AUTORITÉ DE SÛRETÉ NUCLÉAIRE

A REGULATORY POINT OF VIEW ON COMPLEX DISMANTLING ACTIVITIES

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ASN Commissioner

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PRESENTATION OF ASN

On behalf of the State,

ASN ensures the oversight
of **nuclear safety** and **radiation protection**

in order **to protect people and the environment**.

It informs the **public** and contributes
to enlightened **societal choices**.

ASN decides and acts with **rigour** and **discernment**:
it aim is to exercise an **oversight** that is recognised
by **citizens** and regarded **internationally**
as a benchmark for **good practice**.

ASN is the equivalent of the Japanese NRA

Regulation and control of nuclear activities

PRESENTATION OF ASN: THE COMMISSION

INDEPENDENT FROM THE GOVERMENT





Bernard DOROSZCZUK Chairman	Géraldine PINA JOMIR Commissioner	Sylvie CADET-MERCIER Commissioner	Laure TOURJANSKY Commissioner	Jean-Luc LACHAUME Commissioner
from 13 november 2018 to 12 november 2024	from 15 décember 2020 to 9 décember 2026	from 21 décember 2016 to 9 décember 2023	from 21 april 2021 to 9 décember 2023	from 21 décember 2018 to 9 décember 2026
APPOINTED BY the President of the Republic			APPOINTED BY the President of the Senate	APPOINTED BY the President of the National Assembly

PRESENTATION OF ASN: WHAT WE REGULATE AND CONTROL

Nuclear reactors :

- 58 EdF nuclear reactors in service - 19 NPPs
- 3 reactors in construction : EPR, RJH, ITER
- More than ten reactors in decommissioning

Fuel cycle facilities : fabrication, reprocessing, storage, disposal, ….

127 nuclear installations

Other nuclear activities :

- Medical instruments (circa 50 000)
- Transport (circa 1 000 000/year)
- Industry sources (circa 45 000)

French Nuclear Facilities

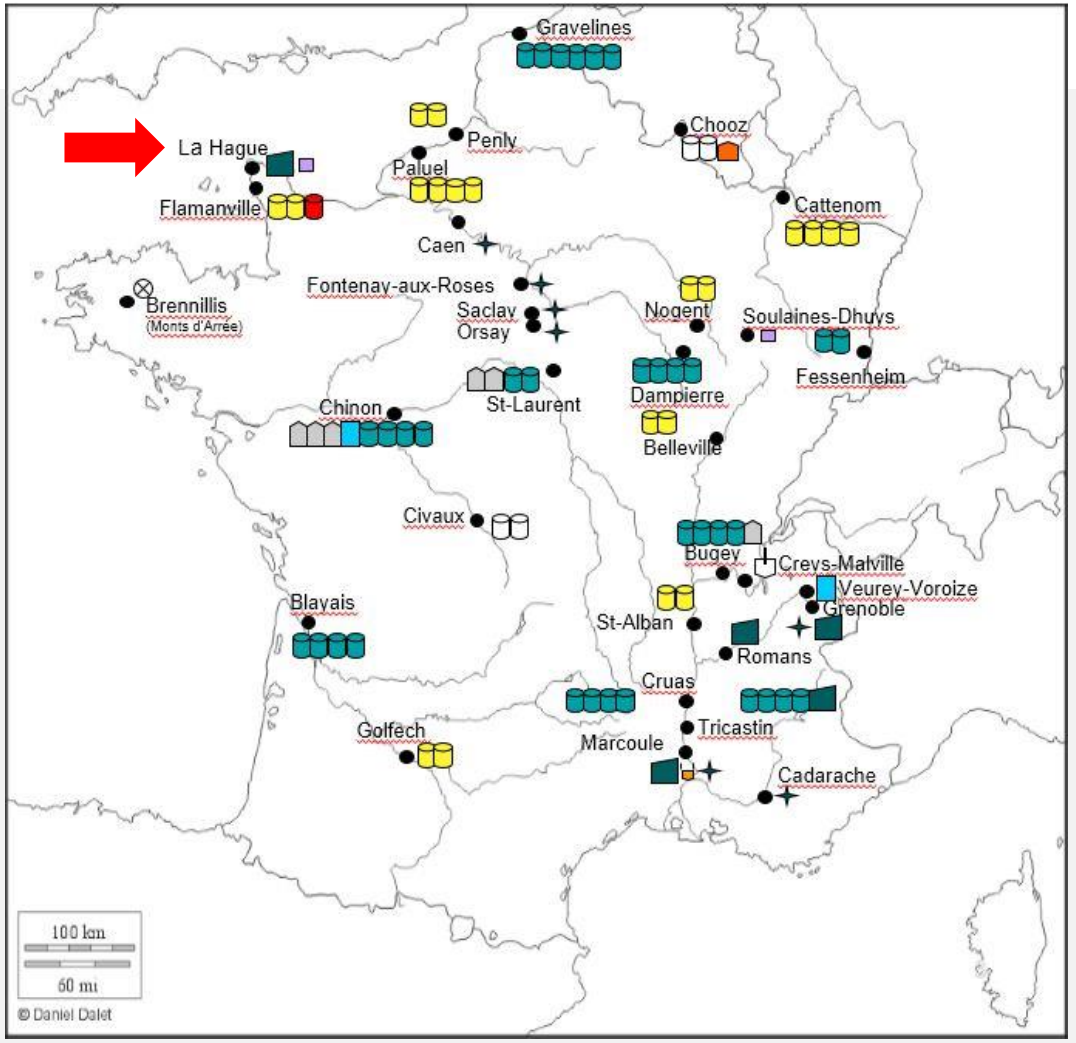
Fuel cycle
(enrichment, fabrication, reprocessing)

Waste disposal sites

Research centers

Laboratories

	58 + 1 PWR					Gas-Graphite	Heavy Water Gas Cooled	1 RNR
	300 MWe	900 MWe	1,300 MWe	1,450 MWe	1,600 MWe			
Construc.					■			
Operation		■	■	■				
Decom.	■					■	⊗	■



NPPs characteristic :

Standardized fleet of 56 (+1) PWR

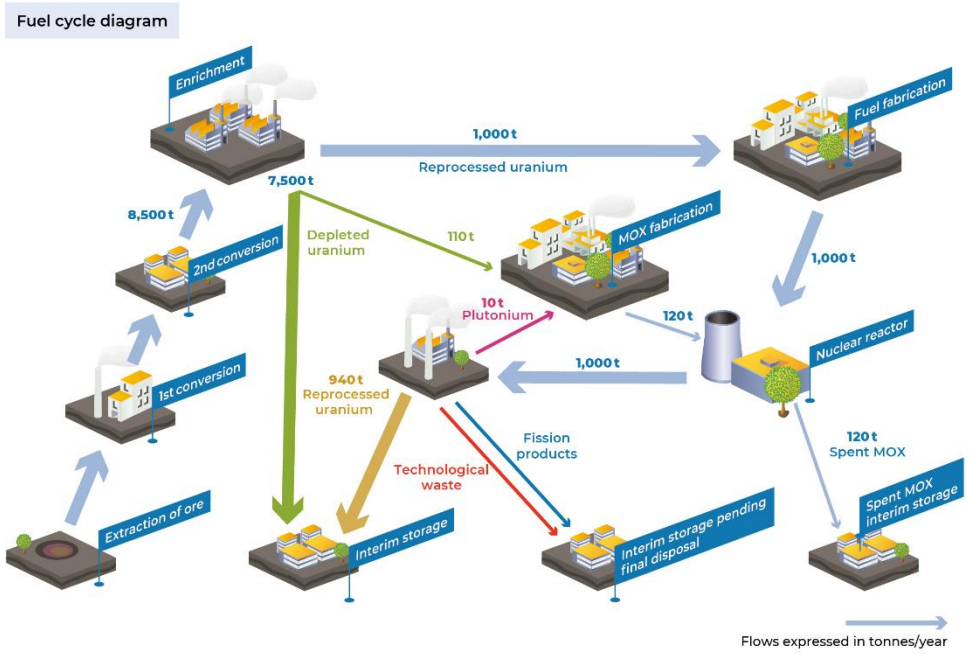
1 operator (EDF)

~72% of the electricity production

PRESENTATION OF DISMANTLING ACTIVITIES ON THE ORANO LA HAGUE SITE

The French nuclear fuel cycle

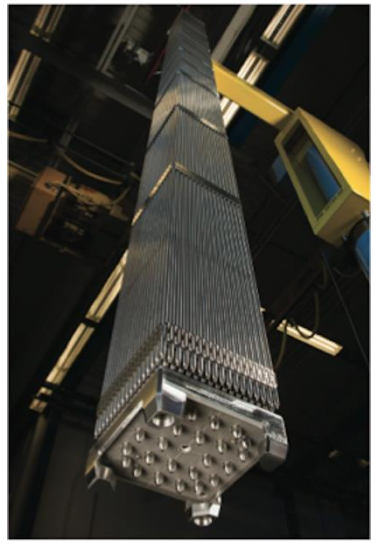
- **French Specificity: Reprocess the spent nuclear fuel in order to reduce the volume of High level long lived radioactive waste and recycle Uranium. Most of the countries intend to dispose directly the spent fuel.**



PRESENTATION OF DISMANTLING ACTIVITIES ON THE ORANO LA HAGUE SITE

About reprocessing at ORANO La Hague:

- **96 % of spent fuel is reusable : Extraction of the Uranium (95 %) to build new nuclear fuel, Plutonium (1 %) to build MOX fuel and 4 % « ultimate waste» in glass packages stable for a very long term period and intended to be sent to a final disposal facility.**



PRESENTATION OF DISMANTLING ACTIVITIES ON THE ORANO LA HAGUE SITE

The reprocessing (or recycling) ORANO La Hague site

- **A complex nuclear site:**

First operations in 1966: Today the oldest facility is in a dismantling phase

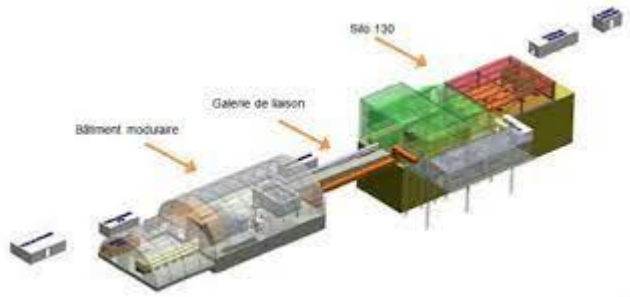
ASN'S CONCERNS REGARDING DISMANTLING ACTIVITIES

- Former facility definitively shut down in 2004. *Loss of knowledge of the operation, ageing*
- The waste generated by the first reprocessing plant was stored without treatment or packaging. *Risks of leakage, fire…*
- Decommissioning is therefore carried out concomitantly with the legacy Waste Retrieval and Packaging operations. *Complex activities in parallel*
- The retrieval operations therefore require remotely operated pick-up means, conveyor systems, sorting systems, sludge pumping and waste packaging systems. *Difficulty to assess the safety*
- The licensee must develop means and skills that involve complex engineering techniques (radiation protection, chemistry, mechanics, robotics, artificial intelligence, etc.). At present about ten projects of this type are underway in the former facilities. *Difficulty to ensure safety on a long period – delays and changes of strategies*
- Difficulty for ASN: *How to challenge the licensee and its contractors?*
- *For ASN the objective is to have a complete dismantling as soon as possible and not leave a burden to the future generations*

ASN'S CONCERNS REGARDING DISMANTLING ACTIVITIES

Example of the « Silo 130 »

- Pyrophorics (highly inflammable) radioactive waste (518 T) are stored, since 1981 in 2 pits . **Risks of fire and underground leaks**
- A new facility with robots has been developed to remove the waste before storing them safely
- It will last more than 10 years



ASN'S CONCERNS REGARDING DISMANTLING ACTIVITIES

- **Based on the fact that complex projects face always some delays and some failures damaging the safety, ASN is developping a new kind of control to encourage the operator to better manage its projects and in the end succeeds in dismantling:**
  - The idea is to challenge very early the whole project of an operator: the planning, the cost and the success in the end.
  - The methodology comes from the financial and industrial world: need for ASN to learn
  - The operator has to be very open and transparent and to give access to sensitive information
  - ASN needs the support of financial skills
  - These controls take place at the operator's headquarters

- **Experimentations in 2020 and 2021: so far, successful**

CONCLUSION

For a regulatory body, the success of dismantling complex facilities in a limited period of time is a real challenge to ensure a good level of safety

The risk is to tolerate long term situations with a low level of safety and potentially harmful for the environment

There’s the necessity to be proactive and to challenge the operator

One key for success for a Regulatory body is also the capacity of « influence »

We don’t want to leave a burden to the future generations