

Nuclear Power and Civil Liberties

Author: Brian Martin

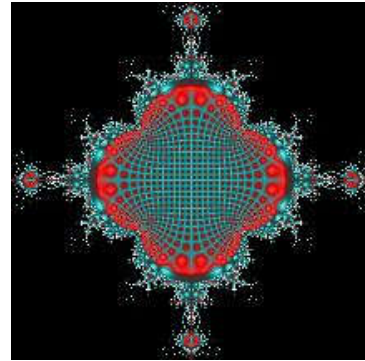
Professor Brian Martin has a PhD in theoretical physics and is Professor of Social Sciences at the University of Wollongong.

bmartin@uow.edu.au

www.bmartin.cc

Date: August 2015

EnergyScience Coalition Briefing Paper No. 23



The EnergyScience Coalition is an independent non-governmental organisation established as a collaboration of concerned scientists, engineers and policy experts. www.energyscience.org.au

Nuclear power is an energy source but it also has implications for civil liberties such as freedom of speech and assembly. Because nuclear power is centralised, expensive and potentially dangerous, it is a potential target for terrorists. It also increases the risk of nuclear proliferation. Preventing these possibilities means cutting back on civil liberties. The result: nuclear power is not a suitable power source for a free society.

Energy systems are concerned with energy, of course, but they also have other implications, for example for the environment and investment policy. One of the important but little-discussed impacts of energy systems is on personal and social freedom. Freedom should be a factor in energy choices.

Nuclear power has several characteristic features. First, it is a large-scale energy source: units are typically around 1000MW. A nuclear power plant is very large physically. Second, it is very expensive — it costs billions of dollars to build a single plant.

Third, it is potentially highly dangerous. A nuclear reactor accident — like Chernobyl in 1986 or Fukushima in 2011 — can contaminate vast areas and lead to hundreds or even hundreds of thousands of deaths from cancer caused by radioactive contamination. After the Chernobyl and Fukushima accidents, hundreds of thousands of residents were displaced: the human impacts can be enormous.

Nuclear power involves the creation of large quantities of dangerous materials. Every nuclear power plant produces hundreds of kilogrammes of plutonium every year, typically 300 kg for a standard 1000MW reactor. This plutonium can be extracted and used to make nuclear weapons. Other parts of the nuclear enterprise can also be used to help acquire nuclear weapons. Most nuclear power plants require uranium to be enriched to a few percent of U-235; continuing the enrichment to 90% creates weapons-grade uranium.

Another important connection to weapons production is skills. A nuclear power industry relies on experts — scientists and engineers — some of whom may be willing to turn their skills to weapons production.

Nuclear power thus involves building very large, expensive and risky plants. This makes them prime targets for three additional risks: military attack, terrorist attack and criminal use:

- **Military attack.** In a war, a nuclear power plant is a vulnerability. Breaching the containment vessel could release vast amounts of radioactive materials, with far-more long-lived isotopes than from a nuclear weapon. A strike on a reprocessing plant would release an even larger amount of radioactivity.
- **Terrorist attack.** Nuclear materials are obvious targets for terrorists. Acquiring fissile materials — plutonium or enriched uranium — to produce nuclear weapons is one option. An easier one is attacking a nuclear installation, for example spent fuel near a power plant, or intercepting a shipment of waste fuel.
- **Criminal use.** Nuclear materials would be potent tools for extortion.

These possibilities exist today. If the nuclear industry expanded enormously, as envisaged by proponents, the risks would become vastly greater. In what is called the “plutonium economy,” vast quantities of plutonium would be produced, stored, shipped and reprocessed on a daily basis. The risks from accidents, war, and terrorist or criminal use would be ever-present.

Governments want to guard against these risks, naturally enough. And that is the source of the threat to civil liberties.

Military attack.

Any country with a nuclear facility is at risk from military attack and therefore its government — so the usual thinking goes — needs to be prepared militarily itself or to be in an alliance to defend and deter attackers. Furthermore, foreign governments might suspect that nuclear facilities are being used covertly to produce nuclear weapons. The potential result is an arms race, perhaps even a nuclear arms race.

This is exactly what has happened between India and Pakistan. In India, supposedly civilian nuclear facilities enabled production of nuclear weapons, stimulating a parallel process in Pakistan. Within India’s nuclear establishment, secrecy is the rule and dissent is not allowed — and likewise in Pakistan.

Militaries are notorious for their suppression of civil liberties. The more militarised a society, the less free it is. Nuclear facilities push governments in more repressive directions.

Terrorists and criminals.

Because nuclear facilities need to be protected against terrorists and criminals, the government needs to be active in monitoring potential threats and being prepared to counter them. This means surveillance of any suspected group or individual, training of anti-terrorist squads and worst-case planning.

The so-called war on terror, declared by the US government in the aftermath of 9/11, shows what can happen when terrorism is countered by repressive government action. The mobilisation of police and intelligence services against terrorists spills over into surveillance and disruption of lawful groups, especially protesters.

In summary: Nuclear power, through its characteristics — large size, large cost and potential danger — becomes a prime target for militaries, terrorists and criminals. To protect against this danger, governments need to use surveillance, disruption and curtailment of civil liberties, including the freedoms of peaceful protesters and others who are no threat.

Nuclear power, in short, is a threat to freedom, including the freedom of citizens to express their views about energy policy.

Warning signs

There have been many reports of harassment and dismissal of nuclear critics and whistleblowers, surveillance of anti-nuclear activists, heavy-handed policing of dissent, and passing of draconian laws against anti-nuclear protest. Here is a sample.

- “On Wednesday 20th August [2008], 6 internationals and 5 Turkish people were placed under custody while staging a peaceful vigil outside the Atomic Energy Agency (TAEK) in Sinop [Turkey].”¹
- “Prof. R. V. G. Menon has been relieved of his charge as director of the Agency for Non-conventional Energy and Rural Technology, for ‘embarrassing’ the Government by openly airing his views against nuclear power plants in the State.”²
- “As Britain’s nuclear power programme relentlessly expands, there is no question that its opponents in the environmental movement are coming under increasing surveillance from the State and official bodies. ... The United Kingdom Atomic Energy Authority (UKAEA), which oversees Britain’s nuclear programme, runs its own police force ostensibly to protect our burgeoning stockpile from falling into the hands of terrorists. As well as its unique powers to carry arms and riot gas this highly unusual police force has its own special investigation branch and can operate throughout Britain. The need for such a police force represents one of the more obvious threats to civil liberties posed by a developing nuclear programme.”³
- “The [German] state’s efforts to stifle the resistance and split the movement have reached a scale never seen before. The size of police forces has steadily increased, and special forces like the *Bundesgrenzschutz* (BGS, the ‘Federal Border Protection Force’) and the *Sondereinsatzkommandos* (SEK, special units) are permanently present. ... They use CN and CS gas, water cannon, chemical mace, smoke bombs and rubber bullets. They move around in helicopters, and have a whole armada of jeeps, vans, cars and even police tanks. ... Hundreds of people have been injured by gas, truncheons and dogs. They use a lot of ‘preventative’ methods: they arrest people before they can join a demonstration (for example even if they are just sleeping in a barn); they tap telephones,

¹ “Repression of Ecotopia camp & 30 arrested at die-in in Turkey,” *Earth First! Action Reports*, <http://www.earthfirst.org.uk/actionreports/node/21307>

² “Scientist sacked for criticising nuclear plants,” *Indian Express*, 1 August 1990.

³ James Cutler, “Surveillance and the nuclear state: the producer of a recent documentary on the bugging of anti-nuclear protesters details three alarming cases of surveillance and violent harassment,” *Index on Censorship*, vol. 18, nos. 6&7, July/August 1989, pp. 43–47.

search private houses and movement offices; plain clothes police watch meetings of citizens' initiatives."⁴

In contrast, there are no known security measures taken against critics of energy efficiency and decentralised renewable energy sources.

Comparisons

The likely civil liberties implications of energy options can be compared by looking at the characteristics of the technologies involved. The assessment is straightforward. The main factors involved are:

- unit cost: the greater the cost of individual units, the greater the vulnerability of a community to economic loss due to accident or attack
- scale: the larger the facility (in size or energy output), the greater the vulnerability of a community to energy interruption due to accident or attack
- risk: the greater the size of environmental or health impacts from a breakdown or attack, the more attractive the facility to military, terrorist or criminal attack or takeover
- indirect risk: the technology may contribute to social or technological changes that foster dangers to people or the environment

For nuclear power, the unit cost is huge, the scale is huge, the risk from reactor accidents is enormous and the indirect risk from nuclear war — facilitated by nuclear facilities and skills in nuclear science and engineering — is vast. Compare this to solar hot water heaters on buildings. The unit cost is a few thousand dollars and the size of each unit is tiny in energy terms. Possibly the greatest risk is someone falling off a roof. There are no obvious indirect risks of any magnitude.

This assessment is easy: installing solar hot water heaters doesn't reduce citizen freedom. After all, no terrorist is likely to target a solar hot water heater, and there's no need for police to monitor citizens because of potential risks.

The table gives a rough assessment of several disparate options.

- Coal-fired electricity plants — burning coal to produce electricity — are a standard way to produce electricity today.
- Solar satellites orbit the earth, collect and concentrate radiation from the sun and beam it to earth using microwaves. Being able to deflect the beam would potentially be a potent weapon.
- High-voltage power lines can be used to transmit electricity long distances, enabling generation in one location, for example by massive solar collectors, and used in another.
- Using a bicycle — instead of driving a car or riding a bus or train — uses less energy.
- Making a motor — such as a car motor or a large motor in a factory — more efficient means producing the same output with less energy input.
- Passive solar design means designing buildings so that heating and cooling requirements are met entirely or to a larger extent than normal by the sun's radiation.
- Wind generators use the force of the wind to turn blades and produce electricity.

⁴ Berit von Carlowitz, "Protest and reaction: resistance against the Wackersdorf nuclear plant," *Peace News*, 30 January 1987, pp. 7–8.

- Vegetarian food means without meat; a vegetarian diet usually reduces energy use because most meat production is highly energy intensive.
- Local food production occurs in backyards, community gardens or other nearby sources, with lower transport and production requirements, and hence usually lower energy use.

Table: characteristics of energy options relevant to civil liberties impacts

Option	Unit cost	Scale	Risk	Indirect risk
Nuclear power	Very large	Very large	Very large	Very large
Coal-fired electricity plants	Large	Large	Large	Small
Solar satellites	Extremely large	Extremely large	Very large	Not known
High-voltage power lines	Large	Large	Large	Not known
Cycling	Small	Small	Small	Indirect benefits
Efficient motors	Small	Not applicable	No additional risk	None known
Passive solar design	Small	Small	No additional risk	None known
Wind power	Small	Small	Small	Small
Vegetarian food	Small	Small	Small	Small
Local food production	Small	Small	Small	Small

The assessments in this table are rough estimates. However, the differences between options are so great that nothing more precise is needed. The overall conclusion is that energy-efficiency options like efficient motors, solar design and local food production are far lower in unit cost, scale and risk and therefore are likely to have very few adverse civil liberties implications.

The results of this simple exercise are so striking that it is possible to draw a strong conclusion: supporters of civil liberties should support energy systems based on small-scale, local technologies.

The really important implication is that energy options and promotion of civil liberties — the foundation of liberal democracy — are not separate issues. They have implications for each other.

The normal energy policy approach goes along these lines: let's choose the best energy supply option on the basis of cost, ample supply and environmental considerations. The unspoken assumption is that other factors are unimportant — and will have to be dealt with later. Advocates of nuclear power *never* talk about civil liberties impacts.

The normal civil liberties approach goes like this: important freedoms should be protected by law. If the law doesn't provide protection, then direct action is needed, including civil disobedience. Topics like town planning, agricultural policy, transport and energy policy are usually treated as separate matters.

An alternative approach is to treat energy policy as a political issue. Yes, it is an economic and environmental issue, and there are important connections to the rights of indigenous peoples. There are ethical considerations, including the distribution of costs and benefits, including impacts on future generations (for example from long-lived radioactive waste). Political factors need to be added to this mix — in particular the connection between energy choices and civil liberties.

Nuclear power is not a good choice for any society built on freedom of speech, freedom of assembly and the right of citizens to participate in the decisions that affect them.

Acknowledgements

Thanks to Jim Green for valuable comments on a draft.

Further reading

Graham Allison, *Nuclear Terrorism: The Ultimate Preventable Catastrophe*, Times Books, New York, 2004.

Michael Flood and Robin Grove-White, *Nuclear Prospects: A Comment on the Individual, the State and Nuclear Power* (London: Friends of the Earth, 1976). An early account of civil liberties implications of nuclear technology, still relevant today.

Robert Jungk, *The New Tyranny: How Nuclear Power Enslaves Us*. New York: Grosset & Dunlap, 1979. A classic account of nuclear power's threat to civil liberties.

Brian Martin, "Nuclear suppression," *Science and Public Policy*, vol. 13, no. 6, December 1986, pp. 312–320. Actions taken against anti-nuclear scientists and technologists in a dozen countries.

Bennett Ramberg, *Destruction of Nuclear Energy Facilities in War: The Problem and the Implications*, Lexington Books, Lexington, MA, 1980. The wartime risks of hosting nuclear facilities.

Nuclear Power Plant Security: Voices from Inside the Fences, Project on Government Oversight, Washington, DC, 2002. On the vulnerability of US nuclear power plants to terrorist attack.