

**From milliseconds to millions of  
year**

# SOME DURATION

- 0,0001 ms is the average life time of one generation of fast neutrons,
- 0,1 ms is the average lifetime of one generation of thermal neutrons,
- Millions of year is a typical value for high level nuclear waste.

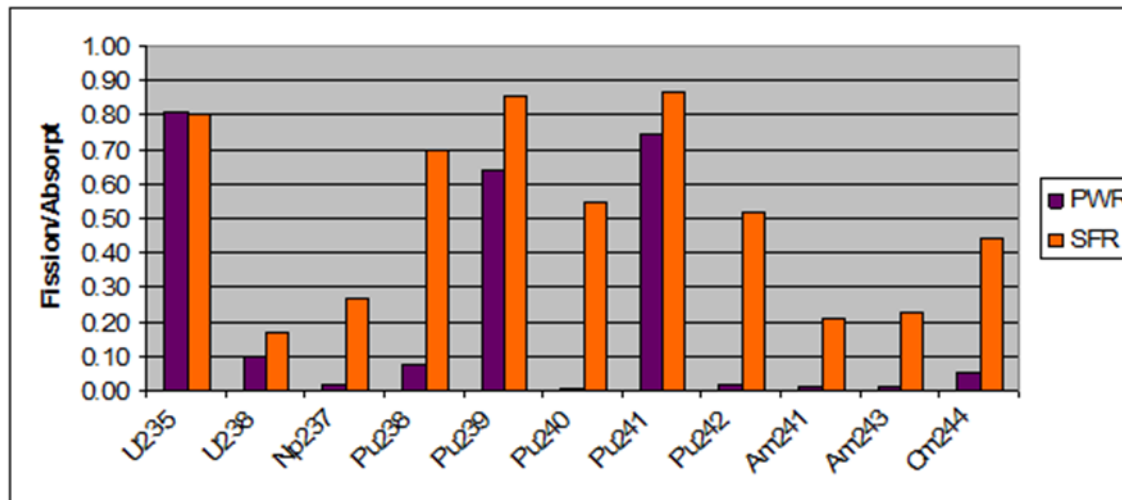
# **My subjects will be:**

- 1-Why FNR has to be deployed in a fleet?
- 2-When is it suitable to do it?

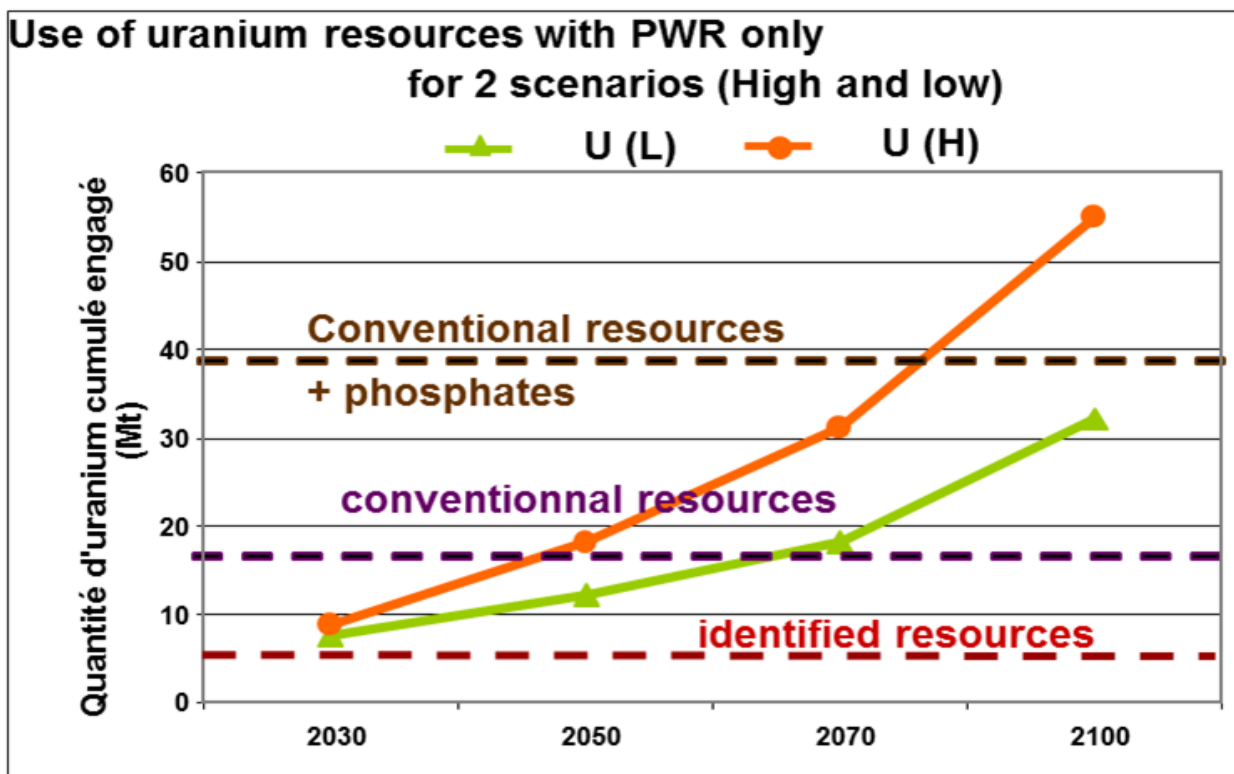
# The interest of FNR

FNR are perfectly suitable for sustainable developments of nuclear energy, for **3 main reasons**:

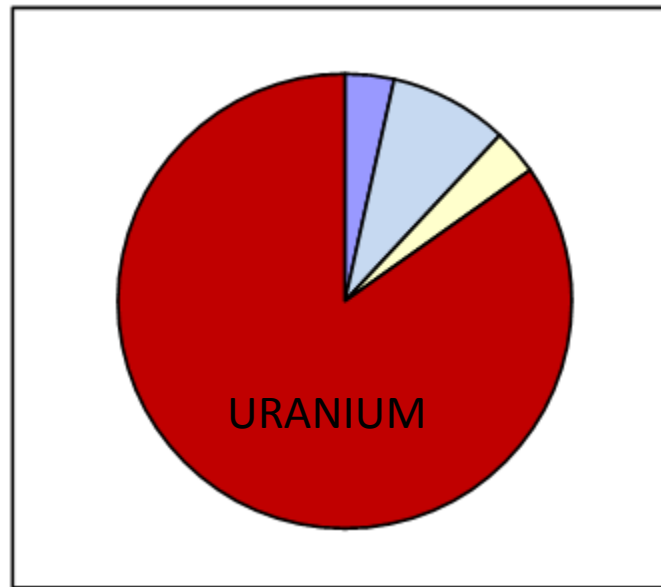
**1-They are able to burn any type of plutonium,**



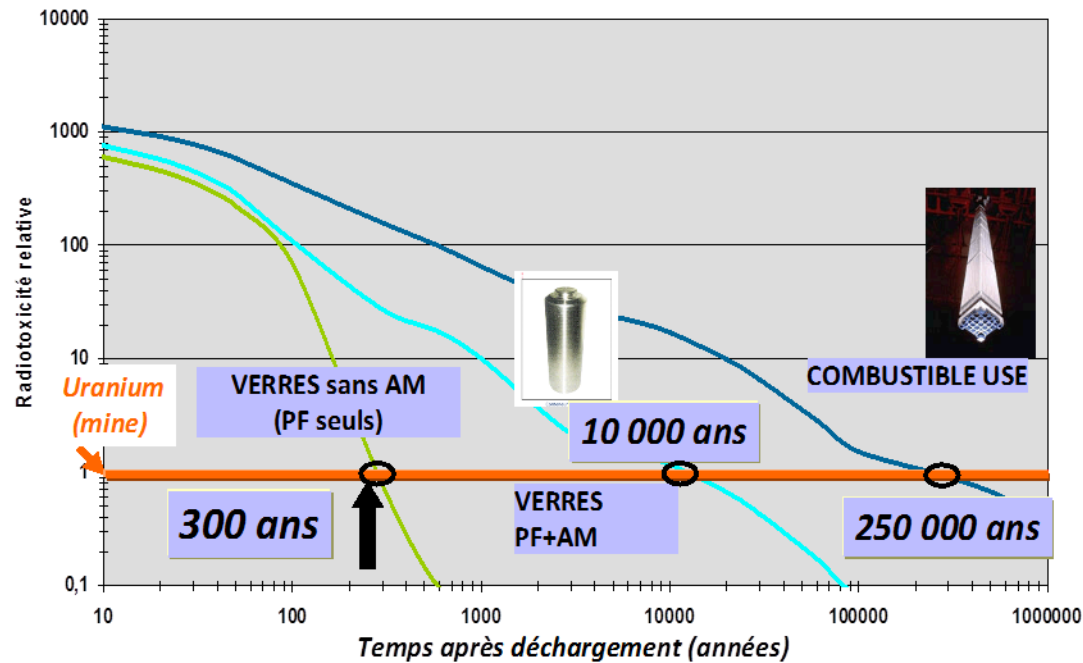
- 2-They will ,far better ,use Uranium 238 than light water reactors,



## 2-Better use of uranium 238



- 3-They are able to burn minor actinides



# What is the choice of France?

- 1-To built one FNR prototype with sodium coolant :Astrid
- 2-To study another FNR with gas coolant for longer term:Allegro



# When to deploy those reactors cooled with sodium?

2 ways to tackle this question:

1-By scenarios studies ,

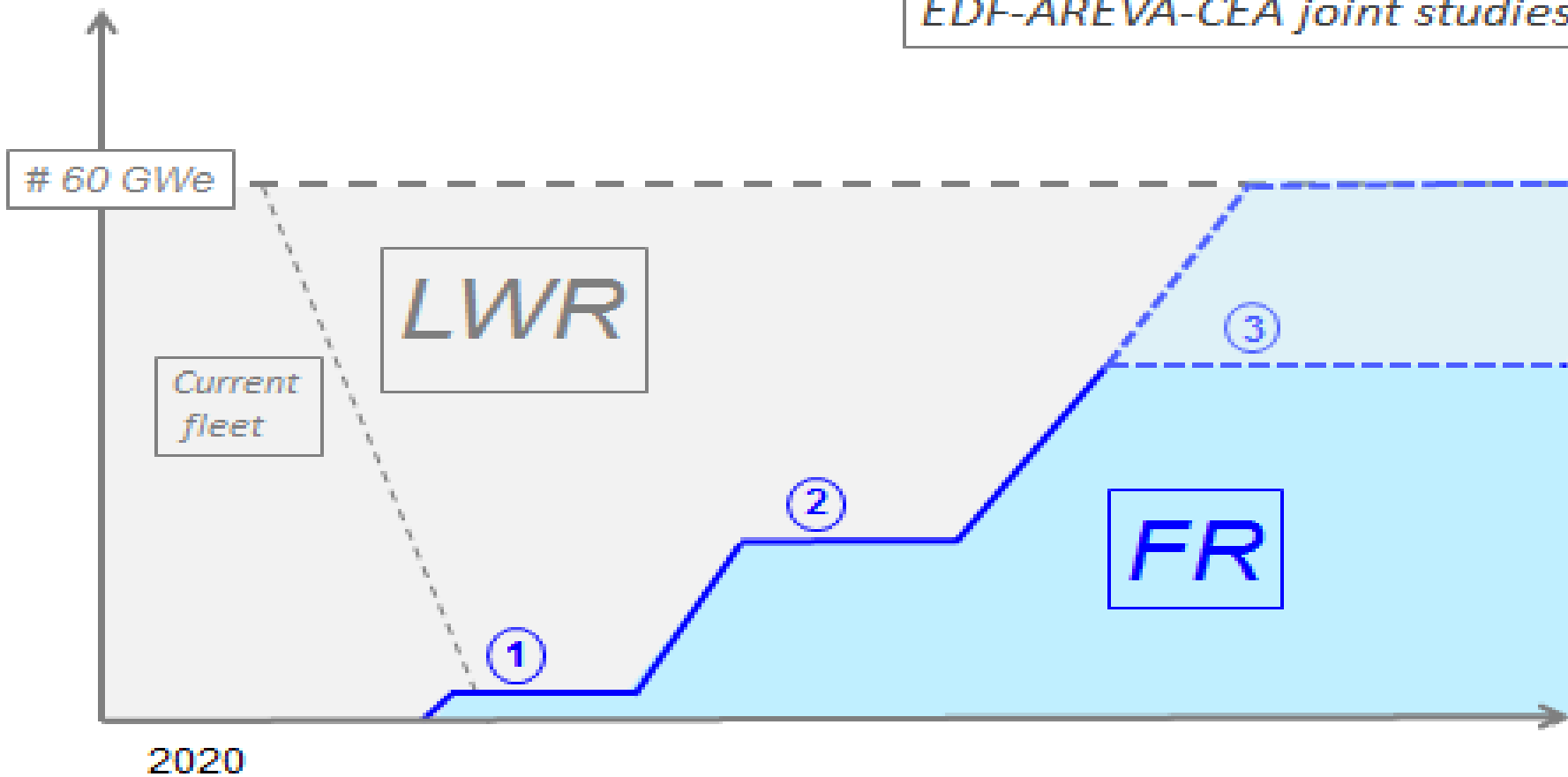
2-Just by remembering the goals of those reactors.

# Scenario studies



## FR REACTORS DEPLOYMENT: CURRENT SCENARIO STUDIES

EDF-AREVA-CEA joint studies



# Remembering the goals of these reactors

There are 2 main goals:

1-They need to produce electricity :Astrid has to show that it works.

2-They need ,at first,to demonstrate that they are able to burn all types of plutonium.

# For the planning ,it means:

