

## **Operational-life extension Nuclear Power Plant Borssele 2034+**



**The government asked EPZ (Electricity Production Company South-Netherlands) to investigate whether the Borssele nuclear power plant can remain operational after 2034. EPZ has started the study into an operational-life extension.**

The Dutch government aims to make energy provision climate-neutral by 2050. Climate-neutral nuclear power Plants have an important role to play. There will be new nuclear power plants, and the government aims to keep the existing nuclear power plant in Borssele operational after 2033.

Although the nuclear power plant is in excellent condition, it is not yet certain whether this will be possible. There are many issues that need to be considered and addressed.

- Current legislation says that the nuclear power plant will close in 2034, so this act would have to be amended. Both the Dutch Senate and the House of Representatives would need to agree, and careful public consultation and other procedures will need to be completed.
- For as long as the act is not amended, EPZ will also have to take account of closure. In effect that means twice as much work for EPZ: preparations will have to be made for continuing operations and closure at the same time.
- EPZ will also have to demonstrate that it will be technically safe to keep the nuclear power plant operational. This will require investments that need to be made on time.
- Finally, the costs may turn out to be too high compared to the benefits. Besides the necessary investments, new nuclear-fuel contracts have to be concluded.

In other words, there are quite a few hurdles to overcome to keep the nuclear power plant open beyond 2034.



### **What will EPZ investigate itself?**

To start with, EPZ will study the ageing of the nuclear power plant. Materials wear with use. Most components of a nuclear power plant can be replaced; the reactor pressure vessel is actually the only exception. Fortunately, the Borssele vessel is of the highest possible quality. Eighty years of operation - to 2054 - is unlikely to pose a problem, but this needs to be proven of course.

Issues, such as the availability of spare parts, are also considered. If they are no longer available, the analogue 'handles and meters' will be replaced with digital alternatives as a precaution, for example with interactive screens.

Then there is the conceptual ageing. That is where you compare the existing nuclear power plant with a brand-new one. Where possible, alternative improvements are applied to link up with today's state of the art.

Finally, the purchase of nuclear fuel needs to be considered. For now, everything is focused on 'consuming' the Borssele nuclear fuel as much as possible to end up with the lowest possible quantity of nuclear waste in 2034. If the time of closure shifts to 2054 for example, new nuclear-fuel contracts will have to be concluded - a complex and time-consuming process. It requires international consultation between countries, and the EU and the UN (IAEA) are involved too. Supervision is strict: every kilo is recorded and monitored. Will it be possible to conclude commercially attractive new nuclear-fuel contracts?

EPZ will also study what all of this will cost. All the replacements, improvements and purchased nuclear fuel will need to be earned back in the extra time the nuclear power plant will be given. Is that feasible?

### **What has to happen outside EPZ?**

It is not just EPZ that has work to do. The State will also have to work things out and put them in motion. Most importantly: the law needs to be changed in order to be able to keep the nuclear power plant open longer. That requires a majority in the Senate and in the House of Representatives.

It is only after that step, that EPZ is able to submit the actual licence application. The licence procedures cannot start before then. Decision makers and stakeholders will receive detailed information about the possible environmental impact of extending the operational life. This procedure also involves a public consultation process. As this is a careful process, it requires time.

An irrevocable licence will have to be granted by 2029 to ensure the investment projects can be started on time in 2030 in order to make the deadline of 2034.

### **Investments**

When the licence has been granted and has become irrevocable, EPZ will start work. According to the current schedule that will be in 2030. From that time onward, all the necessary investments in the nuclear power plant can be made to ensure the power plant will be ready for a new extended operational period in 2034.