NUCLEAR MONITOR

May 10, 2017 | No. 843

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

Dear readers of the WISE/NIRS Nuclear Monitor,

In this issue of the Monitor:

- A detailed update on the unfolding, existential crisis facing Japanese conglomerate Toshiba and its US nuclear subsidiary Westinghouse.
- David Fig writes about an extraordinary High Court ruling in South Africa that may kill off plans for new power reactors. We also summarize NGO responses to the court ruling.
- Jan Haverkamp reviews Andy Blowers' book on the nuclear waste legacy.
- A summary of a new report on the (dim) prospects for small modular reactors in Indonesia.

The Nuclear News section has reports on a public participation phase in relation to Sweden's plan for a nuclear waste repository; many anti-nuclear events in Europe in the coming months; and Chernobyl commemorations on April 26.

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

Monitored this issue:

US: People's Climate March

On April 29, the 100th day of Trump's presidency, the Nuclear Information & Resource Service (NIRS) and the Nuclear-Free, Carbon-Free Contingent joined the People's Climate March in Washington, DC. We, along with over 200,000 other people, demanded a 100% renewable, nuclear-free, carbon-free world and immediate action from the US government and all of the governments of the world.

The march was a beautifully inspiring moment that reminded us all that movement-building and united resistance have always been and will continue to be the most powerful force for justice and the environment to defend our global communities. And the nuclear-free, carbon-free message didn't stop in Washington – grassroots groups organized alongside us and turned out for local marches across the country, from Boston to Chicago, from Syracuse, New York to Tucson, Arizona.

This powerful demonstration for climate action, renewable energy jobs, and environmental justice was a timely reminder that we must chart another path for ourselves and continue to march for a vision of a clean, safe, just carbon-free and nuclear-free world.

People's Climate March, Washington DC, April 29.

– Tim Judson / NIRS

More information and photos:

www.nirs.org/photos, www.facebook.com/NIRSnet

https://peoplesclimate.org

www.flickr.com/photos/peoplesclimatemarch/albums

Update on the Toshiba / Westinghouse crisis

Author: *Jim Green – Nuclear Monitor editor*

NM843.4642 As discussed in Nuclear Monitor #841, Japanese conglomerate Toshiba said on April 11 that there is "substantial doubt about the Company's ability to continue as a going concern". Toshiba's US nuclear subsidiary Westinghouse filed for bankruptcy protection on March 29.

The companies are in crisis because of extraordinary cost overruns building four AP1000 reactors in the US – two each in Georgia and South Carolina. Estimating the scale of the cost overruns is difficult because there is still much work to be done to complete the reactors. A reasonable estimate is that if the reactors are completed, the combined overruns will amount to about US$13 billion.[1,2] Estimates compiled by *Reuters* put the cost overruns – again assuming that the reactors are completed – at US$3.9–6.7 billion for the reactors in Georgia and US$11.9 for the reactors in South Carolina, a combined total of US$15.8–18.6 billion.[3]

Toshiba wants to sell Westinghouse but can't find a buyer, although profitable parts of Westinghouse's operations might be sold off after a company restructure. Toshiba is also restructuring and selling some of its own businesses to avoid bankruptcy. Toshiba said on April 24 that it will establish its four in-house companies as wholly-owned subsidiaries.[4] As of October 1, it will split off its Energy Systems & Solutions Company, and the Nuclear Energy Systems & Solutions Division, and transfer them to a newly established company. The other three companies to be established as independent business entities are Infrastructure System & Solutions Company, Storage & Electronic Devices Solutions Company, and Industrial ICT Solutions Company.

The *Financial Times* reported: "Toshiba is not expected to seek to sell the subsidiaries because the group last month identified that much of the activities done in these four areas as essential to its turnround strategy. But the shake-up will leave the 144-year-old conglomerate, once a proud pillar of the Japanese industrial establishment, as a mere shadow of its former self. Toshiba is planning to sell its Nand memory chip business, the group's flagship technology asset, as well as offload much or all of Westinghouse. The Nand business could raise more than $20bn for the group – and therefore help repair its balance sheet."[5]

Toshiba's stand-off with its auditor

On April 11, Toshiba's auditor PricewaterhouseCoopers Aarata refused to sign off on Toshiba's financial report – Toshiba reported a net loss of ¥647.8 billion (US$5.7bn) for the Oct. to Dec. 2016 quarter. The main sticking point has been Toshiba's accounting in relation to the AP1000 reactors in the US.

Over the past month, Toshiba has been looking for a new auditor.[6] The other three of the Big Four accounting firms are probably non-starters. Deloitte Touche Tohmatsu and KPMG Azsa have past business ties to Toshiba. So does Ernst & Young ShinNihon, Toshiba's previous auditor.

Vogtle unit #4 under construction in Georgia.

Ernst & Young ShinNihon incurred a fine and reputational damage for failing to detect Toshiba's billion-dollar profit-padding scam from 2008–2014.[6]

Toshiba is seeking a second-tier accounting firm to sign off on its accounts but the *Financial Times* reported that only a few such firms have the expertise and the number of auditors needed to handle a group as large as Toshiba.[6]

Any auditing firm that certifies Toshiba's accounts does so at the risk of damaging its own reputation.

Sacking PricewaterhouseCoopers is not a simple option for Toshiba – it would require shareholder approval.[7] Sacking the auditor could unsettle the Stock Exchange, *Reuters* reported, but Toshiba "is out of attractive options."[8]

Toshiba has said it will release its figures for the March 2016 to March 2017 fiscal year by mid-May, but that could be extended to June 30. The company says it expects to report a net loss of just over ¥1 trillion (US$8.9bn) for the fiscal year, well over double the estimate of ¥390 billion provided in February.[9]

Stock exchange listing / delisting

Toshiba faces being delisted from the Tokyo Stock Exchange, an outcome that will be all the more likely if it releases unaudited figures for the 2016–17 fiscal year (as it did for the Oct. to Dec. 2016 quarter). Delisting would create a new set of problems that would make it all the more difficult for the company to survive – big investors would likely sell their stock, financing costs would increase, more lawsuits from shareholders would be expected, the share price would take another hit (it has fallen by 50% over the past six months) and, as *Reuters* reported, shareholders would be left with "near-worthless paper".[8] Last but not least, the complete collapse of Toshiba would loom as a real possibility.

The *Reuters* report continued: "There are three hurdles. First, a Tokyo Stock Exchange review has to conclude managers have fixed long-running shortcomings in internal controls. Second, the company must claw its way out of negative equity by March – hence the 2 trillion yen-plus ($18 billion) sale of its memory-chip

business. And third, it must file full-year results promptly: ideally by May 15, late June at the very latest."[8]

A zombie company?

Creditors and investors are nervous. In mid-April, Toshiba lost access to one of its subsidiary's funds after hedge fund Oasis Management went to court to get the subsidiary to take back its cash – ¥87.8 billion (US$771m) – from the parent company.[10] If that trickle becomes a flood – and in particular if the banks call in their loans – Toshiba will be doomed.

The *BBC* outlined three possible outcomes for Toshiba.[11] Firstly, it might become a zombie company like Sharp, TEPCO and many others: loss-making or insolvent companies that should be allowed to fail, but continue to operate because of lenient creditors. The second – and most likely – option is a break-up of the company (the strategy that is already playing out with Toshiba's plan to sell its memory chip business). The third possibility is a complete collapse of Toshiba. "If the chip sale falls through, more accounting irregularities emerge or the banks decide to call in their loans, then all bets are off," *BBC* business reported Leisha Chi said in an April 16 article.[11]

Might Toshiba file for bankruptcy protection?

Southern Company, which hired Toshiba subsidiary Westinghouse to build two nuclear reactors in Georgia, is concerned that Toshiba will apply for protection from creditors and relieve itself of the guarantees made on Westinghouse's behalf, sources have told the *Wall Street Journal*.[12] A Toshiba official reportedly said the best way to save the company could be a filing under Japan's corporate reorganization law, which is similar to US Chapter 11 bankruptcy protection legislation in that it seeks to allow a company to stay in business by relieving it of some obligations. The Toshiba official said the move could free Toshiba of its obligations to Westinghouse and its customers, including its obligations to provide funding to complete AP1000 reactors under construction in the US.

However a Toshiba spokesperson said: "At this moment, we do not have any thought or intention of seeking protection under corporate-reorganization proceedings."[12]

The *Wall Street Journal* reported:[12]

"A Japanese chapter 11-style filing is only one of several scenarios Toshiba could choose. It presents several downsides: Suppliers could take a hit, hurting the broader economy, and shareholders could be wiped out – though Toshiba's shares are already in danger of being delisted in Tokyo because of accounting problems that emerged in 2015. But the filing would strengthen Toshiba's balance sheet and could allow it to keep its profitable memory-chip business, the Toshiba official said – relieving Japanese government concerns about technology leaks to Chinese or other competitors. A person familiar with Southern's thinking said Japanese creditor banks have significant leverage in deciding what to do with Toshiba, and that their loans would come ahead of other obligations. "We are not first in line," this person said."

Westinghouse and the AP1000 reactors in the US

Westinghouse filed for Chapter 11 bankruptcy protection on March 29, listing assets of US$4.3 billion and liabilities of US$9.4 billion among about 35,000 creditors.[13]

Westinghouse said on March 29 it would no longer spend money on the Vogtle (Georgia) and Summer (South Carolina) AP1000 projects, but reached an agreement with the utilities involved to allow them to pay costs to continue the projects during a 30-day interim period while decisions on the future of the projects are made. That 30-day period was later extended until May 12 for the Georgia project and June 26 for South Carolina.[14]

Between April 7 and April 20, about 30 vendors asked Westinghouse to return US$35 million in materials and products ordered for the four reactors in Georgia and South Carolina before the company filed for bankruptcy protection.[15] No doubt other vendors have done likewise since April 20. Many Westinghouse suppliers received letters saying that their invoices for work performed or products supplied before the bankruptcy protection filing could not be paid at this time.[16]

Westinghouse plans to complete a restructuring plan by the end of June 2017 and a new business plan by the end of July 2017. The aim is to ring-fence the four AP1000 reactors. Gavin Liu, Westinghouse's president for Asia, said the "rest of the Westinghouse business, the healthy part, which is new plant construction, fuel, service, decommissioning – we anticipate an ownership change."[17] Liu noted that there has been "high interest from the financial community" in the profitable parts of the company's operations.[17]

Toshiba would like to sell Westinghouse and keep its profitable businesses – but must instead sell profitable businesses to cover the debts from Westinghouse's nuclear projects. Westinghouse, in turn, would like to rid itself of the US AP1000 reactors projects and keep its profitable operations but must instead sell profitable operations to cover debts from the reactor projects.

No amount of ring-fencing will make the AP1000 problems go away. According to Westinghouse, an additional US$4 billion is required to complete the four reactors (US$2.5 billion in Georgia and US$1.5 billion in South Carolina).[13] That figure may be an underestimate. Southern Co. CEO Thomas Fanning has said the company needs at least US$3.7 billion needs to complete the two reactors in Georgia – possibly more.[18,19]

If the additional costs can be kept to US$3.7 billion, Southern Co. hopes that funding from Toshiba will suffice to complete the reactors in Georgia.[19] Of course, those hopes could be dashed if Toshiba seeks protection under Japanese corporate reorganization laws.

Southern Co. subsidiary Georgia Power is also trying to convince the Georgia Public Service Commission to allow it to recoup further costs from ratepayers in Georgia, but the Commission appears reluctant.[19] Georgian ratepayers have already been paying for the construction of the two AP1000 reactors since 2011, based on provisions of the 2009 Georgia Nuclear Finance Act.[20,21]

Tax credits and loan guarantees

The AP1000 reactors in Georgia and South Carolina need to be operating by the end of 2020 to be eligible for a US$18/MWh federal production tax credit. For the South Carolina project, the tax credit would amount to a government subsidy of about US$2.2 billion.[22] Relaxation

of the 2020 deadline for the tax credits is shaping as an important determinant of the future of the four reactors given the receding likelihood of completing the reactors by then. South Carolina Electricity & Gas recently said it is re-evaluating its timeline for completion of the two reactors in that state because of Westinghouse's "historical inability to achieve forecasted productivity and work for efficiency levels" and in light of Westinghouse's bankruptcy filing.[23]

The extension of the tax credits is "absolutely imperative" to the AP1000 projects and "next-up U.S. nuclear projects" according to David Blee, executive director of the US Nuclear Infrastructure Council.[24] However an attempt to include a relaxation of the 2020 deadline in a government spending bill recently failed.[25] Congressional leadership is reportedly delaying the issue until lawmakers take up tax reform later this year[24] – but that could be too late to save the AP1000 projects. Republican senator Lindsey Graham said: "I'm not going to sit on the sidelines and watch the nuclear industry be destroyed. For three years, we've been trying to get these tax credits extended. ... The reactors that are being built are very much at risk."[24]

If the Vogtle project in Georgia collapses, the federal government is on the hook for US$8.3 billion in loan guarantees. Ryan Alexander, president of Taxpayers for Common Sense, said:[26]

"The Title XVII program at the Energy Department provides broad authority for it to guarantee loans for early commercial use of advanced technologies if there is a "reasonable" prospect of repayment by the borrower. Loan guarantees are like cosigning a loan. The government (taxpayers) are on the hook for repayment of the loans if the borrower defaults.

"Building a nuclear reactor – two nuclear reactors – is expensive and risky. The amount of risk represented by a particular loan guarantee is measured in the project's "subsidy cost." The higher the risk, the higher the cost that gets assigned to the guarantee. You would think a loan guarantee for a nuclear power plant – the riskiest project of all – would be assessed a pretty high price. It should have been. But the Energy Department guaranteed at least $6.5 billion of the $8.3 billion total at a cost of $0. That is, it recorded no potential liabilities for its guarantee of more than $6 billion in loans for the construction of two nuclear power plants. ...

"While this might mean huge losses for taxpayers, the real tragedy is that financial entanglement with the project could have been avoided altogether. It's not clear what the Department of Energy can do now to mitigate the potential for losses. In the end, the Vogtle mishap could be a very expensive way to learn what we should have known all along – the federal government cannot ignore risk when taxpayers' money is on the line."

The plan for AP1000 reactors in the UK

NuGen was established in 2009 as a consortium between Engie, Iberdrola, and Scottish and Southern Energy. After various twists and turns, Toshiba had a 60% stake in NuGen and Engie the remaining 40% by the end of 2013. In 2014, NuGen announced plans to build three AP1000 reactors at Moorside, near Sellafield in the UK. But Engie has exercised its contractual right to force Toshiba to buy its 40% stake. Toshiba wanted to sell its 60% stake ... and now wants to sell its 100% stake. Reactor construction never began and likely never will. In April 2017, NuGen said it has put its application for development consent on hold and is "undertaking a strategic review of its options following shareholder and vendor challenges".[27] The consortium has written to suppliers to warn them it will have to cut spending, and also plans to order staff who have been seconded to the project from other companies to return to their employers.[28]

Toshiba (and the British government and others) are hoping that South Korean utility Kepco will buy a stake in NuGen (Toshiba presumably hopes Kepco will buy its entire 100% stake). Kepco has been considering buying a stake in NuGen for some time, but a deal has not been struck. Kepco may prefer to build its APR1400 reactors rather than Westinghouse AP1000 reactors, which would delay the project by several years: the APR1400 design has not been approved by UK regulators whereas the AP1000 design recently received approval.

Some see Kepco's purported interest in building its own reactor technology as a bargaining chip to use in negotiations. Kepco might agree to build AP1000 reactors – or to be the engineering, procurement, and construction manager of Westinghouse-built AP1000 reactors – on the condition that Kepco supplies expensive items like steam generators, turbines, pumps, and other system components.[29]

A Hinkley Point-style guaranteed 'strike price' per kilowatt-hour might make the project attractive for Kepco, but still the question remains: where will the capital costs for the three-reactor project – which could amount to US$20 billion or so – come from? One pro-nuclear commentator suggests that the project could be revived with a guaranteed strike price plus UK government-issued bonds covering the capital costs.[29] The commentator also recommends following through on BREXIT in order to prevent any challenge under EU legislation to the subsidies required to get the Moorside project off the ground (Austria and others challenged the Hinkley Point subsidies).

NuGen chief executive Tom Samson said in early May that the project faces "significant challenges" and that direct government funding is one option on the table. He said: "We already have tremendous support from the government, we look for all opportunities to secure funding for the Moorside project and the government's involvement is one of those areas we'll continue to explore."[27]

Plans for AP1000 reactors in India

A. Gopalakrishnan, a former Chair of India's Atomic Energy Regulatory Board, has written an opinion piece in *The Hindu* strongly criticizing plans to contract Westinghouse to build six AP1000 reactors in India.[30]

Gopalakrishnan wrote:[30]

"India must not enter into a contract involving billions of dollars with an American company that has already declared bankruptcy. ... Westinghouse going into bankruptcy causes much larger problems than just the financial consequences. With the bankruptcy filing, no creditors will come forward to lend the approximately $7 billion needed to bankroll the India project in the first phase. During the time of the Barack Obama administration, India had hoped to get a U.S. Export-

Import (Exim) Bank loan for the Kovvada project. But with Donald Trump assuming the U.S. presidency and Westinghouse perilously in the red, there is little chance that the new American administration will favourably consider an Exim Bank loan for an Indian nuclear project to be technologically executed by a bankrupt U.S. company. Even if the Trump administration is willing, the project is definitely not in the interest of the people of India.

"From personal contacts, I understand that senior and mid-level Westinghouse managers and technical staff have already started looking for other jobs. The company will find itself hard-pressed to handle the completion of the eight AP1000 reactors for the U.S. and China that it is committed to, let alone competently take on and complete a new two-reactor project in Kovvada. Besides, six-eight years from the start of construction, which competent Westinghouse engineering team will be around to help India start up these reactors and provide periodic assistance thereafter? ...

"In view of these difficulties, it is best to completely keep away from agreeing to purchase the Westinghouse AP1000 reactors. In fact, the current status of world energy technology does not warrant the inclusion and consideration of nuclear power of any kind in the energy basket of our nation."

Dr Vijay Sazawal, a former Westinghouse employee who is now a member of the Civil Nuclear Trade Advisory Committee of the US Department of Commerce, also urged caution.[31] He said: "Basically, Westinghouse has backed out of the contracts in place [in the US] and will renegotiate contracts with those utilities which will have to bear previous cost overruns on their projects. So both Westinghouse and a new potential customer like NPCIL in India will have to be very careful in their financial negotiations in order to ensure that Westinghouse does not back out of its legal and financial obligations if it hits a road bump as it has in its four nuclear power plants under construction in the US and China, with all four plants having exceeded their original cost and schedule commitments."

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Court ruling on Zuma's nuclear deal is a marker of South Africa's political health

Author: *David Fig – Honorary Research Associate, University of Cape Town; member of the steering committee of the African Uranium Alliance.*

NM843.4643 The South African government's plan to bulldoze through a nuclear energy deal has been dealt what might be a fatal blow by the Cape Town High court which has declared the plan invalid.[1] It found that the government had not followed due process in making the decision to pursue a nuclear power option, as well as in other critical areas.

The court's decision has put paid to President Jacob Zuma's hopes of clinching the nuclear build programme before leaving office in 2019 if he completes his term.[2]

The case was brought to court by Earthlife Africa[3] and the Southern Africa Faith-Communities' Environmental Institute.[4] The two NGOs were challenging the way in which the state determined the country's nuclear power needs. The plan would have seen South Africa purchasing 9,600 megawatts of extra nuclear power.[5]

The judge, Lee Bozalek, ruled the government's action unconstitutional and found that five decisions it had taken were illegal. These included the government's decision to go ahead with the nuclear build and the fact that it had handed over the procurement process to the state utility Eskom.[6] The court also ruled that Eskom's request for information from nuclear vendors, a step taken to prepare the procurement, which ended on 28 April 2017 was invalid.[7]

If it still wants to pursue the nuclear deal the government will have to start all over again. To do so legally it would have to open up the process to detailed public scrutiny. The country's electricity regulator would have to have a series of public hearings before endorsing what would be its highest ever spend on infrastructure.[8] And any international agreements would have to be scrutinised by parliament.

All this will take time – something Zuma doesn't have. And it's unlikely that his successors will be as eager to champion a new deal as he has been. Meanwhile the facts about the deal will become public. This will undoubtedly demonstrate two of the biggest criticisms of the deal to be true: that the country can't afford it, and that it's energy needs have shrunk, making the vast investment redundant.[9]

The court's ruling has turned the nuclear procurement issue into one of the key markers of South Africa's political health. It's not yet clear whether the South African government will appeal the Western Cape High Court's decision, or comply with the judgement. A third option is that Zuma simply ignores the courts and continues to pursue the deal.

Demand and affordability

South Africa currently has more than enough electricity to meet its needs.[9] This wasn't the case about five years ago when widespread outages hit the country.[10]

Celebrations outside the South African High Court after it ruled against the government's nuclear program.

Since then new electricity generation capacity has been added[11], through the rapid roll out of renewables[12], and the opening up of two new giant coal burning plants. Consumption, particularly by industry, has steadily declined due to faltering economic growth and higher electricity prices. Demand has dropped so much that Eskom plans to close five coal burning power stations.[13]

The argument that the country needs another 9,600 megawatts was identified in documents that produced in 2011. These are now widely acknowledged as being badly out of date. Recent studies by the University of Cape Town's Energy Research Centre have shown that the country doesn't need to consider nuclear for another 20 years.[14]

A number of studies have also shot holes in the government's argument that the country can afford the proposed nuclear build. The Council for Scientific and Industrial Research has developed models showing that new nuclear is likely to be much more expensive than coal or renewables.[15] The price ticket for nuclear – which some estimates put at more than R1 trillion[16] – doesn't take into account the costs of operation, fuel, insurance, emergency planning or the regulation or decontamination at the end of the life of the reactors.

It would also impose a financial burden[17] on the country's fiscus which it can ill afford[18] particularly now that the economy has been rated at junk status.

Ulterior motives

So why is Zuma still pushing for the deal to go ahead? One source of pressure might be the Russians. South Africa's former energy minister, Tina Joemat-Pettersson, had been instructed to signed a deal with the Russian utility, Rosatom to build the reactors.[19] South Africa has also already signed nuclear power cooperation agreements with other countries like the US and South Korea, which the court has declared void.[20]

A more likely reason for Zuma's zeal is the involvement of the Gupta family with whom he has close ties.[21] The family's web of interests around the nuclear deal are complex.

What is known is that the Gupta family controls South Africa's only dedicated uranium mine.[22] The family has developed close relationships with key individuals at Eskom. In November last year the country's then Public Protector pointed to overlapping directorships between Gupta-owned companies and Eskom.[23]

The report also suggested that Brian Molefe, Eskom's CEO, had a close relationship with the family. These revelations led to his resignation shortly after the report was published.[24]

Another strand in the complex web is the fact that Zuma's son Duduzane is a business partner of the Guptas while other relatives are directly employed by them.[25]

Despite his determination, Zuma has become increasingly isolated in his quest for nuclear procurement. The African National Congress is clearly divided on the issue. This is evident from the fact that Zuma has resorted to reshuffling his cabinet to make way for more compliant ministers without reference to party officials as would be the norm.[26]

The private sector has also come out against the idea[27] while the list of civil society organisations opposed to nuclear expansion goes well beyond the environmental lobby and includes a broad spectrum of foundations, faith communities, human rights campaigners and defenders of the country's constitution.

High stakes

The nuclear judgement in Cape Town indicates that South Africa's legal system has not yet been "captured" by private interests.

The key question is whether Zuma and Eskom will accede to the verdict, or whether they challenge it while continuing to ignore the rule of law. Not only would this subvert the country's constitution and its democratic form of government, it would also deny the constitutional right to popular participation in energy democracy.

The stakes are high – for the country as well as for the president. Will he continue to treat the country's energy future with impunity? Or will this judgement symbolise the rollback of the democratic dispensation envisaged by the authors of the country's constitution?

Reprinted from The Conversation, https://theconversation.com/court-ruling-on-zumas-nuclear-deal-is-a-marker-of-south-africas-political-health-76870

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NGOs respond to South Africa's High Court ruling

Earthlife Africa Johannesburg (ELA) and Southern African Faith Communities' Environment Institute (SAFCEI) were jubilant about the extraordinary April 26 High Court ruling that:

- set aside the Ministerial determination that South Africa required 9.6 gigawatts (GW) of new nuclear capacity, and that this should be procured by the country's Department of Energy;
- set aside the later Ministerial determination that identified South African utility Eskom as the procurer of the nuclear power plants (both determinations were ruled to be invalid because of the failure to include a public participation process);

- found that nuclear cooperation agreements between South Africa and Russia, the USA and South Korea were unconstitutional and unlawful, and should be set aside; and

- ordered the government to pay the legal costs incurred by ELA and SAFCEI.

Activist and film-maker Zackie Achmat joined a jubilant crowd on the steps of the High Court in Cape Town to celebrate the court ruling. “I think Earthlife Africa and SAFCEI can really celebrate this judgment,” he said. “It is a total victory against corruption and it is a total defeat against Jacob Zuma and the corrupt Guptas and the corrupt Russians.’’

SAFCEI said: “At SAFCEI we are still dancing with delight at the momentous ruling from the Cape High Court that sets aside key points in the nuclear deal process. After 18 months of delays and frustrations, this was an immense win for Earthlife Africa Johannesburg and SAFCEI, and all who have supported us throughout. We are immensely grateful for the support and encouragement we have received from Earth Keepers all over the world – it is only through this that we have been able to prevail in the face of all odds.”

SAFCEI noted that the High Court ruling was released on the anniversary of the Chernobyl disaster and the day before the anniversary of South Africa’s Freedom Day: “Freedom Day, the day of South Africa’s first democratic election in 1994, ushered in an era where the constitution was supposed to be the guide to how society would be governed. In recent years, we have seen unabashed looting of the government coffers, the capture of key state institutions such as Eskom, for personal greed, and the apathetic failure of the government to be accountable to the people of South Africa.”

SAFCEI spokesperson Liz McDaid said: “Along the road to the courts, we experienced delays and dirty tricks, but we persevered and now we have been vindicated. The court has found in our favour. SAFCEI and ELA-JHB based their case on the South African Constitution, which states that when it comes to far-reaching decisions, such as the nuclear deal, which would alter the future of our country, government is legally required to debate in Parliament and do a thorough, transparent and meaningful public consultation.”

SAFCEI youth ambassador Siphokazi Pangalele said: “We are so glad for the result, but it is clear that we still have a lot of work ahead of us. In the past few weeks citizens have demonstrated their willingness to mobilise against corruption and the capture of our State. The nuclear deal is at the centre of it all.”

An ELA statement said: “A lot has happened in the two months since the final arguments were heard in the nuclear court case in February 2017. The President’s late-night cabinet reshuffle at the end of March has spurred countrywide marches and a vote of no confidence is looming. Many more discrepancies have since been reported, with the nuclear deal being in the spotlight in the latest crises in political leadership.”

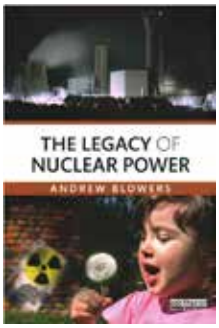
Adrian Pole, legal representative for ELA-JHB and SAFCEI, said: “Before any nuclear procurement can proceed, the Minster of Energy ... will be required to make a new determination in accordance with a lawful process that is transparent and includes public participation. This will necessarily require disclosure of relevant information that to date has been kept from the public, including critical information on costs and affordability.”

Makoma Lekalakala from ELA welcomed the court ruling as a victory for “justice and the rule of law”, but said organizations and citizens are planning to launch an “even bigger campaign soon to ensure this judgement is only the start of people holding the government to account on its energy deals.”

For links to the High Court ruling and other legal documents, see:

SAFCEI, 26 April 2017, Nuclear Deal Blocked! Judgement made on the South African Government’s Secret Trillion-Rand Nuclear Court Case’, http://safcei.org/nuclear-deal-blocked/

The legacy of nuclear waste



The Legacy of Nuclear Power
Andrew Blowers

Routledge, Tayler & Francis Group

Available in hard cover, paperback and as e-book (epub)

www.routledge.com/The-Legacy-of-Nuclear-Power/Blowers/p/book/9780415869997

Book review by Jan Haverkamp

NM843.4644 *The Legacy of Nuclear Power* is a book about nuclear waste. But different than most, the retired UK Open University professor Andy Blowers does not approach the issue from the side the techniques under investigation to manage it. His basis is the story of five nuclear legacy sites, but analysed from the experiences of the communities who live there.

With that, Blowers first of all gives a comprehensive overview of the history of Hanford in the Washington State, US, where the first plutonium for “Fat Man”, the bomb dropped on Hiroshima, was produced. He describes how Windscale, later Sellafield became storage place for much of the United Kingdom’s nuclear

waste, but also how it created a nuclear community that attracts plans for final deposition of nuclear waste with a certain inevitability.

A double chapter describes how the French Cotentin Peninsula in Normandy – now hosting the La Hague reprocessing facility, the La Manche low-level nuclear waste depository and the Flamanville nuclear power station – relates to the proposed high-level waste site in Bure. Blowers closes his analysis with Gorleben in Germany, the site where fierce resistance has kept a nuclear take-over still within limits.

Blowers introduces quite a bit of theory, without becoming dry. His research is based on his own experience of being confronted in 1983 with the potential siting of a deep geological nuclear waste repository in Bedfordshire by the UK nuclear waste authority NIREX, when he was county councillor there. From that moment on, he dived into the quest for how humanity may deal with the nuclear legacy – as a member of several committees investigating options, including the famous Committee on Radioactive Waste Management (CoRWM), as non-executive director of NIREX, as an academic, and as an activist.

From my contacts with many of his interviewees, I know that Blowers has always been genuinely interested in the human fate of all stakeholders in this quest. His many visits to the five described sites, his extensive interviews with authorities, operators, local chosen representatives, citizens and activists have shown certain patterns.

The leading line is the discovery that the nuclear legacy appears to be connected to peripheral places – mostly peripheral in a geographic sense, lowly populated, but also economically weak, becoming depending on a from the outside imposed nuclear mono-culture.

He recognises three levels of development. In the oldest three of the sites, Hanford, Sellafield and La Hague, the siting choice was done under a technical hegemony. Outside experts decided, announced and then defended their stance (DAD), slowly turning the areas into a nuclear oasis. In a next stage, Blowers describes how the development of Danger and Distrust in the 1970s and 1980s replaced the initial complacency and adaptation. DAD turns into DADA: decide – announce – defend – abandon.

His own experience with early NIREX illustrates this well: none of the proposed sites stood any chance because of local resistance. But in even more color he describes this in the history of Gorleben, where for the time being the chance on further nuclear development seems to have been stopped. Still, the problem of radioactive waste does not disappear, and Blowers then recognises the development of a period of collaboration. He describes the attempts of CoRWM in the UK to come with proposals how a participative process can help find a final resting place for high level wastes, and the very similar lines that are developed in Germany by AKEnd in the late 1990s and early 2000s.

Although Blowers recognises the need for more openness and transparency, he doesn't fail to notice that once the UK government hijacked the conclusions of CoRWM with the justification of a new build nuclear programme, and when in Germany the poisoned chalice of Gorleben remained on the table, these proposals were bound to fail. He critically describes the role of local information committees in France.

Blowers continues to assess the power processes at work in these peripheral settings. And then comes to the conclusion that in dealing with nuclear legacies, there are three moral obligations:

- procedural equity – if we really want to find a way forward, all stakeholders, but above all the local communities need to be part of the process that establishes the where, how and when;
- intra-generational equity in the process needs to guarantee voluntarism and development of the well-being of those that need to carry the burden of our nuclear waste sites; and
- intergenerational equity needs to take care that the burdens are not shifted to our children and grandchildren.

Blowers' historical description and analysis is very comprehensive. Often I was thinking "but here he misses..." only to find the next paragraph exactly addressing that issue. So much so, that even a few very obvious omissions can easily be forgiven. Blowers rightly identifies the push for a nuclear renaissance in the UK as a killer of any attempt of discursive solution for nuclear waste, but he misses the very similar role that Merkel's phase-out of the nuclear phase-out and the back-laying attempts from Germany's big four utilities to completely overturn it played in the lack of response to the work of AKEnd.

The book was a feast of recognition concerning the five cases, but also of developments in other cases like Onkalo in Finland, Forsmark in Sweden, the search for a Czech deep disposal or the low-level waste depositories in Romania and Slovenia and the frustration shared in European nuclear waste platforms.

Blowers describes very well the moral side of the decisions that need to be made, but I would like to deepen the understanding of how the lack of expertise and skill of many of the key decision makers in exactly those moral and ethical questions is covered up by technological vocabulary.

His dedication of the book to his family – "*In the hope of a better legacy*" – brings forward the question whether Blowers is optimistic about how the nuclear legacy is dealt with. Or whether that hope more reflects Vaclav Havel's definition of a deep and powerful sense within oneself that what you do makes sense, regardless of how it turns out?

Maybe the most important conclusion is almost hidden in the last paragraphs: "The burden of the existing legacy is unavoidable; we should not entertain having to deal with the avoidable wastes of a new build programme."

An excerpt from The Legacy of Nuclear Power is posted at https://www.routledge.com/posts/10360

Jan Haverkamp is expert consultant on nuclear energy and energy policy for WISE, Greenpeace Central and Eastern Europe, Greenpeace Switzerland and vice-chair of Nuclear Transparency Watch.

Prospects and challenges of nuclear power and small modular reactors in Indonesia

Authors: *Bernadette K. Cogswell, Nataliawati Siahaan, Friga Siera R, M. V. Ramana, and Richard Tanter*

In a detailed new report, the authors note that despite support for small modular reactors (SMRs) in some parts of Indonesian government and society, there are significant challenges including the absence of tested SMR designs, regulatory requirements, the higher electricity generation costs associated with SMRs, and public opposition and lack of support at higher levels of government. The authors conclude that the construction of SMRs is unlikely, especially in large enough numbers to make a sizeable contribution to Indonesia's electricity generation.

NM843.4645 Indonesia has been interested in building nuclear power plants since the late 1950s under the aegis of Badan Tenaga Nuklir Nasional (BATAN, the National Nuclear Energy Agency). Since the turn of the century, BATAN has been actively interested in a new class of nuclear power plants, small modular reactors (SMRs), that are being designed, developed, and advocated by some sections of the nuclear power industry as a way to address some of the challenges confronting the expansion of the technology.

BATAN's interest in SMRs is propelled by reasons that pertain to nuclear power in general, such as low levels of electricity consumption among the population of Indonesia, growing energy needs, and claims about a lack of alternate means to meet these needs, and reasons that are specific to SMRs, such as the presence of remote areas and small islands that do not have the demand level to support construction of a large nuclear reactor, and the lower financial cost of SMRs. BATAN has explored a number of possibilities, including importing a small floating power plant from Russia, an SMR from Korea that can also desalinate ocean water, and a high temperature gas cooled reactor from Russia.

BATAN has conducted a number of nuclear power plant siting studies, including follow-up technical and economic feasibility studies in some cases. These studies have also included some SMR possibilities in much greater detail. But apart from an experimental power reactor (EPR), none of the other proposals has advanced towards actual construction.

Indonesia has an extensive network of government agencies involved in the energy sector and, hence, holding a stake in the nuclear power debate, as well as an extensive body of laws and regulations that could affect the eventual implementation of commercial nuclear power. The potential for adoption of SMRs in Indonesia is affected by a number of regulations, including the requirement that locally made components or services conducted by domestic providers have to be used in energy infrastructure, the requirement that only reactors based on "proven technology" will be licensed, and a requirement that reactors be sited only on land.

Another reason that Indonesia might not choose to construct an SMR is that, as we show through calculations, the cost of generating electricity using SMRs will likely be greater than large nuclear power plants as well as solar photovoltaic plants. Studies testify to the large potential of solar energy in Indonesia and the government has been adopting policies that promise to accelerate the construction of significant amounts of solar capacity. Because SMRs have lower power capacity, producing the same amount of electricity using these as opposed to large reactors would require dealing with public resistance at many more sites.

Public opposition has played a major role in stopping construction of nuclear power plants so far. The Indonesian nuclear establishment has been trying to set up nuclear power plants since the 1970s but has so far not managed to persuade government leaders. Indeed, in December 2015, then Energy and Mineral Resources Minister Sudirman Said announced publicly that the government had concluded that "this is not the time to build up nuclear power capacity. We still have many alternatives and we do not need to raise any controversies". Although this decision might be revised in the future, it testifies to lack of broad-based political support. Given this context, those advocating constructing SMRs in a country like Indonesia that has no nuclear power capacity face the basic conundrum: building untested nuclear technologies that might lead to higher electricity generation costs is going to be more of a political challenge than constructing nuclear reactor designs that have been operated in other countries.

As a result of all these factors, it would seem that the construction of SMRs is unlikely, especially in large enough numbers to make a sizeable contribution to Indonesia's electricity generation.

The full report is online: Bernadette K. Cogswell, Nataliawati Siahaan, Friga Siera R, M. V. Ramana, and Richard Tanter, April 2017, 'Nuclear Power and Small Modular Reactors in Indonesia: Potential and Challenges', Indonesian Institute for Energy Economics and Nautilus Institute for Security and Sustainability, http://nautilus.org/wp-content/uploads/2017/04/IIEE-Nautilus-SMR-Report-Final-For-Publication-April2017.pdf

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NUCLEAR NEWS

Sweden: international participation possible in the KBS-3 Court Hearing

The Swedish Land and Environmental Court (MMD) announced on 3 May 2017 that it requests an indication of intention to participate in the main court hearing on the Swedish nuclear industry's spent fuel plan, called the KBS-3 application. This is an oral hearing open to the public, where image presentations may be made, e.g. using PowerPoint, and films shown.

The court has also requested comments on the preliminary schedule, which is over five weeks from September 5 to October 27, 2017. The deadline given by the court for both comments on the schedule and intention to participate is May 17, 2017. The full 12-page notification is available in English at www.nonuclear.se/kbs3#en. The Swedish version is available at e.g. http://nonuclear.se/en/kbs3#tidplaner and http://www.mkg.se/aktbilagor (aktbilaga 522). It is stated in the document that the schedule will be confirmed in July 2017 at the same time as the public is officially notified.

The court has stressed that advance notice of participation is not obligatory, though it facilitates the court's planning. Regarding the language spoken for presentations, the May 3 notification from the court reads: "You must inform the court if you intend to provide comments in a language other than Swedish and in that case during which point in the court procedure. Information: the main hearing will be held in Swedish. The court will arrange any interpreter."

The Swedish Environmental Movement's Nuclear Waste Secretariat (Milkas, see www.milkas.se) welcomes proposals for cooperation from organisations and individuals interested in participating in the September-October 2017 KBS-3 hearing.

For information in English see: www.nonuclear.se/kbs3#en and www.mkg.se/en

– *Miles Goldstick*

Anti-nuclear Action Summer in Europe!

Anti-nuclear groups are encouraging people to participate in numerous events planned in Europe in the coming months. Details of the events are posted on the Nuclear Heritage Network website: http://actionsummer.nuclear-heritage.net.

Here's a list of some of the events – in Germany unless otherwise specified:

June 2: Kulturelle Widerstandspartie in Gorleben

June 9-26: raft tour against atomic transports from Trier to Cologne

June 25: human chain action via Tihange (Belgium) – Lüttich (Belgium) – Maastricht (Netherlands) – Aachen (Germany)

July 8: Anti-nuclear block in G20 protests rally in Hamburg

July 12-18: "international week" against nuclear weapons at Büchel air base in Alflen

July 17-23: International Anti-nuclear Summer Camp in Döbeln

July 28-29: e-Ventschau benefit open-air for Fukushima and Chernobyl victims in Ventschau

July 31 - August 6: War Starts Here Camp close by the Gefechts-Übungs-Zentrum Altmark (GÜZ) in Potzehne in Colbitz-Letzlinger-Heide

August 7-16: Internationalistic Anti Nuclear Summer Camp and Free Flow Festival in Gedelitz

August 11-13: Festival Les Bure'lesques in Bure (France)

In the UK, the Campaign for Nuclear Disarmament is organizing a conference to be held on June 17 in London titled 'No need for nuclear: the renewables are here!' The premise of the conference is that the UK government is obsessed with backing nuclear whereas experts say renewable energy is safer, healthier, more sustainable, quicker and cheaper. More information is posted at http:// cnduk.org/NoNeedForNuclear

From November 2–4, the Antinuclear World Social Forum will be held in Paris. Since the first World Social Forum (WSF) held at Porto Alegre in 2001, the anti-globalization movement has expanded and consolidated. Several WSFs took place in Latin America, in Asia, in Africa and, in August 2016, in North America. In 2013 and 2015, nuclear issues have been the subject of several workshops and the first Antinuclear Social Forum was held in spring 2016 in Tokyo, where a "Call for a nuclear-free world network" was launched. In Montréal, the second Antinuclear Forum took place within the WSF.

Since France is the most nuclearized country in the world in proportion to the number of inhabitants, French antinuclear organizations thought it relevant to host the next Antinuclear WSF in Paris, from 2 to 4 November 2017. The call for workshop proposals is open until July 15. For more information see www.wsfnonuke.org

Chernobyl remembered

Political leaders of Ukraine and Belarus toured the site of the 1986 Chernobyl nuclear accident on April 26, the 31st anniversary of the disaster.[1,2] Speaking near the site of the disaster, Belarusian President Alexander Lukashenko said: "Both Belarusians and Ukrainians know that the Chernobyl catastrophe knows no borders."

Ukrainian President Petro Poroshenko called the explosion and its dire aftermath "an unhealing wound which we as a people live with". He added: "Perhaps more than anyone else, the Chernobyl tragedy affected our Belarussian brothers." About a quarter of Belarus was contaminated and a 2,200-square-kilometer (85-square-mile) sector of Belarus was declared unfit for human habitation.

Greenpeace activists protesting at the floating nuclear power plant in St. Petersburg on April 26.

In Minsk, the capital of Belarus, 400 people marched on April 26 to mark the Chernobyl anniversary and to protest the construction of a nuclear power plant in Belarus.[3] The demonstrators said authorities are increasingly allowing crops to be grown on contaminated land. They also urged authorities to stop the construction of the nuclear plant, which is scheduled for completion in 2019.

On April 26, Greenpeace Russia activists on inflatable boats rolled out a banner reading "No to floating Chernobyl" near the floating nuclear power plant 'Akademik Lomonosov' in St. Petersburg. They protested against the plans of the Russian nuclear corporation Rosatom to fuel and activate the two-reactor floating plant right in the centre of Russia's second biggest city.

"The authorities ignore the danger and put five million city residents under risk", said Rashid Alimov, Greenpeace Russia energy campaigner. "Rosatom says that Greenpeace is seeding radiophobia among people. But we just say that the risk of an accident is absolutely not justified. And the price to pay for an error is too high".

Greenpeace's position is supported by the Russian Chernobyl Union that unites liquidators – those who fought to contain the Chernobyl disaster in 1986 and suffered greatly as a result.

Until recently it was officially forbidden in Russia to build power reactors closer than 100 kilometres to big cities like St. Petersburg. Now, the Baltic Shipyard plans to fuel and start the two reactors in the centre of the city. Upon the completion of tests, the floating nuclear plant is to be towed to Chukotka in the Far East and installed off the town of Pevek.

Rosatom has made statements about using floating nuclear plants for the industrial exploration of the Arctic regions and has signed treaties with oil, gas and coal mining companies to provide its nuclear fleet to secure the transportation of the extracted fossil fuels along the Northern Sea Route.

In March, *New Scientist* provided new details on a nuclear disaster four times worse than Chernobyl in terms of the number of cases of acute radiation sickness.[5] In August 1956, fallout from a Soviet nuclear weapons test at Semipalatinsk in Kazakhstan engulfed the Kazakh industrial city of Ust-Kamenogorsk and put more than 600 people in hospital with radiation sickness.

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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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NGO's/individuals	50 Euro
Institutions/Industry	200 Euro

Contact us via:

WISE International
PO Box 59636, 1040 LC Amsterdam, The Netherlands

Web: www.wiseinternational.org

Email: info@wiseinternational.org

Phone: +31 20 6126368

ISSN: 2542-5439