behind the environmentalist opposition Greens into third place in Bremen, Germany's smallest state, in May 22's regional election. It was their worst showing there since 1959. In March, the Christian Democrats lost a traditional heartland, the southwestern state of Baden-Wuerttemberg, to a Green-led center-left coalition.

RWE buys into Dutch nuclear.
Meanwhile, one of the four German utilities with nuclear power plants, RWE, succeeded in the long wish to take a stake in the only Dutch nuclear power plant at Borssele. On May 17 it reached agreement with utility Delta for a 30% stake in the 1973 PWR.

Legal wranglings over ownership of Borssele have been rumbling on since RWE announced an offer to buy Dutch utility Essent in January 2010. Essent owned 50% of the plant, together with Delta, through the EPZ joint venture. However, Delta took legal steps to prevent the sale of Essent's share in the Borssele reactor to RWE, arguing that the plant should remain in public ownership, in line with EPZ's articles of association and shareholders' agreement. Dutch courts duly upheld Delta's view and as a consequence, Essent's 50% stake in Borssele was excluded from the buyout to RWE. Now, according to a statement by Delta, the two companies have reached an agreement that will see Delta remain the majority shareholder, thereby protecting the public interest in the plant. Final agreements on the deal are due to be signed by the end of the year.

But more important, with this agreement, it is likely RWE will be a partner for Delta in the planned construction of (a) new reactor(s) at Borssele. At the moment there are still two formal applications for new units: one by Delta and one by the shareholders of Essent, called ERH.

Sources: AFP, 21 May 2011 / AP, 25 May 2011 / Sueddeutsche Zeitung, 20 May 2011 / Deutsche Welle, 11 and 21 May 2011 / World Nuclear News, 17 May 2011
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HEALTH EFFECTS OF CHERNOBYL: IPPNW REPORT

The April 1986, Chernobyl catastrophe changed the world. Millions of people were made victims overnight. Huge stretches of land were made uninhabitable. The radioactive cloud spread all over the world. An understanding of the dangers of the use of nuclear energy grew in countless numbers of minds. The April 2011 report 'Health effects of Chernobyl' published by the German affiliate of International Physicians for the Prevention of Nuclear War (IPPNW) and the Gesellschaft fur Strahlenschutz (GFS – Society for Radiation Protection) evaluates scientific studies that contain plausible indications of causal relationships between radiation following the Chernobyl catastrophe and greatly differing diseases and fatalities.

(727.6135) IPPNW - The authors of this paper attach importance to methodically accurate and comprehensible analyses. We have tried not to lose sight of the immense uncertainty inherent in every estimation in this field. We have taken published papers into consideration, but believe a general rejection of papers that have not been published in peer-reviewed journals is unjustified – Galileo Galilei and Albert Einstein would have had no chance of having their papers accepted by a peer-reviewed journal.

The loss of the Chernobyl nuclear power station meant first and foremost a huge direct economic loss. Radiation from Chernobyl fallout rendered large areas of land agriculturally unusable. Large and small businesses were given up, towns and villages abandoned, some were flattened by bulldozers. Millions of people were affected by radiation and lost all they had; apartments, houses, homes and social security. Many lost their jobs and were unable to find new ones, families split up because they could not tolerate being irradiated or ostracized because of their proximity to Chernobyl.

The quarrel about the number of victims of Chernobyl is as stupid as it is cynical. It is a well known fact that the frequently quoted death toll of 31 is long past being valid. Even the number of 'less than 50' quoted in Vienna in September 2005 cannot possibly be true. It is an unacceptable sophistry only to recognize those who died of acute radiation disease, cancer or leukaemia as Chernobyl deaths. Following Chernobyl there was an obvious if not drastic increase of illness rates, but - typically - experts judging from a distance, without ever having treated any of the victims, do not generally accept these rates as having resulted from Chernobyl.

We refuse to haggle over whether a liquidator (clean-up worker) who received a high radiation dose, who has been an invalid for years, whose wife has left him, whose daughter is unable to find a boyfriend because of her father's history, who suffers from diverse illnesses, the treatment of which has been given up by doctors, and who commits suicide, counts as a Chernobyl death or not.

In this way, the search for reliable data on the dead of Chernobyl has become an impossible task - in any case there are many, far too many. There is no comprehensive picture of the consequences of Chernobyl, not yet. The following overview aims at reminding you of all you already knew, aims at getting you to study carefully and critically the simplified and minimized accounts given by the large organizations and to be attentive to their large uncertainties and blank spaces.

None of the governments in Russia, Belarus or Ukraine are interested in a comprehensive survey of the consequences of Chernobyl. They prefer to close the case, gradually re-cultivate and resettle lost territory and pay as little as possible to the victims. They are not interested in discussions about the mistakes that have been made. There is a tendency amongst the International Atomic Energy Agency (IAEA) and the United Nations Scientific Committee for the Effects of Atomic Radiation (UNSCEAR) to support this position. Independent scientific studies in this area are not being financed and are being obstructed or prevented. Stochastic radiation damage is difficult to prove. Large epidemiological studies are expensive and reference to necessary data requires access that is only possible with state assistance.

The paper evaluates studies that contain plausible indications of health damage caused by the Chernobyl catastrophe. The authors of this paper attach importance to the selection of methodically accurate and comprehensible analyses. Due to the already mentioned methodical difficulties, it is not our aim to present the "right" statistics in contrast to the obviously wrong ones given by the IAEA, since these can never be found. They can only supply us with indications as to the diversity and extent of the health effects we should be dealing with when we talk about the health effects of Chernobyl.

Note on the unreliability of official data published by WHO and IAEA

At the "Chernobyl Forum of the United Nations" organized in September 2005 by the International Atomic Energy Agency and the World Health Organisation, the presentation of the results of work on the effects of Chernobyl showed serious inconsistencies. For example: the press release of the WHO and IAEA stated that in the future, at most, 4000 surplus fatalities due to cancer and leukaemia amongst the most severely affected groups of people might be expected. In the WHO report on which this was based however, the actual number of deaths is given as 8,930. These deaths were not mentioned in any newspaper articles. When one examines the source quoted in the WHO report, one arrives at a number between 10,000 and 25,000 additional fatalities due to cancer and leukaemia.

Given this it can be rationally concluded that the official statements of the IAEA and the WHO have manipulated their own data. Their representation of the effects of Chernobyl has little to do with reality.

The Chernobyl Forum also does not take into account that even UNSCEAR has estimated that the collective dose (the usual measurement for radiation damage) for Europe outside the region of the former Soviet Union is higher than

the corresponding data for the Chernobyl region. The collective dose from the catastrophe was distributed to 53% throughout Europe, 36% throughout the affected regions in the Soviet Union, 8% in Asia, 2 % in Africa and 0.3% in America.

Up until now neither the Chernobyl Forum, IAEA nor the WHO have deemed it necessary to let the public know that, on the basis of their own analysis, a two to five-fold higher number of deaths due to cancer and leukaemia are to be expected as the figures they have published.

Even in 2011 – some 5 years on - no official UN organization has as yet corrected these figures. The latest UNSCEAR publication on the health effects of Chernobyl does not take into account any of the numerous results of research into the effects of Chernobyl from the three countries affected. Only one figure – that of 6,000 cases of thyroid cancer among children and juveniles, and leukaemia and cataracts in liquidators – was included in their recent information to the media. Thus, in 2011 the UNSCEAR committee declared: On the basis of studies carried out during the last 20 years, as well as of previous UNSCEAR reports, UNSCEAR has come to the conclusion that the large majority of the population has no reason to fear that serious health risks will arise from the Chernobyl accident. The only exception applies to those exposed to radio-iodine during childhood or youth and to liquidators who were exposed to a high dose of radiation and therefore had to reckon with a higher radiation induced risk.

Source: The report 'Health effects of Chernobyl' can be downloaded at: http://www.ippnw.org/pdf/chernobyl-health-effects-2011-english.pdf
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The Smiling Sun – a powerful tool for our work

These have been busy days for all those who oppose nuclear power…….the devastating accident in Japan has once more made clear that we need to make a switch, as soon as possible, to clean, endless and affordable energy. Everyone has increased his or her campaign efforts, now is the time! And with results. Plants are being closed and plans for new-build are postponed or even made history.

In dozens of countries the so-called smiling sun logo (Nuclear power? No thanks) is being used in all kinds of campaigning materials. The powerful and well-known logo, as designed in Denmark in 1975, very quickly spread all over the globe and can be seen in dozens of countries, in the streets, in offices, on T-shirts and banners.

The revenues of sales were, in the first 6 years, enough to finance WISE, the World Information Service on Energy, the global network of hubs serving as support and information offices for (grassroots oriented) antinuclear groups.

The logo is so powerful that over the past decades it has been abused in many ways for commercial purposes, or even pro-nuclear campaigns, but also to sell cars, jewelry, houses, clothes et cetera. WISE has the legal rights to produce material with the logo; currently we have in our shop material in 35 languages (see www.antenna.nl/wise)

We want to increase the usage of the logo. It has always been exciting to see the logo pop up in so many places all over the globe. We want to make an offer. As said, WISE is also a shipping- and distribution center for the material. We have badges (buttons), stickers and T-shirts and can easily make other material if needed. You can make bulk-orders and re-sell the material in your own country with some profit for your group. See the overview of related costs.

Item	**1-49**	**50-999**	**1000 and more**
Stickers 12 cm.	1 euro	50 eurocent	35 eurocent
Stickers 32 cm.	3 euro	2 euro	1 euro
Stickers 45 cm.	5 euro	3,5 euro	2,5 euro
Badges (Buttons)	1 euro	50 eurocent	35 eurocent
Organic cotton T-shirts	15	12	10
+ shipping costs			

You can always contact us for further questions, proposals and details.

ITALY: BERLUSCONI TRYING TO BLOCK NUCLEAR REFERENDUM

On May 16, demonstrations have been held in many cities in Italy in the buildup to the national referendum on 12 and 13 June on restarting a nuclear program. Meanwhile, on May 15, a regional referendum on Sardinia regarding building a nuclear power plant ended in an astonishing 97.64 percent of votes against the plan. And even important, the percentage of voters (59.34%) was well above the 33% quorum for the validity of the consultation.

(727.6136) WISE Amsterdam - Italian PM Berlusconi is attempting to postpone the national referendum or delete the question on nuclear power from it. Angelo Bonelli, president of the Italian Green Party: "The referendums will be voted on anyway, despite the fact that the thieves of democracy have returned to action. The attempts of the government to steal the democratic rights of the Italian people to vote against nuclear energy and the privatization of water will not succeed".

Following Berlusconi's election victory in 2008 and his return to power for the third time since 1994, Italy's new minister of economic development Claudio Scajola -- before being forced out of office by a corruption scandal involving bribery and fraud in 2010 -- announced that the government had scheduled the start of construction for the first new Italian nuclear power plant by 2013. On February 24, 2009, an agreement between France and Italy was signed allowing Italy to share in France's expertise in the area of nuclear power station design. On July 9, 2009 the Italian legislature passed an energy bill covering the establishment of a Nuclear Regulatory Agency and giving the government six months to select sites for new plants. These sites have never been finalized. On August 3, 2009, Italy's energy giant Enel and Electricite de France established a joint venture Sviluppo Nucleare Italia Srl for studying the feasibility of building at least four reactors using a design of French reactor builder Areva -- the worlds largest nuclear energy company. These energy oligarchs, with Berlusconi as their champion, are doing everything in their power to preserve their multi-billion dollar investment in a nuclear future.

To this end Berlusconi's council of ministers announced a one year moratorium on all questions relating to the research and activation of sites for new nuclear plants in Italy on March 24, 2011, less than two weeks after the earthquake in Japan and subsequent Fukushima nuclear disaster. This move was immediately met with skepticism from Italy's antinuclear movement and opposition political parties and was seen as a poorly veiled attempt to block the June referendum. On April 26th, the 25th anniversary of the catastrophic Chernobyl accident, Berlusconi held a press conference with French president Nikolay Sarkozy in Rome. At this press conference Berlusconi made his radioactive intentions clear for all. "We are absolutely convinced that nuclear energy is the future for the whole world," he said. He went on to detail how recent polls showed that the referendum to block nuclear power for decades to come could pass at this time and that by temporarily suspending Italy's return to nuclear program the issue would be revisited when the Italian voters had been "calmed down" and returned to the realization that Nuclear Energy was the most viable and safe way to produce electricity. He went on to explain how the "leftists and ecologists" had manipulated the emotions of the Italian voters after Chernobyl and penalized the Italian people who have to pay higher electric rates than France that operates 58 nuclear power plants. Berlusconi explained that the "situation in Japan had scared the Italian voters" and that the "inevitable return to nuclear power in Italy" would not be abandoned nor would the collaborations between Enel and Eletricite de France.

Now with Germany and Japan announcing the phasing out of their nuclear programs and the scrapping of plans for the construction of new reactors, it would seem like political suicide to barge full steam ahead with a pro-nuclear stance, but this is Italy and Berlusconi is still at the command. Berlusconi is now in control of all the major television outlets, including the state owned RAI, so getting the word out to the voters that there will be a vote on June 12 & 13, is proving difficult, and the heavy hand of State censorship has been yielded. At the annual May Day concert in Rome, sponsored by Italy's two largest labor unions and televised on the state run RAI, the performing artists were required to sign a waiver agreeing not to speak about the upcoming referendums or risk a fine of over ten thousand euros. This left a bitter taste in the mouths of many of the attendees of this May Day celebration as news surfaced almost immediately that the state media outlet had censored the event.

As of now the referendum to block nuclear power is still on the ballot. Only a last minute ruling by the Supreme Court could remove it, and the Berlusconi government is banking on this decision as a result of their so-called nuclear moratorium. The anti-nuclear referendum is accompanied on the June ballot by two other referendums, one to repeal the Berlusconi government's attempts to privatize water and the other to repeal a law called "legittimo impedimento" which was passed by the Right wing majority in order to protect Berlusconi from prosecution by giving him and members of parliament immunity from prosecution while serving in office. Each of these referendums required the gathering of half a million valid signatures and will need the high participation of 50 % plus 1 eligible voters to reach the mandated quorum in order to be considered valid. No legislative referendum has been able to reach this quorum in over a decade. Now the Berlusconi government is also trying to block the vote to keep water publicly owned. In recent legislation they created a new Water Authority in an attempt to legally block this referendum as well. While it is evident to the engaged and politically active citizenry that the Berlusconi government is pulling out all the stops to block the democratic process, the masses who get their information from Berlusconi's private and state run television empire are being kept in the dark. No news on the referendums is reported unless it is it is very late at night or the early hours of the morning.

Sources: Michael Leonardi, Counterpunch, 13-15 May / Spiked. 16 May 2011, Dominic Standish

URANIUM MINING IN AFRICA: RADIOACTIVE REVENUES

For African countries, the revenue derived from the uranium mining operations of multinational corporations is -despite the high price of uranium- minimal, uncertain and volatile. The financial agreements that these countries make with the uranium producers regarding their share in the profits are the primary reason for this state of affairs. This is the conclusion of a new report from WISE and the Centre for Research on Multinational Corporations (SOMO): Radioactive Revenues: Financial Flows between Uranium Mining Companies and African Governments.

(727.6137) SOMO - The report Radioactive Revenues analyses the financial aspects of uranium mining in the main African uranium producing countries -Namibia, Niger, Malawi and South Africa- and examines the activities of the four largest multinational uranium mining companies in Africa: the French AREVA group, the English-Australian Rio Tinto, the Australian Paladin Energy and the South-Africa-based AngloGold Ashanti.

Currently, one-fifth of all uranium worldwide is mined in Africa, and production is expected to double in the next two years. Nevertheless, uranium mining remains an uncertain source of revenue for African countries given the unstable price of uranium and the dependence on corporate profits.

The predictability of revenues
The most important revenues for host states from uranium mining in Africa are corporate income taxes, selling rights, mining royalties and, to a lesser extent, employment taxes, but there is a great deal of difference between the predictability and stability of these sources of revenue. Selling rights and royalties are generally more stable than corporate income tax as they do not depend directly on the profits of the mining companies, which can be highly volatile. The revenues from mining royalties depend primarily on uranium prices on the world market, but also on agreed prices and quantities in long-term contracts signed with customers.

Of all of the potential sources of revenues, those related to corporate earnings are the most volatile. These sources include corporate income tax (a percentage of taxable profits), taxes on dividends, and benefits from holding a stake in the mining company (dividend, retained earnings). These revenues are affected by uranium prices, production costs and by companies being able to reduce their corporate income tax liability through mechanisms that compensate them for losses in earlier periods and/or through the accelerated depreciation of investments.

In general, corporate income taxes may be further reduced by multinational corporations through the use of intra-group transactions that move their costs and earnings to jurisdictions where the corporate income tax rate is most favourable to the company. This study does not investigate the use of such (legal or illegal) tax avoidance/evasion mechanisms, but the frequent use of these mechanisms by multinational corporations in general likely reduces the contribution of corporate income tax as a source of revenue for host states and contributes to its unpredictability.

Niger's right to sell a percentage of the uranium produced directly on the global market uranium provides an additional and somewhat stable source of revenue for the Nigerien government. This revenue stream is of course dependent on the market price.

Uranium prices
Many of the sources of revenue for host states depend heavily on the price of uranium on the world market. The period 2007–2009 was somewhat unique in this respect. During the period 1990- 2003, prices were much lower. Beginning in 2004, prices rose sharply, peaked in 2007, and have been slowly decreasing since then, although 2010 saw prices rise again slightly over 2009 levels.

The high prices during the 2007–2009 period caused earnings and profits of mining companies to rise as well. As a result, revenues for the host states from mining royalties and corporate income taxes increased as well. However, there is no guarantee that prices will not fall back to the low levels seen during 1990–2003, which would mean a significant reduction in revenues from royalties and corporate income taxes.

Changing regulations on revenues for host states
The study finds that some African host states have recently moved to strengthen their financial regulations on uranium mining in order to receive greater revenues from these operations. In 2007, Namibia decided that uranium mining companies should pay royalties of 3% of sales. In 2010, South Africa introduced mining royalties of 1.75% of gross sales when profits are 10% of gross sales.

However, the move that has been the most remarkable in generating additional revenues for the host state has been Niger's acquisition of uranium selling rights, first negotiated with AREVA in 2007. During the years 2007, 2008 and 2009 the revenues received by the Nigerien government from this revenue stream amounted to Euro 9.1 million, Euro 27.5 million and Euro 20.9 million respectively. From 2013/2014 onwards, the Imouraren mine, with AREVA as the main shareholder, will enter into production. The government of Niger will have the right to sell 33.35% of the uranium produced, which is estimated to reach 5,000 tons annually. Also, for the existing mining operations by SOMAÏR and COMINAK, since 2010 Niger has the right to sell uranium according to its stake in the mining company (i.e. 36.6% and 31%, respectively).

Comparison of taxes and other contributions
Per kilogram of uranium sold, the study finds that Paladin in Malawi and AngloGold Ashanti in South Africa pay less taxes and other financial contributions than Rio Tinto in Namibia and AREVA in Niger. With a relatively low percentage of mining royalties to be paid and many opportunities for Paladin to reduce its corporate income tax in the early years of operations, Malawi is not expected to obtain much revenue from Paladin's uranium mining operations if uranium prices decline. However, given the physical and operational differences between mines (e.g. uranium ore grade, capa-

city, production costs, lifetime, etc.), it is difficult to make a judgement about the regulations relating to revenues for the host states with regard to each mining operation.

In the period 2005 – 2009, the revenues received by Niger from the AREVA-owned mining operations amounted to Euro 225 million. In the same period, Namibia received Euro 181 million in revenue from the Rio Tinto-owned mining operations. A notable difference is the royalty rate, which is 3% in Namibia and 5.5% in Niger. In the period 2005 – 2007, Namibia received more revenue than Niger from corporate profits, but Niger has been catching up through the acquisition of selling rights.

Transparency of companies
Of the four companies reviewed in the study, Paladin appears to be the least transparent. It is the only company in the research that does not support the Extractive Industries Transparency Initiative (EITI) and was the only company unwilling to answer requests for information for this study. Payments such as employment taxes and customs duties could not be found in its annual reports, while payments of corporate income taxes and royalties were not listed on a country-by-country basis.

Rio Tinto is transparent with regard to taxes and other contributions to the Namibian government by its majority owned company Rössing Uranium. Rio Tinto, along with AngloGold Ashanti, reports its tax payments on a country-by-country basis. AREVA cooperates in the EITI-related process of comparing company payments and government revenues in Niger. Among the four countries examined in this report, Niger is the only one that participates in the EITI.

The agreements (investment contracts) that uranium mining companies sign with host states can have a law-making function and often include tax exemptions and stabilization clauses. Such mining agreements are generally not made public. Paladin has signed a mining agreement with the government of Malawi, including tax exemptions and a clause which guarantees that the company will not face any increase in taxes or other contributions in the coming ten years. The fiscal details of this mining agreement have been made public. For Niger, most fiscal details of such agreements could be found without gaining access to the mining agreements themselves. The agreements between AngloGold Ashanti and South Africa and Rio Tinto and Namibia did not seem to contain specific clauses on taxes and other contributions that differ from national laws.

Source: Radioactive Revenues. Financial Flows between Uranium Mining Companies and African Governments by Albert ten Kate & Joseph Wilde-Ramsing. SOMO, WISE 2011.
The report can be downloaded at: http://somo.nl/publications-nl/Publication_3629-nl/

UKRAINE-EU'S SECOND BACKBONE CORRIDOR

At the end of the nineteenth century, then-president of Mexico Porfirio Diaz likely had never visited Ukraine when he supposedly said, “Poor Mexico, so far from God, so close to the United States!” More than a century later, his quote about the US's demand on its neighbor’s resources being an ever-present factor underpinning their diplomatic relations increasingly applies to Ukraine's relations with the European Union when it comes to the energy sector.

(726.6138) Bankwatch - Over the past few years, a series of strategies, agreements and loans have brought the EU and its eastern neighbor into closer cooperation on perpetuating nuclear and carbon-intensive energy infrastructure and generation, with international financial institutions (IFIs) brokering the deals. An embodiment of this collaboration are plans for the construction of the so-called “second backbone corridor”, a major section of high-voltage transmission lines connecting three nuclear power plants and two pumped storage plants across Ukraine, with a planned capacity of a potential 12 GW. The estimated cost of the project is 1.2 billion euros. Ukraine is already a net electricity exporter. According to plans of Ukraine's government in 2030 the country plans to produce 25 TWh of excess electricity - close to Slovakia's total electricity generation in 2007. The most promising market for Ukraine's electricity is, of course, the integrated energy market of the EU. The planned "second backbone corridor" stretching from the East to the West of the country could perfectly serve export purposes.

Missing in all of this, however, are steps to first address the slew of problems that plague the Ukrainian nuclear industry, as well as proposals for alternative energy scenarios that will truly benefit the Ukrainian people.

A word about the nuclear industry in Ukraine.
While most notorious for the devastating accident at Chernobyl a quarter of a century ago, the Ukrainian nuclear industry is riddled with numerous problems and the longer such issues persist, the greater the cost will be to Ukrainian taxpayers in the future.

The nuclear industry continually postpones action to address unavoidable issues: Ukraine has not yet created a unified national system for final disposal of radioactive waste and spent nuclear fuel as required by nuclear legislation(*1). Neither is it currently investing in domestic infrastructure for the safe and long-term isolation of spent fuel and radioactive waste. Ukrainian nuclear plants annually produce about 150 tons of spent nuclear fuel and considering the government’s plans to extend reactor lifetime by 30 to 45 years, the total amount of spent fuel radioactive waste in Ukraine could reach 200 million tons. Estimates are that 'neutralizing' this hazardous waste will cost more money than the nuclear industry has generated in its entire existence. As Ukrainian nuclear power plants continue to age, the frequency of failures has increased, including minor emissions and leaks, cracks and short circuits. Almost every year from 2010 one nuclear unit in Ukraine will approach the end of its designed lifespan.

The recent extension of the first unit at the Rivne nuclear power plant is one example of the consequences of such

inaction. Though the lifetime of reactor one had expired, in December 2010 its operation was officially extended another 20 years. Just two months later, after the nuclear industry spent about 215 million euros and declared that Rivne's unit one was completely upgraded, in January 2011 an accident occurred and reactor one was subsequently taken down to 50 percent power output. The State Inspectorate for Nuclear Regulation later confirmed that the accident posed no radiation threat and the nuclear facility remained in a safe condition, but the situation demonstrates that even with upgrades, ageing plants cannot be guaranteed to operate safely.

So close to the EU.
To be sure, both the Ukrainian government and the EU have been clear about their respective priorities when it comes to Ukraine's energy sector. Though Ukraine inherited from the Soviet Union an extensive nuclear industry that today only accounts for six percent of the total primary energy consumption in the country, nuclear still forms the core of Ukraine's *Energy Strategy till 2030 (*2).* In addition, increasing the percentage of dirty coal in the energy balance from 22 to 33 percent by 2030 (*3), the strategy envisions life extensions of twelve operational reactor units and the construction of 22 new ones, thus more than doubling the number of nuclear power plants.

As for the EU, a recent Commission communication elaborates that, "A common EU energy policy has evolved around the common objective to ensure the uninterrupted physical availability of energy products and services on the market."(*4) The EU estimates also that its energy import dependence will jump from 50 percent of total energy consumption to 65 percent by 2030 (*5). To satisfy this demand the communication specifies that, "the Energy Community Treaty should be implemented and extended to all those EU neighbors who are willing to adopt the EU market model." (*6) Late last year Ukraine joined the European Energy Community with the goal of integrating into the common European energy market.

The handmaidens tasked with reconciling Ukraine's priority of expanding its nuclear energy capabilities with the EU's priority of ensuring a steady supply of cheap energy are the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD). While the European banks will most likely not do anything as crass as financing the new nuclear plants themselves, in 2005 Ukraine signed a framework agreement with the EIB prioritizing "Trans-European Network projects connecting Ukraine and the European Union." (*7, *8) In June 2010 Ukraine and the EIB signed a Host Country Agreement to set up EIB representation in the country. And a draft of the new EBRD country strategy for Ukraine specifies that, "all new public infrastructure and energy projects are prepared together with the EIB on a 50-50 basis and are expected to benefit from grant co-financing and technical assistance from the EU Neighbourhood Investment Facility." Support to the tune of 10 million euros came from the Neighbourhood Investment Facility in 2009 to implement Ukraine's *Energy Strategy till 2030 (*9*).

The EBRD and EIB together have invested more than one billion euros in Ukraine's energy sector over the last five years. Most of this financial assistance has been provided to the state power company Ukrenergo, to both rehabilitate existing and construct new power transmission lines throughout Ukraine. While the EBRD remains coy in its intentions with these projects, having said that the loans are to increase the overall stability of the grid system and the quality, efficiency and reliability of the electricity supply, the EIB is more brazen about the transmission lines forming, "important components of the future connection to the Trans-European Energy Networks (TEN-E)."(*10)

The implementation of these transmission projects has been problematic. The level of public engagement in procedures like Environmental Impact Assessments has been abysmal. The routing for transmission lines has been slated for national parks and reserves and Ramsar sites, as well as directly through villages without compensation or prior agreement from local communities (Ramsar sites are wetlands of international importance). The situation resulted in violent clashes between locals and police in the village of Usatove in November 2009.

With the development of the second backbone corridor, designed to allow Ukrenergo to offer neighboring i.e. EU grids up to 4 GW of electricity by increasing the availability of base and peak generation mix, Ukraine is moving even further "away from God" and towards a nuclear-fuelled, export-oriented energy sector.

Towards alternatives.
An analysis by Ukrainian NGOs (*11) demonstrates that the available capacity and possibilities to apply energy-saving technologies, and alternative and renewable energy sources provides an alternative to the nuclear option for the development of the Ukrainian power industry. These alternatives make unjustified the intention of the *Energy Strategy till 2030* to construct 22 new reactor units and establish a closed nuclear fuel cycle in Ukraine.

One positive move is that preparations for a new draft Energy Strategy are underway. The new draft should be based on a study of actual energy losses in different economic sectors in order to assess the overall energy conservation capacity. Forecasts of consumption of primary energy sources in Ukraine in 2030 should be reassessed downward and account for assessments of GDP growth and the reduction of GDP energy intensity. The predicted share of renewables in the overall consumption of fuel and energy resources in 2030 should be reassessed to account for higher use of bio-energy and wind power.

Additionally Ukraine should reject the option of commissioning any new reactors, and all operational units should be decommissioned as planned. Cost estimates for reprocessing and storage nuclear waste, irradiated nuclear fuel and other costs of the nuclear power complex as currently unforeseen by the Energy Strategy need to be explained. Funds currently allocated for the construction of new reactors should be invested into the development of energy efficient technologies, alternative and renewable energy sources.

At the same time, EU energy policy needs reorientation to fully reflect obligations in the Treaty of the European Union to "help develop international measures to preserve and improve the quality of the environment and the sustainable management of global natural resources, in order to ensure sustainable development, with the primary aim of eradicating poverty" and to "ensure consistency between the different areas of its external action and between these and its other policies."

As such EU energy policy should be subordinated to its development policy and contribute to achieving the aims above rather than aggressively promoting "energy security" through new interconnections with neighboring countries like Ukraine. For electricity transmission

specifically, priority should be given to low-voltage local grid (below 110kV) modernization and the development of technical solutions to integrate state of the art renewable energy sources into the outdated design of the grid in in the region.

Notes:
*1- Law of Ukraine "On radioactive waste management"
*2- Approved by its Council of Ministers in March 2006
*3- 43.5 million tons of equivalent fuel in 2005 to 101 million by 2030
*4- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the regions: Energy 2020, A strategy for competitive, sustainable and secure energy, 10 November 2010 p.3
*5- Communication from the Commission to the European Council and the European Parliament: an energy policy for Europe 10 January 2007 p.3
*6- Energy 2020, A strategy for competitive, sustainable and secure energy, 10 November 2010 p.3
*7- http://www.eib.org/about/press/2005/2005-042-eib-and-ukraine-sign-framework-agreement.htm?lang=-en
*8- http://www.eib.org/projects/regions/eastern-neighbours/index.htm?lang=-en In December 2009 the EIB set up the Eastern Partners Facility (EPF), a EUR 1.5 bn facility under which financing is extended at the EIB's own risk (i.e. without EC guarantee). This facility enables the EIB to provide loans that sector-wise go beyond the scope of the mandate and to help support EU investment in the region, notably through European corporations.
*9- NIF Operational Annual Report, 2009 http://ec.europa.eu/europeaid/where/neighbourhood/regional-cooperation/irc/documents/vi_operational_annual_report_2009_nif_en.pdf
*10- http://www.eib.org/projects/pipeline/2009/20090117.htm?lang=-en
*11- See http://www.necu.org.ua/wp-content/plugins/wp-download_monitor/download.php?id=100

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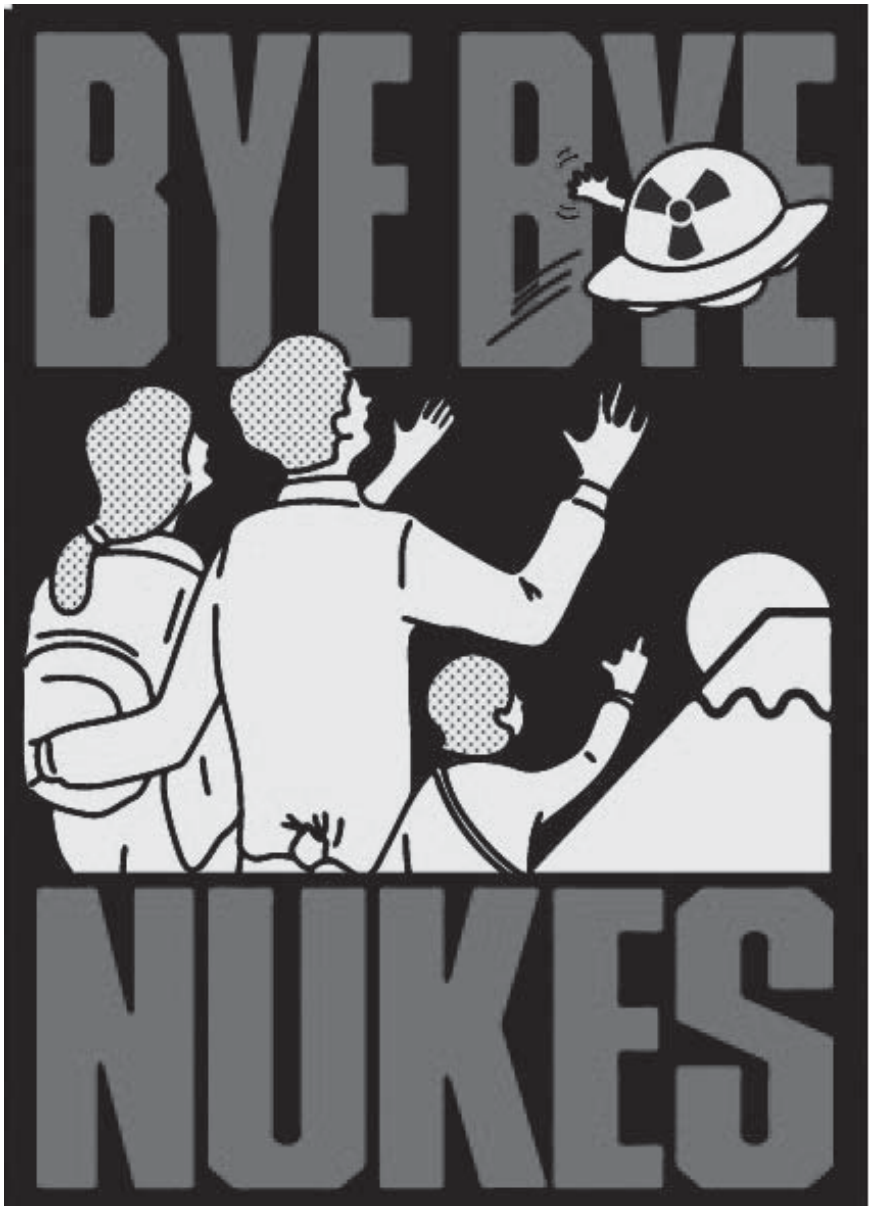

IN BRIEF

Iran: Busher reaches first criticality. According to Russian builder AtomStroyExport (ASE), Iran's first nuclear power reactor Bushehr achieved criticality on 8 May 2011 and is now functioning at the minimum controlled power level. Final commissioning tests will now be carried out prior to start of commercial operation. According to Iranian news agency Fars, the plant is expected to be connected to the national grid within the next two months.
Construction work began on two German-designed pressurised water reactors (PWRs) at the Persian Gulf site in the mid-1970s but was abandoned in 1979 following the Islamic revolution when unit 1 was substantially complete. In 1994, Russia's Minatom agreed to complete unit 1 as a VVER-1000 making use of the infrastructure already in place. However, this necessitated major changes, including fabrication of all the main reactor components in Russia under a construction contract with AtomStroyExport. The Atomic Energy Organization of Iran (AEOI) said in 2008 that it was no longer planning to complete Bushehr unit 2. Further delays ensued for negotiations over fuel supply for the plant, but two agreements were signed early in 2005 covering the supply of fresh fuel for the reactor and its return to Russia after use, securing the plant's fuel supply needs for the foreseeable future.
In February 2011, only weeks before operation was expected to start, the discovery of debris from damaged coolant pumps meant that all the fresh reactor fuel had to be unloaded, checked and cleaned, and the reactor internals and main circulation pipeline flushed through. Bushehr will produce about 1000 MWe for the Iranian grid; about 3% of the country's power supply.
The following table shows which countries produced nuclear energy for the first time after the 1970's. Currently, only 10 countries did so (of which 3 weren't independent countries at that time), and if we look at countries who started construction of their first nuclear power station, we find that only China and Romania did so after the 1970's (as said, Iran started in the 1970's)

Country	**start of construction of first n-power plant**	**first power of first n-reactor**
Slovenia	3-1975	10-1981
Brazil	5-1971	4-1982
Hungary	8-1974	12-1982
Lithuania	5-1977	12-1983
South Africa	7-1976	4-1984
Czech Republic	1-1979	2-1985
Mexico	10-1976	4-1989
China	3-1985	12-1991
Romania	7-1982	7-1996
Iran	-1975	-2011

So which country will be next? According to the World Nuclear Association nuclear power is under serious consideration in over 45 countries which do not currently have it. However, that is in most cases more whish than reality. It is difficult to predict which country will start with the construction of its first nuclear reactor next: will it be Poland, Belarus, Lithuania, Turkey, Jordan or after all the United Arab Emirates?
World Nuclear news, 10 May 2011 / Nuclear Monitor, 21 June 2007 / World Nuclear Association, Emerging nuclear energy countries (visited 25 May 2011)

Big antinuclear demonstration in Switzerland. An estimated 20.000 people held a massive demonstration in northern Switzerland against a possible decision by the government to rely on nuclear energy. The demonstration, staged near the Beznau nuclear power plant, was also attended by people from Germany, Austria and France. According to Maude Poirier, spokeswoman for Sortons du nucleaire, the rally was the biggest protest at nuclear power in Switzerland in 25 years.
Over a thousand high school students went on strike and marched to the centre of Bern on May 24Tuesday, to protest against Switzerland's nuclear energy policy, even though local police had not granted permission for the demonstration.
A day later, on May 25, the Swiss cabinet has called for the phasing out of the country's five nuclear power reactors and for new energy sources to replace them. The recommendation will be debated in parliament, which is expected to make a final decision in June. If approved, the reactors would be decommissioned between 2019 and 2034 after they have reached their average lifespan of 50 years.
But the delay will anger the antinuclear movement, Greens and the Social Democrats (SP) who had called for nuclear reactors to be closed earlier. And indeed, it looks less like a phase-out scenario and more like an attempt to 'save' nuclear power.
The decision is likely to please business groups who had warned that "a premature shut down of Switzerland's nuclear reactors could lead to higher electricity costs and negatively impact the country's energy-hungry manufacturing sector."
Swiss utility companies Axpo, Alpiq and BKW had expressed an interest in building new nuclear plants and decisions on sites had been expected in mid-2012. (more on Switzerland: Nuclear Monitor 726; 13 May 2011)
Financial Times, 26 May 2011 / Reuters, 25 May 2011 / The Local (Sw.), 24 may 2011

Six potential locations for Danish LLW & ILW repository. A major step towards a repository for Denmark's low- and intermediate-level radioactive waste has been made with the submission of three pre-feasibility studies to the Danish interior and health ministry. The first study, prepared by national decommissioning body Dansk Dekommissionering (DD), looks at different disposal concepts in terms of types of repository, waste conditioning, safety analyses, costs and long-term impact assessments. Overall, the studies conclude that a moderately deep repository would be the most appropriate from a security point of view, although this would be more expensive than a near-surface repository. From 22 areas suggested in preliminary studies, the reports recommend that six potential sites are taken forward for further study. The six identified locations will now be narrowed down to a shortlist of two or three by an inter-ministerial working group in a process that will include the affected municipalities and regions. Denmark never implemented a commercial nuclear power program but operated a total of three scientific research reactors over the period from the late-1950s up to 2000, as well as associated fuel fabrication facilities. All three reactors – DR-1, DR-2 and DR-3 – were located at the Risø National Laboratory north of Roskilde on the island of Zeeland. Most of the used fuel from the reactors has been returned to the USA, but the country still has a sizeable amount of low and intermediate level radioactive waste which is being stored at Risø pending the selection and construction of a final repository.
World Nuclear News, 5 May 2011

SKB Turns in application for permit to build a final repository. On March 16, the Swedish Nuclear Fuel and Waste Management Company, SKB, applied for a permit to build a final repository for spent nuclear fuel and a facility where the fuel will be encapsulated before being transported to the final repository. SKB's application will now be reviewed by the Swedish Radiation Safety Authority and the Environmental Court. The application will subsequently be presented for political decision in the relevant municipalities and by the government. SKB wants to use the so-called KBS-3 method for the repository, in which spent fuel would be placed in copper and steel canisters before being placed in granite bedrock 500 meters below the surface. Bentonite clay would be put around the canisters as a barrier to radioactive leakage. Critics of the plan have repeatedly questioned the choice of copper and its potential for corrosion, among others issues.
The Swedish NGO Office for Nuclear Waste Review, or MKG, an organization that opposes the KBS-3 method, said that SKB has “shown arrogance in the face of criticism” about the method. The group called on Swedish politicians to “take responsibility” and require alternative methods to be further reviewed. MKG favors a so-called deep-borehole repository, which would be deeper underground than the repository planned by SKB.
SKB is applying for permission to build an encapsulation facility in Oskarshamn Municipality and a final repository for spent nuclear fuel at Forsmark in Östhammar Municipality. (see more on the SKB plans in: Nuclear Monitor 706, 26 March 2010: “Nuclear fuel waste storage: end of the road for the Swedish solution”).
In December 2009 SKB, the industry's jointly owned company for nuclear waste solutions, published a "preliminary" environmental impact statement (EIS) on the KBS-3 scheme. The report failed to meet even rudimentary requirements of an EIS. In January 2010 the SKB unilaterally declared the termination of public consultations on the project (consultations mandated by the Swedish Environmental Code, 1998). SKB makes no apologies, but simply notes that long-awaited updates will be filed together with the formal application.
SKB, 16 March 2011 / Nuclear Fuel, 21 February 2011 / Nuclear Fuel, 21 March 2011 / Nuclear Monitor 706, 26 March, 2010

The 'greying' of the nuclear industry. Almost a third of Britain's nuclear inspectors are eligible to retire within three years, leaving a potential 'knowledge gap' within the regulator. The Office for Nuclear Regulation has hired 93 new inspectors since 2008. But of the 217 inspectors, 30 per cent are over the age of 57, 11 per cent are over 60 and 70 could retire by 2015. The regulator said that new recruits were needed soon so that the older generation could pass on their expertise and bridge the knowledge gap. Is that what they mean by saying that the nuclear industry has matured?
The Times (UK), 19 May 2011

WISE/NIRS NUCLEAR MONITOR

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

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

Receiving the WISE/NIRS Nuclear Monitor

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