French NPPs’  
4th Periodic Safety Review 
LTO Perspectives

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Deputy Director of the Nuclear Power Plant Department
- **Standardized fleet:**
  - 58 PWRs (+1)
  - 1 vendor
  - 1 licensee

- **1979 → 1990:**
  ¾th of the fleet built

- **Fleet age:**
  - **French fleet average age**
    - 33 years (1st criticality)
    - 31 years (connection to the grid)

  - **NPP average age** (1st criticality)
    - 900 MWe: 34 reactors → 36 years
    - 1300 MWe: 20 reactors → 30 years
    - 1450 MWe: 4 reactors → 20 years

  - Oldest reactor: 40 years old
No predetermined time limit for the French nuclear installations

- The operator is responsible for the safety of its installation (L. 593-6 of the environmental code)
- *If serious and immediate hazard: ASN can stop the installation at any time (L. 593-22)*
- A periodic safety review (PSR) required every 10 years to determine the conditions of operation for the following 10 years
Extending reactors’ lifetime beyond 40 years

10-year PSR: a two-step process

- **3 main goals:**
  - Perform a conformity check with current safety requirements
  - Check the ageing management programs
  - Improve the safety of the installation with regard to the new safety objectives: currently Gen. 3+ (EPR type) objectives.

- **A generic step** addressing generic questions relevant to a category of reactors (900MWe, 1300MWe, 1450MWe).

- **A specific review** for each reactor:
  - 3rd PSR (VD3) of 900 MWe reactors (2009-2020)
  - 3rd PSR (VD3) of 1300 MWe reactors (2015-2024)
  - 4th PSR (VD4) of 900 MWe reactors (2019-2030)
French NPPs initially designed for a 40-year operation

- EDF wishes to « extend the operation life significantly beyond 40 years »
- 10-year safety reviews ➔ continuous safety improvement, and safety level homogenisation across NPP fleet

In the coming years

- Reactor(s) to be commissioned with significant safety improvement achieved compared to reactors currently in operation (especially concerning potential radioactive releases from accidents with core melt).
The French Legal Framework
Public Information

<table>
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<tr>
<th>The High Committee for Transparency and Information on Nuclear Security (HCTISN)</th>
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<td>The Local Information Committees (CLI)</td>
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<td>The Nuclear Safety Authority (ASN)</td>
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“It creates a **right to information**: any person has the right to obtain information from the public authorities, nuclear licensees, persons responsible for transport of radioactive materials or holders of such materials.

It defines **transparency** in the nuclear field: “Transparency in the nuclear field consists in the set of provisions adopted to ensure the public’s right to reliable and accessible information on nuclear security”.
Transparency and stakeholder involvement

- **Transparency**
  - All ASN’s inspection follow-up letters are published on [www.asn.fr](http://www.asn.fr)
  - Publication of all ASN resolutions and preparatory documents (opinions and recommendations of its Expert Advisory Committees)
  - All results of environmental monitoring published on [www.mesure-radioactivite.fr](http://www.mesure-radioactivite.fr)

- **Stakeholder involvement** in decision-making process
  - Public debates prior to major projects (e.g. Flamanville EPR, CIGEO)
  - Public enquiries for all nuclear installations (authorization decree, major modifications, final shutdown declaration and decommissioning)
  - Public consultation on Internet on ASN draft resolutions
    - Publication of the operator’s document, received comments + synthesis of the received comments and on the way they have been taken into account
Situation of the installation (conformity/ageing)

Directly related with continued operation

Safety re-evaluation objective

Objective defined in relation with:

- State of knowledge
- Comparison with the most recent safety standards
Assessment of the generic studies

Generic studies of the PSR

ASN opinion
ASN resolutions (generic)
(additional requirements)

Public consultation @ASN
(not mandatory)
Public meetings

3 months

NPP specific Assessment

Public enquiry

Generic program:
Conformity check
Ageing management
Safety improvements