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Time to switch off nuclear?

TIMES THREE

ZIGGY SWITKOWSKI, HOWARD KUNREUTHER, JO VALLENTINE

Power v politics

Australia's spiralling need for energy clashes with calls to fight climate change. Here's a taste of the robust debate.

AS PUBLIC RELATIONS DISASTERS GO, the meltdown of the Fukushima nuclear power plant in the wake of the Japanese tsunami in March could not have been much worse for the nuclear industry.

Despite a reported death toll of just three, fears about long-term radiation levels in the area have revived memories of the 1986 Chernobyl disaster in Ukraine and the Three Mile Island incident in the US in 1979.

The latest incident raises the question about whether nuclear-generated power is simply too dangerous. Should the world turn its attention – and money – into making other energy sources, such as solar, wind and geothermal, more viable?

Germany reacted by becoming the first major industrialised nation to agree to abandon nuclear power in the aftermath of Fukushima, with the phase-out scheduled for completion in 2022. Other advanced countries, such as France and the US (which source about 78 per cent and 20 per cent, respectively, of their electricity from nuclear plants), are highly dependent on nuclear energy and may simply have to turn their focus to risk-management overhauls of their reactors. And what about countries such as Australia that are yet to make a decision on nuclear power stations? INTHEBLACK canvasses the views of three experts to see what the future is likely to hold for the nuclear industry.

Cameron Cooper

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ZIGGY SWITKOWSKI

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As a long-time proponent of nuclear energy, Ziggy Switkowski admits the Fukushima catastrophe has set the cause of the industry back and further delayed serious debate about building nuclear plants in Australia.

"The event and the aftermath of these stricken reactors has got in the way of our having a national conversation this year," he says. "And it's probably reinforced the views of those who oppose nuclear power."

Not that Switkowski, who studied nuclear physics at the University of Melbourne before carving out a corporate career, has changed his views. If the world is serious about reducing its reliance on fossil fuels, cutting greenhouse gas emissions and accessing cheap, base load electricity, he says expanding the number of nuclear plants remains a logical solution. With time, and if lessons are learned from Japan and incorporated into revised emergency procedures and reactor designs, he expects countries to start adding to their nuclear fleet.

"The reason for going nuclear is as valid now as it was a year or two ago and that is because it is the best source of clean, cost-competitive, safe, base load electricity," he says.

Furthermore, if Fukushima represents

"nearly the worst-case situation, then we've got a fix on what that means in terms of damage to reactors, release of radiation and the impact upon the community". Irrespective of negative publicity, Switkowski says a country like France cannot turn its back on nuclear power now because it has 59 reactors that produce almost 80 per cent of its electricity. He acknowledges that the nuclear debate in Australia – a country that still relies heavily on coal-fired power stations – is likely to be further muted because of the Japanese disaster. Yet he says Australians will face the stark reality that abandoning fossil fuels is essential "because the evidence around climate change will be compelling".

The transition to cleaner power will be very hard, Switkowski says, given "intermittency issues" with solar and wind, because the sun does not always shine and the wind does not always blow.

Successive federal governments have baulked at building nuclear power plants, but Australia is the world's third-largest exporter of uranium oxide. Switkowski says backing uranium mining is "exactly the right thing to do for the globe in terms of its climate

challenge". He argues that Australia's export of about 10,000 tonnes of uranium oxide a year reduces global carbon emissions, estimating that the alternative use of coal would produce an extra 500 million tonnes of greenhouse gases. That is almost equivalent to Australia's annual level of emissions.

"So in a convoluted way, you can almost claim the uranium we export offsets all of the greenhouse gas emissions we generate."

Switkowski says some tough decisions are needed. "I believe the time will come in a couple of years when people will recognise that we're making too little progress in terms of emission reductions, that the alternative technologies are not enough of the answer and that nuclear appears to be growing once again in the rest of the world," he says.

"And then the national conversation will presumably restart."

■ Ziggy Switkowski is chancellor of RMIT University and the former chief executive of Telstra. He is a former chair of the Australian Nuclear Science and Technology Organisation and once headed an inquiry into the viability of an Australian nuclear power industry.



HOWARD KUNREUTHER

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Despite the shocking images from Japan as the Fukushima nuclear plant went into meltdown after the March 11 earthquake and tsunami, Professor Howard Kunreuther says the fallout could have been even worse for the nuclear power sector.

"Had we had a large number of deaths or other things that could have made this closer to a Chernobyl accident, which is what we've been comparing it with, we might have had a different reaction," he says.

Kunreuther also says a heightened sense of fear of nuclear power is understandable after a disaster of Fukushima's magnitude. However, a true gauge of the world's view on nuclear energy

will become clearer in the coming months: "The open issue is going to be whether this will set things back simply because of the concern and the fear generated by what happened in Japan."

He says the spotlight will inevitably turn to risk management and what can be done to safeguard plants in the event of disaster. While Japan is renowned for its robust building codes and had designed its nuclear plants to withstand significant earthquakes, he says it is clear that Japan underestimated the potential impact of tsunamis.

"They could have done a better job with the design of the sea walls and the design >

of the nuclear power plant," he says. Kunreuther welcomes heightened awareness of some of the risks and challenges of nuclear power. "That is a positive development coming out of this tragedy. The accident hasn't changed my view that nuclear power can be an alternative to existing sources of energy.

"However, we have to be particularly careful about how we design these plants to avoid the kind of accident that occurred in Japan."

replace the traditional sources of energy.

"I think nuclear energy is still going to be a source that people will talk about as a way of avoiding some of the negative impacts of current technologies, particularly coal."

He also says the Japanese nuclear disaster poses a perplexing question: to what extent should we invest in risk-mitigation processes for events with a very low probability?

"One obviously has to balance what the benefits

"The accident hasn't changed my view that nuclear power can be an alternative to existing sources of energy."

In the US, Kunreuther notes, more vigilant inspections of dams and levees have been occurring since Hurricane Katrina battered New Orleans in 2005, killing more than 1800 people.

"I expect there might now be similar kinds of behaviour in countries like France and others that rely on nuclear energy."

He believes there will be no significant shift against nuclear power unless economically feasible options such as solar power reach a sufficient scale of development to

are of taking certain steps [against] the costs," Kunreuther says. "We cannot protect against every possible event."

■ Howard Kunreuther is the James G. Dinan Professor of Decision Sciences & Public Policy and co-director of the Risk Management and Decision Processes Center at the Wharton School, University of Pennsylvania. Kunreuther is also co-editor of *Learning from Catastrophes: Strategies for Reaction and Response* (with Michael Useem).



JO VALLENTINE
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Nuclear power is a "failed 20th century experiment", says Jo Valentine. The former Australian senator argues that "any industry that really can't deal with its own waste in any way, shape or form" cannot be trusted. If any good comes out of the Fukushima disaster, she says, it is that it will force countries to think twice about nuclear power.

"I think it's certainly having that effect now. It's had that effect in

Germany and it's having that effect in other European countries."

Valentine says millions of people around the world are committed to getting rid of nuclear power and nuclear weapons, with events such as Chernobyl, Three Mile Island and Fukushima highlighting the cause.

"Even so, we are going to be left with a terrible legacy of waste in so many parts of the world and that's what we're

bequeathing to future generations."

Valentine says the evidence is clear that nuclear radiation can mutate the human gene pool and cause ailments such as cancer, birth defects and other genetic disorders. While the nuclear industry promotes what it says is a safe sector with few serious incidents, she lists nuclear accidents chronicled for decades and released originally in the 1980s by Labor

WORLD'S NUCLEAR POWER PLANTS as at January 2011.

442

Under construction: 65

SOURCE: EUROPEAN NUCLEAR SOCIETY

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"If we'd invested the money into renewables that has been invested into subsidising the nuclear industry, we could have been renewable-powered all around the world."

senator Ruth Coleman: "It's a huge document; it is really compelling and chilling, so I think it's just too dangerous an industry for us to get involved in."

While Vallentine realises European countries rely heavily on nuclear power and that emerging powers such as China and India have insatiable energy appetites, she urges world leaders to "look in other directions". She laments the failure of governments to make serious investments in renewable energies.

"They're coming into their own now, but it's taken a very long time. If we'd invested the amount of money into renewables that has been invested into subsidising the nuclear industry and now into this coal sequestration nonsense that's going on – just another waste of time, energy

and money – we could have been renewable-powered all around the world."

Vallentine is encouraged that Germany, having see-sawed between supporting and rejecting nuclear power in the past, is now pouring funds into solar power. Such spending should be a message for Australia.

"They have invested massively in solar technology and are way ahead of Australia," she says. "We've also got one of the best opportunities for renewables with wind and solar, hot rocks and wave power. It's a mix, a real suite, and we've got them all in abundance."

Climate change is inextricably tied to the nuclear debate, says Vallentine, who supports policies such as a carbon tax as a means of starting

to reduce carbon emissions.

"What we're doing to future generations is reducing biodiversity, changing weather patterns, altering food availability, so we will be having food wars, water wars, just as we've had oil wars.

"So the future doesn't look fantastic, but it looks a lot bleaker if we continue to have nuclear energy in that mix. And as for the nuclear industry positioning itself as part of the solution, well, it's so absurd and offensive when you look at their record; their record is dismal."

■ Jo Vallentine is chair of the Anti-Nuclear Alliance of Western Australia and a former Australian senator who represented the Nuclear Disarmament Party and the Greens. She resigned from the Senate in 1992.