

climate protection:
false friends (part I)

**nuclear
power**



Regardless of whether oil becomes more expensive or gas supplies break down, or whether a new climate study is published – the call for nuclear energy immediately becomes louder. The nuclear lobby advertise nuclear generated electricity as a climate saver.

But can electricity generated by nuclear power contribute to satisfying a worldwide hunger for energy, and to protecting the climate?

The question is not whether there really is climate change, it closed in on us long ago and can no longer be reversed. The cause is the increasing concentration of greenhouse gases in the atmosphere. Particularly carbon dioxide (CO₂), the most significant greenhouse gas, is set free through the burning of the fossil energy-carriers oil, coal and natural gas. Responsibility for climate change is therefore and above all increasing energy requirements since the beginning of industrialisation. The consequences are a rise in average temperatures on the Earth's surface – accompanied by more frequent tropical storms, deluges and periods of drought. The urgent question is: What must we do, and what can we do, against climate change?

The nuclear energy issue is often put forward as a possible climate-saver, since electricity generated by nuclear power has the apparent advantage of being produced with a comparatively low CO₂-output. Nuclear power stations however, exclusively produce electricity, whereas oil is used mainly for propellant fuels, and natural gas mainly for heating. The fossil energy carriers, oil and gas, are thus not in direct competition with nuclear power.

Nuclear energy – a niche existence

Today, only two percent of all energy used worldwide is produced by nuclear power. Thus, nuclear energy performs poorly in comparison to renewable energy sources, since energy from the sun and wind etc already covers nearly twenty percent. So, in a global perspective, electricity generated by nuclear power is meaningless as a “climate-saver”.

The euphoria surrounding nuclear energy ended in 1989. In 1990 for the first time there were more nuclear power stations being shut down than new ones going on line. The highest level was attained in 2002 with 444 reactors; in the autumn of 2009 there were still 435 nuclear power stations in service worldwide, and they are seriously obsolete: 80 percent of these nuclear reactors have been running for over 20 years, and 30 percent for more than 30 years. Those under ten years old amount to less than ten percent. Towards the end of 2009, there were 53 nuclear power stations under construction, and twelve of these have been so for 20 years or longer. Unfinished buildings – construction abandoned – completion uncertain.

The supposed worldwide construction boom is above all in Asia with 32 reactors – and half of these are in China. Only two nuclear plants are presently being built in Western Europe, one each in Finland and France. Both of them have problems – deadlines and budgets have already been far exceeded. There is in fact only one boom, the announcements themselves, implementation



From nuclear plants to amusement parks: Today this fast-breeder site in Kalkar, Germany, houses an amusement park: “Wunderland Kalkar”.



What to do with the nuclear waste? Incompetent dumping in the Asse mine in Northern Germany.

is doubtful, since it is expensive and – without subsidy – uneconomical. There remains not least the globally unsolved problem of disposal of the highly radioactive waste, which must be safely stored for a million years.

If one presumes that the average life of a nuclear power station is approximately 40 years, then three quarters of all operational plants must be shut down within the next two decades. Even if only to maintain the status quo, more than 300 nuclear power plants would be required in the next twenty years. Quite illusory, if one remembers that from the time of the announcement of a new station until its production of electricity, at least ten years have passed.

Saving potential too small

Various studies have examined the CO₂-saving potential through electricity generated by nuclear power. The result: If today's nuclear-power-station output of 370 gigawatt (GW) was increased to 1000-1500 GW by the year 2050, then nuclear energy in 2050 could save two to three billion metric tons of CO₂. However, about 1000 to 1500 nuclear reactors would

have to be running to achieve this. Climatologists nevertheless demand greenhouse gas emissions to be halved by 2050, based on 1990 levels. Worldwide CO₂ emissions in 1990 were 21.5 billion metric tons, today the level is 31.5 billion metric tons, and the trend is rising. If nuclear power is to provide a significantly higher contribution to climate protection, then in a short space of time many thousands of nuclear plants must be built – an unrealistic scenario.

Even uranium is finite

At the beginning of the 1980s, peak uranium was reached, the climax of uranium mining. Natural deposits are now coming to an end. Today, reactor fuel extracted from mines covers just under two thirds of requirements, the rest comes from civil stocks and military weapons arsenals undergoing disarmament. If the nuclear industry requires the same amount of uranium again in future, then the reserves will last for between 25 and 166 years – depending upon how disarmament efforts develop and upon the quality of the uranium ore in the as-yet unexploited storage facilities.

If the proportion of electricity produced by nuclear power were to be increased for climate-protection reasons, then uranium fuel would be available for a relatively shorter period. So, the energy industry would have to either switch to thorium as a fuel (which is also finite) or enter into fast-breeder technology including fuel reprocessing – a polluting and dangerous production system that generates even more toxic nuclear waste. Both alternatives contain uncontrollable risks and they have furthermore failed in practice, such as for example the unsuccessful German breeder-project in Kalkar, or the thorium high-temperature reactor in Hamm-Uentrop, which never advanced beyond trial operation. Even the US have abandoned their fast-breeder programmes, the French Superphénix was declared “a grand failure” and the Japanese fast-breeder Monju likewise never lived up to its projected operating capacity.

The ultimate catastrophe

Climate change already endangers electricity production in these large power plants: Nuclear power stations fundamentally need cooling water, and this is why they are built near coasts or rivers. Rising sea levels und hurricane force winds necessitate millions in investments in protection measures. And the hot summers of the last few years have shown that nuclear plants have had to be powered down because the increased temperatures of river water has been unable to assure sufficient cooling. The anticipated climate-saving through atomic power has already failed due to progressive global warming.

We do not need nuclear energy in order to avert climatic catastrophe. The savings potentials in the energy sector are enormous, we simply have to utilise them. Saving the climate via nuclear energy – that would be a jump from the frying-pan into the fire: With, on the one hand, the threat from climate change with all of its catastrophic consequences, there is the uncontrollable risk from nuclear plants with the possibility of devastating accidents on the other.

The global share of nuclear energy at only just two percent of the total final energy consumption is far too small to be able to contribute to climate protection. Even an unrealistically strong expansion of nuclear energy worldwide could lead only to a marginal CO₂ saving. By holding fast to nuclear energy, we will only continue to squander valuable time and finances for enduring, meaningful measures, and the urgently required restructuring of energy supply would thus be obstructed. Nuclear power would finally lead us into climatic catastrophe.

× Nuclear power leads to climate catastrophe

× Nuclear power is insignificant for energy supplies

× There are no safe permanent storage facilities for nuclear waste

The Munich Environmental Institute thus calls for:

- ✓ Immediate withdrawal from nuclear energy
- ✓ No recognition of nuclear energy as a “Clean Development Mechanism”

The Munich Environmental Institute campaigns for the following targets:

- ✓ Reduction of energy consumption and increases in energy efficiency
- ✓ Expansion of renewable energies
- ✓ Conversion of energy supplies via intelligent electricity networks
- ✓ Decentralised and flexible power stations

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The Munich Environmental Institute (Umweltinstitut München) is an independent and non-profit association.

Since the reactor catastrophe at Chernobyl in 1986 we have been examining foodstuffs and other samples for radioactivity and fighting against nuclear power. During all this time we have also campaigned for regionally produced food free of gene technology, and against genetically modified organisms in the environment.

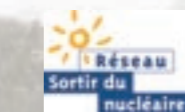
We advocate a lasting economic strategy and a consistent climate protection policy. We support an expansion of renewable energies, uphold healthy nutrition and encourage the precautionary principle for all environmental dangers, such as for instance with the construction of mobile telephony installations.

Our targets include the shutting down of all nuclear plants, food free of gene technology and ecological, small-farm agriculture. To support these goals, we provide consumer education, public relations and we develop campaigns.

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