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Editorial

Dear readers of the WISE/NIRS Nuclear Monitor,

This is the 800th issue of the *Nuclear Monitor*. The first issue was produced 37 years ago, in May 1978. We'd like to thank the countless thousands of readers and contributors who have kept the *Monitor* going for all these years. We thank our subscribers – *Nuclear Monitor* would not survive without your support and we'd be grateful if you could encourage others to subscribe (at www.wiseinternational.org).

Most of all, we'd like to thank the millions of people who have fought for a nuclear-free future since *Nuclear Monitor* was first produced. If there was any doubt that we're making a difference, just consider the past decade – despite a relentless global propaganda campaign trumpeting the 'renaissance' of nuclear power, the number of reactors has actually declined over the past decade. If that's a renaissance ...

In this issue of the Monitor:

- We deconstruct the latest round of propaganda about 'small modular reactors'.
- We look at nuclear power debates in Belgium, which is at the cutting edge of a new era in the history of nuclear power – the 'Era of Nuclear Decommissioning', a.k.a. the END.
- We write about the re-emergence of the collusive 'nuclear village' in Japan.

Michael Mariotte Legacy Fund

For over 30 years, Michael Mariotte – President of the Nuclear Information & Resource (NIRS) in the US – has helped build the movement to stop nuclear power, end the creation of radioactive waste, and hasten our sustainable energy future. Over a dozen organizations in the US recently presented Michael with a Lifetime Achievement Award, with the highest praise for his work.

But now Michael needs our support. For two years, he has been fighting his way through an aggressive form of cancer. Despite his illness, it has actually helped keep him strong to continue working throughout – just see the safeenergy.org blog for his prolific activity and inimitable voice. In honor of his incredible dedication and service, NIRS is committed to providing Michael whatever support he needs, just as he has sustained the movement all these years.



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- Ray Acheson from Reaching Critical Will writes about the upcoming Nuclear Non-Proliferation Treaty Review Conference.
- Michael Mariotte writes about Senator Lamar Alexander's fantasies for 100 new reactors in the US.

Feel free to contact us if you have feedback on this issue of the Monitor, or if there are topics you would like to see covered in future issues.

Regards from the editorial team.

Email: monitor@wiseinternational.org



Therefore, NIRS is raising funds to ensure Michael has the support he needs and that his work continues. The funds raised will serve three purposes: to ensure Michael receives his full salary and benefits, regardless of whether he is able to continue working; to ensure NIRS has the capacity to advance the mission to which he has dedicated his career; and, at Michael's specific request, to ramp up NIRS' work on nuclear power and climate.

If you can donate, please visit: <http://legacyfund.nirs.org>

Small modular reactors: a chicken-and-egg situation

Author: Jim Green – Nuclear Monitor editor

NM800.4452 According to James Conca, a nuclear enthusiast who writes for *Forbes*, the nuclear industry in the US is “abuzz” with the potential of small modular reactors (SMRs).¹

Conca promotes pseudo-research from the ‘Small Modular Reactor Research and Education Consortium’, according to which a single SMR has the potential to result in US\$892 million (€844m) in “direct economic benefits”. In other words, the capital cost estimate is US\$892 million. The Consortium estimates that the potential economic benefits from the establishment of an SMR construction business in the US could range from US\$34–250 billion (€32.2–236.7b) or more.

Better grounded in reality is a report produced by Nuclear Energy Insider, drawing on interviews with more than 50 “leading specialists and decision makers”. The report attempts to put a positive spin on the future development of SMRs, but an air of pessimism is all too apparent, even in the report’s title: ‘Small Modular Reactors: An industry in terminal decline or on the brink of a comeback?’²

Pessimism is also apparent in comments by the report’s lead author, Kerr Jefferies: “From the outside it will seem that SMR development has hit a brick wall, but to lump the sector’s difficulties together with the death of the so-called nuclear renaissance would be missing the point.”³

In the US⁴:

- Babcock & Wilcox has greatly reduced its investment in SMR development, despite receiving US\$111 million (€105m) from the Department of Energy. B&W CEO Jim Ferland said that he sees the future of SMRS as “still being up in the air.”
- Westinghouse abandoned its SMR development program in February 2014.
- Warren Buffet’s MidAmerican Energy abandoned plans to build an SMR in Iowa after consumer groups prevailed in a legislative battle over ‘construction work in progress’ legislation that allows utilities to charge higher rates to cover reactor construction costs, even if the reactor is never built.
- NuScale is the only company in the US with any forward momentum – it is aiming to submit documentation to the Nuclear Regulatory Commission in 2016 for design review.

Glenn George from KPMG recently discussed SMR development in the US with Nuclear Energy Insider: “I think that investors are in a wait-and-see mode regarding development of the SMR market. ... Investors will want to see SMR learning-curve effects, but a chicken-and-egg situation is at work: Decreased cost comes from production of multiple units over time, yet

such production requires investment in the first place. So it’s not surprising that, in the absence of commercial orders, Westinghouse and Babcock & Wilcox have slowed SMR development.”⁵

Outside the US, just a few first-of-a-kind SMR projects are under construction – in Argentina (CAREM-25), Russia (KLT-40S) and China (HTR-PM).

The Nuclear Energy Insider report restates the familiar SMR rationale about mass production and streamlined supply chains bringing down costs. But it also calls into question the underlying logic: “SMR concepts face a real challenge in ensuring cost and energy efficiency. Making a power unit smaller also increases the need to have five, ten or even twelve modular reactors working in unison to create the same level of base load electricity as the large PWR’s and fossil fuel plants they will replace. In reducing the size of reactor modules you also reduce the amount of thermal energy produced, if an SMR only has an energy efficiency of 30–40% then you require even further units to make up the shortfall.”

The report also qualifies the usual SMR rhetoric about economies derived from mass factory production: “Factory assembly of small reactors is one of the core benefits of SMR’s. They can be built off site in ‘bulk’, easily transported and then plugged into an infrastructure network promising a far quicker and cheaper alternative to large PWR’s. However, in order to ensure a smooth transition from the drawing board to the construction site there are key questions to be faced in separating the expertise held in a reactor factory and the expertise required to install an SMR when it arrives on site. For an effective SMR supply chain to be developed it will need to be localized – despite the reactors being built off site, a great amount of the on-site infrastructure and materials will still require precision assembly.”

If there was any remaining doubt that SMRs are not the ‘game changer’ they are so often portrayed to be, the report concludes: “Six decades of nuclear development have shown that nuclear energy can only be progressed if ‘long-term’ strategies are employed across the industry. In an economic climate where there are alternative energies offering far quicker returns on investment, clear questions need to be raised and frank discussions held in order to ensure that SMR’s do remain a realistic alternative for energy provision.”

The report states that notwithstanding the “pervasive sense of pessimism” resulting from abandoned and scaled-back SMR programs, “we believe a more accurate picture is that 2014 has been a teething year, and that the SMR story hasn’t even really begun.”

Therein lies the problem – the story hasn’t begun: no supply chains, no factories churning out identical

reactors, and precious few customers. And another familiar problem that has long plagued the nuclear industry: a bewildering array of proposed designs.

SMR push in the UK

The UK has been bitten by the SMR bug. The National Nuclear Laboratory (NNL) has produced a feasibility study which argues that SMRs might eventually prove cheaper than large reactors, while also noting unresolved 'detailed technical challenges'. The House of Commons Select Committee on Energy and Climate Change has urged the government to spend public money to develop a demonstration SMR.⁶

Academics Gordon MacKerron and Philip Johnstone from the Sussex Energy Group write: "It [NNL] then suggests a potential UK market of between 7GW and 21GW in 2015, the latter number being frankly not credible under any conceivable circumstances. These hoped-for UK markets are also linked to the idea that the UK could become a major technological player in SMR technology, a view that seems tinged almost with fantasy, given that all significant SMR development to date has been outside the UK."⁶

South Korea's SMART reactor

South Korea may have found a model to unlock the potential of SMRs: collaboration with a repressive Middle Eastern state, extensive technology transfer, and if that fans proliferation risks and tensions in a volatile region, so be it.

On March 3, the Korea Atomic Energy Research Institute (KAERI) signed a memorandum of understanding with Saudi Arabia's King Abdullah City for Atomic and Renewable Energy (KACARE) to carry out a three-year study to assess the feasibility of building two first-of-a-kind 'System Integrated Modular Advanced Reactor' (SMART) reactors.⁷

SMART is a 100 MWe pressurized water reactor design which could be used for electricity generation and desalinization. The cost of building the first SMART reactor in Saudi Arabia is estimated at US\$1 billion (€947m).⁷

Among other obstacles, the development of SMART technology has only lukewarm support from the South Korean government; it is no longer financially backed by

Korea Electric Power Co. (Kepeco); there is no intention to deploy SMART reactors in South Korea; and plans to build a demonstration plant in South Korea stalled.

South Korea launched 'SMART Power' on January 29 – an organisation tasked with marketing SMART technology overseas, conducting joint feasibility studies with interested customers, and continuing design work to make the reactor technology "more economically feasible".

KACARE says that SMART intellectual property rights will be co-owned and that, in addition to the construction of SMART reactors in Saudi Arabia, the two countries aim to commercialise the technology and to promote it world-wide.⁸

KACARE states: "Undisputedly, human capacity building for the production of nuclear power within the Kingdom of Saudi Arabia is a national pursuit of paramount importance as it will essentially contribute to the sincerely devoted endeavors to devise a sustainable development future for Saudi generations."⁸

Failing that, the joint partnership – and the extensive technology transfer and training it entails – will take Saudi Arabia a long way down the path towards developing a latent nuclear weapons capability. Saudi officials have made no secret of the Kingdom's intention to pursue a weapons program if Iran's nuclear program is not constrained.⁹

Wall Street Journal reporters noted on March 11: "As U.S. and Iranian diplomats inched toward progress on Tehran's nuclear program last week, Saudi Arabia quietly signed its own nuclear-cooperation agreement with South Korea. That agreement, along with recent comments from Saudi officials and royals, is raising concerns on Capitol Hill and among U.S. allies that a deal with Iran, rather than stanching the spread of nuclear technologies, risks fueling it."¹⁰

A bilateral nuclear trade agreement between the US and Saudi Arabia has stalled because of the Kingdom's refusal to rule out developing enrichment or reprocessing technology. "We've been pressing them to agree not to pursue a civilian fuel cycle, but the Saudis refuse," said Gary Samore, a US government official working on nuclear issues during President Obama's first term.¹⁰

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Belgium and the END of nuclear power

Author: Jim Green – Nuclear Monitor editor

NM800.4453 Belgium is a microcosm of the ageing nuclear power industry. The International Energy Agency predicts a “wave of retirements”¹ – almost 200 reactor shut downs by 2040 – and *Oilprice.com* argues that it is unclear whether new build will offset the “tidal wave” of reactor shut downs over the next 20 years.² Belgium is at the sharp edge of this new nuclear era: the Era of Nuclear Decommissioning, the END.

Belgium’s seven reactors – all pressurized water reactors – are all operated by Electrabel, a GDF Suez subsidiary. Electrabel owns 100% of two reactors, 89.8% of four reactors and 50% of one reactor. EDF and SPE are the other companies with ownership stakes.³

When all seven reactors were operating, they supplied about half of Belgium’s electricity. All are due to be shut down by the end of 2025. Belgium’s nuclear phase-out law mandates the shut down of six reactors when they have operated for 40 years – with the exception of Tihange 1, which is due to be shut down in 2025 when it has operated for 50 years.

All seven reactors have been in the news over the past year:

- Doel 1: Shut down when its 40-year licence expired in February 2015.
- Doel 2: Now operating but due to be shut down in December 2015. GDF Suez / Electrabel is negotiating a possible licence extension for Doel 1 and 2 to operate for another 10 years, and seeking regulatory approval.
- Doel 3 and Tihange 2: Offline since March 2014 due to concerns about the integrity of reactor pressure vessels; future uncertain.
- Doel 4: Offline for more than four months in 2014 due to suspected sabotage of the high-pressure turbine. Now operating.
- Tihange 1: Now in its fortieth year of operation but licensed to operate for another 10 years. Greenpeace has initiated a legal challenge against the licence extension, because of the failure to carry out an Environmental Impact Assessment and cross-boundary consultation in line with Belgium’s obligations under the Espoo Convention (the Convention on Environmental Impact Assessment in a Transboundary Context). Court hearings are scheduled for March 24 and the judge is expected to present his verdict soon after.
- Tihange 3: Briefly shut down following a fire in December 2014. Now operating.

Policies and politics

Nuclear power policies and laws have been in flux over the past two decades:³

- In 1999, the government announced that reactor lifetimes would be limited to 40 years, and banned further reprocessing.
- In 2003, the Belgian Parliament passed legislation banning the building of new power reactors and limited the operating lives of existing reactors to 40 years.
- In 2009, the government decided to postpone the phase-out by 10 years, so that it would not begin before 2025. This would allow the licensing of reactor life extensions. Reactor operators agreed to pay a special tax of €215–245 million (US\$227–259m) per year from 2010–14, and more thereafter. GDF Suez also agreed to subsidise renewables and demand-side management by paying at least €500 million (US\$528m) for both, and it maintaining 13,000 jobs in energy efficiency and recycling.

However, an election in April 2010 occurred before the agreed proposals were passed by parliament and thus the nuclear phase-out law remains in place. In July 2012 Belgium’s Council of Ministers announced that Doel 1 and 2 were to close in 2015 after 40 years of operation, but Tihange 1 would be permitted to operate to 2025. This was written into law in December 2013. The government said that it had rewritten the 2003 law so that its current stance could not be changed by decree, and therefore the timing of the phase-out “is now final.”^{3,4}

In December 2014 the Council of Ministers from the new ruling coalition government agreed that Doel 1 and 2 could continue operating for a further 10 years, to 2025. Energy minister Marie-Christine Marghem said that it was an “unconditional prerequisite” that the Belgian nuclear regulator – the Federal Agency for Nuclear Control (FANC) – approve licence extensions for the two reactors. She noted that Belgium’s planned nuclear phase-out by the end of 2025 remains in place.⁴

The government decision to allow Doel 1 and 2 to continue to operate for a further 10 years was partly a result of problems with other reactors – in particular the outages of Tihange 2 and Doel 3 and uncertainty about their future. GDF Suez / Electrabel is in negotiation with the Belgian government over the Doel 1 and 2 licence extensions but an agreement has not yet been reached – hence the shut down of Doel 1 in February in accordance with the nuclear phase-out law. Further, the regulator FANC has not yet approved licence extensions for Doel 1 and 2.⁴

GDF Suez / Electrabel is unwilling to invest up to €600–700 million (US\$634–740m) in necessary upgrades to Doel 1 and 2 unless the government provides a “clear legal and economic framework” to justify the investment. Negotiations include removal of

the nuclear generation tax introduced by a previous government – according to the World Nuclear Association, that tax cost the company €397 million (US\$419m) in 2014.⁵

As Rianne Teule, campaign director for Greenpeace Belgium, put it: “In order to agree to such a large investment, Electrabel demands ‘a clear legal and economic framework’. Read: ‘a good deal to reduce the investment risks’. It’s the Belgian people who will pay the price, one way or another. If not through increased taxes, when Electrabel’s payments to the state decrease, then through increased electricity prices when Electrabel passes on their investments to their clients.”⁶

In 2012 the government passed laws increasing the tax on nuclear operators. The government set a total contribution from nuclear operators for 2012 of €550 million (US\$581m), of which Electrabel had to pay €479 million (US\$506m). In June 2013 Electrabel filed an appeal to Belgium’s Constitutional Court, claiming the tax violated a protocol signed by the company and the federal government in 2009, which included a lower tax, and took no account of declining revenue from nuclear power generation. In April 2014 the Court of First Instance in Brussels rejected Electrabel’s claim. The company appealed, but the appeal was rejected in July 2014. Electrabel said it would continue “to examine all potential legal means in order to defend its interests” and “examine all options concerning the future of its nuclear activities in Belgium.”^{3,7}

According to Greenpeace, nuclear power is part of the energy security problem, not part of the solution: “The reason for the potential electricity supply problem is Belgium’s excessive dependency (55%) on unreliable nuclear power. A political decision to extend the lifetime of two old reactors will not mitigate this acute supply problem. It will take at least a year to implement the necessary safety upgrades, and to order and fabricate new fuel for them. Extending the legally fixed phase-out calendar will undermine investment in real climate solutions such as energy efficiency and renewables.”⁸

Tihange 2 and Doel 3 – compromised reactor pressure vessels

Doel 3 and Tihange 2 were taken offline in 2012 when ultrasound testing suggested the presence of cracks in their reactor vessels. Further investigations indicated that the defects are so-called hydrogen ‘flakes’. FANC allowed Electrabel to restart the reactors in May 2013. However the reactors were again taken offline in March 2014 after Electrabel reported that tests to investigate the mechanical strength of irradiated specimens of similar material “did not deliver results in line with experts’ expectations”.⁹ FANC said that “a fracture toughness test revealed unexpected results, which suggested that the mechanical properties of the material were more strongly influenced by radiation than experts had expected.”¹⁰

In January 2015, FANC said the process to restart the reactors had been extended from April to July so that Electrabel could answer further questions.

In February, FANC announced that additional inspections revealed more extensive flaking within the pressure vessels of the two reactors than previously identified. FANC said 13,047 flaw indications have now been found in the vessel of Doel 3 and 3,149 in that of Tihange 2. Further test results are expected by April.^{1,9}

FANC Director General Jans Bens said: “This may be a global problem for the entire nuclear industry. The solution is to implement worldwide, accurate inspections of all 430 nuclear power plants.”¹¹

Shortly after approving the restart of Doel 3 and Tihange 2 in May 2013 – a decision that was contested at the time and seems unwise in hindsight – Bens was seriously downplaying nuclear risks: “The harbour of Antwerp is being filled with windmills, and the chemical industry is next to it. If there is an accident like a break in one of the wings, that is a guillotine. If that goes through a chloride pipe somewhere, it will be a problem of a bigger magnitude than what can happen at Doel. Windmills are more dangerous than nuclear power plants.”¹²

Two materials scientists have said the unexpected flaws in Doel 3 and Tihange 2 could be related to corrosion from normal operation, with potential implications for reactors worldwide. Prof. Digby MacDonald said: “The consequences could be very severe ... like fracturing the pressure vessel. Loss of coolant accident. This would be a leak before break scenario. ... My advice is that all reactor operators, under the guidance of the regulatory commissions should be required to do an ultrasonic survey of the pressure vessels. All of them.” Prof. Walter Bogaerts said: “If I had to estimate, I would really be surprised if it ... had occurred nowhere else.”^{13,14}

Electrabel reacted to the latest news by saying that it may be willing to “sacrifice” one of the two reactors to allow destructive testing to learn more about the problem.¹⁵

Doel 3 and 4: Fire and sabotage

On 1 December 2014 at 10:30am, a fire began in the electrical substation transformer building at Doel and led to an emergency shutdown of reactor #3. The fire was put out by the local fire service and the reactor was restarted at 5am the following day.¹⁶ Fires at nuclear power plants pose significant risks to reactor safety due to the potential disruption of the electrical supply to vital reactor safety functions. The risks in Belgium are all the greater because of the high population density and the concentration of seven reactors at just two sites.¹⁷

Sabotage at Doel 4

The Belgian nuclear industry was shaken on 5 August 2014 when it was revealed that sabotage had caused, in Electrabel’s words, “significant damage” at Doel 4. Lubricant had been discharged from the high-pressure turbine through a valve which had probably been opened deliberately by a worker. Some 6,000 professionals from 15 companies participated in the repair of the turbine. The repair involved the manufacture of 2500 blades at four plants in China, Croatia, Italy and Switzerland.¹⁸ The reactor was restarted on December 19.¹⁹



The END of nuclear power

When the last reactor is shut down in 2025, that won't be the end of Belgium's nuclear program but the beginning of the END – the Era of Nuclear Decommissioning.

In addition to the decommissioning of seven reactors, Belgians will somehow have to manage: high-level

nuclear waste currently stored at Dessel and at reactor plants; larger volumes of low- and intermediate-level waste; and other nuclear facilities now in various stages of decommissioning including a MOX fuel fabrication plant and the Eurochemic reprocessing plant at Dessel.

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Japan's 'nuclear village' reasserting control

Author: Jim Green – Nuclear Monitor editor

NM800.4454 Public opposition to reactor restarts, and the nuclear industry more generally, continues to exert some influence in Japan. Five to seven of the oldest of Japan's 48 'operable' reactors are likely to be sacrificed to dampen opposition to the restart of other reactors, and public opposition may result in the permanent shut down of some other reactors.¹

However, slowly but surely, the collusive practices that led to the Fukushima disaster are re-emerging. The 'nuclear village' is regaining control.

Energy policy

After the Fukushima accident, the Democratic Party of Japan (DPJ) government commenced a review of energy policy. After deliberations in a committee that included more or less equal numbers of nuclear critics, proponents and neutral people, three scenarios were put forward in June 2012 – based on 0%, 15% and 20–25% of electricity generation from nuclear reactors. These scenarios were put to a broad national debate, the outcome of which was that a clear majority of the public supported a nuclear phase-out. The national debate played a crucial role in pushing the DPJ government to support a nuclear phase-out.²

After the December 2012 national election, the incoming Liberal Democratic Party (LDP) government repudiated the DPJ's goal of phasing out nuclear power. The LDP government also revamped the policy-drafting committee, drastically reducing the number of nuclear critics. And the committee itself was sidelined in the development of a draft Basic Energy Plan. "From a process perspective, this represents a step back about 20 years," said Dr Philip White, an expert on Japan's energy policy formation process.²

"A major step toward greater public participation and disclosure of information occurred after the December 1995 sodium leak and fire at the Monju fast breeder reactor," Dr White wrote in *Nuclear Monitor* last year. "Although public participation was not conducted in good faith, at least lip service was paid. It seems that the current government has decided that it doesn't even need to pay lip service."²

The Basic Energy Plan approved by Cabinet in April 2014 contains nothing more than a meaningless nod to widespread public anti-nuclear sentiment, stating that dependence on nuclear energy will be reduced 'to the extent possible'.

Junko Edahiro, chief executive of Japan for Sustainability and one of the people removed from the energy policy advisory committee, noted in November 2014: "Now what we have is a situation where government officials and committees are back to doing their jobs as if the March 2011 disasters had never occurred. They have resumed what they had been doing for 30 or 40 years, focusing on nuclear power. ... In Japan we have what some people

refer to as a "nuclear village": a group of government officials, industries, and academia notorious for being strongly pro-nuclear. There has been little change in this group, and the regulatory committee to oversee nuclear policies and operations is currently headed by a well-known nuclear proponent."³

'An accident will surely happen again'

Yotaro Hatamura, who previously chaired the 'Cabinet Office Investigation Committee on the Accident at the Fukushima Nuclear Power Stations of TEPCO', recently told the *Asahi Shimbun* newspaper that pre-Fukushima complacency is returning.⁴

"Sufficient investigations have not been conducted" into the causes of the Fukushima disaster, said Hatamura, professor emeritus of mechanical engineering at the University of Tokyo. The Cabinet Office Investigation Committee report called on the government to continue efforts to determine the cause of the nuclear disaster, but "almost none" of its proposals have been reflected in recent government actions, Hatamura said.

He further noted that tougher nuclear safety standards were introduced after the Fukushima disaster, but with the exception of this "regulatory hurdle ... the situation seems unchanged from before the accident."

"It does not appear that organizations to watch [government actions] are working properly," Hatamura said. "There could always be lapses in oversight in safety assessments, and an accident will surely happen again."

Hatamura questioned the adequacy of evacuation plans, saying they have been compiled without fully reflecting on the Fukushima accident. "The restarts of reactors should be declared only after sufficient preparations are made, such as conducting evacuation drills covering all residents living within 30 kilometers of each plant based on developed evacuation plans."

Japan Atomic Energy Commission

In September 2012, the DPJ government promised that a review of the Japan Atomic Energy Commission (JAEC) would be conducted 'with its abolition and reorganization in mind'. The government established a review committee, which published a report in December 2012. After taking office, the incoming LDP government shelved the report and commenced a new review.⁵

The second review recommended that the JAEC no longer produce an overarching Framework for Nuclear Energy Policy. But an LDP committee has reportedly decided that the JAEC will be tasked with putting together a nuclear energy policy that would effectively have equivalent status to the Framework for Nuclear Energy Policy.⁵

Two reviews, very little change – and far from being abolished, the JAEC retains a role in framing nuclear policy. Moreover, the government has proposed that

the JAEC, a promoter of nuclear power, could act as a 'third party' in the choice of a final disposal site for nuclear waste. Some experts who attended a ministry panel meeting in February questioned the JAEC's independence.⁶

TEPCO

Many have called for TEPCO to be nationalised, or broken up into separate companies, but the LDP government has protected and supported the company. The government has also greatly increased financial support for TEPCO. For example in January 2014 the government approved an increase in the ceiling for interest-free loans the Nuclear Damage Liability Facilitation Fund is allowed to give TEPCO, from 5 trillion yen to 9 trillion yen (US\$41.2–74.1b; €39.0–70.2b).⁷

The government will also cover some of the costs for dealing with the Fukushima accident which TEPCO was previously required to pay, such as an estimated 1.1 trillion yen (US\$9.1b; €8.6b) for interim storage facilities for waste from clean-up activities outside the Fukushima Daiichi plant.⁷

The government has also amended the Electricity Business Act to extend the period for collecting decommissioning funds from electricity rates by up to 10 years after nuclear plants are shut down. The amendments also allow TEPCO to include in electricity rates depreciation costs for additional equipment purchased for the decommissioning of the Fukushima plant.⁸

Media censorship and intimidation

Japan has steadily slipped down Reporters Without Borders global ranking for press freedom since the Fukushima disaster, from 11th in 2010 to 61st in the latest ranking.^{9,10}



On March 8, around 23,000 people rallied in front of Japan's parliament in Tokyo, calling for the decommissioning of all nuclear plants across the country.

Journalists have been threatened with 'criminal contempt' and defamation suits, and Japan's 'state secrets' law makes investigative journalism about Japan's nuclear industry perilous.¹¹ Under the law, which took effect in December 2014, the government can sentence those who divulge government secrets – which are broadly defined – to a decade in jail.¹⁰

Benjamin Ismail from Reporters Without Borders wrote in March 2014: "As we feared in 2012, the freedom to inform and be informed continues to be restricted by the 'nuclear village' and government, which are trying to control coverage of their handling of the aftermath of this disaster. Its long-term consequences are only now beginning to emerge and coverage of the health risks and public health issues is more important than ever."¹¹

Reporters Without Borders stated in March 2014: "Both Japanese and foreign reporters have described to Reporters Without Borders the various methods used by the authorities to prevent independent coverage of the [Fukushima] disaster and its consequences. They have been prevented from covering anti-nuclear demonstrations and have been threatened with criminal proceedings for entering the "red zone" declared around the plant. And they have even been interrogated and subjected to intimidation by the intelligence services."¹¹

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A legally-binding treaty to ban nuclear weapons

Author: Ray Acheson – Director of *Reaching Critical Will*, the disarmament programme of the Women's International League for Peace and Freedom (WILPF).

NM800.4455 Five years after the adoption of the NPT (Nuclear Non-Proliferation Treaty) Action Plan in 2010, compliance with commitments related to nuclear disarmament lags far behind those related to non-proliferation or the peaceful uses of nuclear energy.

Yet during the same five years, new evidence and international discussions have emphasised the catastrophic consequences of the use of nuclear weapons and the unacceptable risks of such use, either by design or accident.

Thus the NPT's full implementation, particularly regarding nuclear disarmament, is as urgent as ever. One of the most effective measures for nuclear disarmament would be the negotiation of a legally-binding instrument prohibiting and establishing a framework for the elimination of nuclear weapons.

Not everyone sees it that way.

In fact, ahead of the 2015 Review Conference (scheduled to take place in New York April 27–May 22), the NPT nuclear-armed states and some of their nuclear-dependent allies have argued that any such negotiations would “undermine” the NPT and that the Action Plan is a long-term roadmap that should be “rolled over” for at least another review cycle.

This is an extremely retrogressive approach to what should be an opportunity for meaningful action. Negotiating an instrument to fulfill article VI of the NPT would hardly undermine the Treaty.

On the contrary, it would finally bring the nuclear-armed states into compliance with the legal obligations.

Those countries that possess or rely on nuclear weapons often highlight the importance of the NPT for preventing proliferation and enhancing security.

Yet these same countries, more than any other states parties, do the most to undermine the Treaty by preventing, avoiding, or delaying concrete actions necessary for disarmament.

It is past time that the NPT nuclear-armed states and their nuclear-dependent allies fulfill their responsibilities, commitments, and obligations – or risk undermining the very treaty regime they claim to want to protect.

Their failure to implement their commitments presents dim prospects for the future of the NPT. The apparent expectation that this non-compliance can continue in perpetuity, allowing not only for continued possession but also modernisation and deployment of nuclear weapon systems, is misguided.

The 2015 Review Conference will provide an opportunity for other governments to confront and

challenge this behaviour and to demand concerted and immediate action. This is the end of a review cycle; it is time for conclusions to be drawn.

States parties will have to not only undertake a serious assessment of the last five years but will have to determine what actions are necessary to ensure continued survival of the NPT and to achieve all of its goals and objectives, including those on stopping the nuclear arms race, ceasing the manufacture of nuclear weapons, preventing the use of nuclear weapons, and eliminating existing arsenals.

The recent renewed investigation of the humanitarian consequences of nuclear weapons is a good place to look for guidance. The 2010 NPT Review Conference expressed “deep concern at the catastrophic humanitarian consequences of any use of nuclear weapons.”

Since then, especially at the series of conferences hosted by Norway, Mexico, and Austria, these consequences have increasingly become a focal point for discussion and proposed action.

Governments are also increasingly raising the issue of humanitarian impacts in traditional forums, with 155 states signing a joint statement at the 2014 session of the UN General Assembly highlighting the unacceptable harm caused by nuclear weapons and calling for action to ensure they are never used again, under any circumstances.

The humanitarian initiative has provided the basis for a new momentum on nuclear disarmament. It has involved new types of actors, such as the Red Cross and Red Crescent Movement, the United Nations Office for Coordination of Humanitarian Affairs, and a new generation of civil society campaigners.

The discussion around the humanitarian impact of nuclear weapons should be fully supported by all states parties to the NPT.

The humanitarian initiative has also resulted in the Austrian Pledge, which commits its government (and any countries that wish to associate themselves with the Pledge) to “fill the legal gap for the prohibition and elimination of nuclear weapons.”

As of February 2015, 40 states have endorsed the Pledge. These states are committed to change. They believe that existing international law is inadequate for achieving nuclear disarmament and that a process of change that involves stigmatising, prohibiting, and eliminating nuclear weapons is necessary.

This process requires a legally-binding international instrument that clearly prohibits nuclear weapons based on their unacceptable consequences. Such a treaty

would put nuclear weapons on the same footing as the other weapons of mass destruction, which are subject to prohibition through specific treaties.

A treaty banning nuclear weapons would build on existing norms and reinforce existing legal instruments, including the NPT, but it would also close loopholes in the current legal regime that enable states to engage in nuclear weapon activities or to otherwise claim perceived benefit from the continued existence of nuclear weapons while purporting to promote their elimination.

NPT states parties need to ask themselves how long we can wait for disarmament. Several initiatives since the 2010 Review Conference have advanced the ongoing international discussion about nuclear weapons.

States and other actors must now be willing to act to achieve disarmament, by developing a legally-binding

instrument to prohibit and establish a framework for eliminating nuclear weapons. This year, the year of the 70th anniversary of the U.S. atomic bombings of Hiroshima and Nagasaki, is a good place to start.

For more information and updates during the NPT Review Conference, visit the Reaching Critical Will website: www.reachingcriticalwill.org

Readers are encouraged to lobby national governments to support the Austrian Pledge to ban nuclear weapons. More than 50 countries have already endorsed the pledge (see the list at www.icanw.org/pledge). Information is posted at: <http://peaceandhealthblog.com/2014/12/09/the-austrian-pledge/>

You can sign an online petition urging your national government to support the pledge at <http://goodbyenuk.es/take-action/>

Nuclear fantasy in the United States

Author: *Michael Mariotte – President of the Nuclear Information & Resource Service*

NM800.4456 Back in 2008, when presidential candidate John McCain was calling for construction of 45 new reactors in the U.S. (and presidential candidate Barack Obama was calling for “safe” nuclear power), Tennessee Senator Lamar Alexander outdid his colleague: he issued a call for construction of 100 new nuclear reactors.

In 2008, the nuclear “renaissance” was in full swing. McCain’s call didn’t seem – at least to nuclear backers – far-fetched in the least. After all, the Nuclear Regulatory Commission (NRC) at the time already had some 30 applications for licenses for new reactors.

Nearly seven years later, McCain doesn’t talk much about nuclear power. President Obama’s Department of Energy approved a taxpayer loan for two new reactors at Vogtle, a move the Department of Energy may be beginning to regret as construction costs spiral and the schedule delays keep pushing the project further back. Otherwise, the President these days talks about promoting renewables.

Most people are able to adjust to reality – in this case the reality that the short-lived nuclear “renaissance” is over.

But not Senator Alexander, who is now chair of the Senate Appropriations Subcommittee on Energy & Water Development. In his first hearing on the Nuclear Regulatory Commission’s budget, Alexander recently repeated his call: “I have proposed that we build 100 new reactors, which may seem excessive, but not if about 20% of our current capacity from coal goes offline by 2020 as projected by the Energy Information Administration. If this capacity were replaced entirely by nuclear power it would require building another 48 new, 1,250-megawatt reactors – which, by the way, would reduce our carbon emissions from electricity by another 14%. Add the reactors we may need to replace in the coming decades due to aging and other factors, and my proposal for 100 may not seem so high.”

Actually, 100 new reactors not only seems high, it’s pure fantasy. With the experience of Vogtle, and the similar

experience at two reactors under construction at the Summer site in South Carolina, no one is lining up to build new reactors. At this point, it’s unlikely even the four under construction will be online by 2020, much less 96 more new ones.

If, by Alexander’s logic, that 20% of coal plants going offline by 2020 needs to be replaced (and we certainly hope he’s right that at least 20% of coal will be shut down by then), then nuclear reactors aren’t going to replace it. For that matter, it’s entirely possible 10–20% of our dangerous, aging and uneconomic reactors will close by then too.

So what’s left? Perhaps some natural gas, but mostly the energy sources Alexander hates: solar and wind power. Alexander has been the Senate leader in trying to get rid of the production tax credits for renewables, especially for wind. Why? Because wind is cheaper than nuclear power, faster to install, and is pushing nuclear aside. As solar continues its rapid growth, you can be sure Alexander will go after it with the same passion. Both would reduce carbon emissions even more than nuclear power.

In a *Wall Street Journal* op-ed last May, Alexander made his position clear: he opposes wind power’s tax credit because “The wind subsidy undercuts reliable “baseload” electricity such as nuclear and coal.” Yep, wouldn’t want to displace dirty energy with clean energy, would we now, Senator?

It is disconcerting to have someone so disconnected from reality as Senator Alexander possessing such great power over the NRC’s budget and energy policy generally. But, in a way, it’s almost reassuring. A powerful nuclear advocate who isn’t living in fantasyland might be able to consider small steps that might actually help the nuclear industry. Small steps aren’t part of the fantasy, however. Alexander’s dream may be America’s nightmare, but it *is* just fantasy. And in the world we actually live in, reality trumps fantasy every time.



‘Nuclear power: energy for a bright future’

Futaba’s 6,300 residents were ordered to evacuate after the Fukushima disaster. The town remains deserted and many former residents still live in poorly constructed temporary ‘homes’. A Futaba official recently said that street signs trumpeting the benefits of nuclear power will be removed. The signs read ‘Nuclear power: the energy for a bright future’, and ‘Nuclear power: for development of our homeland, a prosperous future’.

Yuji Onuma, who wrote one of the slogans as a sixth-grader at Futaba Kita elementary school in 1988, is opposing the removal of the signs. “The signboards should be preserved as a negative legacy and used to pass on to future generations the stupidity of human beings,” he said. “Rather than a bright future, nuclear energy has simply destroyed my hometown.”

www.fukushima-is-still-news.com/2015/03/preserve-slogans-as-negative-lunacy.html

WISE/NIRS Nuclear Monitor

The World Information Service on Energy (WISE) was founded in 1978 and is based in Amsterdam, the Netherlands.

The Nuclear Information & Resource Service (NIRS) was set up in the same year and is based in Washington D.C., US.

WISE and NIRS joined forces in the year 2000, creating a worldwide network of information and resource centers for citizens and environmental organizations concerned about nuclear power, radioactive waste, proliferation, uranium, and sustainable energy issues.

The WISE / NIRS Nuclear Monitor publishes information in English 20 times a year. The magazine can be obtained both on paper and as an email (pdf format) version. Old issues are (after 2 months) available through the WISE homepage: www.wiseinternational.org

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