

NUCLEAR POWER IN EUROPE



A THREAT TO CITIZENS



Les Verts | ALE
au Parlement européen

In 2016, there were 127 operating nuclear power plants (NPP) in the EU28 - about a third of the world's total (<http://www.worldnuclearreport.org/IMG/pdf/20160713MSC-WNISR2016V2-HR.pdf>).

Half of the EU's member states either never used nuclear power or decided to phase out their share of nuclear power, like Germany. The average age of a European NPP was 31.4 years old in 2016 and is steadily increasing.

More than half of Europe's NPP have been operating for more than 30 years. As they get older, NPPs become riskier: The material becomes brittle - a process that is accelerated due to its constant exposure to radiation - and security standards become outdated. While security relevant components may fail at any time and not all materials can be exchanged, thereby increasing the frequency of incidents and, as a consequence, imminent risks.

In addition, revelations about faulty components and NPPs operating with reduced security, as well as cover-ups and lax controls by authorities, are causing increasing dismay.

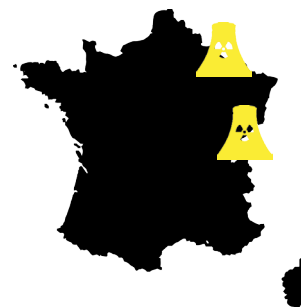
SOME OF EUROPE'S "FAULTIEST" REACTORS



Belgium: Doel and Tihange

In 2012 the reactors Doel 3 and Tihange 2 were switched off after thousands of fine cracks were discovered in their reactor pressure vessels. After a positive assessment by the Belgian nuclear authority regulatory FANC in summer 2013, the reactors went back online, but were switched off again in March 2014 for further tests. Despite the inconclusive results of the following investigations and tests, FANC gave the green light to re-start both reactors at the end of 2015 (<http://www.greens-efa.eu/flawed-reactor-pressure-vessels-in-the-belgian-npps-doel-3-and-tihange-2-15160.html>).

Since then both reactors have been plagued by various disruptions, switched on and off again and in the case of Doel there is still an unsolved case of sabotage. At the same time, the Belgian government decided to extend the lifespan for the reactors Doel 1 and 2 until 2025 - the supposed end date for Belgian nuclear power usage - without a public consultation or a new environmental impact assessment. Not only in Belgium, but also in the neighboring countries the Netherlands, Germany and Luxembourg criticism of this decision has been voiced, which has resulted in several ongoing lawsuits against the re-start of Tihange 2 as well as the decision on the lifetime extension for Doel 1 and 2.



France: Fessenheim & Cattenom

Fessenheim, close to France's borders with Germany and Switzerland, opened in 1977. The plant is located in an area of relatively high seismic activity and flooding. Being France's oldest reactor, it is one of Europe's most incident prone reactors: broken pipes, leaks or defective valves are frequently the order of the day. During his presidential campaign, François Hollande vowed to close Fessenheim by the end of 2016.

Yet, this date has been continuously deferred. Given the sustained risk, the Swiss and German neighbours have been calling for decades for the closure of the plant, especially after the revelation of attempts to cover up a serious incident in 2014, where the reactor could not be shut down in the usual manner due to control rods being jammed, so the plant had been out of control for minutes.

Subsequently, in January 2017 the board of directors of EDF, the operator, agreed to close the plant until 2018. In return, EDF received an impressive compensation of € 446 million, plus guarantees for the operation of other NPPs.

Nevertheless, Fessenheim's final closure date is still pending, as it still needs to be confirmed in a formal second step. Bearing in mind that in May 2017 France will elect a new president who might have completely opposite plans, its final closure seems to remain at far distance.

Cattenom is located in the direct vicinity of the borders with Luxembourg and Germany. Since its opening in 1986, there have been more than 800 reportable incidents, such as fires, forced shut-downs and radiological incidents.

Cattenom's bad results in the 2012 EU stress test have been confirmed by a recent study commissioned by the German Greens (https://www.gruene-bundestag.de/fileadmin/media/gruenebundestag_de/themen_az/atomausstieg/Gutachten_Cattenom_final.pdf), alerting again to the plant's incompliance with European safety standards and that its upgrade is not likely to be a remedy.

The plant is not sufficiently safeguarded against either a nuclear meltdown or the release of radioactivity, or against earthquakes, plane crashes or the risk of flooding.

Nevertheless, in early 2016 the French government revealed plans to prolong the lifetime extension of its 58 reactors from forty to fifty years.

EDF already announced a request for an extension of Cattenom's life span till 2046 - instead of 2026.

Yet, EDF has made it clear that it will not take over the billions of euro worth of liabilities linked to this costly venture. The responsibility for the open liabilities remains unclear and the plant's opening date remains a distant prospect.

In 2015 credit-rating agency Standard & Poor's downgraded TVO to BBB-, just above 'junk' status, with a continuous negative outlook referring inter alia to the risk of increasing costs related to Olkiluoto 3.



France: Flamanville & le Creusot

The EPR in Flamanville was ordered in 2006 and planned to come online in 2012 at a cost of € 3.2 billion. Similar to Olkiluoto, the construction of the EPR turned out to be a costly disaster.

From the start, there were problems from the basement to the top: the bad quality of welds and difficulties meeting certain technical requirements. Yet, the biggest problem was made public in April 2015: manufacturing errors were found in the tops and bottoms of the reactor pressure vessel.

Investigations by the French Nuclear Regulator ASN are ongoing and an eventual re-manufacturing cannot be excluded. So far, the estimated construction costs of the EPR almost tripled, rising up to € 10.5 billion (2015), while the timeframe had to be pushed back to 2018 - with further delays very likely.

After the manufacturing problems in the Flamanville pressure vessel were detected, ASN requested to take a closer look at the manufacturer le Creusot. An audit revealed that "irregularities in the manufacturing checks" were detected at about 400 pieces fabricated since 1969, about 50 of which would be installed in the current French operating reactor fleet.



Finland: Olkiluoto

In December 2003, the Finnish government ordered the construction of Olkiluoto 3, a European Pressurised Reactor (EPR) by design. Its construction started in 2005 under the lead of Areva in cooperation with Siemens and the Finnish utility TVO. The envisaged starting date was 2009.

Yet ever since, due to several technical problems and legal requirements, the construction of Olkiluoto 3 has been running severely over time and budget. In 2015 completion was not expected before 2018, while the estimated cost rose from € 3.2 billion to €8.5 billion - 2014 figures, which have not been officially updated ever since.

Areva has already accumulated € 5.5 billion in losses, with further losses expected. TVO and Areva / Siemens are locked in a legal battle over the cost overruns. After Areva's technical bankruptcy in 2015, its reactor-building division is likely to be integrated with the French utility EDF.



UK: Hinkley Point C (HCP)

Hinkley Point C is planned to be the first NPP constructed in the UK in decades. The planned reactor type is an EPR, like those in Flamanville and Olkiluoto. Its completion was scheduled for 2023 at an overall cost of £16 billion. Its construction was awarded to EDF, two Chinese partners (China General Nuclear Power and China National Nuclear group) and Areva as the power plant's builder.

Yet, as the venture is not able to be financed by the market, the British government envisaged paying a generous guaranteed remuneration of nearly 11 Eurocent/kWh, plus an adjustment for inflation for 35 years - which is at least three times higher than the current market price.

In December 2014, the EU Commission authorised the state aid scheme, while it raised the figure of estimated costs to £ 24.5 billion - a significant rise from the previous estimates. By now, the costs of realising HPC are exceeding its current market capitalisation. Both credit-rating companies Moody's and Standard & Poor's have been issuing continuous warnings to further downgrade EDF if it goes ahead with HPC deal.

Various players came forward contesting the project: the Austrian government, backed by Luxembourg, filed a lawsuit against this decision before the European Court of Justice, as it considers it to be unlawful state aid and a distortion of competition.

Separately, a consortium of ten energy companies submitted a joint legal complaint with the ECJ. Denied admissibility in the first instance, the consortium went into appeal stressing that this 'care-free' state aid package poses a major market distortion, in particular to the disadvantage of renewable energy providers as well as heralding the end of the European internal power market due to the blue print effect.

Meanwhile, major opposition occurred inside EDF: Their financial director Thomas Piquemal disagreed with the envisaged investment and resigned, causing EDF's battered share price to collapse to below €10. EDF's finances continued to deteriorate, forcing it to drop out of the CAC stock exchange while its current debt stands at € 37.4 million, increasing doubts over EDF's ability to maintain the project. Even the normally pro-nuclear trade unions came out strongly against HPC and tried to rescind the board of directors' final investment decision taken mid 2016 by challenging it before court - yet in vain.

On the British side, the new 'May Government' gave the final green light in autumn 2016. Officially HCP shall enter into service in 2025, yet considering the immense economic risk for investors and consumers while renewable alternatives are getting cheaper and cheaper, as well as EDF's disastrous financial situation and the pending legal challenges - not to mention the unforeseeable consequences of Brexit - this seems very optimistic.



Hungary: Paks II

In early 2014, the Hungarian Prime Minister Viktor Orban and the Russian president Vladimir Putin signed a bilateral-agreement on the expansion of the Hungarian NPP Paks. The arrangement included a separate financial agreement on a 30-year inter-governmental loan worth € 10 billion provided by Russia below market conditions.

This loan would cover 80 percent of the total estimated costs of € 12 billion. The realisation of the project itself was awarded to the Russian state owned energy company Rosatom.

The deal provoked much criticism and since November 2015 the European Commission has launched three legal procedures against the Hungarian government. First, an infringement procedure on the violation of EU public procurement rules having failed to tender the selection of Rosatom.

Yet this one was closed by the Commission in autumn 2016 on grounds of "technical exclusivity", i.e. the argument of the HU government were acceded, that Hungarian regulations and technical standards make it impossible for anyone other than Rosatom to construct the plant.

Secondly, the Commission decided to further examine the classification of information contained in the Paks documents, as they might violate rules concerning the publicity of environmental information. Finally, DG Competition opened an in-depth state aid investigation looking into the implications of Paks' financing model and possible violation of EU state aid and energy market rules, despite contrary claims of the HU government.

On 6 March 2017, the Commission approved the venture on the condition that HU was collecting higher returns on its investment into the project, ensuring it would be managed separately from the existing Paks NPP, and selling a third of the energy generated on an open exchange. Yet, like in the case of Hinkley, the Austrian government as well as other concerned parties already announced to be ready to challenge a positive decision before the courts.



For further information on the Greens/EFA position and actions on nuclear energy, visit:

<https://www.stopclimatechange.net/>



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