Article IV: The NPT's Fault line

Nearly everyone at this conference supports the objectives of nuclear non-proliferation and disarmament. In this we represent the will of the vast majority of the world's population, reflected in countless opinion polls over a period of decades.

Progress on the NPT articles embodying the objectives of non-proliferation and disarmament has been painfully slow, intractable at times, but at least everyone here agrees that the objectives are worth pursuing.

The NPT's most grievous fault line is its so-called third pillar, the article which posed the development, research, production and use of nuclear energy as an inalienable right. Not cheap energy, or renewable energy, but nuclear energy.

This passage about "rights," repeated so often over the years, was written long before Three Mile Island, before Chernobyl and it must be noted that it was written more than two decades ***after*** the United Nation's Universal Declaration of Human Rights where articles 3 and 25 affirm that all people have the right to life and security of person, health and well being, which the risks and hazard of nuclear generated electric power does not support.

In these days of so-called 'nuclear renaissance', with the disarmament agenda revitalized after more than a decade of paralysis, it is essential that we engage this discussion head on, to identify why questions of nuclear energy remain so divisive.

No matter where you stand on the nuclear power debate, whether you support it, oppose it, or colour it with some shade of necessary evil, it is worth knowing a little about the footprint of the industry, and then look at some of the assumptions underpinning this long heralded renaissance.

Uranium mining

Not our land – uranium mining continues to have its heaviest impacts on the traditional lands of native peoples, whether in North America, Australia, Africa or elsewhere.

Tailings waste – uranium mines leave behind a unique legacy of millions of tonnes of finely powdered radioactive waste rock, known as tailings. As ore grades fall and mines get larger, these tailings structures are growing in volume and as they grow, so too do the hazards.

Poisoning the well – Uranium mines are a huge user and polluter of water. All mines are different, but massive water use is one thing they have in common.

Not Carbon-Free -- While it is true that nuclear cooling towers do not release much CO2, the mining and processing of uranium is completely dependent upon burning fossil fuels. In Australia the Olympic Dam uranium mining operation is actually the largest producer of Greenhouse gas in South Australia, and the proposed expansion of operations at this site will dramatically increase those emissions since it will entail moving a million tonnes of rock each day for four years (a billion tonnes total).

Historically the enrichment of uranium also depended on large carbon and chlorofluorocarbon releases. Today these activities are not carbon neutral, nor are the many transportation links in the uranium fuel chain.

Radiation

Reactors emit pollutants – ongoing releases of radioactivity to air, water and via the production of so-called "low-level" radioactive waste. Irradiated fuel (and reprocessing wastes) from nuclear power plants is among the most concentrated forms of radioactive waste accounting for over 90% of all radioactivity in androgenic waste. No nation has yet demonstrated permanent isolation of these wastes from the habitable biosphere.

Not Our Bodies -- Ionizing radiation, by definition, does damage to living tissue. There are now 438 reactors with 55 more under constructions in 31 countries — all releasing radioactivity, making radioactive waste that includes deadly bomb materials.[1] Many studies report higher incidences of cancer associated with a wide variety of nuclear facilities, ranging from uranium mines and mills to nuclear reactors and reprocessing plants.

A US National Research Council 2005 study reported that exposure to X-rays and gamma rays, even at low-dose levels, can cause cancer. The committee defined "low-

[1] http://www.euronuclear.org/info/encyclopedia/n/nuclear-power-plant-world-wide.htm

2] .htmw.cia.gov/news-information/speeches-testimony/2004/dci_speech_02142004.html

dose" as a range from near zero up to about… 10 times that from a CT scan. "There appears to be no threshold below which exposure can be viewed as harmless," said one NRC panelist. [i][3] Tens of thousands of tons of nuclear waste accumulate at civilian reactors with no solution for its storage. Reactors release mutagenic doses of radioactive waste into our air, water and soil and contaminate our planet and its inhabitants for eons.

Nuclear renaissance is not the answer

Many promoters of nuclear generated electricity suggest that a revival of this fading technology is needed because of the necessity of changing carbon energy policy and climate stabilization. Nonetheless, the problem which underlies the destabilization of our global climate: unsustainable consumption in the global north will not be addressed by a nuclear revival; in fact, nuclear power will only reinforce that pattern of consumption. In addition, the prohibitive level of capital commitment, overall cost, plus the long delay in carbon emission off-set due to massive construction times plus the time required to pay the "carbon debt" of power plant construction and uranium fuel production will result in the crowding out of better alternatives. Nuclear energy is an obstacle to solving the problem of global warming, not a solution.

The need for an immediate commitment to climate stabilization reinforces the idea that nations that have not developed nuclear electricity generating capacity would do well to "leapfrog" over this troubling stage directly to energy efficiency and distributed generation of renewable sources of power such as solar, wind, appropriate hydro, geothermal, and other sustainable technologies.

It is also clear that nations with nuclear generating infrastructure are not, on the whole, going to be addressing the climate crisis with new nuclear build and will fare better in meeting climate goals through energy efficiency, renewable energy and a phase-out of existing nuclear power plants. [6]

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[3] http://news-service.stanford.edu/pr/2005/pr-abrams-102605.html

[4] http://www.zsf.jcu.cz/jab/8_2/zoelzer8_2.htm

[5] http://www.ccnr.org/bcma.html, http://www.wise-uranium.org/uhr.html

[6] http://www.carbonfreenuclearfree.org

Bulletin of the Atomic Scientists: "As we see it, however, the world is not now safe for a rapid global expansion of nuclear energy. Such an expansion carries with it a high risk of misusing uranium enrichment plants and separated plutonium to create bombs."

Capacity curve What happened at the end of the 1970s that killed growth in the civil nuclear power sector?

Cost curves Well before the industry was hit by TMI and Chernobyl, it was drowning in red ink. Since then, things have got a lot worse.

Cost assessments The balance sheet proves that nuclear reactors are an extremely expensive method of boiling water. Further, centralized power stations are less efficient than making electric power closer to the point of use.

What happens next? Current projections of new reactor build – even the most ambitious projections for build in China and India, still indicate that reactors will be decommissioned faster than they will be built. It is still too early to say what is going to happen, but whatever nuclear construction occurs will come with an enormous economic and environmental price tag.

In 2007 world nuclear electricity generation fell by 2% – more than in any other year since the first reactor was connected to the grid in 1954. (Schneider et al., 2009)

* In 2008 not a single new plant was connected to the grid – the first time that happened since 1955; and uprates were offset by plant closures resulting in a net world nuclear capacity decline of about 1.6 gigawatts. (Schneider et al., 2009; BP, 2009)

* In 2009 there were two reactor start-ups but four permanent shut-downs and net capacity fell by 0.86 gigawatts. (World Nuclear News, 2010)

Outcompeted by renewable energy It is a fact that renewable energy sources can be deployed more rapidly than nuclear power, and credible clean energy scenarios have been developed which sharply reduce emissions from the electricity sector without recourse to nuclear power.

Renewable energy – mostly hydroelectricity – already generates more electricity worldwide than nuclear power. Solar and wind energy have maintained growth rates between 20 and 30% for the last decade, and are now doubling in capacity roughly every three years.

Multiple studies show that renewable energy sources can be deployed more rapidly than nuclear power, and credible clean energy scenarios have been developed which sharply reduce emissions from the electricity sector while also bringing prices down without recourse to nuclear power. (See Carbon Free, Nuclear Free: A Roadmap to US Energy Policy www.carbonfreenuclearfree.org)

The exact mix of technologies will, and should be, determined by a combination of local resource availability, technological adaptability, and democratic principles. Vision is what is needed rather than a rigidly determined path.

Clearly nations with both nuclear weapons and nuclear power have saddled themselves with a burden of expensive, dangerous and brittle infrastructure with an expanding legacy of waste for which there is no solution. While it is too late for these countries to "leapfrog" over the nuclear energy option, it would serve them better in terms of health, climate goals and sustainable economy to phase out nuclear while phasing in aggressive programs to utilize wasted energy and phase in solar, wind and other renewables now, rather than re-invest in nuclear power.

The unbreakable link

The lesson of the four decades since the NPT came into force is that regime after regime has used the pretext of their 'inalienable right' under Article IV to advance nuclear weapons agendas.

All current civilian reactors either make weapons-usable plutonium from uranium fuel, or are powered directly by plutonium. There is also the possibility of enrichment plants used to enrich uranium for fuel to be reconfigured for production of HEU for weapons use. This is the reason that the CTBT insisted on the signatures and ratification of all nations having nuclear reactors. In other words, by having a nuclear reactor, a nation, ipso facto, does have the capacity to make nuclear weapons.

While Pakistan and Israel got the fissile materials for their nuclear weapons from military reactors, this doesn't discount the truth – which is that nuclear reactors are required to make nuclear weapons. This explains the concern over Iran

The spread of civil reactor technology has provided cover for many countries to proceed varying distances down the path of nuclear weapons development. North Korea is the most notorious example, but there are also reports and speculation that Burma may be pursuing weapons.

Separation of plutonium through reprocessing of spent nuclear fuel and the creation of a global plutonium economy exacerbates the problem. It is fundamentally contrary and counterproductive to the NPT commitment to retire nuclear weapons, since it would put weapons-usable materials directly into global commerce.

Seen in this light, the recent US-Russia agreement for each nation to take 34 metric tons of plutonium removed from nuclear weapons and make MOX (mixed oxide) fuel to generate nuclear power is a step in the wrong direction. It is particularly problematic that Russian breeder reactors will be used for this plutonium disposition, and that the United States is investing in the development of fast reactors (a form of breeder). Breeder reactors may be used for both burning and breeding plutonium, which offers countries which operate these reactors the possibility of actually producing more plutonium rather than net destruction of the element. The goal of making the surplus weapons plutonium highly radioactive could be accomplished through combining the former weapons material with existing highly radioactive waste and then vitrified.

Plutonium fuels are also contraindicated from a public health perspective since plutonium is harder to control in an energy reactor and the spent fuel is more radioactive. If control is lost it could lead to a catastrophic accident, the result of which would be twice as deadly (in terms of latent cancer fatalities) compared to the same circumstance with uranium fuel. The suggestion that “burning” plutonium makes the world safer is not only a risky idea from the perspective of nuclear weapons proliferation: fission of transuranics results in even greater quantities of biologically active, highly mutagenic fission products.

In 2010, the inalienable right to nuclear energy as invoked by Article IV amounts to the inalienable right of an expensive industry to massive subsidies, the inalienable right to expose citizens to routine hazardous releases of radiation and the inalienable right to produce contamination that science cannot yet contain arising from large quantities of radioactive waste. It is inappropriate to elevate an activity that is limited to one or two generations in benefit, but results in a liability that will persist for thousands of human generations to come, to the text of a Treaty as an "inalienable right". The qualification of the NPT right to peaceful nuclear energy as “inalienable” should be understood in the context of the NPT bargain, and not as a claim that it is a fundamental aspect of sovereignty. The Treaty reads:

> *Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes…*

Inalienable rights, by definition may only be invoked – not conferred. Indeed this is an excerpt from recent legal research on the matter:

> Inalienable rights are generally distinguished from legal rights established by a State because they are moral or natural rights, inherent in the very essence of an individual. The notion of inalienable rights appeared in Islamic law and jurisprudence which denied a ruler "the right to take away from his subjects certain rights which inhere in his or her person as a human being" and "become Rights by reason of the fact that they are given to a subject by a law and from a source which no ruler can question or alter". John Locke, the great Enlightenment thinker was thought to be influenced in his concept of inalienable rights by his attendance at lectures on Arabic studies. (reference: ^ Judge Weeramantry, Christopher G. (1997), *Justice Without Frontiers*, Brill Publishers, pp. 8, 132, 135, ISBN 9041102418)

Perhaps the framers' of the Non Proliferation Treaty's incorporation of this passage about nations was an attempt to acknowledge (somewhat ironically when it comes to splitting atoms) the parity of all peoples in relation to new technologies – it is not correct for some nations to "have" new technology and other nations to "have not." Since the treaty enshrines the stated commitment for all nations to eventually "not have" nuclear weapons, it is a fundamental contradiction for the treaty to promote the production of fissile materials through non-military nuclear energy and remains a contradiction for the United Nations to have an agency devoted to this purpose.

Call for IRENA to Supersede Article IV:

It is time to bring the NPT into conformity with the Universal Declaration of Human Rights which affirms that everyone has a right to health and well being. Just as the Comprehensive Test Ban Treaty cancelled the right to peaceful nuclear explosions in Article V of the NPT, we urge you to adopt a protocol to the NPT mandating participation of Parties in the International Renewable Energy Agency (IRENA) which would revise the Article IV right to "peaceful" nuclear technology and guarantee assistance to Parties to attain a sustainable economy through development of sustainable energy. There are now 143 nations participating in IRENA. www.irena.org

The right of all peoples to sources of energy is not being disputed here. If there still needs to be a carrot in the NPT which would reward non-nuclear weapons states for not

pursuing nuclear weapons with an energy technology, let that technology be renewable and clean.

Nuclear power is neither.

WE RECOMMEND:

1) All nations join the recently launched Renewable Energy Agency (IRENA) which now has 143 members
2) Instead of clinging jealously to the outdated and legally unsound notion of an "inalienable right" to nuclear energy, countries should leapfrog directly to the future, based on energy efficiency, distributed energy and renewable energy sources.
3) Reprocessing of spent nuclear fuel and the use of fuel cycles based on plutonium should be phased out.
4) Nations should adopt consideration of all "external" costs and impacts of energy generation alternatives in selecting climate-stabilization strategies worthy of public funding and other public benefits.
5) All nations currently using nuclear energy, adopt plans to phase it out.
6) The United Nations should sunset the nuclear power promotion role of the IAEA.
7) All nations phase-in abundant safe energy of the sun, wind, tides and heat of the earth.

This paper is a collaborative product. It can be found on-line, along with a Powerpoint version at: http://www.nirs.org/international/intlhome.htm

Felicity Hill, Research and Policy Adviser to Senator Ludlam, Australia
John Lorentz, International Physicians for the Prevention of Nuclear War
Scott Ludlam, Australian Greens Senator for Western Australia
Mary Olson, Nuclear Information and Resource Service, Southeast, Asheville, NC USA
Diane Perlman, Psychologists for Social Responsibility, Virginia, USA
Elizabeth Shafer, JD
Alice Slater, Nuclear Age Peace Foundation, NY
Philip White, International Liaison Officer, Citizens' Nuclear Information Center, Tokyo Japan

[i] http://news-service.stanford.edu/pr/2005/pr-abrams-102605.html