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Monitored this issue:

The plutonium economy: a terrible idea that refuses to die

Jim Green – Nuclear Monitor editor

Plutonium: How Nuclear Power's Dream Fuel Became a Nightmare
Frank von Hippel, Masafumi Takubo, Jungmin Kang
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Terrible ideas seem never to die, and the nuclear industry provides plenty of examples.

Generation after generation, the industry tries but fails to develop 'small modular reactors'.[1]

No matter how many countries try but fail to develop high-temperature gas-cooled reactors (including sub-types such as the pebble-bed modular reactor), there's always another country willing to try and fail.[2] (The first ever issue of *Nuclear Monitor*, in 1978, reported on an HTGR with "bullet-shaped fuel elements" – researchers had already been working on the concept for a decade.[3])

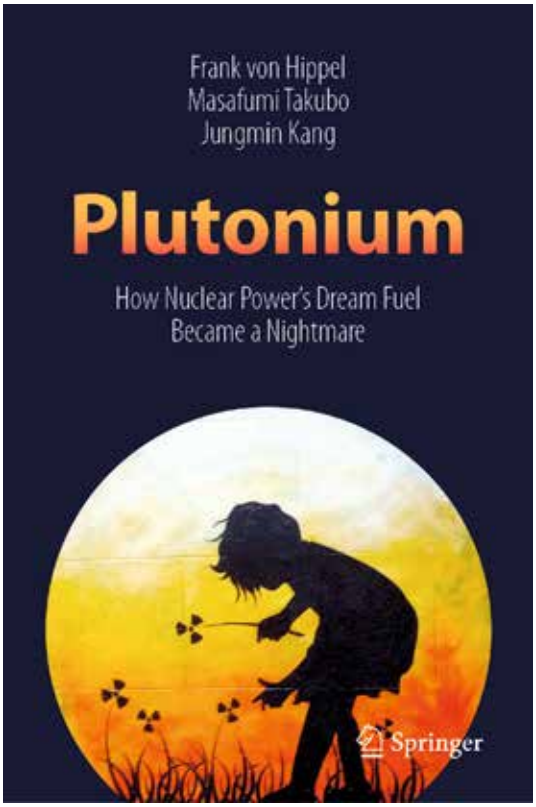
Pangea Resources tried but failed to turn Australia into the world's nuclear waste dump 20 years ago.[4] A coalition of interests tried again, and failed again, a few years ago.[5] A coalition of interests will try again, and fail again, sometime in the future.

Five years after the Obama administration nixed the Yucca Mountain nuclear waste repository, President Trump revived it. Now, Trump has apparently nixed it, to win more votes in Nevada in the November election.[6] But the project will likely be revived if Trump wins a second presidential term … and perhaps nixed again ahead of the 2024 election.

The 2000–2008 Bush administration tried to revive the plutonium fuel cycle with its failed 'Next Generation Nuclear Plant Project'[7] and a failed effort to resume domestic reprocessing. Now, the Trump administration wants to partner with industry to build an experimental fast reactor (the 'Versatile Test Reactor')[8] and is promoting a resumption of domestic reprocessing.[9] Both projects will likely fail again, and be revived again, *ad infinitum.*

The plutonium fuel cycle – arguably the worst, most dangerous example of a terrible idea that refuses to die – is the subject of an excellent new book, *Plutonium: How nuclear power's dream fuel became a nightmare* (hereafter *Plutonium Nightmare)*, by Frank von Hippel (from Princeton University's Program on Science and Global Security), Jungmin Kang (former chair of South Korea's Nuclear Safety and Security Commission) and Masafumi Takubo (a consultant for Princeton's Program on Science and Global Security).

Of course, the plutonium fuel cycle is not a cycle but an expensive, dangerous hotchpotch of mostly failed (and mostly closed) fast reactors, reprocessing plants, MOX fuel fabrication plants, and stockpiles of nuclear waste and weapons-usable plutonium.



The story is outlined by Dr. Mohamed ElBaradei, Director-General of the International Atomic Energy Agency (IAEA) from 1997 to 2009, in the foreword to *Plutonium Nightmare*:

"At a time of high uranium prices, a plutonium fuel cycle was estimated to be competitively cost effective. Its proponents regarded plutonium as a "wonder fuel" that could generate a practically infinite amount of energy if produced in a closed fuel cycle, that is, uranium irradiated and discharged as spent fuel would be reprocessed to separate plutonium for fuels to be used in breeder reactors to create yet more plutonium.

"Over time, however, these optimistic expectations gave way to the realities of new sources of recoverable uranium at low prices, costly engineering challenges, and the complexities of safeguarding reprocessing and the related proliferation concerns. Reprocessing is one of the two most sensitive nuclear technologies from a proliferation perspective, along with uranium enrichment."

The story will be familiar to *Nuclear Monitor* readers, but *Plutonium Nightmare* is well worth the modest cost as the book brings an unusual degree of depth, clarity and insight to the discussion.

The book chapters are as follows:

The dream:
– A future powered by plutonium

The nightmares:
– Civilian plutonium separation and nuclear-weapon proliferation
– Continuation of plutonium separation without breeder reactors
– A much worse accident that almost happened in Fukushima: a fire in a dense-packed spent-fuel pool

The path forward:
– Early dry-cask storage: a safer alternative to dense-packed pools and reprocessing
– Deep disposal of spent fuel without reprocessing
– The case for a ban on plutonium separation

How to end the plutonium nightmare?

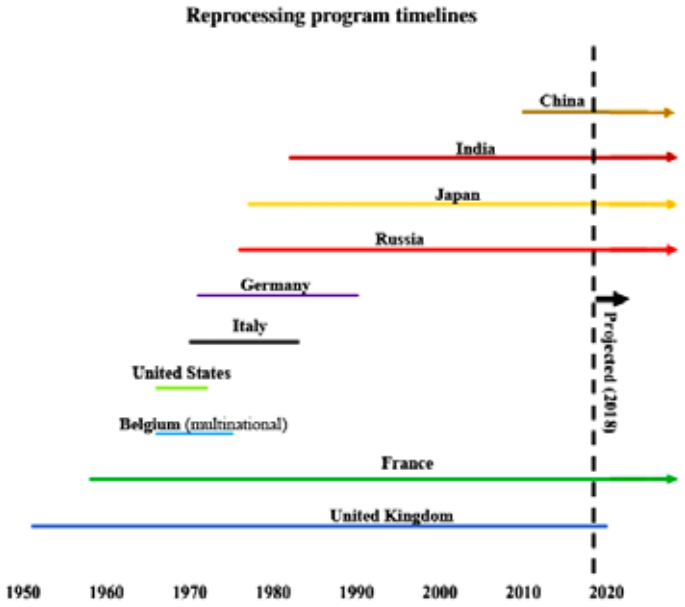
von Hippel, Kang and Takubo argue that:

- Reprocessing is unnecessary, uneconomic and dangerous (on several counts – routine emissions, accidents and weapons proliferation), and should be abolished altogether.
- Current high-density pool storage of spent fuel is dangerous and also creates pressure for reprocessing. Spent fuel should be transferred to air-cooled dry-cask storage after about five years of cooling in pools. Dry-cask storage provides a safer alternative that can be relied on for at least several decades.
- In the longer term, spent fuel should not be subject to reprocessing (in any of its variants) before being disposed of in deep repositories.

But what needs to change to untangle and reverse the bureaucratic, commercial and military interests that have created the problems? ElBaradei writes in the foreword to *Plutonium Nightmare*:

"In October 2003, as the then-director general of the International Atomic Energy Agency (IAEA), in an op-ed titled "Towards a safer world" in The Economist, I proposed the multilateralization of all uranium-enrichment and plutonium reprocessing facilities in view of the related proliferation concerns. I suggested that this should happen in three phases. First, any new uranium-enrichment and plutonium-reprocessing facilities should be set up exclusively on a multinational basis; second, over time convert all existing facilities to be operated under multinational auspices; and, third, negotiate a treaty on the prohibition of production of fissile material for nuclear weapons and place all existing stocks of military nuclear material under international monitoring.

"Unfortunately, not much has happened on this score, and much more work clearly needs to be done to curb the proliferation potential of these two most sensitive technologies."



Tom Blees, an advocate of 'integral fast reactors', goes further:[10]

"Privatized nuclear power should be outlawed worldwide, with complete international control of not only the entire fuel cycle but also the engineering, construction, and operation of all nuclear power plants. Only in this way will safety and proliferation issues be satisfactorily dealt with. Anything short of that opens up a Pandora's box of inevitable problems."

Blees also argues for a strengthened safeguards system including the establishment of an international "strike force on full standby" to respond in the event of a nuclear facility falling into "hostile hands".[10]

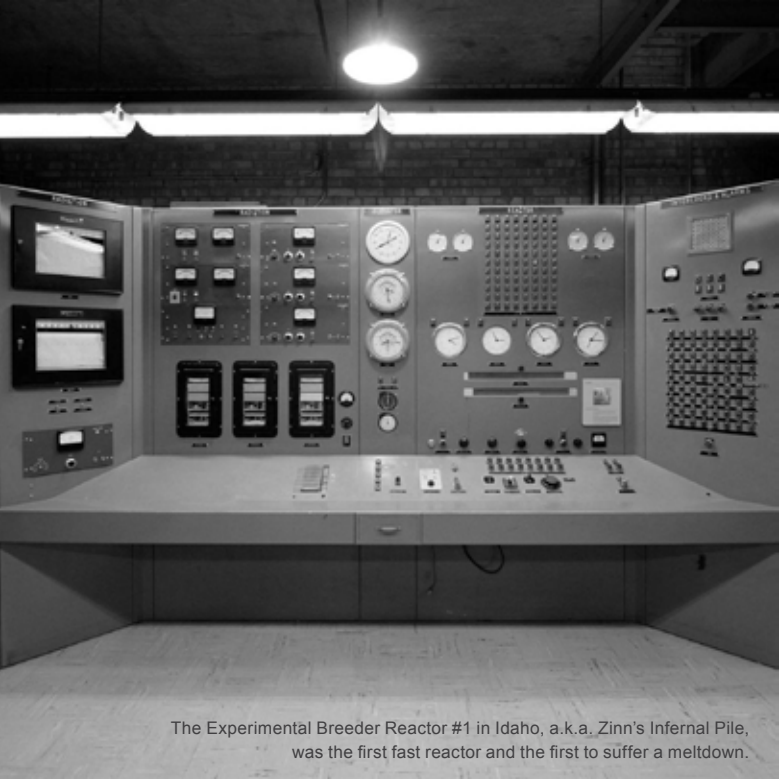
But none of Blees' big ideas have seen the light of day (and neither have integral fast reactors). ElBaradei's more modest proposals have also gone nowhere (with the exception of the IAEA's uranium fuel bank).

So multilateral and international control aren't looming as solutions or part-solutions (all the more so since there are credible scenarios whereby multilateral initiatives would worsen the problems[11]).

Gentlemen's agreements have failed. *Plutonium Nightmare* cites the half-hearted effort in the 1990s to stem the growth in stockpiles of separated plutonium:

"Over the next two decades, the United Kingdom demonstrated how far this guideline could be stretched by increasing its stock of separated plutonium by another 60 tons – 7,500 weapon-equivalents by the IAEA's metric – with no planned use. ... Russia, also without a near-term plutonium-use program, similarly increased its stock by another 30 tons while France and Japan, despite having plutonium-use programs, each also increased their stock by about 30 tons."

Thus, as *Plutonium Nightmare* notes, the global stockpile of civilian separated plutonium continues to grow and, assuming 8 kg of plutonium for a warhead (the IAEA's metric), current stocks of about 300 tons of civilian separated plutonium would suffice to build more than 35,000 Nagasaki-type warheads.



The Experimental Breeder Reactor #1 in Idaho, a.k.a. Zinn's Infernal Pile, was the first fast reactor and the first to suffer a meltdown.

Perhaps political leadership could succeed where gentlemen's agreements have failed? *Plutonium Nightmare* notes that US governments prevented the military rulers of Brazil, South Korea, Pakistan, and Taiwan from acquiring reprocessing plants. But leadership on nuclear non-proliferation and disarmament hasn't been a strong point of the Trump administration, and the administration is pushing to revive domestic reprocessing and fast reactor fantasies as well as 'modernizing' its nuclear strike-force and ripping up multilateral and international arms control agreements.

Leadership from France? In addition to France's considerable historical contribution to weapons programs and proliferation risks around the world, France is currently trying to sell a large reprocessing plant to China despite the security and proliferation risks and the absence of any credible rationale for the plant.[12]

Perhaps people-power could succeed given the dearth of political leadership? The plutonium nightmare would be considerably worse if not for the countless thousands of people who have fought against plutonium fuel cycle facilities over the decades. There have been martyrs – in 1977, for example, one person was murdered, two mutilated and 100 injured by police during a 60,000 strong protest against the Superphenix fast reactor in France.[3] The first article in the first ever issue of *Nuclear Monitor*, in 1978, addressed international resistance to reprocessing and fast reactors.[3]

Plutonium Nightmare cites the example of German and Austrian anti-nuclear campaigners who stopped the construction of a reprocessing plant in Bavaria in the 1980s. Later, people-power was central to the German government's decision to phase out the overseas processing of spent fuel from German reactors.

Of the countless other examples of public resistance to the plutonium economy, a notable recent example is the strong, brave resistance to the siting of a reprocessing plant in the Chinese coastal city of Lianyungang.[12]

Safeguards

Leadership from the IAEA? Not since Mohamed ElBaradei's tenure as IAEA Director-General ended in 2009. In articles and speeches during his tenure, ElBaradei said that the safeguards system suffers from "vulnerabilities" and "clearly needs reinforcement", that the IAEA's basic rights of inspection are "fairly limited", that efforts to improve the system have been "half-hearted", and that the safeguards system operates on a "shoestring budget ... comparable to that of a local police department".

The same could be said today. Former Director-General of the Australian Safeguards and Non-proliferation Office, Dr. John Carlson, wrote in 2018:[13]

"A former IAEA Director General used to say the IAEA's safeguards budget was less than that of a major city police force. Some thought this was an exaggeration, but in fact it is a massive understatement – for example, the IAEA's annual safeguards budget is equivalent to a little over 3 percent of the budget for the City of New York Police Department. While the tasks are very different, this comparison illustrates that the current level of safeguards funding is extraordinarily low considering safeguards are at the front line in global efforts against the proliferation of nuclear weapons."

ElBaradei fought for greater funding for the IAEA's safeguards program, albeit with little success. The current IAEA Director-General, Rafael Mariano Grossi, is an old-school industry propagandist who recently said that the IAEA cannot demand more resources at a time when many of its member states are struggling with their own national budgets.[14] But he'll find resources to expand the IAEA's work promoting nuclear power – resources that would be better deployed on the Agency's safeguards, safety and security work.

You won't hear this from Grossi, but resolution of the plutonium nightmare partly depends on the much bigger nightmare of nuclear weaponry. The greater (or lesser) the interest in pursuing weapons, the greater (or lesser) the interest in fast reactors and reprocessing (and nuclear power more generally).

Battles against nuclear power and weapons are two sides of the same coin. A strong safeguards system could break the nexus between power and weapons, but there won't be any progress under Grossi's leadership.

Economics

The hopeless economics of the plutonium economy, coupled with people-power, provide some hope.

The UK's THORP reprocessing plant ran out of domestic and international customers and closed in 2018, and the MOX plant was closed in 2011. Both were abject failures.[15]

China's plan for a French-designed reprocessing plant has repeatedly stalled because of the US$22.7 billion price tag[16] as well as public opposition. China has a very small experimental fast reactor, and in 2017 began construction of a larger demonstration fast reactor.

Russia postponed plans for a 1200-megawatt fast reactor last year because of funding constraints[17] (and abandoned plans for a civilian reprocessing plant in the 1990s because of funding constraints).

France persists with reprocessing and MOX fuel fabrication, but gave up on its fast reactor fantasies last year, abandoning plans for an experimental fast reactor called ASTRID.[18]

India remains a problem, albeit a problem that is decades behind schedule. The budget for India's Fast Breeder Test Reactor was approved in 1971 but the reactor only attained first criticality in 1985 and it wasn't until 1997 that it started supplying a small amount of electricity to the grid. Preliminary design work for a larger Prototype Fast Breeder Reactor began in 1985 and construction began in 2004 ... but the reactor still hasn't begun operation.

Likewise, Japan remains a problem, albeit a problem that is decades behind schedule. Japan persists with the construction of a large reprocessing plant and a MOX fuel fabrication plant at Rokkasho, but no longer has any operable fast reactors and no longer has the option of joint involvement in France's abandoned ASTRID project.

The number of fast reactors worldwide peaked at 12 in the late 1980s (a large majority of them experimental or prototype reactors) and has dwindled to five currently (all of them – three in Russia, one each in India and China – classified by the World Nuclear Association as experimental or demonstration reactors).[19]

Number of fast reactors worldwide (inc. experimental facilities):[19]

1950	0
1960	3
1970	7
1980	11
1990	12
2000	7
2010	5
2020	5

As fast reactor fantasies fade, the plutonium economy will necessarily focus on the use of uranium/plutonium MOX fuel in conventional reactors. But, as *Plutonium Nightmare* notes, the economics of MOX are "terrible".

And the economics of nuclear power more generally are terrible – that's why it is returning to its roots as a state enterprise, often connected to weapons programs and ambitions.

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Swedish ban on uranium mining provokes threat of billion-dollar suit

Charly Hultén – WISE Sweden

In May 2018, Sweden introduced a total ban on uranium mining (see Nuclear Monitor #860). The ban took effect on August 1 that year.

In November 2019, Aura Energy, an Australian mining company active in Sweden since 2006, presented the Swedish government with a notice of arbitration and raised the possibility of a suit for US$1.8 billion dollars in damages, should negotiations fail to result in an agreement.

The damages claimed are based on both what the company says it has invested in prospecting since 2006, and the estimated loss of future revenue from the prospective mine as a consequence of the uranium ban.

The focus of Aura's complaint is not uranium, but the metals (vanadium in particular) that coincide with uranium in the shale at Häggån in north-central Sweden.[1] The uranium ban, Aura contends, has made it difficult, if not impossible, to extract any of the accessory minerals.[2] In their view the ban therefore amounts to 'indirect expropriation'.

There has been no public information about the case since November. Presumably, due to ongoing conversations between the parties.

The legal framework

The legal foundation for the dispute is Part III, Article 13 of the Energy Charter Treaty (ECT), which Sweden signed in 1998 and ratified in 2001. Like many other multinational free trade agreements these days, the ECT provides for investor-state dispute settlements (ISDS) in a special court, outside the purview of national governments.

Should the dispute proceed to litigation, several factors will be key. State action shall have radically reduced[3] the value of the plaintiff's investment, and the action shall not have been visible on the horizon at the time of investment. Furthermore, if the state action was undertaken for the sake of a 'public good', such as public health or the environment, it may be exempt from liability, provided it was executed in an even-handed manner.

Aura's case hardly iron-clad

The case Aura Energy puts forward may be questioned on all three of the above points.

First of all, the ban on uranium mining was clearly motivated by public health and environmental concerns. Unless the measure is deemed "manifestly excessive", that would, by some accounts, put Sweden in the clear.

Secondly, it remains for the plaintiff to demonstrate that they cannot utilize their assets in Häggån. Clearly, the uranium ban complicates operations and cuts into profits – but to what degree? And why would Aura Energy announce plans (in 2019) to introduce their new identity, Vanadis Battery Minerals, on the Stockholm Stock Exchange, if they had no minerals at hand?

Finally, just how clear was the horizon when Aura started prospecting in Häggån? Sweden's absolute ban on uranium mining did come more or less out of the blue. But the situation before the ban was far from 'clear sailing' for anyone interested in extracting uranium.

Although powerless to prevent exploration and prospecting for uranium, local governments in Sweden had had the power to deny rights to actual exploitation – the so-called 'community veto' – since the 1970s. Long before Aura Energy set its sights on Sweden.

Seen in the light of the veto, Aura Energy's plans to mine uranium against the wishes of the residents around Häggån had to be a bit speculative. Either the company presumed they could change local residents' minds, or else manage to obtain some form of dispensation from national authorities. Whichever the case, it was something of a gamble.

Notes:

1. *Aura announced a shift in focus from uranium to 'battery metals' like vanadium in its annual report to shareholders in 2018. In early 2019 Aura Energy Sweden changed its name to Vanadis Battery Metals AB. The company plans to seek listing on the Stockholm Stock Exchange.*
2. *A specification of the estimated volumes of ore at Häggån is presented in Aura Energy's solicited comments on the proposed uranium ban, submitted to the Swedish Environmental Protection Authority in December 2017. The document speaks of a potential total value of US$2 billion in unexploited assets.*
3. *"Zero or near zero value" is suggested as a threshold for liability in cases of indirect expropriation in a National Board of Trade Sweden document relating to the European-Canadian Trade Agreement (CETA). CETA, like the ECT, complies with the U.S. Model BITS agreement and WTO rules. A lack of jurisprudence specifically relating to ECT leaves this estimate a bit up in the air; on the other hand, the Board is the responsible national authority for such agreements. It should be noted that others, including Kaj Hobér, Professor of International Trade Law at Uppsala University, offer a somewhat less optimistic assessment.*

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Australian nuclear dump decision trashes indigenous peoples' rights

Jim Green and Michele Madigan

Nuclear Monitor #883 noted that the Saugeen Ojibway Nation voted against plans for a deep geological repository near Lake Huron. The Canadian government will respect the decision and will no longer target the site. Sadly, the situation in Australia is the exact opposite: Traditional Owners were denied a right to vote in a 'community ballot' concerning a national nuclear waste dump, and the federal government is proceeding with the dump despite their unanimous opposition.

The federal government recently announced that it plans to establish a national nuclear waste 'facility' near Kimba on South Australia's Eyre Peninsula. It will comprise a permanent dump for low-level nuclear waste, and an 'interim' store for long-lived intermediate-level waste.

Shamefully, the federal government has decided to move ahead despite the unanimous opposition of the Barngarla Traditional Owners, native title holders over the area.

The federal government refused a request from the Barngarla Determination Aboriginal Corporation (BDAC) to include traditional owners in a 'community ballot' held last year. So BDAC engaged the Australian Election Company to conduct a confidential postal ballot open to all Barngarla Traditional Owners. None of the respondents voted in favour of the dump.

BDAC then wrote to the government calling for the dump proposal to be abandoned in light of their unanimous opposition, and stating that BDAC will take whatever steps are necessary to stop it being imposed on Barngarla Country against their will.

The government's 'community ballot' registered 55% support among eligible voters – thanks to a promised A$30 million bribe and the implausible claim that 45 jobs will be created. But if the 'community ballot' is combined with the Barngarla ballot, the overall level of support falls to just 43.8% of eligible voters (452/824 for the Kimba ballot, and 0/209 for the Barngarla ballot). That is a long way short of the government's own benchmark for 'broad community support' of 65%

"The only reason why there was a yes vote was because Barngarla were excluded, and this has then been used as the justification to allow the facility to be built, entirely ignoring Barngarla's views," a BDAC statement said. "The Barngarla stand with most of the farming industry against this proposal. However, the more important issue now is the fact that voting manipulation has allowed for the decision to occur."

Racist legislation

The National Radioactive Waste Management Act systematically discriminates against Australia's First Nations. For example, the nomination of a site for a nuclear dump is valid even if Aboriginal traditional owners were not consulted and did not give consent. And the Act

Barngarla Traditional Owners at a 2016 protest in Port Augusta, South Australia.

has sections which nullify or curtail the application of laws such as the Aboriginal and Torres Strait Islander Heritage Protection Act 1984, and the Native Title Act 1993.

The federal government recently announced that it plans to amend the Waste Management Act. While the Act is sorely in need of an overhaul, the planned amendments aren't those that are needed. Clauses in the Act that dispossess and disempower traditional owners will remain untouched.

Indeed, the planned amendments will, if passed, further disempower traditional owners. Barngarla Traditional Owners are lobbying opposition and cross-bench federal parliamentarians regarding the flawed amendments.

Traditional owners are also taking legal action, claiming their exclusion from the government's 'community ballot' breached racial discrimination laws. The court case is ongoing and an outcome is expected sometime this year. Traditional owners may also launch a separate legal challenge against the proposed nuclear dump.

Appalling process

The South Australian Labor Party argues that traditional owners ought to have a right of veto over nuclear projects given the sad and sorry history of the nuclear industry in South Australia, stretching back to the British atomic bomb tests at Maralinga and Emu Field. Deputy Leader of the Opposition Susan Close says that South Australian Labor is "utterly opposed" to the "appalling" process which led to the announcement regarding the Kimba site.

Compare that to the federal government, whose mind-set seems not to have advanced from the 'Aboriginal natives shall not be counted' clause in the Constitution Act 1900. As Barngarla Traditional Owner Jeanne Miller says, Aboriginal people with no voting power are put back 50 years, "again classed as flora and fauna."

The current debate follows a history of similar proposals – all of them defeated, with traditional owners repeatedly leading successful campaigns.

In 2004, after a six-year battle, the Howard government abandoned plans for a national nuclear waste dump in SA. The Kupa Piti Kungka Tjuta – a senior Aboriginal women's council – congratulated the government for belatedly getting their 'ears out of their pockets'.

In 2016, the plan to import high-level nuclear waste from around the world was abandoned after a Citizens' Jury noted the lack of Aboriginal consent and concluded that "the government should accept that the Elders have said NO and stop ignoring their opinions."

And last year, the federal government abandoned plans for a national nuclear dump in South Australia's Flinders Ranges, a plan that was fiercely contested by Adnyamathanha Traditional Owners.

South Australian Premier Steven Marshall is rightly proud of his record promoting the growth of renewable energy in the state. And he's proud of his significant role in putting an end to the plan to import high-level nuclear waste from around the world.

So where will the Premier – whose portfolio includes Aboriginal Affairs and Reconciliation – stand on this latest nuclear controversy? He needs, as the Kungkas put it, to get his ears out of his pockets and to respect the unanimous opposition of the Barngarla Traditional Owners.

Sadly, all current indications suggest that the South Australian Premier will fall in line behind his federal conservative counterparts.

The fight goes on.

More information: www.nuclear.foe.org.au/waste

Jim Green is the national nuclear campaigner with Friends of the Earth Australia, and editor of Nuclear Monitor. Michele Madigan is a Sister of St Joseph who has spent the past 40 years working with Aboriginal people across South Australia.

A 300-strong protest against the proposed nuclear dump was held at Kimba on 2 Feb. 2020.

ICONic failure to recognise nuclear security faults

Dr. David Lowry – senior international research fellow at the Institute for Resource and Security Studies, Cambridge, Massachusetts.

In mid-February, the United Nations nuclear promotional and watchdog body, the Vienna-based International Atomic Energy Agency (IAEA) hosted an International Conference on Nuclear Security (ICONS 2020).[1] The conference followed earlier high-level IAEA nuclear security meetings held in 2013[2] and 2016[3]. You could be forgiven for having missed ICONS 2020, as media attention was minimal, notwithstanding the crucial importance to worldwide security of the matters discussed. Dr. David Lowry explains:

Ministers at ICONS 2020 – which attracted about 1,900 participants from more than 130 countries – agreed on the importance of effective international legal instruments for strengthening global nuclear security.[4,5]

The IAEA issued lots of positive statistics about ICONs, pouring out of the media briefing office like bratwurst from the sausage machine.

The accompanying Ministerial Declaration said, inter alia, "We remain concerned about existing and emerging nuclear security threats and committed to addressing such threats …"[6]

Federico Alfaro, Vice-Minister of Foreign Affairs of Panama and Co-President of ICONS, added: "In the coming years, global stocks of nuclear material are expected to continue growing …We cannot allow for such material to fall into the wrong hands."

IAEA Director-General Rafael Mariano Grossi told an ICONS ministerial side event:

"A nuclear security incident in one country could have effects far beyond that country's borders, so it is vital that all of us remain ahead of the curve in guarding against nuclear terrorism and other malicious acts."

Nuclear explosive material can and does go missing

Perhaps the most alarming element of ICONS was the disclosure of the IAEA's Incident and Trafficking Database (ITDB).[7] It revealed that the IAEA last year received notifications of nearly 190 incidents of nuclear and other radioactive material being out of regulatory control, including some cases of trafficking and other criminal activities.

The IAEA stresses that "with 140 participating States, the database plays an important role in fostering international cooperation and information sharing among countries. By reporting lost or stolen material to the ITDB, countries increase the chances of its recovery and reduce the opportunities for it to be used in criminal activities. The information is shared with the IAEA, other Member States and relevant international organizations supporting the retrieval of lost or stolen material and the prosecution of suspected criminals."[8]

In 2019, 189 incidents were reported by 36 States, indicating that unauthorized activities and events involving nuclear and other radioactive material, including incidents of trafficking and malicious use, continue to occur. Six of the incidents were related to trafficking or malicious use, continuing a slight downward trend since a peak of 20 such incidents around 15 years ago. Over the past ten years, the average number of incidents submitted to the ITDB has been 185 per year.

Since 1993, 3686 incidents have been reported to the ITDB, of which 290 involved a confirmed or likely act of trafficking or malicious use. Twelve of those incidents included high enriched uranium and two included plutonium. Radioactive sources continue to be reported as stolen or missing, underscoring the need to improve security measures for such sources, especially during transport.

IAEA: propagandist and protector

The IAEA's relatively new Director-General Grossi – probably unintentionally – revealed the dynamic tension the IAEA has in both promoting and regulating nuclear power, in his remarks to open ICONS:[9]

"We live in a world in which nuclear activities are growing in a very sustained way. The number of nuclear power plants, laboratories and locations dealing with nuclear material is increasing. This is a magnet for groups with malicious intent, which see in this material a possibility to create panic and bring distress and pain to our societies. *Nuclear security is about more than just preventing nuclear terrorism. It is essential for ensuring that countries can enjoy the great benefits of the peaceful use of nuclear science and technology sustainably, and for maintaining public confidence*. Maintaining the highest levels of nuclear security should not be seen as an obstacle to using nuclear technology, but rather as an enabler." (emphasis added)

Funding

Recognizing that collective action against transfrontier nuclear security threats requires collective international action, an International Nuclear Security Fund has been established.

The IAEA reported at the conclusion of ICONS that countries announced or confirmed a total of more than US$20 million to the IAEA Nuclear Security Fund (NSF).[10] Grossi in his closing remarks said: "The pledges of contribution to the NSF is an indication of the political commitment, [as well as of the] seriousness of the mission and the gravity of the challenges."

Raja Raja Adnan, Director of the IAEA's Division of Nuclear Security, added: "The Nuclear Security Plan responds to priorities Member States have expressed. The Nuclear Security Plan 2022-2025 will be informed by the recommendations from the five high-level panels and 55 technical sessions held during ICONS 2020."

In other side events held in the margins of ICONS 2020, participants discussed the prevention and detection of trafficking of nuclear and other radioactive material,

challenges of securing nuclear fuel during transport, integrating safety and security in the management of disused sealed radioactive sources, the development of regulatory infrastructure, and challenges in defining nuclear security in every language.

Flawed entrance of the new "Global Britain"

In his speech to ICONS, British minister Nadhim Zahawi asserted "an attack against a nuclear facility, or using radioactive materials, could severely harm people, our prosperity and the environment. It would damage public acceptance of nuclear technologies with far-reaching consequences," before announcing that the UK was to add £1.6m to the international nuclear security fund.[11]

How seriously does minister Zahawi – and the government he represents – take his own warning?

By contrast to the £1.6m set aside for nuclear security protection, what other recent expenditures on the nuclear sector in the UK have been announced? Last October, the U.K. prime minister Boris Johnson, pledged £220m of new resources for fusion R&D.[12,13]

Last November, the UK energy department committed an additional an initial £36m for small modular reactor (SMR) development.[14] This was on top what the energy department (BEIS) told Parliament in March 2019 of up to £56m "being made available to support the development of advanced modular reactors, including up to £44m for a Feasibility and Development Project and £12m for the Office of Nuclear Regulation and Environment Agency to build the necessary capability."[15]

You can see from comparing these amounts – £1.6m for nuclear security contrasted with £312m collectively for news fusion and SMR development – just where nuclear security resides in the U.K. government hierarchy of nuclear priorities. Completely skewed priorities, reflecting the power of the nuclear lobby, that has failed in its mission to launch a nuclear renaissance, but has convinced under-informed ministers to throw huge amounts of new R&D resources to keep a dying industry alive, while neglecting the real challenges of nuclear insecurities.

Trans-Atlantic knowledge gaps over innovative new nuclear designs

At ICONS, Jeremy Edwards, business manager of NNL (UK National Nuclear Laboratory) informed Dr. Ed Lyman, Senior Global Security Scientist of the US Union of Concerned Scientists, about the UK using the AVERT vulnerability assessment software. Dr. Lyman said that, disturbingly, Edwards erroneously "claimed had received extensive accreditation by the US DOE" – to 'optimize' – i.e. reduce – security at nuclear facilities. Lyman corrected this, pointing out that DOE did not actually accredit the software for most of the applications that he discussed.

Another British contributor, Dan Hasted – Lead Security Regulator for Sellafield, Dounreay, Plutonium, & Transport at the UK nuclear regulator, Office for Nuclear Regulation (ONR) – presented a paper in Vienna under the banner 'Nuclear security of new nuclear technologies (e.g. small modular reactors)' in the session on 'Nuclear Security: Supporting And Enabling The Peaceful Use Of Nuclear Power – Portability Of Competent Authority's Assessment Activity To Third Party States.'

Hasted both promoted innovative regulation and the early deployment of SMRs, which, as an independent regulator, it may be argued is out of place. Surely regulators must remain studiously neutral towards the merits of nuclear technology deployment.

In his opening comments, he mused: "Small Modular Reactors (SMRs) and other Advanced Nuclear Technologies (ANTs) offer potential advantages in respect of being quickly deployable and requiring lower capital investments."

Hasted then added: "It is not the Competent Authority (CA)'s role to promote nuclear power but can the CA community remove barriers by working together?," and pondered "Does the importing CA start from a zero base assessment of the security characteristics and required physical protection or does it take account of the assessment activity of the exporting CA? If so, to what extent?"

He concluded: "The overall aim is for the security community, which has for long been perceived as a blocker, to enable and support" and that: "Greater collaboration between CAs could enable the potential modularisation, rapidly deployable and scalable nature of the next generation of reactors to be realised."

Regulators elide into promoters with such conclusions!

Reprinted from the energy transition website hosted by the Heinrich Boel Stiftung (Foundation), https://energytransition.org/2020/03/iconic-failure-to-recognise-nuclear-security-faults/

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