

“ENGIE Electrabel and the Belgian Government signed an Agreement with the Objective to extend the Operational Lifetime of our youngest Reactors Doel 4 and Tihange 3 for ten Years”

**Interview with Peter Berben,
Head of Decommissioning and Radioactive Waste management at ENGIE Corporate**



Peter Berben

Peter Berben has more than 30 years of experience in national and international nuclear engineering and business development and currently holds a senior position at ENGIE Corporate, Nuclear Segment, as Head of Radioactive Waste and Decommissioning. Peter is a member of the NEA Expert Group on Robotics and Remotely Controlled Systems in the Nuclear Back-End and member of the group of decommissioning experts at the French Nuclear Safety Authority (ASN).

Peter Berben oversees at ENGIE Corporate the decommissioning program of subsidiary ENGIE Electrabel that has been in full deployment since the final shutdown of Doel 3. ENGIE's nuclear fleet includes 7 pressurized water reactors, located on 2 sites, in Doel (Flanders) and in Tihange (Wallonie).

Recently an agreement between the Belgian government and ENGIE Electrabel was announced concerning the prolonged operation of two nuclear power plants in Belgium and related issues. What are the elements of this agreement?

On January 9, ENGIE and the Belgian Government signed an agreement with the objective to extend the operational lifetime of our youngest reactors Doel 4 and Tihange 3 for ten years. Both reactors, commissioned in 1985, have a production capacity of 1 GW each. This agreement in principle defines the Heads of Terms for a future binding agreement and allows the commencement of operational life time extensions studies. This agreement constitutes an important step and paves the way for the conclusion of full agreements in the upcoming months. It also provides for the immediate start of environmental and technical studies prior to obtaining the authorizations related to this extension.

It builds on the Letter of Intent signed on 21 July 2022 and specifies certain terms and conditions for the following topics: It sets the frame for the establishment of a legal structure, dedicated to the two extended nuclear units, equally owned by the Belgian State and ENGIE. It defines the framework for a cap on future nuclear waste management costs, a framework that will allow to define the technical and financial parameters of this cap in the upcoming weeks, including a risk premium. It determines a set of guarantees to ensure the proper execution of the nuclear operator's commitments.

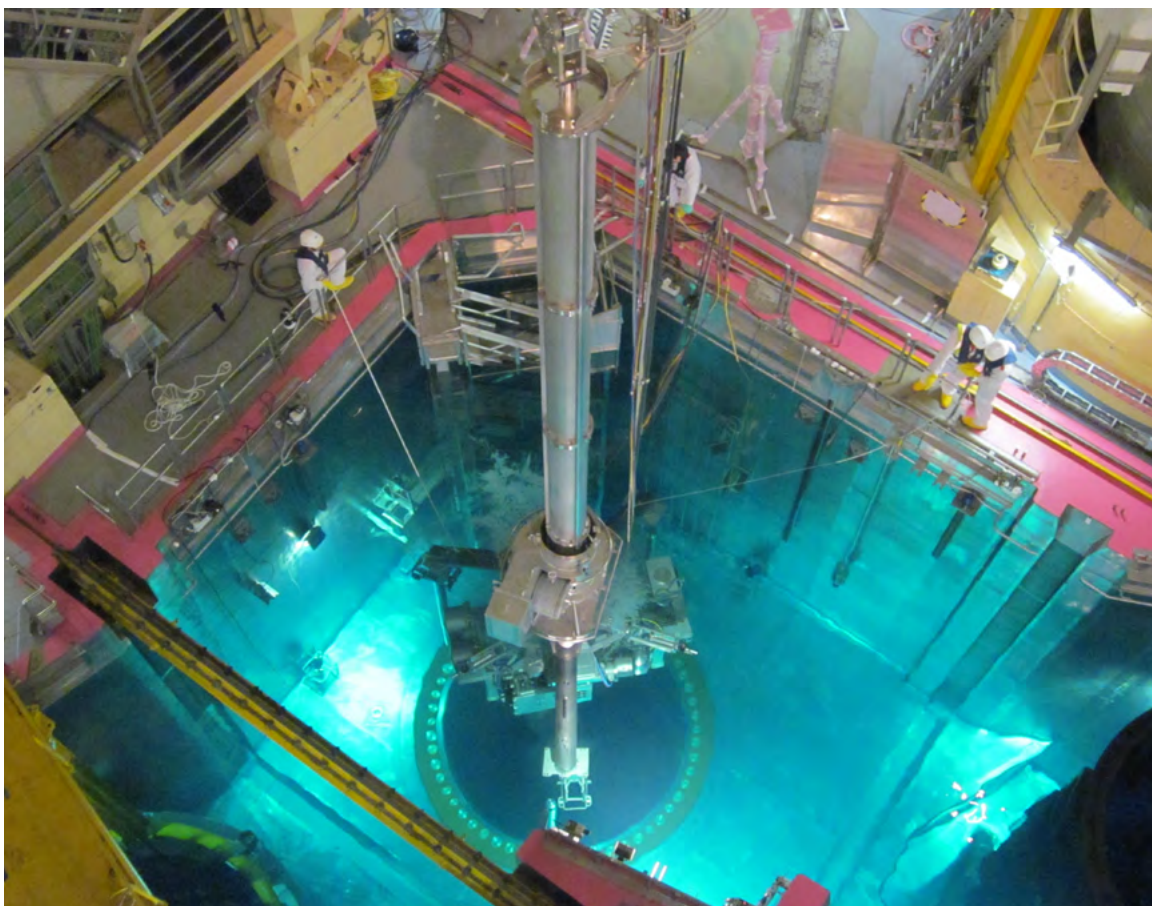
With this agreement, both parties confirm their objective to restart the Doel 4 and Tihange 3 nuclear units, after the 2025 shutdown, in November 2026. The final and binding agreements will in principle be signed by June 30, provided, of course, that the parties agree on all the details. Talks with the government are continuing and ENGIE Electrabel is working to bring them to a successful conclusion.

Why will the Belgian State become a shareholder?

The decision to extend the Doel 4 and Tihange 3 nuclear power plants is coupled with significant safety, regulatory and implementation requirements – particularly since this extension would start at the same time that decommissioning activities at the other units have already begun. This creates a risk profile that, due to its unforeseen nature and size, exceeds the normal activities of a private operator which ENGIE Electrabel is. Therefore, the approach taken must allow for a structural alignment of the interests of both parties involved and an adequate distribution of risks and opportunities.

The pre-agreement covers two out of five operational plants in Belgium. What will happen with the other plants?

The agreement only concerns the Doel 4 and Tihange 3 units. For the other units, 2 of which have already been definitively shut down (Doel 3 on 23 September 2022 and Tihange 2 on 1 February last), the decommissioning remains as foreseen in the current



Inspections to be conducted: reactor pressure vessel Non-Destructive Testing (NDT) inspection with an In-Service Inspection Manipulator.

decommissioning scenario. The Doel 1 & 2 and Tihange 1 units will be definitively shut down in 2025.

The planned works during the post-operational phases of Doel 3 and Tihange 2, such as the evacuation of the irradiated fuel, the execution of a full system decontamination of the primary circuit, remain as planned. Preparations for the definitive shut-down of the other units are also continuing. Studies are ongoing to assess the impact of a long term operation (LTO) on the decommissioning program.

What was the rationale of the federal government to modify its nuclear policy?

The changed energy context due to the dramatic developments in Ukraine and the increasing climate stress prompted the Belgian government coalition partners to keep nuclear energy production in the Belgian electricity generation portfolio and thus to revise the law on nuclear phase out, which already dates back to 2003.

The Belgian operating licensing context is one with operating permits for 10 years. To obtain a new

operating license for 10 years, we must demonstrate that the installation meets the evolved and applicable safety requirements. The necessary safety reassessment and possible improvements to the installations must be planned and carried out. It is only after an agreement from the federal nuclear safety authorities that a new operating license for 10 years is obtained.

The government and authorities have chosen to keep this approach.

Concerning the technical upgrades for the two plants that were agreed, what is inside the engineering package?

It must now be determined, in consensus with the safety authorities, exactly what should be included in the safety reassessments. Clear is that these will be comprehensive studies. Key topics will no doubt be

Ageing and Design Improvements. Regarding the first, all activities and deliverables will be defined necessary to demonstrate that the physical ageing and technological obsolescence effects will be adequately managed and to demonstrate that the structures, systems and components maintain their intended function and their required qualification. There where relevant, technical interventions will be defined and managed.

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Next to hardware issues, also knowledge, competences and behavior will be assessed. As for technical matters, also here all activities and deliverables to demonstrate that there is adequate management in place for competencies, knowledge and behavior will be defined and prepared. This to ensure safe operation of the plants in the long term.

As you can understand from our licensing context, ENGIE is familiar with conducting 10-year safety reassessments. We have also implemented lifetime extensions in the past (i.e. Doel 1 & 2 and Tihange 1). We have the necessary competences and expertise in-house, nevertheless combining dismantling work with lifetime extensions and operating plants will be challenging for the organization.

What will happen to Tihange 2 or Doel 3 personnel after the shutdown? Can everyone continue to work at the nuclear power plant?

ENGIE Electrabel has always been a socially responsible employer and has made significant efforts in recent years to provide clarity and concrete perspectives for the Tihange 2 and Doel 3 staff. Some employees, with a function specifically linked to units shutdown, will remain active at concerned plants in the coming years to accompany the shutdown activities. Other

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employees are in a reorientation process to another position at the sites.

This arrangement is part of the broader commitments ENGIE Electrabel made to the entire staff

of the power plant in light of the planned nuclear exit, including certain long-term employment guarantees. Now that an extension of Doel 4 and Tihange 3 is back on the table, we need to reassess and that will take time. In any case, if the extension of both units is finally confirmed – which is what we are fully working toward with the government – it will be good news for job retention at the nuclear power plants.

Autor



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Nicolas Wendler has been Head of Press and Politics at KernD since August 2013 (Nuclear Technology Germany e. V. / German Atomic Forum e. V.) and started his career in March 2010 as Policy officer. Previously he was an international consultant for the international relations of the Young Union (Junge Union) of Germany among other topics of energy, climate and economic policy for the organization. Since January 2022 he is also the editor in chief at atw. Wendler studied in Munich and Bordeaux political science and economics and (North) American cultural history.

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