

To the President, Government and Parliament of Finland

We, the undersigned organizations and movements from all over the world, have with great concern followed the development of nuclear energy in Finland.

The OL3 European Pressurized Reactor (EPR) being built in Finland and supplied by the French company Areva is 10 years late. The costs have soared from the fixed turnkey-price of € 3.2 billion to almost € 10 billion. The final testing phase has repeatedly been delayed and the start of regular electricity production, scheduled for September 2019, is uncertain.

The Russian 1.2GW AES-2006 pressurized water reactor, Hanhikivi 1, planned to be built in Northern Finland by the Russian company Rosatom, is plagued with problems. The plant is expected to be commissioned in 2024. The costs, originally estimated at € 5 billion, have risen to € 6.5 - 7 billion. The licensing process was supposed to be finished in 2018, but is running late because Rosatom has failed to deliver all required documents on time. Rosatom lacks an agreement for the automation system for the plant, which is a fundamental part of the plant security. Recently a report from STUK (the Finnish Radiation and Nuclear Safety Authority) criticized the security culture of the project. The estimated time for delivery of the outstanding documents is at the end of 2020.

Nuclear power stations are too expensive to build without substantial open or hidden subsidies. The Hanhikivi 1 reactor is partly financed from the Russian National Welfare Fund (€ 2.4 billion).

These Finnish projects are examples of unimaginatively lavish *spending of money* and *time*. Time and billions spent would serve the world better invested in renewable energy and energy efficiency. We firmly oppose the construction of new nuclear power plants in Finland and elsewhere in the world because:

1. Nuclear Power is too expensive

- The costs of renewable energy generation have in the last five years been plummeting to record lows. In 2016, global nuclear capacity increased by only 9GW. Solar and wind increased by 75GW and 55GW.
- Delays in nuclear plant construction and rising costs, like necessary new safety and other requirements from regulators, make nuclear projects too risky for private investors. Also, the costs of disposal of spent fuel and decommissioning of closed nuclear power plants are enormous and rather unpredictable.
 - In 2017 the French Government made a € 5.3 billion bailout of state-owned nuclear company Areva, which went technically bankrupt after a cumulative six-year loss of over € 10 billion.
 - Also in 2017, the largest nuclear power plant builder, Japanese conglomerate Toshiba's subsidiary Westinghouse went bankrupt.

2. Nuclear Power is no Solution to Climate Change

- Nuclear power plants cannot be built fast enough to have a significant impact on climate change. CO₂ emission reductions are reached much faster if money for nuclear investments is spent on renewable energy solutions and energy efficiency instead.

The nuclear industry is still promoting small modular nuclear reactors (SMRs) with an output of 50-300 MW, as a possibility to tackle climate change. It is unlikely that they will be commercially available before 2030, and the predicted developments in the renewable energy sector during this time makes them much less relevant.

- Nuclear power is not emission free. When taking into account the whole lifecycle of nuclear power (uranium mining and milling, transportation, plant construction, operation, plant decommissioning and nuclear waste management) a nuclear power plant emits at least 6-24 times the amount of carbon dioxide equivalent emissions as wind per unit energy produced over the same 100-year period.

3. Nuclear Power Plants are Vulnerable to Climate Change

- Climate change causes heat waves, storms and flooding that can be catastrophic to nuclear power plants. It can knock out electrical systems, disabling cooling mechanisms and leading to overheating, possible meltdown and dangerous release of radioactivity. Nuclear reactors in Europe have already been forced to curb power output or shut down altogether during unusually warm weather.

4. Nuclear Waste is Dangerous for Hundreds of Thousands of Years

- The waste generated by nuclear reactors remains radioactive for tens to hundreds of thousands of years. Currently, there are no long-term disposal sites for radioactive waste, and most is stored in temporary, above-ground facilities posing a deadly threat to human beings and the environment.
- In 2020 Finland is planning to start operation of its longterm storage facility for spent fuel, Onkalo, the first of its kind in the world. This is despite the fact that the method is based on the same KBS-3 concept (developed by the Swedish Nuclear Fuel and Waste Management Co SKB), which was rejected by the Swedish Environmental Court in January 2018. This remarkable decision has had no impact whatsoever on the Onkalo project in Finland.

5. The Same Technology is Used for Nuclear Power and Nuclear Weapons

- Any country that purifies uranium for fuel production for nuclear power plants can use the purification plant to manufacture weapons-grade fissile material for nuclear weapons.
- Rosatom plans to supply fresh fuel for the Hanhikivi 1 plant from uranium extracted from spent fuel in Russia. Such reprocessing is done from spent nuclear fuel of

Russian nuclear submarines. This means that consumers of electricity from Hanhikivi will invest in Russian military nuclear programs.

- Both Areva (France) building OL3, and Rosatom (Russia) building Hanhikivi 1, are situated in countries with nuclear weapons and are involved also in the military nuclear sector.

6. Nuclear Power Plants are Dangerous

- In addition to risks posed by terrorist attacks, human error and natural disasters can lead to dangerous and costly accidents. Nuclear power plants can also be targets for military strikes. Recently, the risk of military conflicts with use of weapons, including nuclear ones, has increased.
- The 1986 Chernobyl disaster in Ukraine and the 2011 Fukushima disaster in Japan both led to the relocation of hundreds of thousands of people, millions of dollars spent, and radiation-related deaths still being evaluated. Cancer rates among populations living in proximity to Chernobyl and Fukushima, especially among children, rose significantly in the years after the accidents.

7. Nuclear Power is Anti-Democratic and Against Human Rights

- Nuclear energy is non-transparent by nature. Especially in countries where operator companies belong to the state, information on the workings of the power plant, including profits and losses, the level of radiation released to the environment, and any leakage from the plant can only be obtained through these companies' public statements which tend not to reflect the true figures.
- In many countries with nuclear power plants, organizations and people opposed to nuclear power are silenced and treated with disrespect. In Russia such organizations were recently labeled as foreign agents and forbidden.
- Today's nuclear power plants concern future generations. Even if all nuclear power plants active today across the globe were shut down immediately, the radiation and waste released from these plants during operation or dismantling and the irreversible damages they have done to nature remain immense threats for future generations.

We urge the decision makers in Finland to reconsider all nuclear power projects and to take the Environmental Court decision in Sweden into serious consideration before opening up Onkalo for spent fuel in the near future. A country with high technological skills should invest in truly sustainable energy production methods, not nuclear power.

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