



A Update on the Flamanville EPR: launch of reactor divergence operations

2 September 2024 – The Nuclear Safety Authority issued EDF with the divergence agreement to proceed with divergence operations on the Flamanville 3 reactor. The power plant's teams launch the activities required for the first nuclear reaction in the reactor.

After loading the reactor last May, Flamanville EPR teams carried out numerous technical tests and put the facilities into the required conditions to initiate nuclear fission.

Divergence will involve creating a stable nuclear reaction at very low power. Once completed, the reactor will be at 0.2% of its rated power.

A test programme to achieve a power level of 25% will be implemented. Once at this level, the Flamanville EPR will be connected to the national electricity grid for the first time and will generate electricity. This first connection is scheduled before the end of autumn 2024.

Testing will continue throughout reactor ramp-up, which will be carried out in successive stages over several months.

Divergence: how is a chain reaction initiated?



Educational video available only in French

The boron¹ in the primary system's water and the reactor's control² rods absorb the neutrons from the nuclear fuel (uranium) present in the reactor vessel. Divergence will be achieved by reducing the boron concentration in the primary system's water, then gradually lifting the reactor core's control rods. When neutron production is higher than absorption, divergence will be achieved and the chain³ reaction will start. The chain reaction's intensity and thus the reactor's power will be controlled by the control rods and the boron.

¹ Boron is an element which can absorb neutrons produced by nuclear reactions.

² The control rods are made of materials that absorb neutrons.

³ A neutron is projected onto the nucleus of a uranium atom. When it breaks, it releases several neutrons which in turn are projected onto other nuclei (see motion design). This is the chain reaction that produces heat in the reactor.

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(1) see [EDF URD 2023](#), sections 1.2.3, 1.3.2, and 3.1

(2) Customers are counted per delivery site. A customer may have two delivery points.

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