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Mia Pepper writes about plans to weaken assessments of uranium mining proposals in Australia, with a former uranium company executive appointed to a committee to review the Environmental Protection and Biodiversity Conservation (EPBC) Act. She concludes: "The push from the industry to weaken regulations should be wholeheartedly rejected and instead the EPBC Committee could consider advice from the former UN Secretary General to hold an "in-depth" assessment of the uranium sector and its impacts."

NIRS
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founded in 1978

Kujataa threatened by mining projects and uranium mining

Niels Henrik Hooge – NOAH / Friends of the Earth Denmark's Uranium Group

Two of the dominant political themes in Greenland in recent years have been independence from Denmark and uranium mining. As of now, Greenland's economy does not sustain financial autonomy. In 2013, Greenland's parliament, Inatsisartut, abolished its zero-tolerance policy for uranium mining, distancing itself from a quarter of a century of political support for renewable energy. During all this time, acceptance of the uranium ban was unanimous both in Inatsisartut and the Danish parliament. The rationale behind this decision was that exploitation of Greenland's mineral resources was the quickest way to economic self-sufficiency and full independence from Denmark. Since then, the position on uranium mining has been one of the main determining factors in forming subsequent government coalitions.

Lately, the applications for mining licenses have exploded. In 2019, there were approximately 70 large scale exploration and exploitation licenses and this year it could be more.

Few if any World Heritage Sites have more or bigger mining projects in their vicinity than the Kujataa UNESCO World Heritage Site in Southern Greenland. The property – one of Greenland's three world heritage sites – was inscribed on UNESCO's world heritage list in 2017.¹ It comprises a sub-arctic farming landscape consisting of five components that represent key elements of the Norse Greenlandic and modern Inuit farming cultures. On one hand they are distinct, on the other they are both pastoral farming cultures located on the climatic edges of viable agriculture, depending on a combination of farming, pastoralism and marine mammal hunting. The landscape constitutes the earliest introduction of farming to the Arctic.

Some of the world's biggest mining projects

Situated in Greenland's southernmost and smallest municipality, Kommune Kujalleq, Kujataa has recently found itself in the geopolitical epicenter of growing international friction between the U.S. and China that both want access to Greenland's rich mineral resources. These include zinc, copper, nickel, gold, diamonds and platinum group metals, but first and foremost substantial deposits of rare earth elements (REEs) and uranium.

Greenland is estimated to hold 38.5 million tons of rare earth oxides, while total reserves for the rest of the world stand at 120 million tons. Furthermore, Greenland has some of the world's largest undiscovered oil and gas reserves and could develop into the next environmental frontline – not unlike the Amazon Rainforest in South America.

Some of the biggest REEs mining projects in the world are located in Kommune Kujalleq, only a few kilometres from the Kujataa World Heritage Site. The biggest and most controversial is the Kvanefjeld REEs-uranium mining project, owned by the Australian company Greenland Minerals Ltd. (GML).

According to GML, in addition to containing the second biggest uranium² and by far the largest thorium deposits, the Ilimaussaq-complex, of which Kvanefjeld is a part, possesses the second largest deposits of rare earth elements in the world. The mine, which would be the world's second largest open pit uranium mine, is located on top of a mountain, almost one kilometre above sea-level, only six kilometres away from Narsaq, a town of approximately 1,500 inhabitants, and also near some of the parts of the Kujataa World Heritage Site.

A second major project close to Kujataa is the Kringlerne REEs mining project, which is described by the owner, the Australian mining company Tanbreez Mining Greenland A/S, as probably the largest deposit of REEs in the world.³ In 2013, the Greenlandic government estimated that Kringlerne contained more than 4.3 billion tons of ore.⁴ The minerals will be extracted from two open pits at high altitude.⁵

A third substantial project is the Motzfeldt Sø REE mining project⁶, which is part of the Motzfeldt Centre and owned by Tanbreez's parent company, Rimbal Pty Ltd. So far, not much is known about this project. After years of delays, decisions on whether to grant the owners of the Kvanefjeld and Kringlerne exploitation licenses are expected to be made by the Greenlandic government later this year. Public hearings on projects in the last phase of their Environmental Impact Assessment (EIA) processes could start at any time.⁷

Kvanefjeld – a contentious mining project

Because of the attention given to the Kvanefjeld uranium/ REEs mining project over the last decade, several other mining projects in Kommune Kujalleq have been able to fly under the radar. The plans for the Kvanefjeld mine started more than 60 years ago, not in Greenland, but in Denmark, when its uranium deposit was discovered and further explored by the Danish Nuclear Energy Commission, which needed a stable uranium supply for the Denmark's planned nuclear power program. The people in Greenland and both their leading government parties, Siumut and Inuit Ataqatigiit, were against the project.

After the Danish rejection of nuclear power and the decision in 1988 by the Joint Committee on Mineral Resources in Greenland not to issue permits for uranium exploration and extraction, the Kvanefjeld project was off the political agenda for many years. This changed in 2008, when Kvanefjeld's owner, GML, decided, that the company wanted to mine not only REEs, but also uranium. If it did not get permission, it would abandon the project.⁸

Where the uranium so far had been considered the main deposit, it was now mentioned as a by-product of the REEs that GML wanted to exploit. Ironically, this happened the same year that the former explorations

director of Geological Survey of Greenland (GGU – now GEUS) estimated the uranium deposit to be 600,000 tons for the whole Ilimaussaq complex, of which Kuannersuit is a part.⁹ That is 14 times more than in the 1970s and the 1980s. It was since been upgraded to be the second largest deposit in the world, surpassed only by the Australian Olympic Dam uranium mine.

From being perceived as a conspicuous example of Danish colonialism, Kvanefjeld was now marketed as a means of economic independence from Denmark. However it has since become clear that more oil and minerals extraction is not a real prerequisite for financial autonomy. In 2014, a study was published by the University of Copenhagen and Ilisimatusarfik, the University of Greenland.¹⁰ It concluded that 24 concurrent large-scale mining projects would be required to zero out the financial support from Denmark. To achieve this within a reasonable timeframe, a new large-scale project would have to be developed and launched every other year and an unrealistically large number of mineral deposits required. The report also established that a mineral-based economy is not economically sustainable: when the mining industry started to recede, Greenland would find itself in the same situation as before, only with fewer resources. These findings have since been confirmed by other reports.¹¹

Calls to enlarge of the Kujataa World Heritage Site

Especially in Southern Greenland, there has long existed a notion that the Kujataa World Heritage Site in its present form has been delineated to accommodate the Kvanefjeld mining project and that the potential impacts of the other mining projects surrounding the site have not been considered. In March 2018, responding to call for submissions by Greenland's Ministry of Education, Culture, Research and Church and the Danish Ministry of Culture's Agency for Culture and Palaces, the URANI NAAMIK / NO TO URANIUM Society in Narsaq proposed that Kujataa should be extended to include large parts of the Erik Aappalaartup Nunaa Peninsula (or the Narsaq Peninsula), which should be entered into Greenland's World Heritage Tentative List.

Subsequently, Narsaq Museum's curator recommended that Landnamsgaarden and Dyrnæs Church near Narsaq should be recognised as world heritage and in a letter to URANI NAAMIK, Greenland National Museum and Archive mentioned the big Northener Farm in Narsaq as a possible world heritage prospect.¹² Generally, the proposed sites meet a wide range of selection criteria for nomination to the World Heritage Tentative List.¹³

Kujataa's Outstanding Universal Value under threat

It is also clear that Kujataa's Outstanding Universal Value – i.e. its exceptional cultural and natural significance – will be under threat if the mining projects surrounding the site are implemented. There have already been calls to put Kujataa on the World Heritage Convention's danger list.

Kujataa's unique farming traditions have been a determining factor in designating it as world heritage. However, the Danish Risø National Laboratory has estimated that up to a thousand tons of radioactive dust might be released annually from just the Kvanefjeld open pit mine due to material handling, hauling and blasting and from the ore stock and waste rock piles.¹⁴



Kujataa, Greenland: Norse and Inuit farming at the edge of the Ice Cap. View of the coastal plain with Qassiarsuk / Brattahlíð. Photo: Greenland National Museum & Archives.

Most if not all the planned mining projects in the area are open pit mines. A lot of the dust will be carried by heavy arctic sea winds across the region, where it will affect agricultural and other activities. People living in the contaminated area would be chronically exposed to radioactive and other toxic species via drinking water, food and air. Seafood would become contaminated as well, due to the substantial discharges of wastes into the coastal sea.¹⁵

It should also be mentioned that Southern Greenland has the country's richest biodiversity and all of Greenland's farm land is situated in the area, which is often described as "Greenland's bread basket". Thus, it will have a hard time co-existing with a large-scale mining industry. Large-scale mining and particularly uranium mining are incompatible with development of three of the four sectors, which are the key growth sectors for Greenland's and particularly the regional economy, namely fishing and catching, tourism and food production.

All of Greenland's sheep stock – more than 20,000 overwintering sheep – are found in Southern Greenland and there is an ambition to introduce beef and dairy cattle, when global warming makes the climate milder. Furthermore, the region has some of the best catch areas: just the small Kujalleq municipality had almost 90,000 catches in 2009 and 2010 of among others birds, land mammals and seals.¹⁶

No real plans to protect Kujataa

In addition to having already ignored the threats to the Kujataa World Heritage Site, there is little indication that the Greenlandic and Danish authorities intend to protect the property in the future. It is currently governed and managed by a steering group with representatives from the Greenlandic government, the Greenland National Museum and Archives, Kujalleq Municipality, village councils, farmers, the Danish Agency for Culture and Palaces and the tourism industry.

Although it is acknowledged that the site is vulnerable, it is assumed that the buffer zones are enough to protect the integrity of the property. However, since the current management plan¹⁷, which barely touches on the mining issues, was written in 2016, the number of exploration licenses in the region has exploded.

Furthermore, in its description of the impacts of the nearby mining activities, the management plan relies on a draft of an EIA of the Kringlerne mining project¹⁸ which was rejected by Greenland's Environmental Agency for Mineral Resources Activities (EAMRA), because it did not contain enough relevant information.

EAMRA has also rejected the four latest EIA draft reports on the Kvanefjeld project because of a lack of information. Among other things, Kvanefjeld's owner, GML, is criticised for not providing a comprehensive assessment of the earthquake risk in the region, final results of tests of toxic elements during extraction and processing, final radiological estimates and results of investigations of impacts of radioactive minerals, and for failing to describe the alternatives regarding management of tailings and the shutdown of the tailings facility.¹⁹

In September 2019, the CEO of GML was formally reproached by Greenland's Prime Minister and the Department of Nature and Environment's Permanent Secretary for lobbying high-ranking civil servants and ministers who had no competence within the EIA review process in order to undermine EAMRA's authority.²⁰

A Heritage Impact Assessment is not enough

In December 2018, the Minister of Mineral Resources and Labour was asked by a member of the Parliament whether the government would carry out a Heritage

Impact Assessment (HIA) of the Kvanefjeld mining project and not make a decision on licensing the project, before it had been presented to UNESCO for an evaluation in accordance with Section 172 of the operational guidelines for the World Heritage Convention.

The Minister responded that the government would not take a position on this question before a valid exploitation application had been made by the owner of the project.²¹ Obviously, this is also an issue in regard to the other big mining projects in the region, because any realistic HIA of Kujataa would need to assess the cumulative effect of mining projects in the area.

However, the biggest problem for not only Kujataa, but all of Greenland's three world heritage sites could be the fact that Greenland's environmental legislation does not mandate strategic environmental impact assessments for minerals exploration areas, which means that no areas in principle are excluded from being licensed and also that the public is not kept informed in advance on what areas could be designated. Thus, implementation of the Aarhus Convention in Greenland should have high priority in order to reinforce Greenland's environmental legislation.²²

An earlier version of this article was published in the World Heritage Watch Report 2020, <https://world-heritage-watch.org/wp-content/uploads/2020/06/WHW-Report-2020.pdf>

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Nuclear corruption and the partial reform of South Korea's nuclear mafia

The corrupt behavior of Japan's 'nuclear village' – and the very existence of the nuclear village – were root causes of the March 2011 Fukushima disaster and a string of earlier accidents.¹ In the aftermath of the Fukushima disaster, academic Richard Tanter identified a worldwide pattern of nuclear corruption:²

“During the eighteen months from the beginning of 2012 to mid- 2013, major corruption incidents occurred in the nuclear power industry in every country currently seeking to export nuclear reactors: the United States, Canada, Japan, South Korea, Russia, France, and China. A number of other countries that operate or plan to have nuclear power plants also had major corruption cases, including Lithuania, Bulgaria, and Pakistan; moreover, serious allegations of corruption were raised in Egypt, India, Jordan, Nigeria, Slovakia, South Africa, and Taiwan.

“In the Korean case, systemic nuclear industry corruption was found; in Canada, deep corporate corruption within the largest nuclear engineering corporation was one matter, and bribery of nuclear technology consuming countries' senior ministers was another. In Russia, the issue was persistent, deep seated, and widespread corruption in state-owned and private nuclear industry companies, with profound implications for the safety of Russian nuclear industry exports.

“Two cases in nuclear technology importing countries, Lithuania and Bulgaria, revealed large-scale bribery involving government, the nuclear industry, and foreign (US and Russian) companies.

“Post-Soviet bloc geostrategic energy interests are central to both stories. The profound influence of organized crime in national energy policy, and on a transnational basis, is revealed in the Bulgarian and Russian cases. Suspicions are widespread and allegations common in the cases of India, Taiwan, and Bangladesh, but confirmed evidence remains weak.”

Since Tanter's 2013 article, more information has surfaced regarding corruption in Russia's nuclear

industry³⁻⁴ and Russia's nuclear dealings with India.⁵⁻⁷ The corruption associated with the abandoned Westinghouse nuclear power project in South Carolina is gradually coming to light.⁸ Corruption has been uncovered in the nuclear programs of South Africa⁹⁻¹⁵, Brazil¹⁶, Ukraine¹⁷ and, no doubt, elsewhere.

The International Atomic Energy Agency (IAEA) noted in its 2015 *Nuclear Technology Review* that counterfeit, fraudulent and suspect items (CFSIs) “are becoming an increasing concern for operating organizations and regulators”¹⁸ And again in 2019, an IAEA report noted that CFSIs “are of increasing concern in the nuclear industry and generally throughout the industrial and commercial supply chains.”¹⁹ The 2019 report noted that CFSIs “can pose immediate and potential threats to worker safety, facility performance, the public and the environment, and they can negatively impact facility costs.”

South Korea's 'nuclear mafia'

In the late 2000s, it was anticipated that South Korea's nuclear capacity would rise from 18 gigawatts (GW) to 43 GW by 2030. The current plan is to reduce the number of reactors from a peak of 26 in 2024 to 17 reactors (approx. 17 GW) in 2034.²⁰ Thus the ambitions have been more than halved. In recent years the South Korean government has shut down the Kori-1 and Wolsong-1 reactors, and suspended or cancelled plans for six further reactors.

Corruption scandals are partly responsible for the massive downgrading of South Korea's nuclear power ambitions.²¹ A detailed article on the scandals by Philip Andrews-Speed from the National University of Singapore has recently been published in the *Journal of World Energy Law & Business*.²² Importantly, Andrews-Speed notes that the problems only partially been resolved.

The first scandal to come to light involved a scarcely-believable cascade of human errors and technical faults at the Kori-1 reactor in 2012. Andrews-Speed writes:²²

“The sequence of events that led to the station blackout began on 4 February 2012 when the management carried out a planned shutdown of the reactor for refuelling. On 9 February, the plant suffered a loss of power due to human error during a test of the main generator. After this, one of the two emergency diesel generators failed to start. The other generator was undergoing maintenance. In addition, the connection to one of the offsite auxiliary transformers failed to work as it had not been properly set up after maintenance; and the other offsite transformer was just entering maintenance. This caused a station blackout lasting 11 minutes 43 seconds. Cooling was lost for 11 minutes. The plant manager only reported the event to the Nuclear Safety and Security Commission on 12 March, more than one month later. ... The plant manager justified the decision not to report the blackout on the risk of loss of public confidence and of credibility of the plant with the management of the operating company.”



Not long after, a much broader pattern of corruption began to come to light:

“Investigations of 101 companies revealed a wide range of illegal activities including bribery, overpaying, preferential treatment and favouritism, limiting competition in bidding, accepting parts with fraudulent or even no certificate, and collusion by parties in the falsification of testing reports.”

An investigation by the Korea Institute for Nuclear Safety showed that 2,114 test reports had been falsified by material suppliers and equipment manufacturers; that a further 62 equipment qualification documents (environmental and seismic qualification) were falsified between 1996 and 2012; and that a further 3,408 test reports and 53 qualification reports could not be verified or were unclear.^{22,23} Over 7,000 reactor parts were replaced in the aftermath of the scandal.²³

Andrews-Speed details the corruption that probably had the greatest consequences for reactor safety:²²

“A very special case of systematic counterfeiting came to light in May 2013 when it was revealed that safety-grade control cable installed in four reactors had been falsely certified. The supplier of the cable was a Korean company, JS Cable. In 2004, KHNP decided for the first time to purchase cable from a domestic rather than foreign supplier. JS Cable submitted a bid to KEPCO E&C, despite not having the capability to make cable to the required specifications. KHNP awarded the contract to JS Cable with the first delivery due in 2017, on the condition that the cable met the required standards.

“JS Cable chose Saehan TEP to test the cable, but this firm lacked the capacity to undertake the required loss of coolant testing. So Saehan TEP outsourced the process to the Canadian testing firm, RCM Technologies (RCMT). RCMT tested six samples, but only one passed. JS Cable sent six further samples. Only two passed, but these two samples were illegitimate as they had not been exposed to radiation before testing. In response, KHNP instructed KEPCO E&C to make the test results acceptable. So KEPCO E&C, Saehan TEP and JS cable agreed together to modify the test reports from RCMT to show that all the samples met the required standards.”

The corruption also affected South Korea's reactor construction project in the UAE. Hyundai Heavy Industries employees offered bribes to KHNP officials in charge of the supply of parts for reactors to be exported to the UAE.²⁴ And – incredibly – the reactor contract was underpinned by a secret military side-agreement, signed without the knowledge or approval of South Korea's National Assembly, and containing a clause that does not require approval from the National Assembly to engage in conflict, should there be a request for military assistance from the UAE.²⁵⁻²⁸ The pact includes a clause that would obligate South Korea to intervene militarily to protect the UAE in the event of a crisis, in addition to the deployment of South Korean special forces and the ongoing supply of military equipment.²⁵

Structural problems

Andrews-Speed describes the interlinking elements of South Korea's 'nuclear mafia' involving nuclear power companies, research centers, regulators, government,

and educational institutions. He notes that the country's nuclear industry possesses some special features that make it particularly prone to corruption, relating to the structure and governance of the industry, and its close links with the government.

Both KHNP and KEPCO E&C are monopolists in their fields, and both suffer from poor corporate governance and weak internal management:²²

“The poor corporate governance has its roots in the way in which the Ministry of Trade, Industry and Energy is directly involved in the management of KEPCO and its subsidiaries and in the political nature of appointments of many board members and senior managers. The weak internal management was particularly pertinent to safety because, before it was amended in 2014, the Act on Nuclear Safety and Security did not address the safety standards of parts and equipment. Thus, the selling of sub-standard components was not illegal and the task of supply chain oversight was left to KHNP to manage.”

Improvements and lingering problems

Andrews-Speed notes that the Kori-1 blackout and the systemic supply-chain corruption led to efforts to curb corruption. These included revisions to the Nuclear Safety Act giving greater powers to the newly created Nuclear Safety and Security Commission; placing new reporting obligations on all actors in the nuclear supply chain; and broader legislation and regulations governing public procurement, the conduct of public officials and corruption.

But it is doubtful whether these reforms are sufficient:²²

“The principal obstacles to progress relate to power and structure. The Nuclear Safety and Security Commission lacks the authority of nuclear regulators in some other countries for a number of reasons. First, after 2013 the status of the Commission Chair was reduced from Ministerial to Vice-Ministerial level and their reporting line was changed from the President to the Prime Minister. The reason for this change of status related more to the career mobility of civil servants than to the governance of nuclear safety. Nevertheless, the consequences for the authority of the Commission have been significant. It cannot now issue any regulations without the approval of the Ministry of Justice and other Ministries. This results in delay and occasional suppression of new regulations. In addition, it has been alleged that the Nuclear Safety and Security Commission redacts and sanitizes the safety reports of the Korea Institute Nuclear Safety. The consequences of this practice on safety are exacerbated by the ability of ministries, politicians and KEPCO subsidiaries to block the tough enforcement of safety standards.

“Second, the National Assembly provides little oversight of the Commission. Instead, authority lies solely with the government. Finally, the term of the Commission Chair is just three years which is shorter than that of the nation's president which is five years. This contrasts with the situation in the USA, for example, where the Chair of the Nuclear Regulatory Commission is appointed for a five-year term, one year longer than that of the US President. As a result, Korean Presidents have significant influence over the nuclear regulator given their remit to appoint all nine members of the Commission. Taken together, these

three factors enhance the power of the executive over the Nuclear Safety and Security Commission.

“The structural weaknesses within Korea’s nuclear industry are multiple. The Ministries of Finance and Strategy and of Trade, Industry and Energy exert excessive influence over state-owned enterprises, including KHNP and KEPCO E&C. These two corporations not only have strong monopolistic positions but KHNP combines the roles of constructor, owner and operator of nuclear power plants. In addition, KHNP exerts undue influence over KEPCO E&C. This strong triangular relationship between government and two monopolists persists today and forms the core of Korea’s ‘nuclear mafia’. Only radical structural and governance reform can address this fundamental weakness.

“Further compounding factors include: the corporate culture of KEPCO and its subsidiaries that emphasizes

the need for conformity; the weak culture of accountability that arises in part from the absence of a strong law providing for punitive damages; and the general standard of personal and corporate ethics in Korea.”

One indication of ongoing problems – and efforts to resolve them – was the awarding of ‘prize money’ to 14 whistleblowers in 2019 for reporting violations of nuclear or radiation safety laws to the Nuclear Safety and Security Committee.²⁹

There were another six arrests related to nuclear corruption in 2018 – an outcome that only scratched the surface of the problems according to a whistleblower.³⁰

A recent example of violations of safety regulations occurred at the Hanbit-1 reactor on 10 May 2019. The reactor’s thermal output exceeded safety limits but was kept running for nearly 12 hours when it should have been shut down manually at once.³¹ In addition, the control rods were operated by a person who does not hold a Reactor Operator’s license.³²

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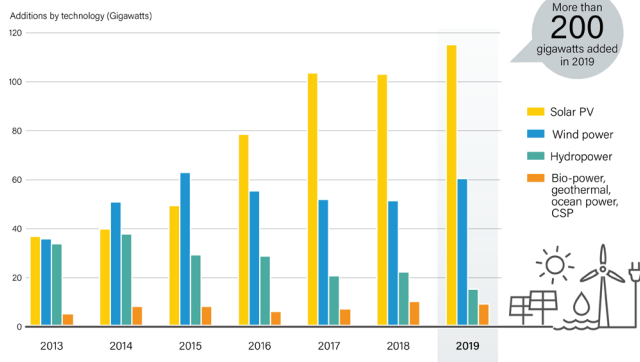
REN21 Renewables Global Status Report

REN21 – which describes itself as a global community of renewable energy actors from science, academia, governments, NGOs and industry – has released its annual *Renewables Global Status Report*.¹

The report finds that the growth of renewables (including hydro) amounted to a record 201 gigawatts (GW) in 2019, with the end-of-year total standing at 2,588 GW. The report states:

“For the fifth year in a row, net additions of renewable power generation capacity clearly outpaced net installations of fossil fuel and nuclear power capacity combined. ... In most countries, producing electricity from wind and solar PV is now more cost effective than generating it from new coal-fired power plants. These cost declines have led to record-low bids in tendering processes, which became even more common during the year.”

Annual Additions of Renewable Power Capacity, by Technology and Total, 2013-2019



REN21 RENEWABLES 2020 GLOBAL STATUS REPORT

The contrast between renewables and nuclear could hardly be more striking: 201 GW of new renewable capacity in 2019 compared to nuclear’s net decline of 0.6 GW.²

Renewables reached a record 75% of net additions of power generating capacity in 2019, continuing a 5-year pattern of renewables outpacing all other power sources combined. Solar PV accounted for a record 115 GW of the 201 GW of renewable capacity additions, with solar PV capacity amounting to 627 GW by the end of 2019. Wind power saw its second largest annual increase, with 60 GW of new capacity bringing the total to 650 GW (including 29 GW of offshore wind).

Renewables accounted for an estimated 27.3% of global electricity generation by the end of 2019 according to the REN21 report. By contrast, nuclear accounts for barely 10%.

Total new investment in renewable power and fuels was at least US\$316.7 billion in 2019. Global investment in renewables has exceeded US\$200 billion every year since 2010. Investment in renewables in 2019 was more than 20 times greater than nuclear power investments of US\$15

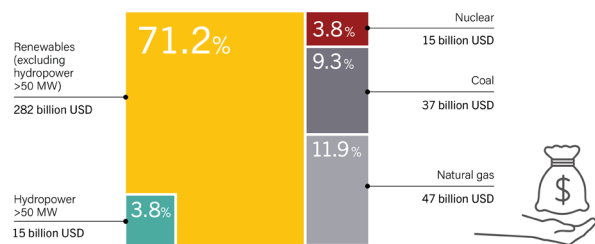
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Global Investment in New Power Capacity, by Type (Renewables, Coal, Gas and Nuclear Power) 2019



Note: Renewable investment data in figure exclude biofuels and some types of non-capacity investment.

Source: BloombergNEF.

REN21 RENEWABLES 2020 GLOBAL STATUS REPORT

billion. Renewables accounted for 75% of investments in power capacity, gas 11.9%, coal 9.3% and nuclear 3.8%. Developing and emerging economies outweighed developed countries in renewable energy investments for the fifth year running, reaching US\$152 billion.

The renewable energy sector employs around 11 million people worldwide according to the REN21 report.

Beyond the electricity sector

While the growth of renewable electricity generation is impressive, it needs to expand more rapidly to limit climate change. The REN21 report notes that although energy-related greenhouse gas emissions remained stable in 2019, the world is not on track to limit global warming to well below 2 °C, let alone 1.5 °C, as stipulated in the Paris Agreement.

Beyond the electricity generating sector, there’s not much to cheer about. The REN21 report states:

“Shares of renewables in electricity generation continued to rise around the world. In some countries, the share of renewables in heating, cooling and transport also grew, although these sectors continued to lag far behind due to insufficient policy support and slow developments in new technologies. This resulted in only a moderate increase in the overall share of renewables in total final energy consumption (TFEC), despite significant progress in the power sector. As of 2018, modern renewable energy (excluding the traditional use of biomass) accounted for an estimated 11% of TFEC, only a slight increase from 9.6% in 2013.”

Rana Adib, REN21’s Executive Director, said:

“Year after year, we report success after success in the renewable power sector. Indeed, renewable power has made fantastic progress. It beats all other fuels in growth and competitiveness. Many national and global organisations already cry victory. But our report sends a clear warning: The progress in the power sector is only a small part of the picture. And it is eaten up as the world’s energy hunger continues to increase. If we do not change the entire energy system, we are deluding ourselves.”

Anti–nuclear resistance in Russia: problems, protests, reprisals

This is an excerpt from a new report by the Russian Social Ecological Union, the Russian member of Friends of the Earth International.

Rosatom is a Russian state-owned corporation which builds and operates nuclear power plants in Russia and globally. The state-run nuclear industry in Russia has a long history of nuclear crises, including the Kyshtym disaster in 1957 and Chernobyl in 1986. Yet Rosatom plans to build dozens of nuclear reactors in Russia, to export its deadly nuclear technologies to other countries, and then to import their hazardous nuclear waste.

This report is a collection of events and details about the resistance to Russian state nuclear corporation, Rosatom, and other activities that have led to the pollution of the environment and violation of human rights. Social and environmental conflicts created by Rosatom have been left unresolved for years, while at the same time, environmental defenders who have raised these issues, have consistently experienced reprisals.

Nuclear energy – failures and lies: Rosatom is heir to the Soviet atomic industry, despite all attempts to appear otherwise. Nuclear disasters still affect us and many of their long-term problems have been left unresolved. Upon review of the recent accidents that have occurred at nuclear facilities in Russia, it is clear that few improvements have been made. We see this again and again in the examples mentioned in this report.

Expired reactors: More than 70% of Russian nuclear reactors are outdated. They were developed in the 1970s and were designed to operate for only 30 years. The lifetimes of such reactors have been extended by twice the design limit. Rosatom's strategy also includes a dangerous increase of the reactor's thermal power. Rostekhnadzor (Federal Environmental, Industrial and Nuclear Supervision Service) grants licenses for lifetime extensions without an environmental impact assessment and without public consultations.

Decommissioning problems: Most of the Russian nuclear power plants, despite their lifetime extensions, are approaching inevitable closure. Over the next 15 years, the NPP decommissioning process will take place. Currently, 36 power units are in operation at 11 NPPs in Russia, and 7 units have been shut down. While the fuel was removed from 5 of these units, the NPPs have not yet been decommissioned¹⁴. This process will lead to enormous amounts of nuclear waste. Moreover, sufficient funds for the decommissioning process have not yet been earmarked.

Uranium mining protest: In the Kurgan region, Rosatom's subsidiary company, Dalur, has been mining uranium and the local communities fear an environmental disaster. In the summer of 2019, the state environmental

appraisal revealed a discrepancy between Dalur's documentation and the Russian legislation requirements, but the company started the deposit's development anyway at the end of 2019.

Rosatom importing uranium waste: In the fall of 2019, environmentalists revealed that radioactive and toxic waste (uranium hexafluoride, UF₆) were being imported from Germany through the port of Amsterdam into Russia. This is the waste from the uranium enrichment process which will be sent to the Urals or Siberia and stored in containers above the ground. Thus, under the auspices of a commercial transaction, the German uranium–enriching enterprise Urenco avoids its nuclear waste problem, while Rosatom profits by taking the hazardous waste into Russia.

The Mayak plant – Rosatom's dirty face: The Mayak plant in the Chelyabinsk region is a nuclear waste reprocessing facility, arguably one of the places most negatively affected by the Russian nuclear industry. Firstly, radioactive waste was dumped into the Techa river from 1949 to 2004, which has been admitted by the company. According to subsequent reports by the local organisation *For Nature* however, the dumping has since been ongoing. As a result, 35 villages around the river were evacuated and destroyed. Secondly, the explosion at the plant in 1957, known as the Kyshtym tragedy, is among the 20th century's worst nuclear accidents.

Struggle against nuclear repository: In the city of Krasnoyarsk, Rosatom plans to build a national repository for high-level radioactive waste. A site has been selected on the banks of Siberia's largest river, the Yenisei, only 40 km from the city. Environmental activists consider this project, if implemented, to be a crime against future generations and violates numerous Russian laws. Activists are also concerned that waste from Ukraine, Hungary, Bulgaria (and in the future from Belarus, Turkey, Bangladesh, and other countries) could be transported there as well.

Rosatom's 'death plants': At the end of January 2019, RosRAO, a structure of Rosatom, began the project of 're profiling' the four former plants in the Kurgan, Kirov, Saratov regions and the Republic of Udmurtia, converting facilities used to destroy chemical weapons into facilities for the disposal of hazardous waste. Later, RosRAO was even hypocritically rebranded the Federal Environmental Operator.

A road through a radioactive graveyard: Many hazardous radiation facilities across Russia are abandoned and require restoration. An example of this

is the radioactive waste dump of the Moscow Polymetal Plant. Since the 1930s, the Moscow Polymetal Plant has processed monazite, containing thorium, uranium, and radium. Until 1972, the plant disposed of its tailings on the banks of the Moscow River. Eventually, the waste dump was abandoned and has since become a radioactive hillslope. Today, in place of the Moscow Polymetal Plant stands the headquarters of Fuel Company TVEL, a subsidiary of Rosatom, while the company Radon, another subsidiary of Rosatom, excavates 10–15 cubic meters of waste from the hillslope annually. Given that 15,000 cubic meters of waste remain, at this rate it would take more than 1000 years to remove all of the buried waste.

Conclusion: nuclear power is a problem, not a solution: Despite the nightmare described above, Rosatom is trying to convince us of the nuclear industry's purity and purported carbon neutrality. In addition, Rosatom is building nuclear plants abroad using money from the Russian Federation's budget. Nuclear not only won't save our climate, but will continue to create even more insoluble problems of radioactive waste for thousands of years.

We demand that:

- Russia must abandon all further development of nuclear energy.
- Current nuclear power plants should be closed and decommissioned as soon as possible.
- Current funds from the development of nuclear energy should be redirected to the development of local renewable energy sources, to the restoration of contaminated territories and as support for those affected by the activities of the nuclear industry.
- The problem of nuclear waste should be discussed widely, openly and inclusively, with the participation of all interested parties, and decisions should be made democratically, taking into account the principles of environmental justice.
- Pressure on all activists, including environmental defenders and defenders of victims' rights, should cease immediately.
- And finally, Rosatom should be held responsible for environmental pollution and violation of human rights.

The full report is online at:

<http://rusecounion.ru/eng/rosatomresistancepaper>

<http://rusecounion.ru/sites/default/files/inline/files/rosatomresistancepaper.pdf>

Rosatom's export reactor portfolio is 30% smaller than declared

The Russian environmental group Ecodefense has published its second independent report on Russian-designed nuclear power plants in foreign countries. The report, '*Russian Reactor Export: 2020*', notes that Rosatom claims it is building 36 reactors around the world and that the total value of its foreign nuclear orders exceeds US\$130 billion.

However a close study of the information available on Rosatom's projects reveals that as of May 2020, Rosatom only had contracts for 21 new reactors abroad. Of these, only eight reactors are in an active construction stage. Last year, construction work started on the second unit of the Iranian Bushehr plant. The remaining seven were already being built in 2018.

The roster may also be expanded with new units in Egypt, China, and Turkey, but the continuing coronavirus pandemic makes any accurate forecasts on expected construction start near impossible.

In 2019, Rosatom did not ink any new contracts for nuclear power plant construction abroad, but it made headway in preparing three projects – in Bulgaria, Saudi Arabia and Uzbekistan – which so far lack contractual obligations.

As of early 2019, the Russian state had at least US\$90 billion in federal budget funding pledged to foreign reactor

projects. According to Ecodefense's report, efforts to attract foreign investment into Rosatom's reactor ventures abroad are floundering. In Turkey, where active – and unsuccessful – attempts have been made over several years to secure investor funding, the Russian state bank Sberbank said last year it would provide Rosatom a loan toward the construction. Possible involvement of the state development corporation VEB.RF (formerly, Vneshekonombank) has been mentioned with regard to the project in Uzbekistan. Promised investments turn out to be just more examples of reactor projects abroad being infused with Russian state funding.

Earlier, money from the National Wealth Fund – a key element of the Russian pension system – was used to finance the much-delayed Hanhikivi project in Finland. Plans have been discussed to tap into that fund for the project in Egypt as well. Rosatom's projects are only feasible in an environment of unfettered access to the Russian federal budget and a lack of efficient oversight over the expediency of state spending. The absence of any investors but the Russian state clearly shows that these projects are economically unsound and are undertaken for the sake of political influence.

Abridged from <https://ecodefense.ru/2020/05/29/no-investors-but-putin/>

Uranium, extinction, expedited approvals and extreme risks: the need for stronger environmental laws

Mia Pepper – Mineral Policy Institute

This year a Review Committee is examining the cornerstone of Australia's environmental laws – the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999. This review comes hot on the heels of three inquiries into nuclear power driven by conservative politicians and pressure from the nuclear lobby. This cohort are pushing for the removal of laws banning nuclear power, a push the current federal government has already ruled out.¹

They are also pushing to weaken regulatory requirements for uranium mine assessments through the EPBC Act. There is currently no national prohibition on uranium mining, but prohibitions exist in Victoria, New South Wales, Queensland, Western Australia, and Tasmania.

South Australia and the Northern Territory have a long and contested history of supplying uranium to fuel nuclear power plants overseas. Uranium from SA and the NT fuelled the Fukushima reactor during the 2011 meltdowns, fires and explosions² – a discomfiting legacy given that there was ample evidence long before the Fukushima disaster of corruption and inadequate safety standards in Japan's nuclear industry.

Following the Fukushima disaster the UN Secretary General advised that Australia have “an in-depth assessment of the net cost impact of the impacts of mining fissionable material on local communities and ecosystems.”³ No such assessment has been carried out. Worse still, the appointment of a former uranium mining company executive to the EPBC Review Committee suggests that there may be some support within the government for a weakening of uranium mining regulations rather than the necessary strengthening.

The reality of uranium mining in Australia has been one of leaks, spills, accidents, license breaches and a failure to rehabilitate. Of the 15 uranium mines that have operated, just two are still mining (Olympic Dam and Beverley Four Mile), one is preparing for closure (Ranger), another is preparing for a second round of rehabilitation failing previous attempts (Rum Jungle), three are on life support in extended care and maintenance; and the remaining sites are all contaminated and require ongoing monitoring and maintenance at the expense of taxpayers.

That track-record strongly suggests the need for greater scrutiny and a strengthening not a weakening of regulations. Proposed changes by the nuclear industry include changing the definition of ‘nuclear actions’ in the EPBC Act to remove the “mining and milling” of uranium. The impact of this would reduce requirements for whole-of-environment assessments for uranium projects and reduce federal oversight. Existing processes desperately need improvement given recent failures around transparency, upholding principles and objects of environmental laws, political influence in decision making, expedited process and unfounded exemptions.

The Ranger uranium mine in the tropical Northern Territory, owned by Rio Tinto and operated by ERA, will begin rehabilitation in 2021, a project set to cost in excess of A\$1 billion. There are ongoing concerns about the funding and adequacy of the proposed rehabilitation. Meeting the regulatory requirement to secure radioactive wastes and other toxins from the environment for 10,000 years is inherently difficult, not least because there is a long history of routine, daily leakage of large volumes of contaminated liquid.⁴

Not far from Ranger, the government-owned Rum Jungle mine has been leaking radioactive and acidic materials into the East Branch of the Finnis River since it was closed in 1971. The NT government has released new plans to remediate the site which is likely to cost in excess of A\$300 million, but there is still no commitment from the NT or Federal governments to fund this important work.

The legacy threats from uranium mines are unlike the threats from other mines and a repeated failure to contain this waste suggests that mining uranium should be banned, or at the very least have the strictest possible regulations.

There are many other examples of industry and regulatory failure. At the former uranium mine at Radium Hill in SA, the tailings dam was shoddily constructed and was not capped when the mine closed. The Port Pirie uranium treatment plant in SA is still contaminated over 50 years after its closure. SA regulators failed to detect a mining exploration company's dumping of low-level radioactive waste in the Arkaroola Wilderness Sanctuary. At the Beverley Four Mile in-situ leach uranium mine in SA, contaminated wastewater is routinely dumped in groundwater – a process permitted by regulators who should know better.

RESOURCES

Australia's uranium producers have lined up one of Canberra's biggest lobby groups, International Public Relations, to organise their media campaign against the anti-uranium forces.

IPR have just been engaged for a hefty fee to monitor all media coverage on uranium and supervise the industry's response.

The decision follows deep concern within the companies that they are being defeated in the propaganda battle by a combination of environmentalists led by the hard-headed Friends of the Earth group, Aborigines pushing their land claims and a powerful force of scientific and medical opinion warning about the dangers of uranium development.

This feeling is documented in the secret company memoranda produced in the article by Bruce Sutherland, which is in the file, *Uranium: The former general manager of New South Wales Uranium, Mr H. Nelson, wrote to a colleague on June 29 this year complaining that "the uranium industry has been doing far too little in the area of public relations. We are being beaten by the opposition and I find this both disconcerting and infuriating."* The same theme also

The uranium men discover they've got a lousy image

By PAUL KELLY



Uranium Producers' Forum. This comprises the major deposit holders Pancontinental, Pelco, Wallerail, Queensland Mines, Electrolytic Zinc, Noranda Australia and Western Mining Corporation.

The move follows growing evidence in public opinion polls that doubt about the nuclear fuel-

While nature has tried to predict the direction the Fox inquiry will take, the consensus is that it will open the way for development with very strictly defined safeguards. It will certainly provide valuable ammunition for both sides.

The Fraser-Anthony coalition, which is anxious to promote uranium development, now finds itself backed into the Fox corner, which was the

In yet another regulatory failure, BHP's proposal for a new tailing's facility at its Olympic Dam copper/uranium mine in SA has been fast-tracked without requirements for federal approval. The decision not to assess the new tailings dam came after the Australian National Committee on Large Dams gave three existing tailings dams at Olympic Dam a risk ranking of 'extreme' – this ranking is given to tailings facilities that if failed would cause the death of over 100 people. The independent review of tailings followed the Samarco tailings disaster in Brazil, a joint venture project between BHP and Vale, which killed 19 people.⁵ The new proposed tailings should be assessed to determine the risk and likelihood of failure; instead, the facility has been fast-tracked avoiding scrutiny under the EPBC Act.

Cameco's proposed Yeelirrie mine in WA provides another example of unseemly haste and unseemly exemptions. The WA EPA recommended that Yeelirrie not be approved because of the likelihood the mine would cause multiple species extinctions. Despite this recommendation the former State Environment Minister approved the mine weeks before losing his seat and the Liberal party lost Government in the 2017 WA election.

In a similar scenario, the mine was given federal approval on the eve of announcing the 2019 federal election.⁶ That federal approval followed direct lobbying of Ministers and the Department and resulted in a set of conditions that no longer require the company to prove the mine won't cause species extinction.

A 2003 report by the federal Senate References and Legislation Committee found "a pattern of underperformance and non-compliance" in the uranium mining industry and it concluded that changes were necessary "in order to protect the environment and its inhabitants from serious or irreversible damage". The same could be said now. Subsequent reviews of uranium mining regulations in Queensland, WA and Canada identify unique risks with uranium mining and calls for improved and increased regulations that meet those specific challenges and risks.

The push from the industry to weaken regulations should be wholeheartedly rejected and instead the EPBC Committee could consider advice from the former UN Secretary General to hold an "in-depth" assessment of the uranium sector and its impacts.

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