The Status of Decommissioning in France
Status, Recent Developments and Problems Ahead

Yves Marignac

International Consultant on Nuclear and Energy Issues, Director of **WISE-*Paris***

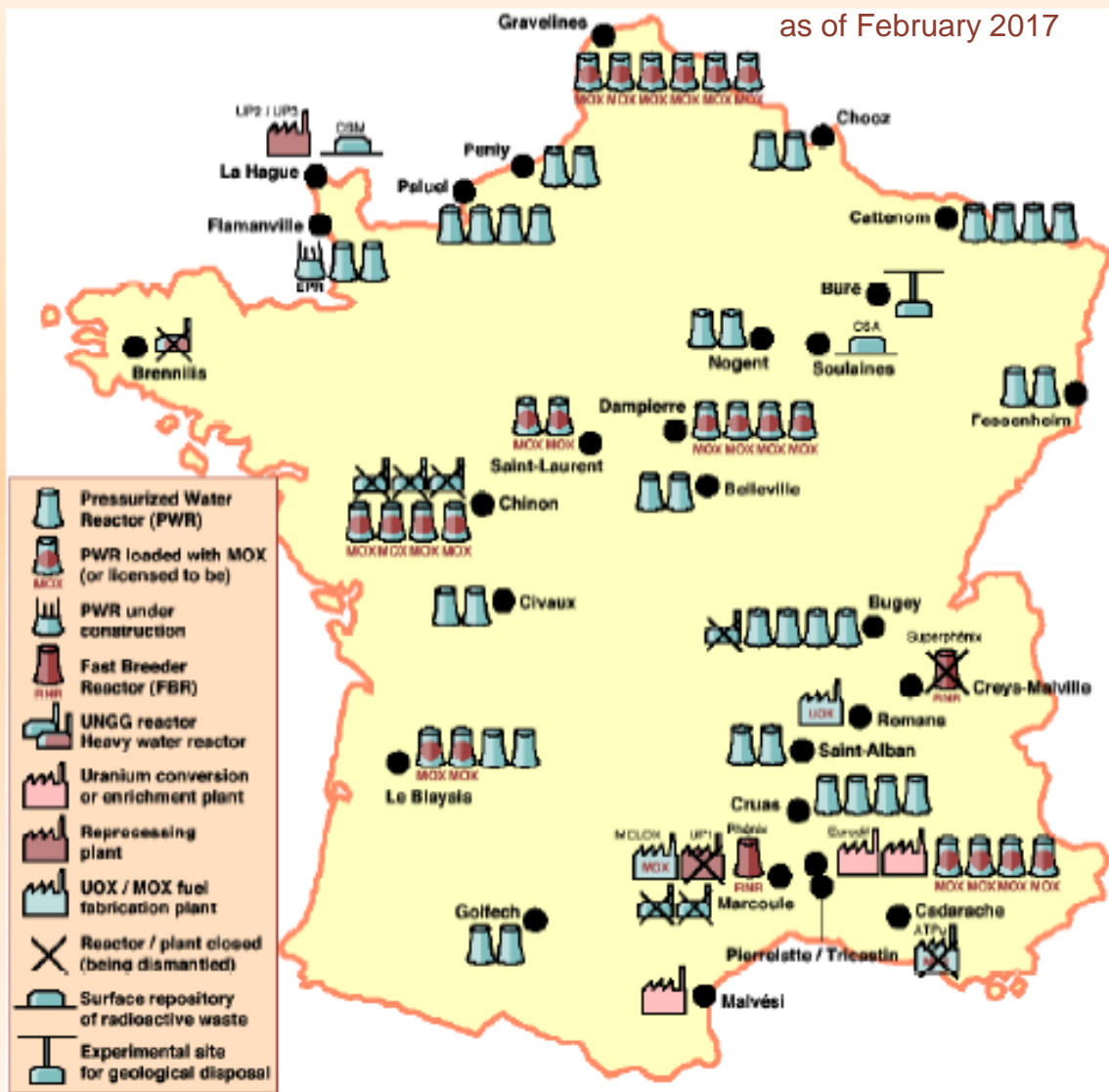yves.marignac@wise-paris.org

NTW Seminar

Decommissioning, a new challenge for nuclear safety

European Parliament, Brussels

6 February 2017

French uranium and plutonium related nuclear facilities

as of February 2017

The most "nuclearized" country in EU and the world

- **Past and current operating activities:**

  12 reactors being decommissioned

  58 operating reactors
  (and 1 under construction)

  Large fuel "cycle" facilities
  (uranium enrichment, uranium and MOX fuel fabrication, reprocessing)

  Waste storage and disposal sites

  Numerous nuclear research reactors and facilities

- **A showcase for current decommissioning status**

- **A major stake in EU decommissioning policy**

Areva: technically bankrupt

83.2% State owned

2015 results:
- Revenue €4.2bn
- Loss of €2bn (5th consecutive year)
- Debt €6.3bn

Stockmarket value down by €10bn (-95%/2011)

EDF: huge financial stress

84.5% State owned

2015 results:
- Turnover €75bn
- Debt €37.4bn

Stockmarket value down by €140bn (-85%/2007)

Huge investment needed ahead

- **A €5bn rescue plan of Areva's fuel cycle branch is prepared,** which should call for reassessing the industrial strategy

- **A €4bn capital increased is planned for EDF**

- **EDF is set to buy Areva's reactors branch for €2.5bn**
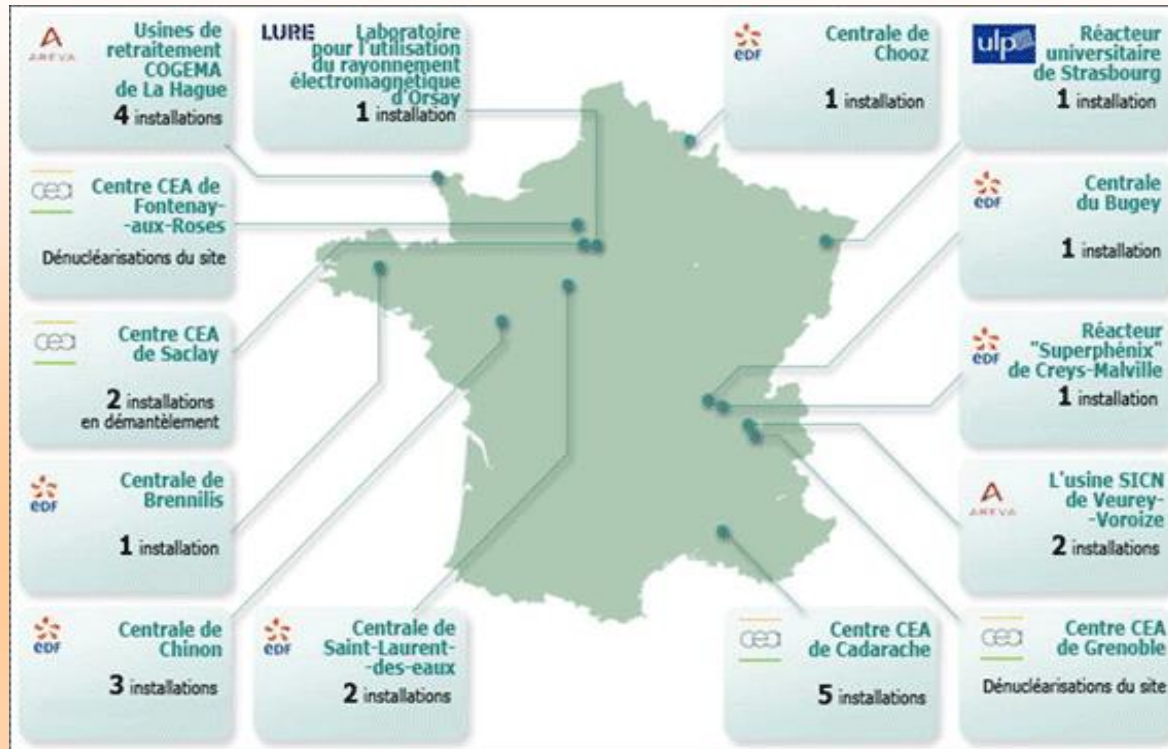
- **Liabilities related to decommissioning costs become a real issue**

- **The industry has so far failed to demonstrate "industrial capacity"** to manage decommissioning

- **Unexpected technical issues arise, specific waste management issues appear**

- **Delays and costs are far from under control**

A bitter experience…

- **Brennilis:**

  18 years operation,
  47 years for decommissioning

  2005 planned cost €482 million
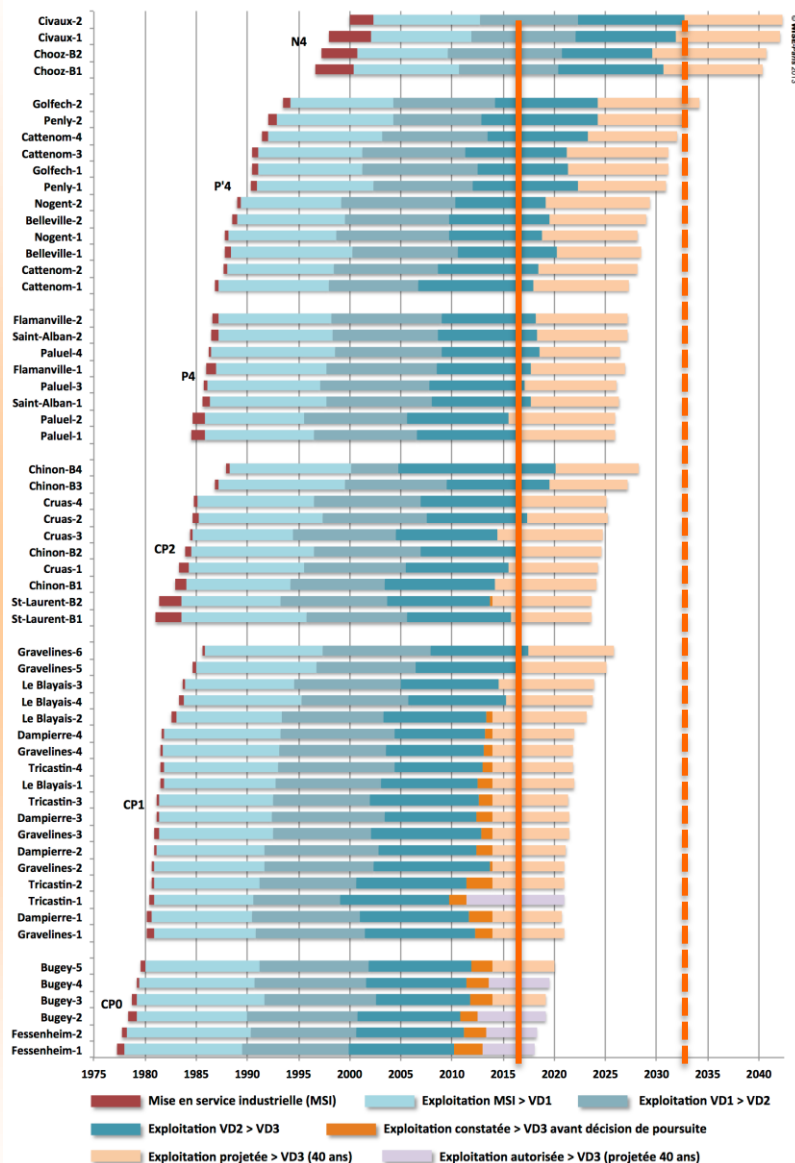 x 20 initial forecast…

- **UNGG reactors:**

  EDF unilaterally changed in 2016 the licensed strategy

  Postpones completion schedule from 2037-2041 to 2060-2100…

- **Superphénix:**

  Official cost up to €955 million

- **Reprocessing plants:**

  UP1: at least €5 billion
  UP2-400: at least €1.95 billion

- **58 operating reactors:**

  45% of operating reactors in the EU (53% of capacity)

  A "wall" of costs, whether for decommissioning or life extension investments

  EDF's cost estimates:

  - based on a 2009 detailed study for decommissioning of 4 reactors of 900 MWe

  - €309/kWe (or €278 million per reactor)

  - argues that it is low thanks to high level of standardisation of its fleet

  EDF's overall estimate of €22bn for past and existing reactors is increasingly criticized for being 2 to 3-fold too low
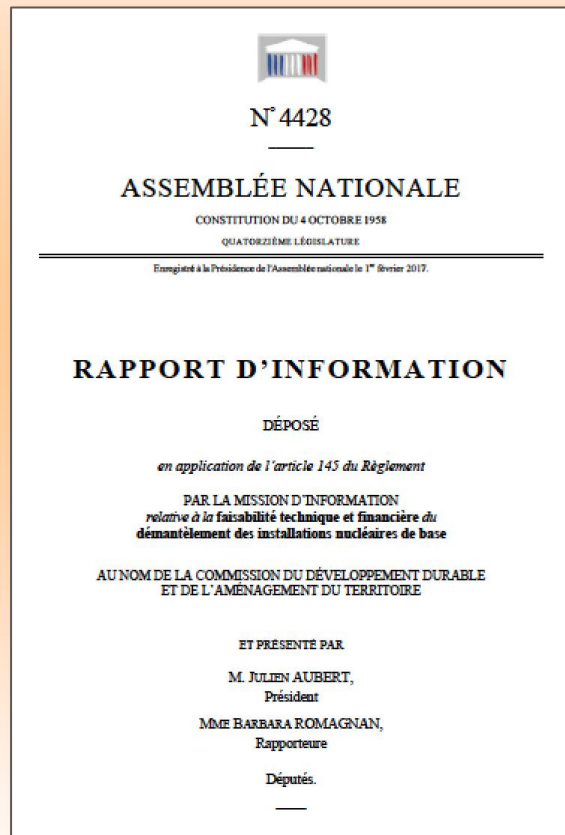
  Provision mechanisms might prove unsufficient

- **Other facilities:**

  Huge technical issues and costs can be expected with the decommissioning of ageing La Hague UP2-800 and UP3 plants

  Strong issues with nuclear research centres too

**Information Report by the National Assembly
on the technical and financial feasibility of decommissioning nuclear facilities**
1ˢᵗ February 2017

N° 4428

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CONSTITUTION DU 4 OCTOBRE 1958

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Enregistré à la Présidence de l'Assemblée nationale le 1ᵉʳ février 2017.

RAPPORT D'INFORMATION

DÉPOSÉ

en application de l'article 145 du Règlement

PAR LA MISSION D'INFORMATION
relative à la faisabilité technique et financière du
démantèlement des installations nucléaires de base

AU NOM DE LA COMMISSION DU DÉVELOPPEMENT DURABLE
ET DE L'AMÉNAGEMENT DU TERRITOIRE

ET PRÉSENTÉ PAR

M. JULIEN AUBERT,
Président

MME BARBARA ROMAGNAN,
Rapporteure

Députés.

Main conclusions:

- **Decommissioning will last longer than planned,** and the risk is high that operators try to postpone it

- **Technical uncertainty over feasibility is still high**

- **Some optimistic assumptions won't materialize,** including standard gains and EDF's replacement plans

- **EDF's provisions seem unsufficient,** with no financial security margin

Main recommendations:

- **Review and adapt decommissioning cost estimates,** including on a reactor per reactor basis

- **Establish a clear schedule for planned final shutdowns**

- **Set up for competition on decommissioning** of French facilities to accelerate implementation

Thank you for your attention

More information :

Yves Marignac, Director of **WISE**-*Paris*

E-mail: yves.marignac@wise-paris.org
Tel: +33 6 07 71 02 41
Twitter: @YvesMarignac

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