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Editorial

Dear readers of the WISE/NIRS Nuclear Monitor,

In this issue of the Monitor, we cover:
the International Energy Agency's downward revisions for nuclear power growth,
and the latest setbacks for the industry in the US;
troubled plans for a new reactor in Finland;
Turkey's plans for nuclear power;
Jordan's selection of a Russian nuclear power supplier;
updates from Fukushima and Japan; and
lots of bad news for uranium mining companies around the world.

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

Turkish nuclear power project agreement

On October 29 the Turkish government signed an agreement with a consortium led by Mitsubishi Heavy Industries Ltd. to build four nuclear power reactors in the Black Sea city of Sinop at an estimated cost of more than US\$22 billion.

774.4367 The agreement marks Japan's first nuclear plant export since the 2011 Fukushima disaster. The Japanese government hopes that the contract with Turkey will improve Japan's chances in winning competition for nuclear power projects in Vietnam, India and Russia, among other countries. Tokyo's Abe administration has signed nuclear energy agreements with Turkey and the United Arab Emirates, and has agreed to start discussing a nuclear energy agreement with Saudi Arabia as well as resuming talks with India, which were suspended in the aftermath of Fukushima.[1]

Some disaster victims are unhappy with Abe's push for nuclear plant

exports while problems continue to mount in Japan. Soichi Saito, a 63-year-old who evacuated from Futaba and heads an association of temporary housing residents in Iwaki, told Asahi Shimbun: "How dare he sell nuclear power plants abroad when he has not been able to bring an accident under control? What does he think of victims of the nuclear disaster?"[1] Even the wife of Prime Minister Shinzo Abe has repeatedly urged her husband to stop exporting nuclear technology since the government is struggling to contain the situation at Fukushima.[11]

The Mainichi Shimbun reported on October 14 that about 40% of Japanese nuclear plant equipment exported

Monitored this issue:

Turkish nuclear power project agreement	1
International Energy Agency cuts nuclear forecast	3
Finland: 15 shareholders withdraw from new reactor project	4
Jordan selects Russian nuclear power supplier	5
Fukushima fallout: updates from Japan	7
Yellowcake blues	8



over the past decade failed to go through national government safety inspections. Inspections of equipment to be exported are only carried out if manufacturers receive loans from the government-affiliated Japan Bank for International Cooperation or take out insurance policies from Nippon Export and Investment Insurance. The Mainichi Shimbun states that this “is in sharp contrast to the requirement that all devices for domestic nuclear power stations be subject to strict government safety inspections.”[2]

Among the items exported without inspection are key components such as nuclear reactor pressure vessels, their lids and control rod driving systems. Keio University professor Masaru Kaneko said: “Prime Minister Shinzo Abe claimed in a speech overseas that Japan can provide the world’s safest atomic power technology, but how can Japan guarantee the safety of nuclear plant equipment Japanese firms export without a proper system to examine it?”[2]

Opposition to the Japan-Turkey Nuclear Agreement

Japanese NGOs, including the Japan Center for a Sustainable Environment and Society and Friends of the Earth Japan, are promoting petitions calling on the Japan’s National Diet not to ratify the Japan-Turkey Nuclear Agreement.

Issues raised by the groups include:

- Turkey is one of the most earthquake-prone countries in the world.
- The Japan Atomic Power Company (JAPC) is conducting a geological survey in Sinop, Turkey, but it is the JAPC arguing that fault lines under the Tsuruga nuclear plant in Japan are inactive even though the Nuclear Regulation Authority has determined otherwise.

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- Turkey does not have an independent nuclear regulator, and the Atomic Energy Authority functions both as promoter and regulator.
- Turkey does not have plans for disposing of radioactive waste.
- The mayor of Sinop was elected in 2009 on the anti-nuclear platform that rejected the construction of nuclear reactors in terms of their negative effects on the city’s tourism industry. Since then, he has continued to express his opposition. Sinop residents have also organised numerous demonstrations against the construction of nuclear reactors.

To sign the petition and for more information visit:
www.foejapan.org/en/news/131119.html

It seems unlikely that the Japanese parliament will consider the Nuclear Agreement before the current session ends on December 6.[10]

Failed nuclear projects in Turkey

World Nuclear News outlines a long history of failed nuclear power projects in Turkey: “Several nuclear power projects have been proposed over the years in Turkey: In 1970 a feasibility study concerned a 300 MWe plant; in 1973 the electricity authority decided to build a 80 MWe demonstration plant but didn’t; in 1976 the Akkuyu site on the Mediterranean coast near the port of Mersin was licensed for a nuclear plant. In 1980 an attempt to build several plants failed for lack of government financial guarantee. In 1993 a nuclear plant was included in the country’s investment program following a request for preliminary proposals in 1992 but revised tender specifications were not released until December 1996. Bids for a 2000 MWe plant at Akkuyu were received from Atomic Energy of Canada Ltd, Westinghouse & Mitsubishi as well as Framatome &

Siemens. Following the final bid deadline in October 1997, the government delayed its decision no less than eight times between June 1998 and April 2000, when plans were abandoned due to economic circumstances.”[3]

The pattern persisted in the 2000s. A tender for the construction and operation of a new nuclear power plant ended in September 2008 with only one bid – an expensive Russian offer for four VVER reactors put forward by AtomStroyExport in conjunction with Inter Rao and Park Teknik of Turkey. In late 2009, authorities cancelled the tender process [3] following a successful court challenge against the project launched by the Union of Chambers of Turkish Engineers and Architects.[4]

Akkuya nuclear project

Despite the cancellation of the tender process in 2009, plans for four Russian-built, Russian-financed VVER-1200 reactors are still being pursued, and site preparation has begun at Akkuya. Project partners hope to secure a reactor construction licence in 2014. [5] It is said to be the world’s first nuclear power project based on BOO (build-own-operate) principles – under the long-term contract, the Russian company Akkuyu NPP JSC, a subsidiary of Rosatom, will design, construct, operate and decommission the plant, take a 51% stake in the project, and benefit from a guaranteed price for the electricity generated. As at Sinop, there is significant opposition to the Akkuya nuclear project.[6,7,8,9]

In June 2012, energy minister Taner Yildiz said Turkey is “determined to have nuclear power plants” and wants to build “at least 23 nuclear units by the year 2023”. [9]

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International Energy Agency cuts nuclear forecast

The International Energy Agency (IEA) released its 'World Energy Outlook 2013' report on November 12. [1,2,3]

774.4368 The IEA expects global demand for electricity to grow over 70% by 2035, with over half of this growth in China and India. The report notes that coal "remains the backbone of generation globally, particularly outside the OECD, but its share of the mix is eroded from two-fifths to one-third" by 2035.

Renewables are set "become the world's second-largest source of power generation by 2015 and close in on coal as the primary source by 2035," with renewables' share of electricity generation to grow from 20% in 2010 to 31% by 2035. China is expected to see the biggest absolute increase in generation from renewables, more than the gains in the European Union, United States and Japan combined.

The IEA predicts that global nuclear generating capacity will reach 580 gigawatts (GWe) in 2035, a 56% increase compared to current capacity of 372 GWe. The 580 GWe figure is 10% less than the IEA forecast a year ago. China, South Korea, India, and Russia are expected to lead the growth in nuclear capacity.

As reported in the September 27 issue of the Nuclear Monitor [4], the World Nuclear Association's latest projections for nuclear growth are "significantly

lower" than the projections in the Association's 2011 report, and the IEA has also scaled back its nuclear growth projections.

The nuclear growth projections of these three organisations – the IEA, WNA and IAEA – are still implausibly high even after downward revisions. For example it is difficult to envisage anything other than marginal growth in South Korea in the wake of the corruption scandals engulfing the industry there; growth in China is certain but sustained annual growth in the range of 6 GW is unlikely; Russia has recently sharply reduced its nuclear growth projections; and India has a track record of making absurd nuclear growth projections and failing spectacularly to meet them.

Dr Ian Fairlie has recently compiled a list of over 40 examples of governments, banks, utilities and energy companies around the world withdrawing from nuclear projects since 2011. [5]

How to close the US nuclear industry: Do nothing

In the US, it is difficult to see current capacity of 99 GW – over one-quarter of the world total – being maintained let alone expanded. All the more so since a large majority of the US reactor fleet (and the global reactor fleet) will

be well and truly into old age by 2035.

Peter Bradford, a former member of the US Nuclear Regulatory Commission, explained the problem in a *Bulletin of the Atomic Scientists* article earlier this year, titled 'How to close the US nuclear industry: Do nothing'. [6]

Bradford writes: "The United States is on course to all but exit the commercial nuclear power industry even if the country awakens to the dangers of climate change and adopts measures to favor low-carbon energy sources. Nuclear power had been in economic decline for more than three decades when the Bush administration launched a program that aimed to spark a nuclear power renaissance through subsidies and a reformed reactor licensing process. But Wall Street was already leery of the historically high costs of nuclear power. An abundance of natural gas, lower energy demand induced by the 2008 recession, increased energy-efficiency measures, nuclear's rising cost estimates, and the accident at the Fukushima Daiichi Nuclear Power Station further diminished prospects for private investment in new US nuclear plants. Without additional and significant governmental preferences for new nuclear construction, market forces will all but phase out the US nuclear fleet by midcentury."

In the latest setback for the US nuclear industry, Mitsubishi has announced it will slow down work to obtain design certification for Advanced Pressuri-

zed Water Reactors (APWR), and in response Luminant has suspended its application to build two APWRs at the Comanche Peak plant in Texas.[7]

In the past year, US utilities have closed or announced plans to close five reactors in addition to cancelled plans for new reactors and uprates. Those

five are Vermont Yankee, Vermont; San Onofre, California; Kewaunee, Wisconsin; Crystal River, Florida; and Oyster Creek, New Jersey.[8]

On November 7, Forbes published a list of six nuclear plants in the US that could be the next to shut down – in addition to plants that are offline and

may never reopen (e.g. Fort Calhoun in Nebraska) and plants already scheduled for closure (e.g. Exelon's Oyster Creek plant in New Jersey). The six plants that could be the next to shut down are: Indian Point, New York; Ginna, New York; James A. Fitzpatrick, New York; Three Mile Island, Pennsylvania; and Davis Besse, Ohio. [8]

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Finland: 15 shareholders withdraw from new reactor project

Fifteen shareholders – one-quarter of the total number – of the Finnish nuclear consortium Fennovoima announced on November 14 that they are withdrawing from the project to build a nuclear power plant in Pyhäjoki, western Finland. Taking into account earlier withdrawals, around half of all shareholders have withdrawn.[1]

774.4369 About 45 companies remain as partners to the project, but their involvement is conditional as Fennovoima is still negotiating with Russia's Rosatom.[1]

Rosatom intends to take a 34% share in Fennovoima. (Last year, German utility E.ON sold its 34% stake in the consortium.[1]) Fennovoima is negotiating with Rosatom's export subsidiary Rusatom Overseas with a view to building one 1200 MWe AES-2006 VVER pressurised water reactor. Fennovoima says the companies are aiming to sign a plant supply contract by the end of this year.[2]

Six AES-2006 VVER reactors are under construction in Russia and units are also planned in Turkey and Belarus.[3]

In August, the Finnish Radiation and Nuclear Safety Authority (STUK) warned that Rosatom's AES-2006 reactor design would need upgrades to meet Finnish safety standards.[4]

One complication is that Fennovoima has nowhere to dispose of high-level nuclear waste. Posiva Oy, a joint venture between TVO and Fortum, plans a deep geological repository on Olkiluoto Island but those plans do not include accommodation for spent fuel from Fennovoima's new plant. Posiva, TVO and Fortum have repeatedly said they will not accept Fennovoima as a partner.[5]

Posiva President Reijo Sundell said last year: "We're not trying to be nasty. But the simple fact is that there is not enough room. We can't expand the site under the sea. We can't create another

deeper level because then it might not withstand the pressure of an ice age. And we can't build a shallower level because the underground water there is saltier and therefore more corrosive." [6]

Making the Olkiluoto bedrock repository bigger to accommodate waste from Hanhikivi would cost about 200 million euros, whereas building a separate facility would cost far more.[5]

One of the remaining consortium members is mining company Talvivaara, which is heavily in debt.[7,8,9,10] In November 2012, a massive spill from Talvivaara's nickel and zinc mine polluted wide areas of wetlands with thousands of cubic meters of toxic and radioactive waste water.[11] The company has been planning to produce uranium from the Talvivaara mine in addition to nickel and zinc. However that plan may be jeopardised by the company's financial troubles as well as low uranium prices.

Finland currently has four operating

nuclear reactors, including two Russian-designed VVER-440 reactors, and a 1600 MWe EPR is under construction on Olkiluoto Island.[3] The EPR is seven years behind schedule and the estimated cost has ballooned from three billion euros to eight billion.

In late October, the Areva-Siemens consortium increased its claim against Finnish utility TVO to 2.6 billion euros (US\$3.5 billion) in relation to the delay and cost overruns of the Olkiluoto EPR, up from the previous claim of 1.9 billion euros (US\$2.6 billion). In 2008,

TVO submitted a claim to Areva-Siemens for compensation for “losses and costs incurred due to the delay” in completing the project.[12]

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Jordan selects Russian nuclear power supplier

Russia's Rosatom has been selected as the preferred bidder to supply Jordan with its first nuclear power plant.

774.4370 The first 1000 MW reactor of the two-unit plant is expected to start operating in 2020 – though there isn't the “slightest chance” of that deadline being met according to Prof. Steve Thomas from the University of Greenwich in London.[1]

Russian state nuclear corporation Rosatom will build the AES-92 model VVER-1000 reactors, Rosatom's reactor export subsidiary AtomStroyExport will be the supplier of nuclear technology, and Rosatom Overseas will be strategic partner and operator of the plant. Russia will contribute 49%

of the cost of the project, reportedly to be US\$10 billion, with the Jordanian government providing the remaining 51%. However, financing has yet to be finalised and Russia could supply the plant on a build-own-operate basis.[2]

Siting remains unclear. Khaled Toukan, chair of the Jordan Atomic Energy Commission (JAEC), said the nuclear power plant is to be built in Jordan's Amra region, 60 kms east of the city of Zarqa. But Rosatom says the plant is to be sited near the city of Irbid, 70 kms north of Amman.[2]

In August, Jordan gave the go-ahead for a 5 MW(th) nuclear research reactor at the Jordan University for Sciences and Technology near the northern city of Irbid. Jordan's atomic agency chief Majad Hawwari said: “The reactor will help the commission build expertise and capabilities to prepare for constructing nuclear power plants in the future.”[3]

In May 2012, Jordan's parliament voted to suspend the country's nuclear and uranium exploration programs, thus endorsing the recommendations of a parliamentary energy committee which accused the JAEC of “hiding facts” related to the cost of the projected

nuclear reactor and deliberately omitting the cost of works other than construction.[4,5] According to Haaretz, the vote reflected “financial worries and amid rising anti-nuclear movement in the Jordan.”[6] King Abdullah’s government was legally obliged to adhere to the parliamentary vote – but ignored it anyway.

There are concerns that the pursuit of nuclear power is coming at the expense of expanding Jordan’s renewable energy sector. Safa Al Jayoussi and Basel Burgan from Jordanian Friends of the Environment say that Jordan has 330 days of sunshine a year and is the perfect candidate for solar. “The European Union is hiring out land in North Africa for solar projects,” Burgan said. “So why are we turning to nuclear without exploring the possibilities of using solar?”[7]

Jordanian environmental writer Batir Wardam argues that renewable energy “potential is in danger of being wasted due to the strong influence of the nuclear energy lobby in Jordan, which has managed to position their project as a top priority and marginalized the renewable energy sector.”[8]

Ali Kassay, a member of the Coalition for Nuclear Free Jordan, told AFP: “We are very afraid of this project because it’s dangerous to the entire country, people, the environment, and economy. We do not see a need for it. It’s illogical to build a nuclear plant in a country known historically for earthquakes, as well as lack of capabilities, funds, human resources and water. ... There are cheaper, better and safer alternatives.”[13]

Other risks with the nuclear program include sabotage and terrorism. The Arab Gas Pipeline, which transports natural gas from Egypt to Jordan, has been attacked numerous times in recent years.[9]

Environmentalist Rauf Dabbas expressed concern at the lack of community consultation, the inadequate institutional capacity to closely monitor a nuclear power program, and the marginalisation of the ministries of health and the environment in the nuclear project. “There are also security concerns,” Dabbas said. “The plant’s site is located near main roads linking Jordan to Iraq and Saudi Arabia.”[13]

Jordan has signed nuclear cooperation agreements with France, Canada, UK, Russia, China, South Korea, Japan, Spain, Italy, Romania, Turkey and Argentina.[10] A nuclear cooperation agreement with US is under negotiation, though the US wants Jordan to emulate the United Arab Emirates and rule out ‘sensitive nuclear technologies’ (SNT) – uranium enrichment and reprocessing. Jordan is reportedly unwilling to agree to an SNT ban [11] though there were hints in early 2012 that perhaps Jordan would agree to a ban.[12]

One possible outcome is a non-legally-binding ‘commitment’ from Jordan that it will not develop sensitive nuclear technologies. JAEC vice-chair Kamal Araj said on November 11 that Jordan’s desire to retain the right to enrich uranium had impeded the completion of an agreement with the US. Araj said: “We signed it a long time ago, but till now we have not finalised [it]. There was the issue of this gold standard and enrichment processing and I think we will find a solution for that. We wanted to retain the right for enrichment, although we are not going to exercise it in the future.” He said Jordan wanted to be able to establish nuclear fuel fabrication facilities in the future when it becomes economical to do so.[17]

Jordan is sometimes mentioned in discussions about proliferation in the Middle East, as one of the countries that may be developing a nuclear program as a hedge against Iran.

Water worries

The two power reactors may be used for desalination as well as electricity generation.[2] However cooling water supply is a problem. An OilPrice article notes that “what may ultimately doom Jordan’s nuclear ambitions, however, is a resource even more scarce in the Kingdom than uranium – water.” Jordan’s water minister Hazem Nasser has noted that Jordan is “at the edge of moving from a chronic water problem into a water crisis.”[9] For a two-unit plant, daily consumption (net loss) of water would be between 73 million litres and 131 million litres.[14]

According to the World Nuclear Association, site options with seawater cooling are limited to 30 kms of Red Sea coast near Aqaba. Sites with access to Red Sea cooling water were considered but in 2010 the proposed location for the first power reactor became Al Amra, about 40 kms north of Amman, due to better seismic characteristics. Cooling water will come from the municipal Khirbet Al Samra Wastewater Treatment Plant, with the cooling system modeled on that at Palo Verde in Arizona, USA, which also uses wastewater for cooling.[10]

Safa Al Jayoussi from Greenpeace Jordan says Jordan is one of the five driest countries in the world and asks how reactor cooling can be maintained in the “likely” event of shortages from the waste water plant.[1]

In the Middle East, Jordan, UAE and Saudi Arabia are pursuing nuclear power programs, while plans to introduce nuclear power to Kuwait, Qatar and Bahrain have been abandoned. [15] World Nuclear News lists a swag of Middle Eastern and North African countries that “began to develop nuclear plans but have put these on the back-burner”, including Egypt, Syria, Tunisia, Morocco, Algeria and Libya.[16] Iran is the only country in the region with an operating power reactor.

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Fukushima fallout: updates from Japan

Most of these news items are taken from the twice-weekly updates produced by Greenpeace International. You can subscribe to the updates at: www.greenpeace.org/international/en/news/Blogs/nuclear-reaction

774.4371 The first batch of 22 nuclear fuel assemblies removed from the reactor #4 storage pool at the Fukushima Daiichi plant have been placed in a more secure storage pool 100 metres away. The assemblies moved to the new location were unused. The next 22 to be removed, however, will be spent fuel. The fuel assemblies are the first of over 1,500 to be removed from the storage pool in work that is expected to take around a year.**[2]**

TEPCO has announced that it will permanently close the undamaged reactors #5 and #6 at the Fukushima Daiichi plant after a request to do so from Japan's Prime Minister Shinzo Abe in September. The reactors were closed for maintenance when the March 2011 earthquake and tsunami hit the plant. TEPCO will not decommission and dismantle the reactors. Instead they will become "test platforms" and used as research facilities to help plan for the removal of fuel from reactors #1, #2, #3 which suffered core meltdowns.**[1]**

Japan's Nuclear Regulation Authority has begun safety assessments of two nuclear reactors at TEPCO's Kashiwazaki-Kariwa power plant this week. There are many issues involved and the process is not expected to run smoothly. There are geological faults below the plant although TEPCO says they are not active. NRA chief Shunichi Tanaka has warned TEPCO that the assessment process could be halted if events at the Fukushima Daiichi plant take another turn for the worse. Niigata Prefecture Governor Hirohiko Izumida – who effectively holds a veto over TEPCO's plan to restart reactors at the Kashiwazaki Kariwa plant – said TEPCO must give a fuller account of the Fukushima disaster and address its "institutionalized lying" before it can expect to restart reactors.**[1]**

Japan's government has proposed a change to its policy towards disposing of nuclear waste. The policy of waiting for towns and cities to volunteer to host final disposal facilities for nuclear

waste has failed, with no candidates stepping forward. The policy has been in place for over 10 years. Instead, the government is proposing to draw up a list of candidate sites for storage facilities and then measuring public support in those places.**[1]**

Government sources have told the *Japan Times* that plans are being drawn up to purchase 15 square kilometres of land around the Fukushima Daiichi plant to use store radioactive waste from cleanup and decontamination operations. The lack of storage facilities for the waste has meant decontamination efforts have not progressed as quickly as the government would have liked. However, the purchase of the land is expected to affect landowners and may prevent evacuees from eventually returning to their homes. The plan is expected to cost one trillion yen (US\$9.84 billion).**[2]**

Almost eight out of 10 South Koreans have reduced the amount of fish they eat over possible safety concerns associated with a leak of radioactive water from Japan's Fukushima plant, a poll showed Monday. An online poll

released by the Korea Rural Economic Institute found that 77.5% of those questioned said they reduced their fish consumption by nearly half since August. Since September, South Korea has blocked all fishery imports from eight prefectures surrounding the Fukushima Daiichi plant.[3,4]

Only one-third of people evacuated from areas near the damaged

Fukushima Daiichi nuclear plant are willing to return to their homes, even if evacuation orders were lifted now. Parts of Minamisoma City, Fukushima Prefecture, are designated evacuation zones. The city and the Reconstruction Agency conducted a survey in August and September of 5,677 households originally from the evacuation region. Among them, 3,543 households, or 62%, responded. When asked if they

will return home once the evacuation orders are lifted, 29% said they want to do so, 44% said they are undecided and 26% said they will not go back. When the undecided group was asked what is needed to make a decision, many said information on things such as when schools, hospitals and shops will be reopened. They also want to know when radiation levels will go down and how much decontamination work has been done.[5]

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Yellowcake blues

Plenty of bad news for uranium mining companies in the past month.

774.4372 Here we summarise some of this news, drawing on the remarkable WISE-Uranium resources (www.wise-uranium.org/new.html).

North America

Energy Fuels has put operations at its Canyon mine in Arizona on hold, citing current market conditions as well as ongoing litigation over the project. Legal proceedings were initiated by environmental groups and a local indigenous tribe. A US district court judge has approved an agreement to put the mine on standby and to stay proceedings in the case. Energy Fuels had been aiming for production in 2015.[1,2]

Energy Fuels plans to cease production at the White Mesa Mill in Utah in August 2014, and to fulfil delivery contracts with stockpiled uranium and uranium purchased on the spot market. The current spot price is lower than the company's production cost.[3]

Subject to the results of additional underground drilling, mining at the Denison Mines' Arizona 1 mine is expected to cease in early fiscal year 2014 due to the depletion of its known resources. Earlier this year, a federal appeals court ruled against

conservationists and indigenous tribes in their challenge against the mine, located north of Grand Canyon National Park.[7]

Mining at the Pinenut uranium mine, Mohave County, Arizona, is expected to continue until July 2014, at which point the mine is expected to be placed on care and maintenance. Re-starting mining activities at Pinenut would be evaluated in the context of market conditions.[5,6]

The Hampton Roads Chamber of Commerce is no longer neutral in Virginia's uranium mining debate. By a 37-11 vote, chamber officials favoured maintaining the 31-year moratorium following presentations from proponents and opponents.[4]

Strateco Resources is considering its options after Quebec's environment minister refused to authorise underground exploration at the Matoush uranium project. The project has been stymied by a moratorium on uranium exploration and mining permits imposed by the provincial government in April 2013. Quebec's environmental assessment agency is undertaking an assessment of the potential impacts of uranium mining

in the province, and will present its recommendations next year. But in June, the provincial government announced that it plans to "refuse to issue the permit for the Matoush underground exploration project" due to "a lack of sufficient social acceptability" – presumably that decision will stand regardless of the environmental assessment agency's review. Cree traditional owners are opposed to the project and have called for a moratorium against all uranium development in Cree territory.[8-12]

Africa

Australian-based Paladin – which operates the Langer Heinrich mine in Namibia and the Kayelekera uranium mine in Malawi – made a \$US40 million loss in the three months to September, after recording a US\$173 million loss in the previous quarter. Paladin has major debts and limited capacity to meet them, and is continuing to try to sell its minority interest in Langer Heinrich.[13,14]

UN Special Rapporteur on the Right to Food, Olivier De Schutter, has rubbished the Kayerekera uranium mine deal between Malawi and Paladin, saying Malawi has had a raw deal that is robbing the poor. He said the deal was one of the investments in Malawi through which the country is losing

resources that could otherwise make a difference in food security and other poverty alleviation initiatives. He said in the life span of the mine Malawi is expected to lose almost US\$281 million. "Mining companies are exempt from customs duty, excise duty, value added taxes on mining machinery, plant and equipment. They can also sign special deals on the rate of royalty owed to the government," he said.[15]

Last year, Areva won the 'Dirty Hands, Pockets Full' category of the Pinocchio Awards for refusing "to recognize its responsibility for the deterioration of the living conditions of people living near its uranium mines in Africa." Little has changed. On November 22, Oxfam France, the Nigerian Association ROTAB (Network of Organisations for Transparency and Budgetary Analysis) and the coalition 'Publish What You Pay' released a report, 'Areva in Niger: Who benefits from the uranium?' The organisations denounce the tax breaks Areva enjoys, such as exemptions from customs duties, VAT exemptions and exemptions on taxes on fuel, and a loophole which allows Areva to minimise corporate taxes.[35]

Uranium mines operated by companies including Rio Tinto and Paladin Energy in Namibia face a water shortage as drought curbs supply to the mines and three coastal towns. Volumes from the Omaruru Delta aquifer have declined to four million cubic metres this year from nine million a year earlier. Water from a desalination plant owned by Areva isn't enough to meet the needs of Paladin's Langer Heinrich uranium mine, China Guangdong Nuclear Power Co.'s Husab uranium project and Rio's Rossing complex. Nehemia Abraham, under-secretary for water and forestry in the Ministry of Agriculture, told Bloomberg: "The water-supply situation at the coastal area has become too critical. Mining companies in the area will have to operate with less water. We are reviewing the situation now and from end of November we might be unable to get enough water from the aquifer to supply to mines." The government is planning a second desalination plant.[16]

The Catholic Commission for Justice and Peace has asked the government of Malawi to institute an assessment

of the impacts of Paladin's uranium mining activities at Kayelekera on the quality of water in the district. Diocesan Justice and Peace Desk Officer for Karonga, Mwawi Shaba, said "that lack of knowledge on the current state of water since the uranium mining activities started in the district in 2006 has raised health fears among people of Karonga.

Some months ago fish started dying mysteriously in Lake Malawi here in Karonga and people started connecting this to uranium mining. People are blank on whether uranium mining activities have affected quality of water and that has raised feelings of health insecurity."[17]

Canada's Denison Mines has written down the value of its Mutanga uranium mine project in Zambia. The company said on November 7: "Since the Mutanga project's recoverable amount was determined to be lower than its carrying amount, the Company has recognized an impairment loss of \$35,655,000 in the three months ended September 30, 2013." In June, Denison said it would only start developing the mine when prices rise to levels above US\$65 / lb U3O8, and that it hoped the Zambian government would not revoke its mining licence following a three-year delay in developing the project.[18]

Rössing announced on November 11 that it has halted preparation of a Social and Environmental Impact Assessment for the proposed Z20 uranium mine in Namibia. The explanation is a little cryptic: "Rössing Uranium decided not to proceed the assessment at this stage, given that work to detail the arrangements for possible mining of the Z20 ore body is continuing. Therefore the SEIA will not be completed at this stage and another round of public consultation will not be conducted as yet. Rössing Uranium will make a decision on continuing the SEIA process at the appropriate time, either to update the current SEIA process or engage in a separate process.[19,20]

Australia

Marathon Resources has turned its back on the uranium industry for good. The company says the "risks were more likely to exceed rewards" in a

sector hit by low prices. The company was developing a uranium mine in the Arkaroola Wilderness Sanctuary in South Australia, but the project came to a halt after Marathon was caught illegally dumping radioactive waste, and the state government later enacted a ban on mining in the Wilderness Sanctuary.[21,22]

Junior explorer Thundelarra has sold its Hayes Creek uranium interests in the Northern Territory of Australia for a lousy A\$1.5 million (US\$1.37 million). CEO Tony Lofthouse said the sale forms part of a broader rationalisation strategy being employed by the company: "It has become clear that we have too many tenements for a small company in difficult market times."[23]

Australia – ranger uranium incidents

The Gundjeihmi Aboriginal Corporation (GAC) is alarmed by revelations that a potentially contaminated vehicle was able to bypass security and make an unauthorised exit from the Ranger uranium mine in the Northern Territory of Australia on November 3. The vehicle had not been tested for contamination. GAC, which represents the Mirarr Traditional Owners, was only informed of the incident by Rio Tinto's Energy Resources of Australia (ERA) days after the incident.[25–27]

GAC CEO Justin O'Brien said: "Rio Tinto often asserts that Ranger is the most regulated mine in the world, but this is the fourth such contamination scare over the past seven years."

In 2005, ERA was found guilty and fined for a contamination incident in March 2004 when 150 people were exposed to drinking water containing uranium levels 400 times greater than the maximum Australian safety standard. Twenty-eight mine workers suffered adverse health effects including vomiting and skin irritation as a result of the exposure. In 2009, it was revealed that around 100,000 litres of contaminated water is leaking daily from the Ranger tailings dam.

On 19 November 2013, GAC expressed concern at yet another incident – four empty uranium barrels from Ranger uranium mine had recently been located at Noonamah, south of

Darwin. Justin O'Brien said: "It is clear that the radiation control measures at the Ranger mine site have failed on multiple occasions. While we welcome the timely reporting of this issue by the company, ERA's management of radiation is plainly inadequate. The Commonwealth Government must step in and ensure that this matter is taken seriously. To date the response by the Office of the Supervising Scientist has been dismissive and woefully inadequate. Both the NT and Federal Governments must broaden their current investigations into the vehicle incident and examine the entire management of radiation at the Ranger mine. ... This revelation raises very serious concerns for the Mirarr Traditional Owners regarding the suggestion of further mining at Ranger."

Open pit mining has ceased at Ranger, stockpiled ore is being processed and ERA is consistently reporting financial losses. ERA is going through an approvals process regarding potential underground mining – the Ranger 3 Deeps project.

Other countries

Areva has won the 'Greener than Green' category of this year's Pinocchio Awards for opening the Ureka museum (ureka.fr) glorifying former uranium mining in the Limousin area of France.[28,29] The awards are an initiative of Friends of the Earth France, ActionAid France and the Centre of Research and Information for

Development. The 'Greener than Green' award goes to the company which has led the most abusive and misleading communication campaign in regard to its actual activities.

The NGO citation holds Areva to account for talking about the "adventure story" of uranium mining, "just like the irreversible contamination of 230 French mining sites ... and the devastation of many other areas by Areva worldwide." Just in the Limousin region of France, more than 60 abandoned mines are polluting springs, rivers and ground water. The museum celebrates mine workers, but does not mention that a study [30] found an excess of deaths due to lung and kidney cancer in a cohort of former miners. On a happier note, museum visitors can take advantage of the two-for-one offer on glow-in-the-dark sweets.

On September 11, during the repackaging of a drum containing potassium diuranate, 30 kgs of uranium were spilled in a room in Areva's SOCATRI facilities in France. The event was rated level 1 on the INES scale. Located at the Tricastin nuclear site, SOCATRI handles maintenance and disassembly of nuclear materials, as well as treatment of nuclear and industrial effluents from AREVA Tricastin companies.[31]

In Libya, the 10th Brigade, which guards the Sebha uranium storage facility, staged a protest on November 11 demanding overdue salary

payments dating back to 2011. Up to 40 members of the Brigade shut the town's petrol storage tanks and blocked a key road. The Sebha storage facility holds at least 2.26 tonnes of uranium ore concentrate. Although Qaddafi renounced his chemical and nuclear weapons programme in 2003, ten years later the stockpiles remain. A report in The Times said that Bharuddin Midhoun Arifi, the commander of the group in charge of guarding the stockpiles, said that his men were frightened of the uranium: "My men don't like guarding the site as they believe it will make their skin fall off, so we guard it from a nearby checkpoint." He added: "Maybe someone could steal one or two drums if they wanted, but not more." [32]

Kazakhstan, the world's biggest producer of uranium, has called off all projects to increase output due to the protracted price slump. "We've put the brakes on implementing uranium output expansions," Vladimir Shkolnik, CEO of state-owned producer Kazatomprom, said in an interview. "The same goes for other elements of the nuclear-fuel cycle." [33,34]

As reported in the last Nuclear Monitor (#773), Rosatom is freezing uranium expansion projects in Russia and elsewhere due to low prices. The first casualty is the Honeymoon ISL mine in South Australia, which is to be put under care and maintenance. [24]

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