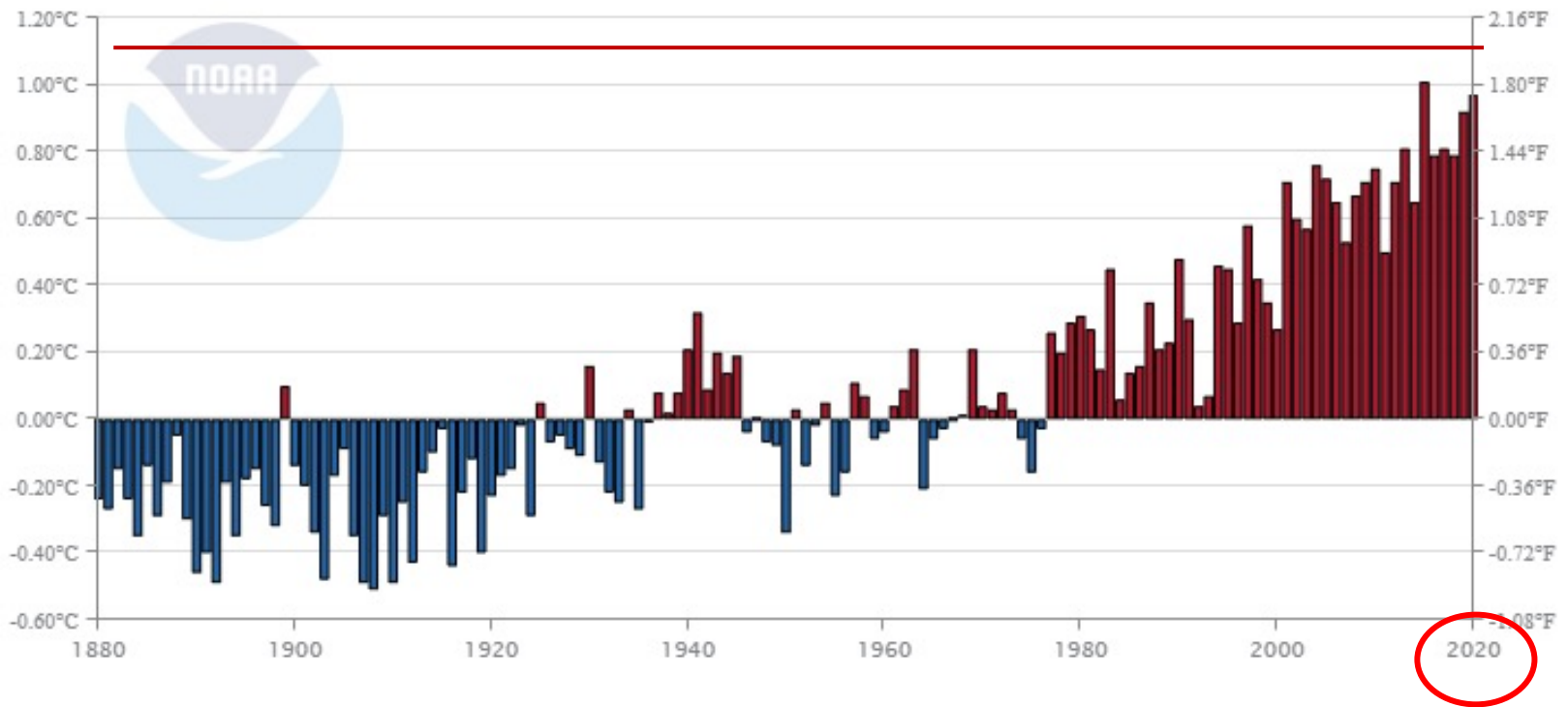


Énergie

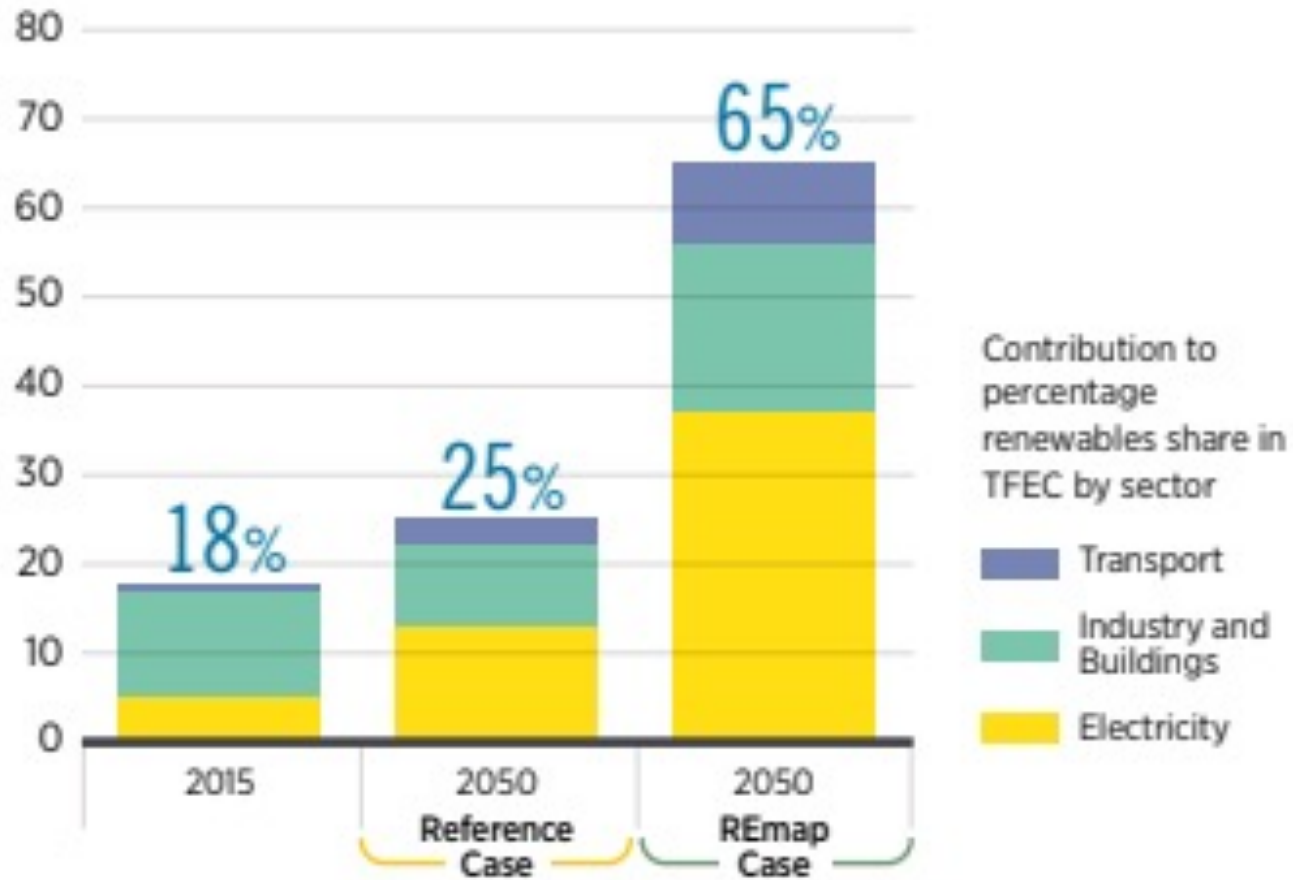
Federico Carminati

27 mars 2021

Global Land and Ocean November Temperature Anomalies



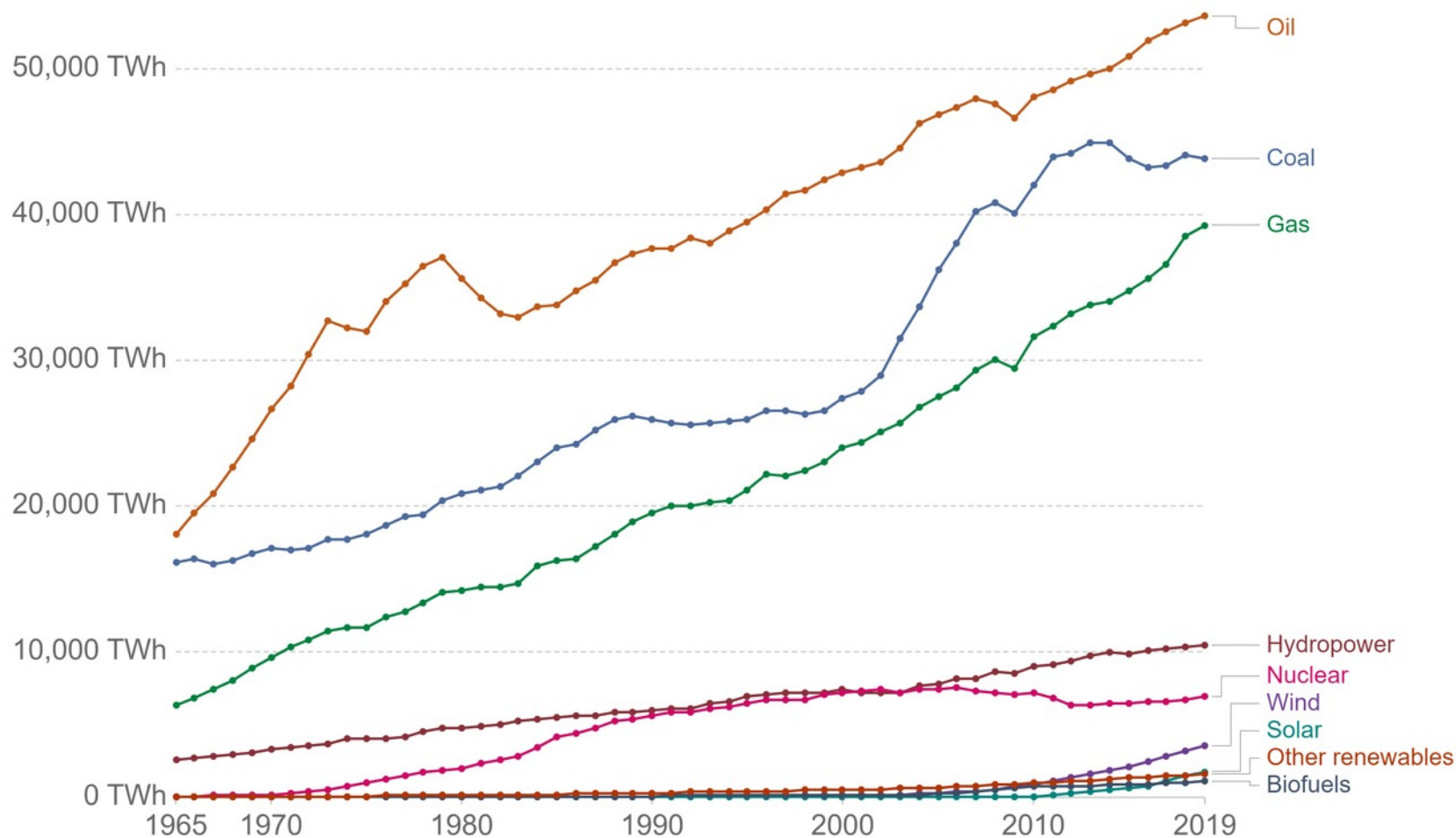
Renewables share in TFECE (%)





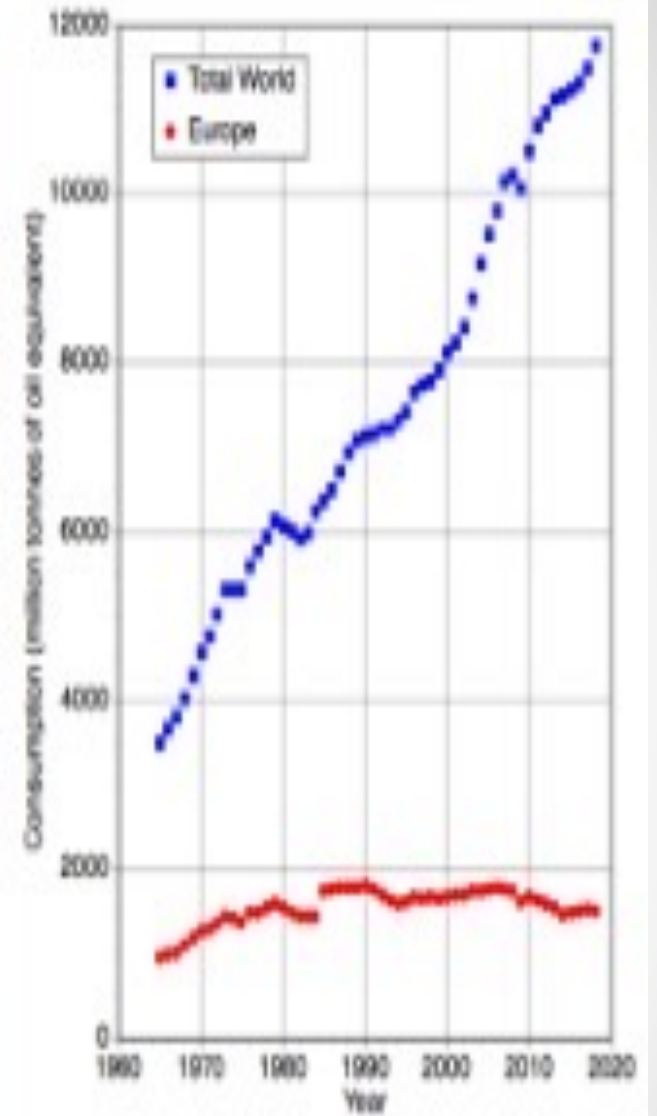
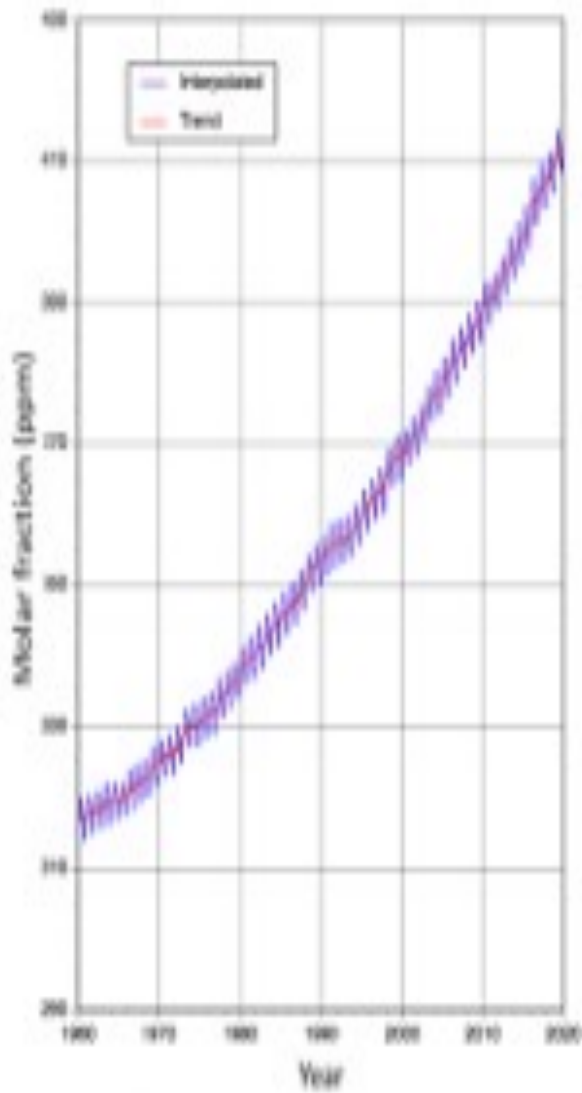
Primary energy consumption by source, World

Primary energy is shown based on the 'substitution' method which takes account of inefficiencies in energy production from fossil fuels.

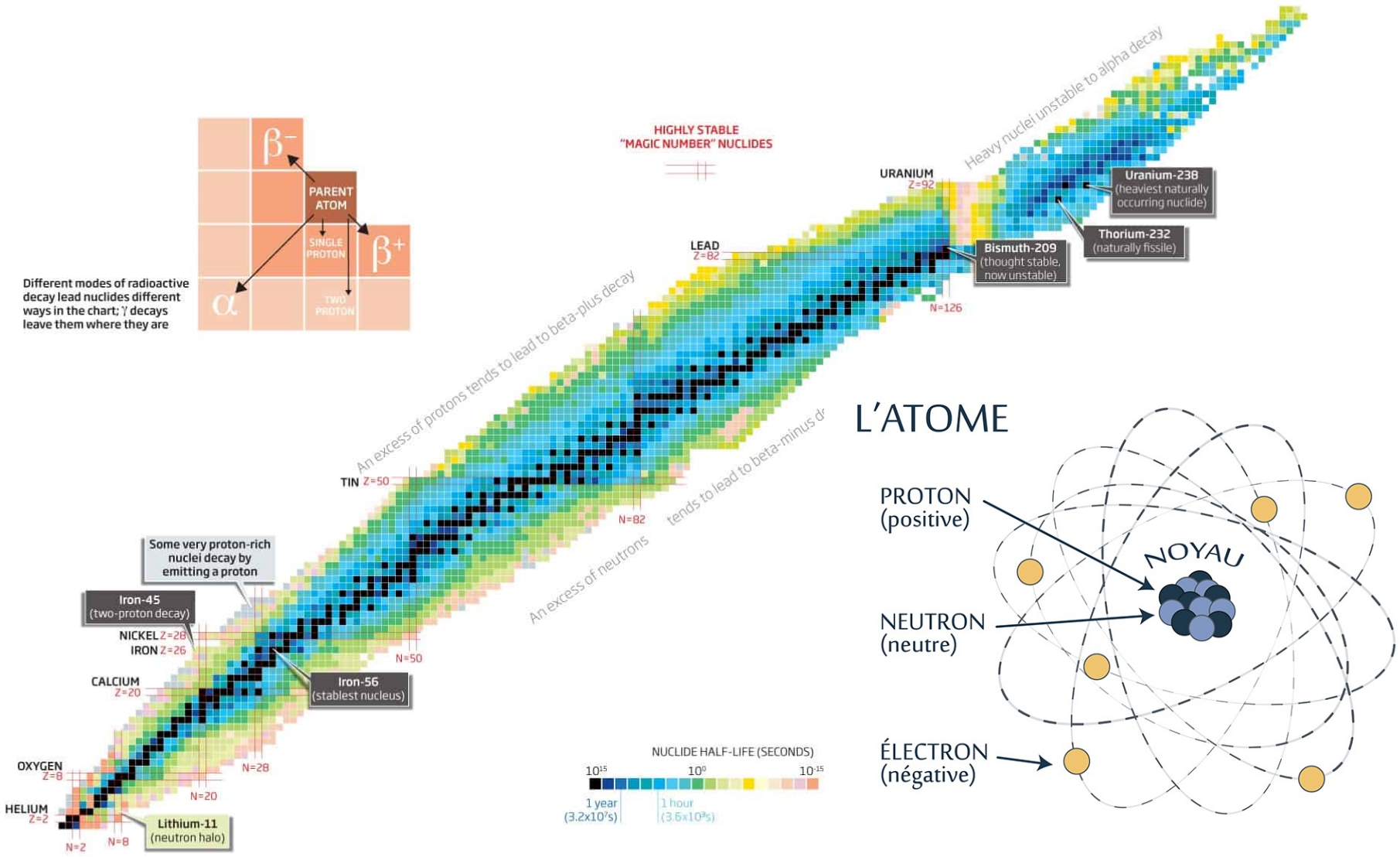
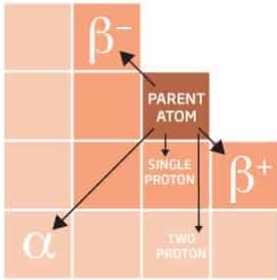


Source: Our World in Data based on BP Statistical Review of World Energy

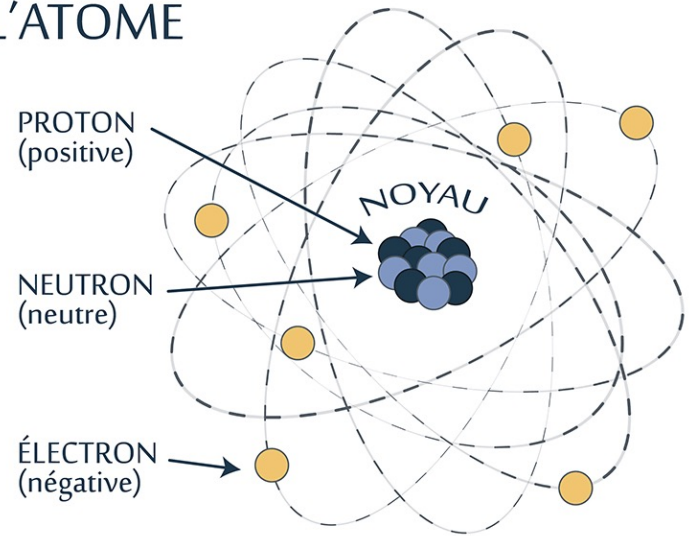
OurWorldInData.org/energy • CC BY

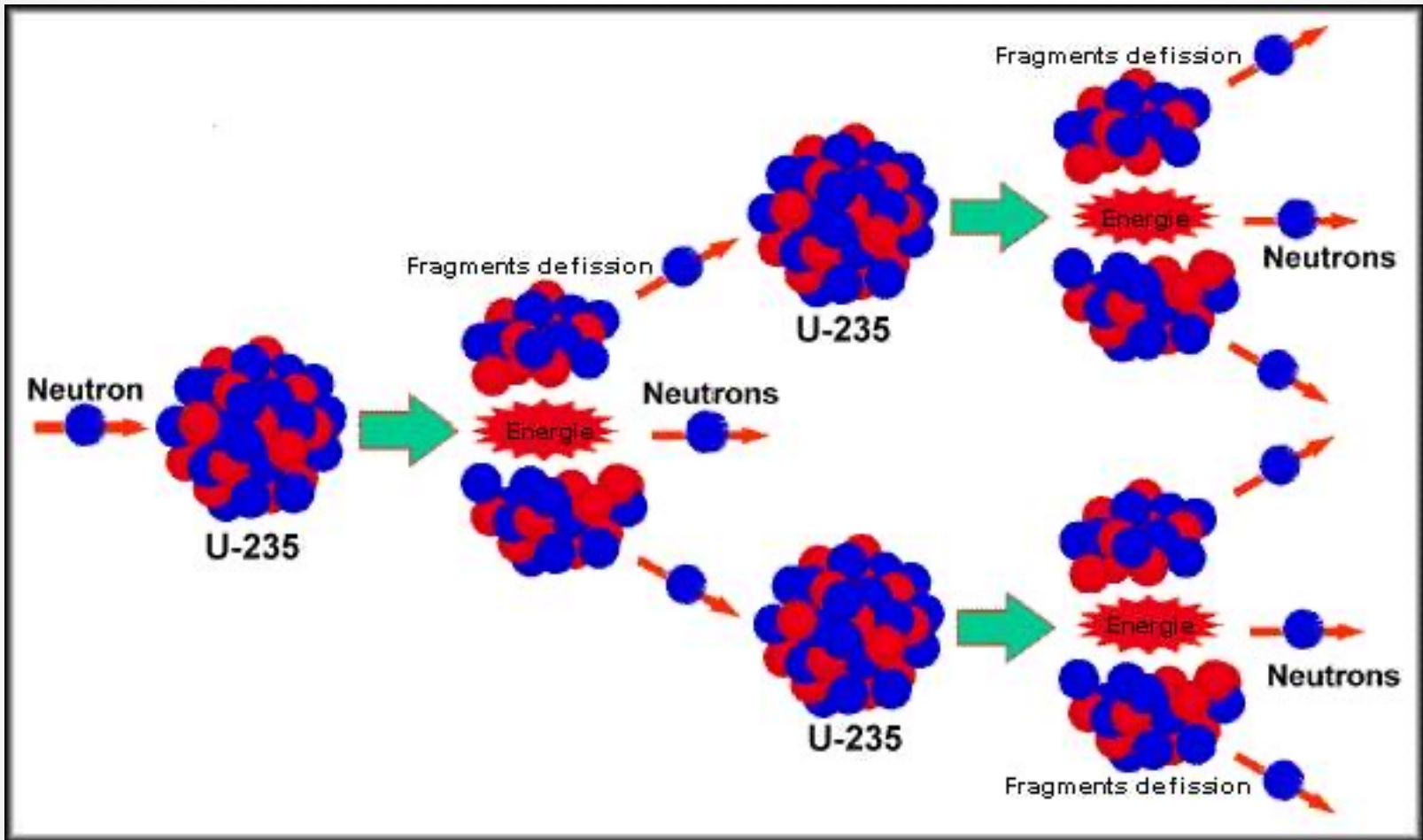


Different modes of radioactive decay lead nuclides different ways in the chart; γ decays leave them where they are



L'ATOME





**Réacteur nucléaire
(enceinte de sécurité)**



**Générateur de vapeur
(échangeur de chaleur)**

Générateur

Turbine

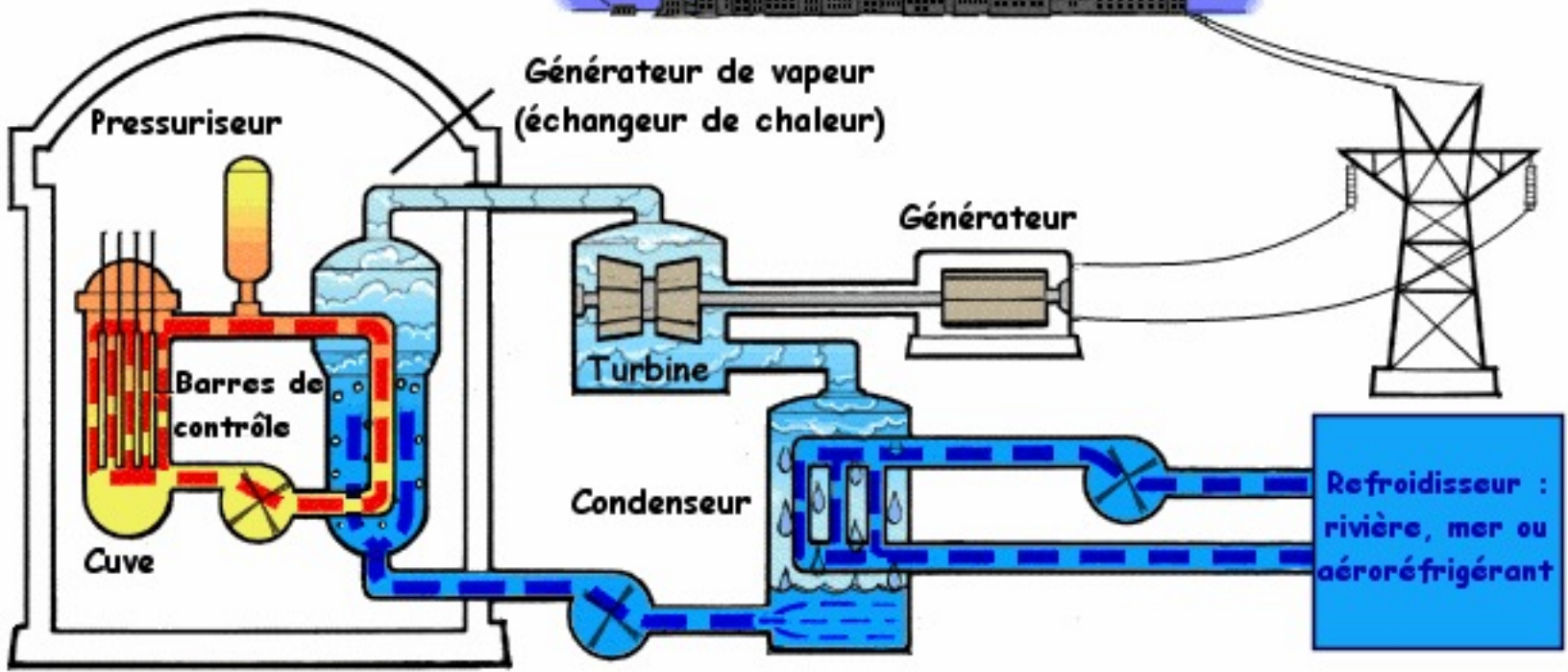
Condenseur

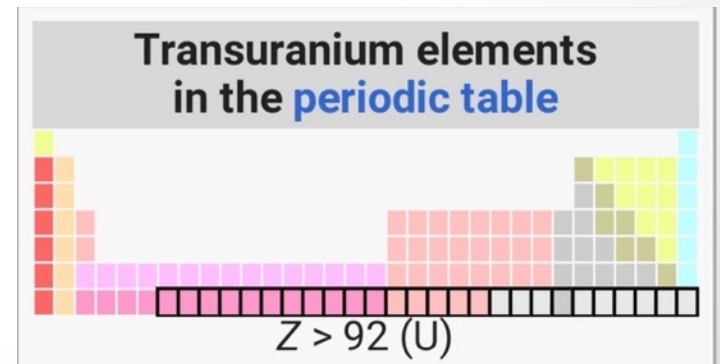
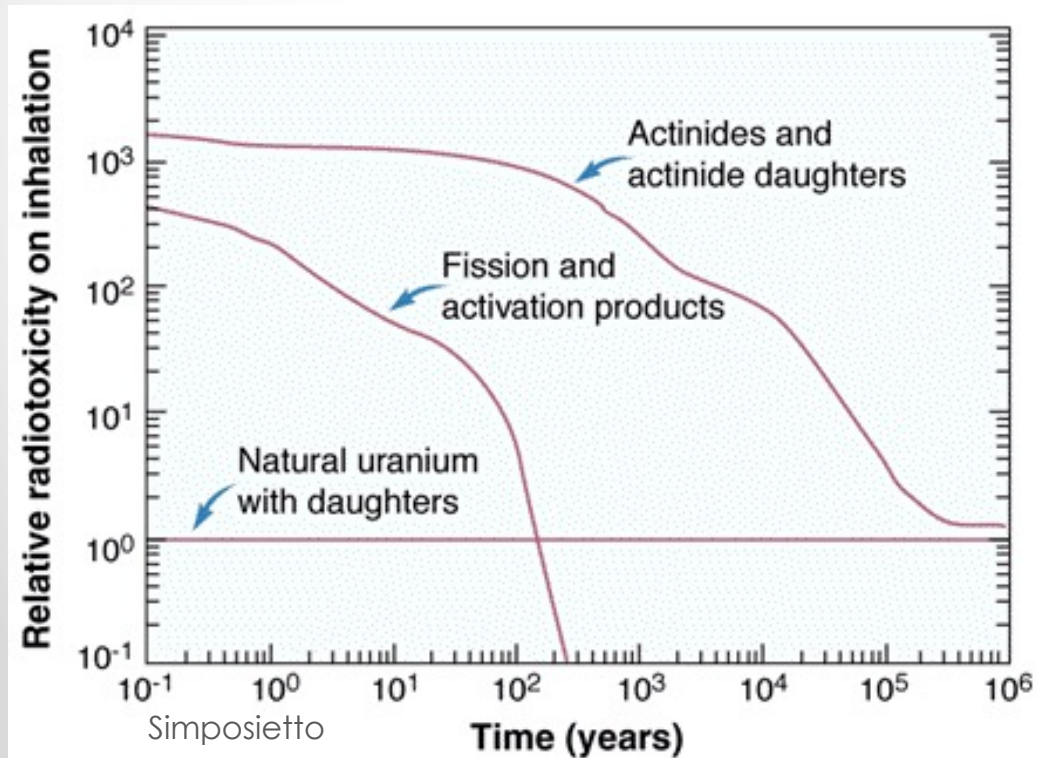
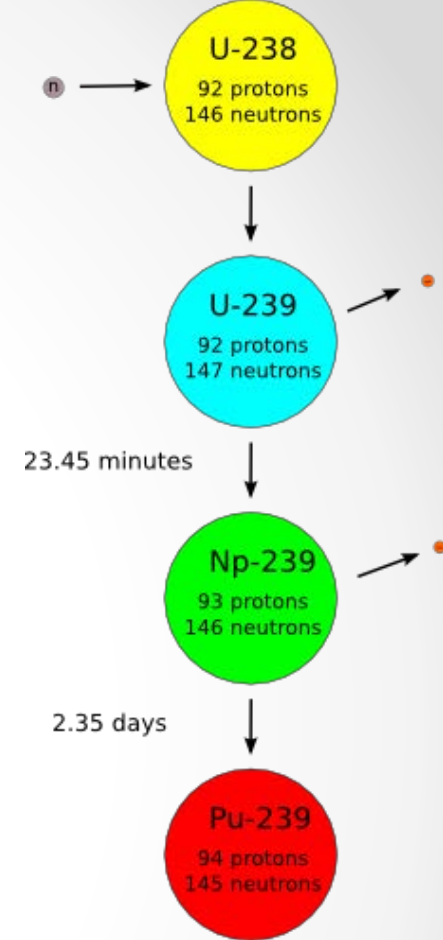
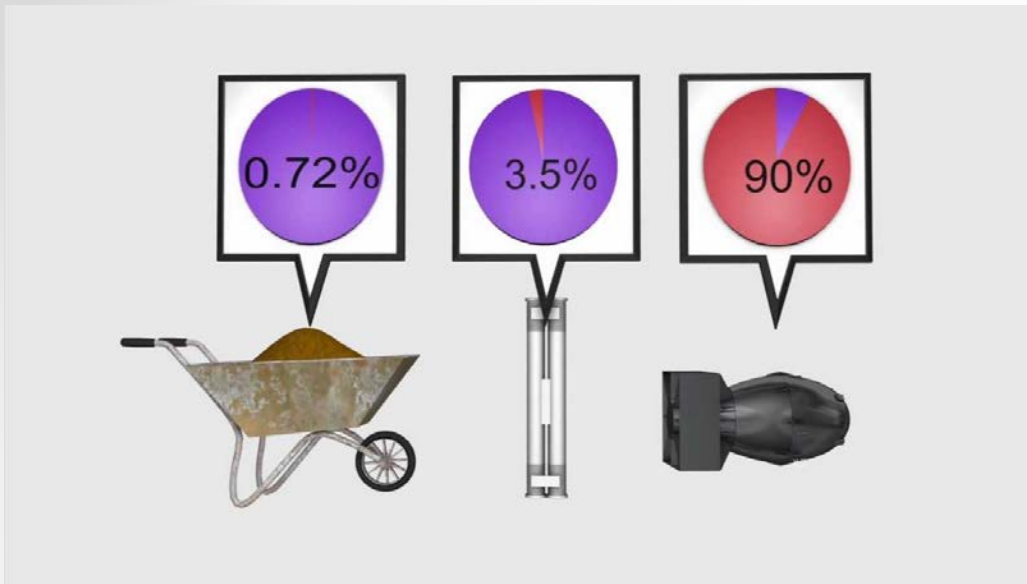
**Refroidisseur :
rivière, mer ou
aéroréfrigérant**

Pressuriseur

**Barres de
contrôle**

Cuve





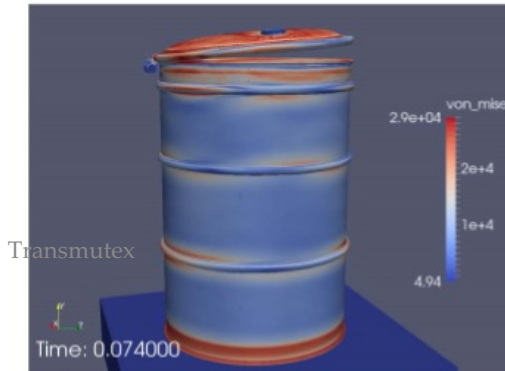
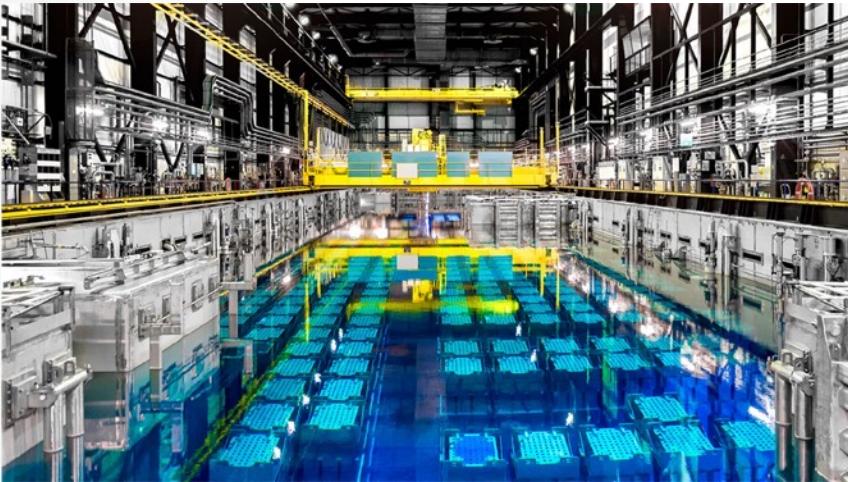


Figure 4-5. Analysis results for case with original estimate of properties and "slow" loading (left) matches observed damage seen in post-event photograph of Drum 68660 showing discoloration and lid displacement (right).



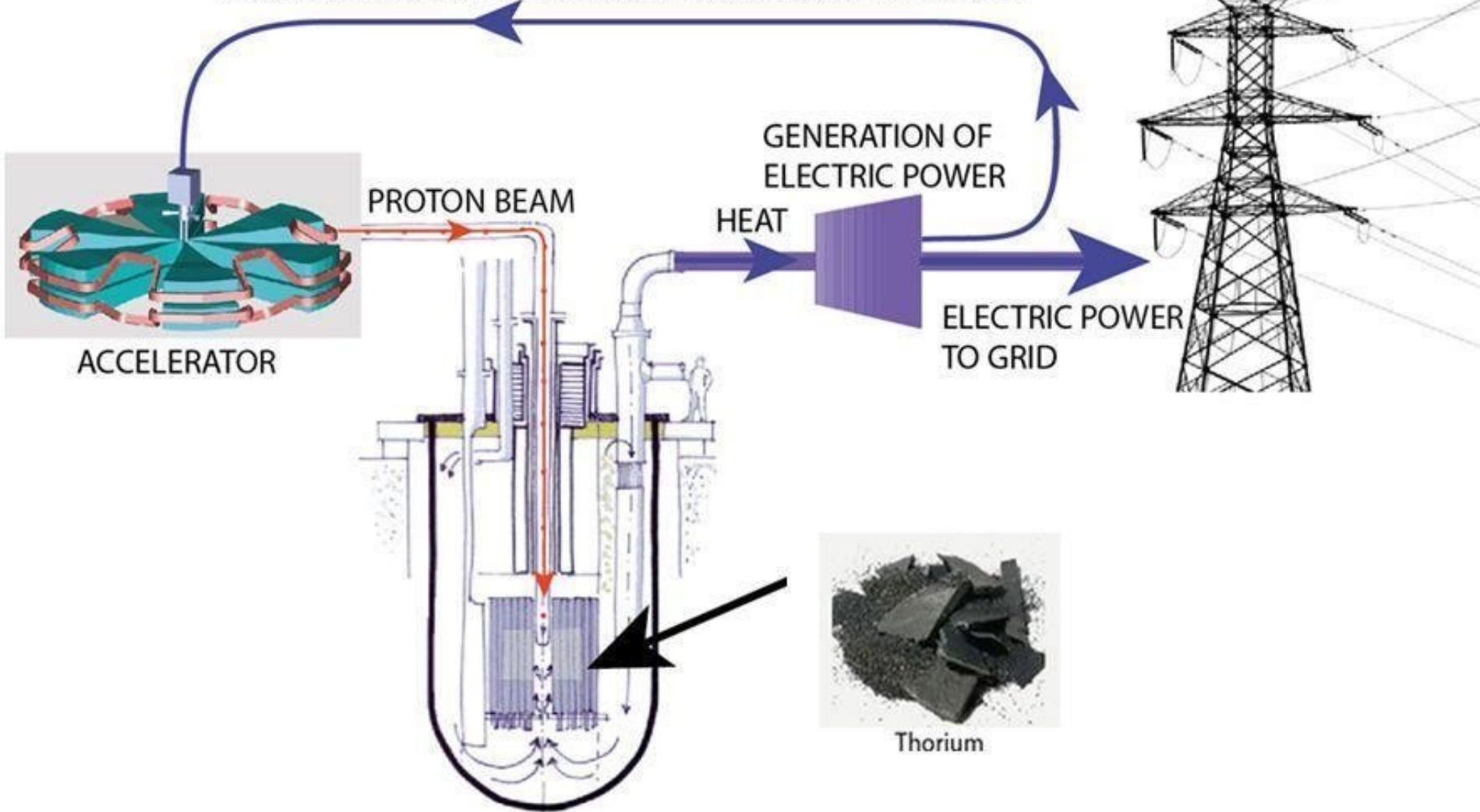


U, Pu, AM
GAM (U, Pu, MA) - GANEX

Exemple de scénario
"Système RNR Génération 4"
 mettant en œuvre une option de
 multirecyclage et transmutation
 des actinides mineurs (AM) en
 réacteur rapide,
 horizon 2035/2040



SMALL FRACTION OF ELECTRIC POWER TO ACCELERATOR



LEAD-COOLED SUBCRITICAL CORE

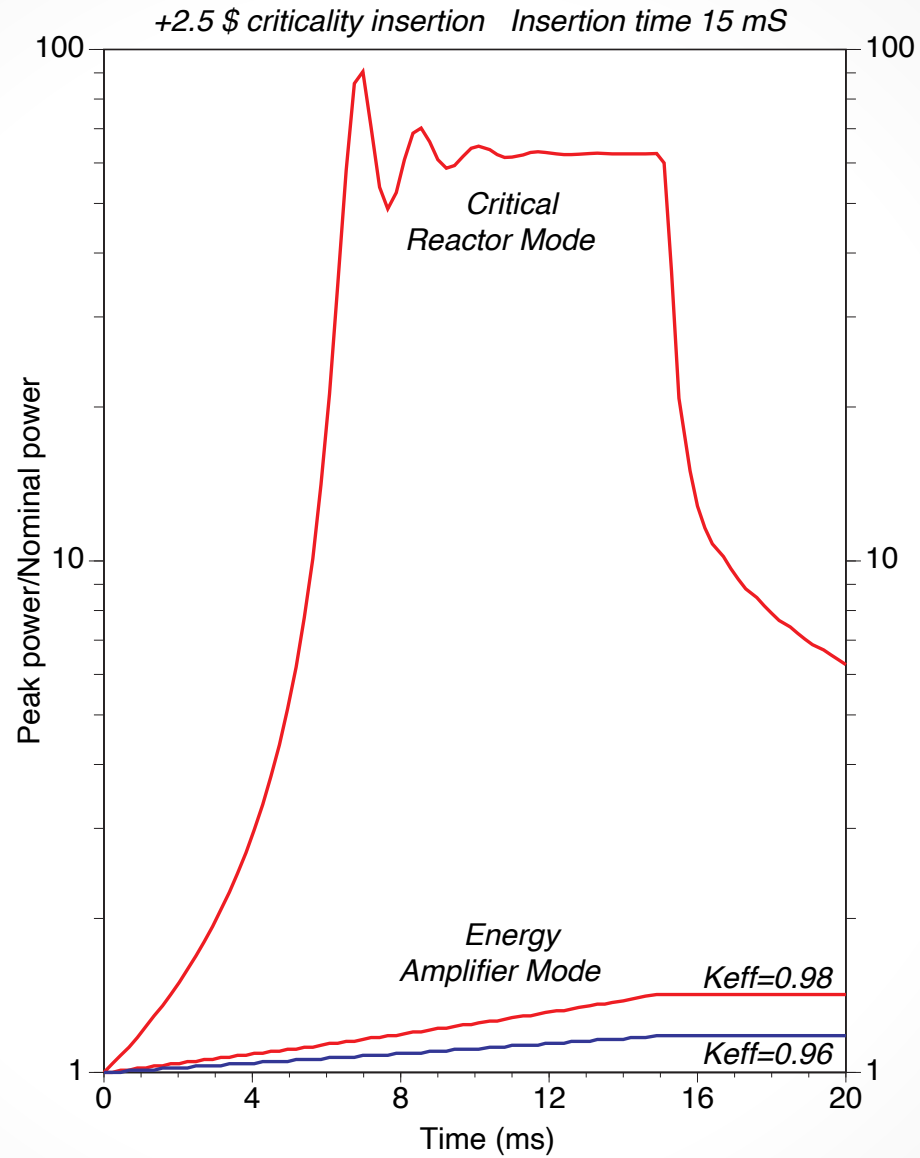
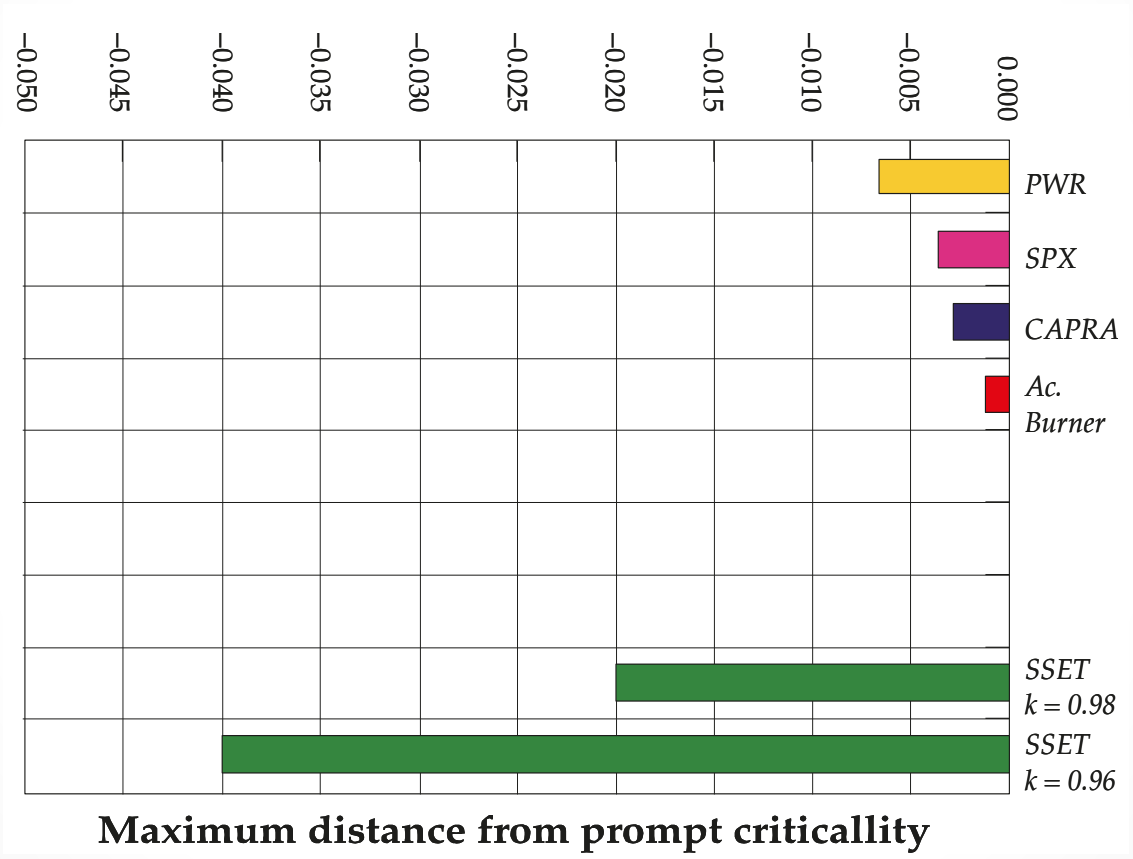
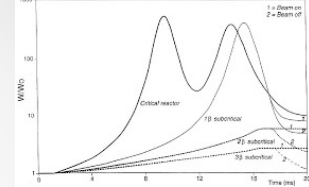
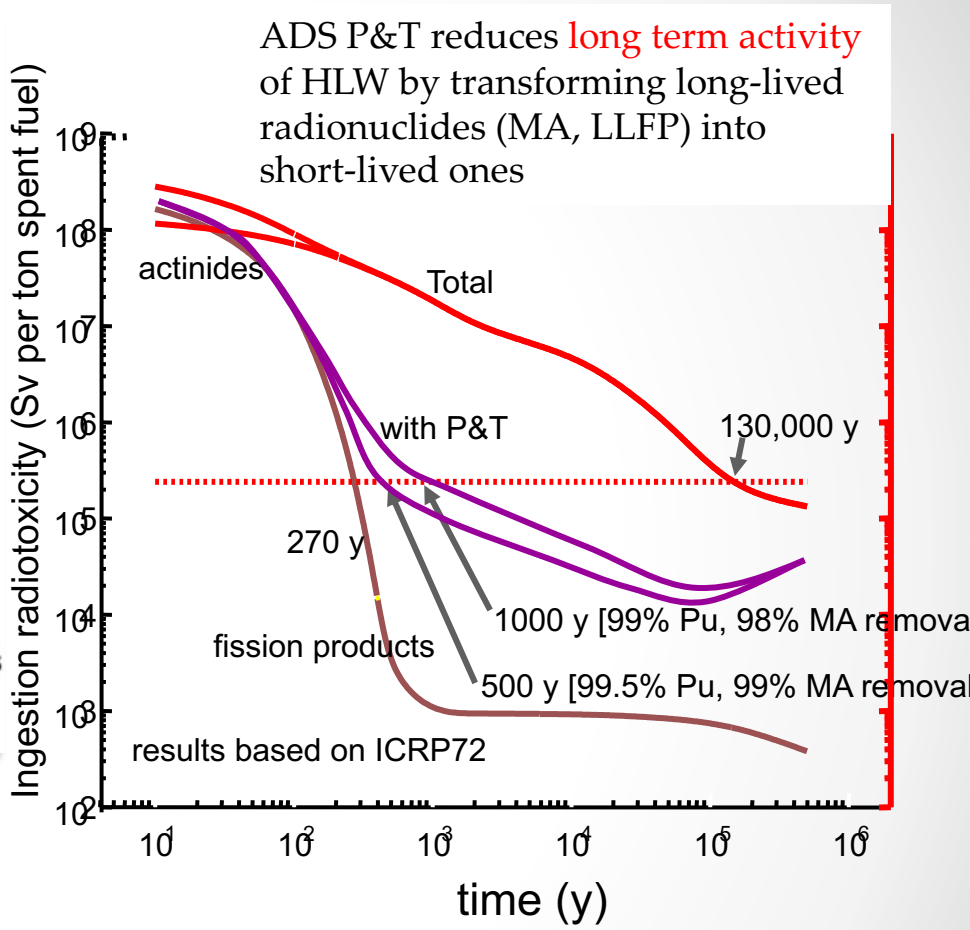
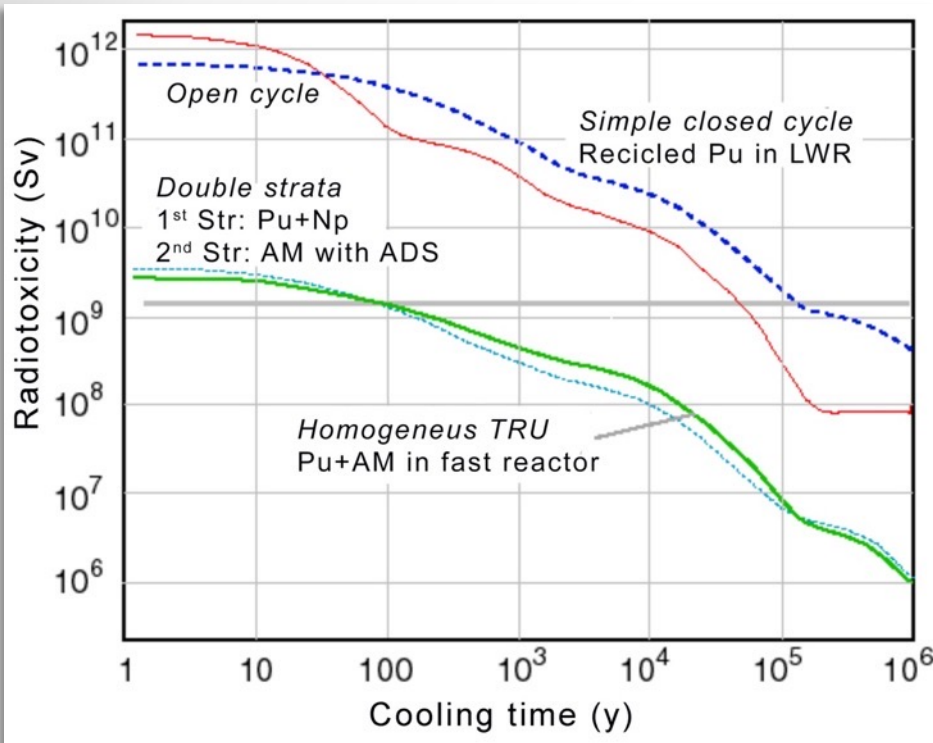
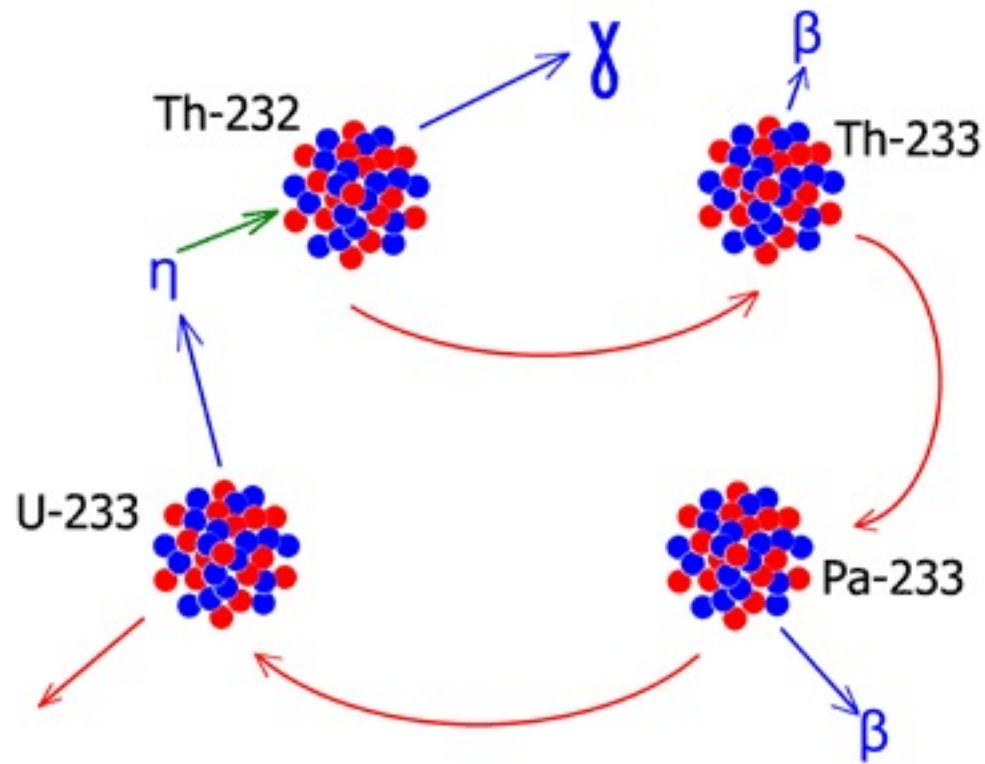


Figure 1.3



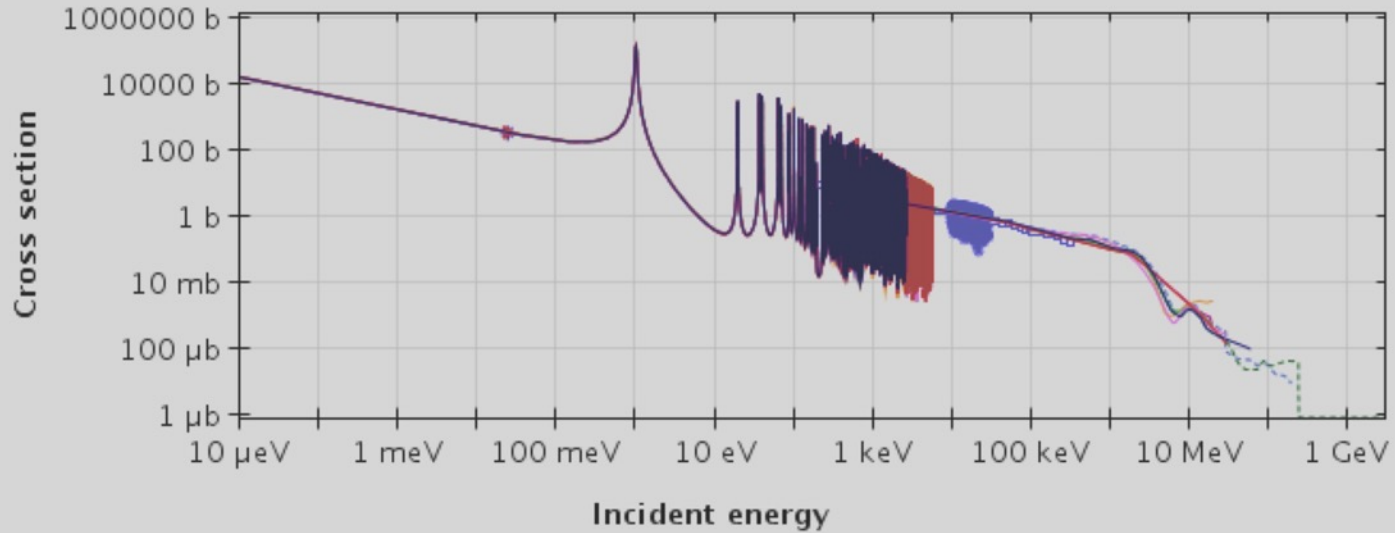


ADS P&T reduces **long term activity** of HLW by transforming long-lived radionuclides (MA, LLFP) into short-lived ones

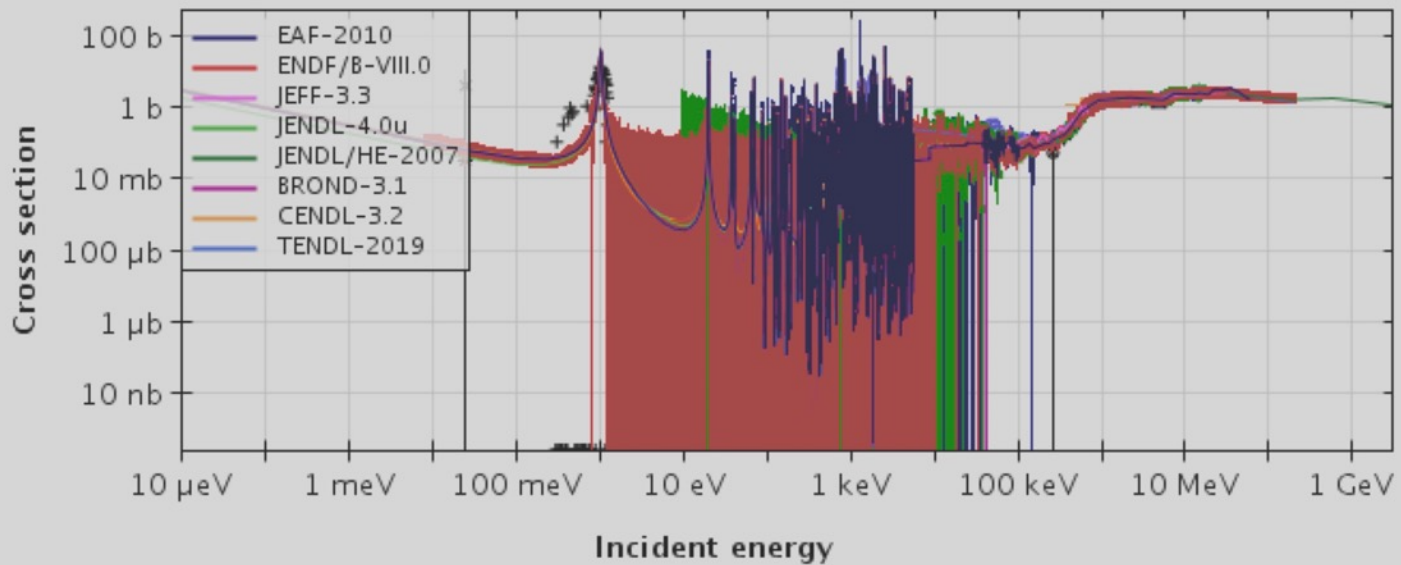


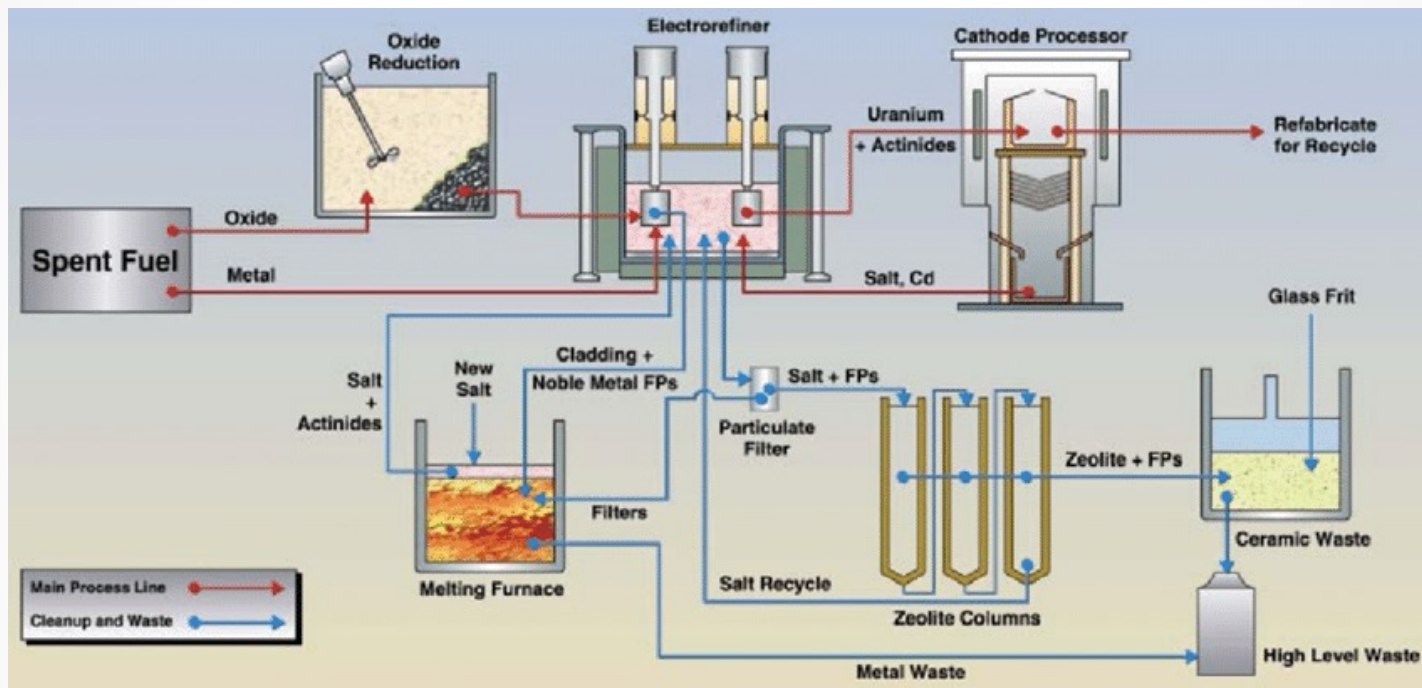
Thorium Fuel Cycle

Pu240 (n, γ) or Pu241 production



Pu240 (n,fission)





3.6 tons of natural uranium



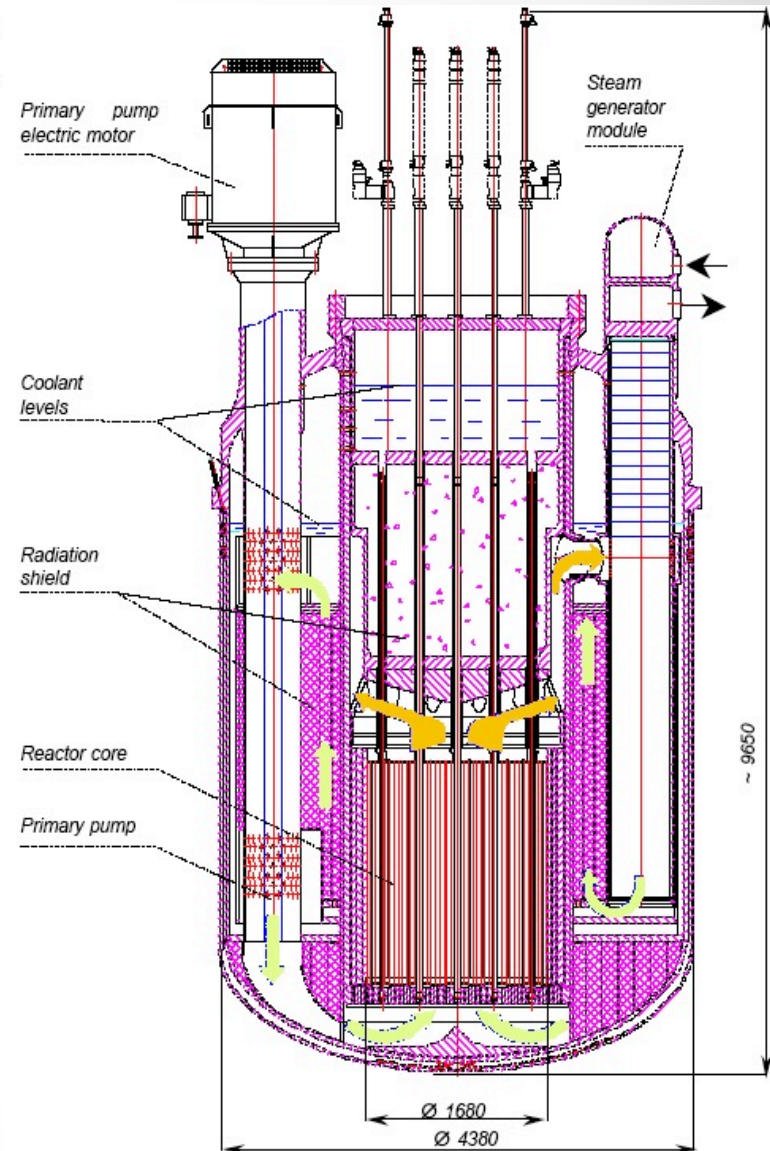
334 tons of 99,99% pure lead



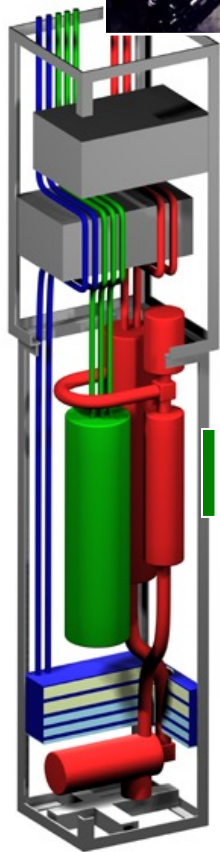
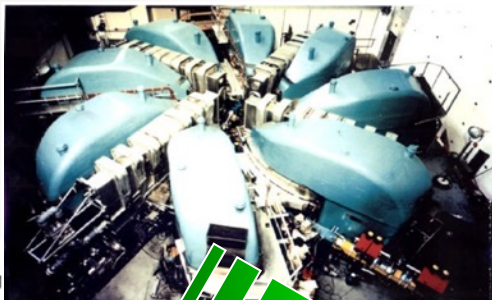




Proton Beam



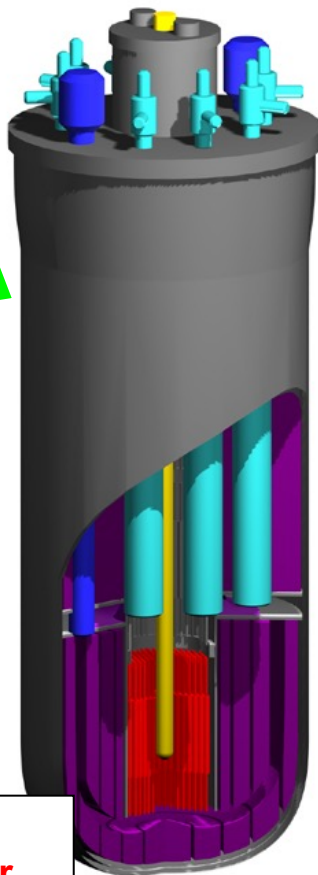
Using existing technologies



High power accelerators technology

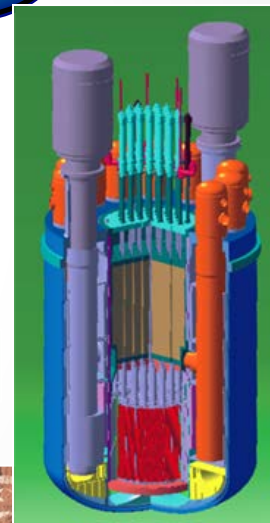
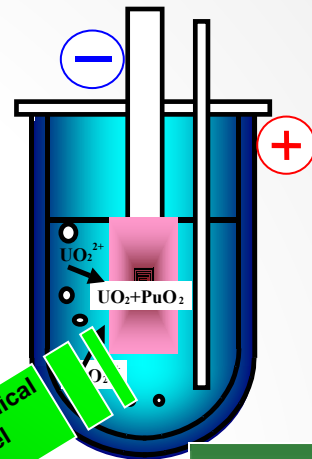
Liquid metal targets technology

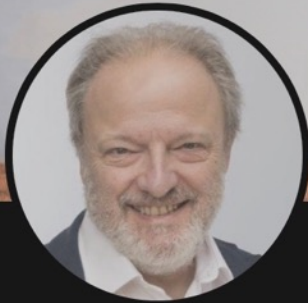
Accelerator-driven nuclear waste burner



Technology of pyrochemical reprocessing of fuel

Technologies of fast reactors with lead-bismuth coolant





Federico Carminati

Co-Founder and Scientific Director at Transmutex

Geneva, Geneva, Switzerland · **500+ connections** ·



Transmutex



Université de Nantes /
University of Nantes



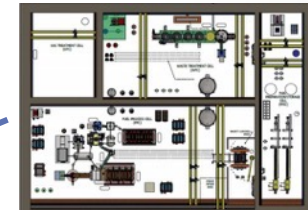
High-Power Cyclotron:
PSI - CH, INFN - Italy



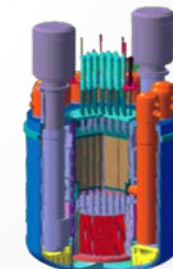
Spallation Target:
PSI - CH



Waste pyro-processing:
Argonne National Laboratory -
USA



Lead-Bismuth fast reactor
SVBR 100 from AKME -
Russia





... à suivre et merci pour
votre attention...

...