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## **Flamanville EPR: EDF has adopted a scenario for upgrading the main secondary system penetration welds with robots and has adjusted the construction schedule and estimated cost accordingly<sup>(1)</sup>. The second hot functional test phase has started on site.**

In the letter of 19 June 2019, the Nuclear Safety Authority (ASN) asked EDF to repair the eight containment penetration welds for Flamanville EPR, not compliant with the break preclusion principle<sup>(2)</sup>. Within this framework, EDF has assessed three repair scenarios.

This work resulted in discussions with the ASN, who sent EDF a letter on 4 October concerning technical feasibility of these three scenarios.

The penetration weld rework scenario preferred by EDF is the use of remote-operated robots, designed to conduct high precision operations inside the piping concerned. This technology has been developed for nuclear power plants in operation and shall be qualified for penetration weld rework. The aim is to qualify this scenario with validation by the ASN by the end of 2020, date on which EDF will be able to initiate the repair works. The second scenario, based on extraction and realignment works in the Safeguard Auxiliary Buildings, is kept at this stage as a fall-back solution.

Based on this penetration weld repair strategy, the EDF Board of Directors approved continuation of the Flamanville EPR construction at a meeting held on the 8<sup>th</sup> of October 2019.

Within this context, the Group has had to adjust the schedule and the estimated construction cost <sup>(1)</sup> for Flamanville EPR accordingly <sup>(3)</sup>.

The provisional schedule for implementation of the preferred penetration weld repair scenario, if the target for validation by the ASN is complied with, results in the date of fuel loading at the end 2022 and reassessment of the construction cost at 12.4 billion Euros <sup>(1)</sup>, representing an increase of 1.5 billion Euros. These additional costs will be presented mainly as other income and expenses<sup>(4)</sup> and not as CAPEX.

In addition, due to postponement of the date of fuel loading, no revenue that should have been deducted from net investments<sup>(5)</sup> will be generated by the plant during test phase in 2020. In this context, the Group has adjusted its net total investment target <sup>(6)</sup> to around 15.5 billion Euros for 2020, instead of the initial target of around 15 billion Euros.

The process of realignment of the 58 welds on the secondary system with quality deviations or not in compliance with the break preclusion principle requirements defined by EDF is being continued on site.

At the same time, the second hot functional test phase was started on 21 September 2019 and will last until the end of 2019. These tests are performed on the plant in normal operating conditions.

1) In 2015 Euros and excluding interim interest

2) Break preclusion principal is a very high standard of quality going beyond the nuclear pressure equipment regulations. It involves reinforcement of the design, manufacturing and in-service monitoring requirements for certain items of equipment. This

reinforcement shall be sufficient to consider that rupture of this equipment is highly unlikely. (This standard is applied so that the consequences of rupture of this piping do not need to be completely studied for plant safety case).

3) The issue of deviation from the technical manufacturing baseline for Framatome reactor components (stress-relieving heat treatment process for the welds with electrical resistance) (see EDF press release of 18 September 2019), which concerns the four steam generators and pressuriser at Flamanville 3 EPR, is not covered in this press release.

4) IAS 16 section 22 concerning abnormal costs presented for self-constructed assets. These costs will affect 2020, 2021 and 2022. For 2020, impact on net income Group share is estimated, all things being equal, at -0.4 billion Euros, without affecting current net income.

5) IAS 16 section 17.

6) Excluding acquisitions and “2019-2020 Group disposals”

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(1)The customers were counted at the end of 2018 per delivery site; a customer can have two delivery points: one for electricity and another for gas

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EDF SA  
French societe anonyme  
With a share capital of 1 525 484 813 euros  
Registered lead office : 22-30, avenue de Wagram  
75382 Paris cedex 08  
552 081 317 R.C.S. Paris

[www.edf.fr](http://www.edf.fr)

## CONTACTS

Press: +33 (0) 1 40 42 46 37

Analysts and Investors: +33 (0) 1 40 42 40 38