

DE LA RECHERCHE À L'INDUSTRIE



*MIIFED*  
*Round table*  
*The socio-economic*  
*impact of fusion*  
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**Role of fusion as a future energy source**

**Acceptability of fusion**

**International features of fusion research**

**Industrial development and economic impact**

# cea 1- Role of fusion as a future energy source

A huge potential !

D :  $33\text{g/m}^3$  water  $\rightarrow$  billions of years  
Li (for T):  $0.17\text{g/m}^3$  sea water  $\rightarrow$  millions of years



BUT

Fusion is not there yet

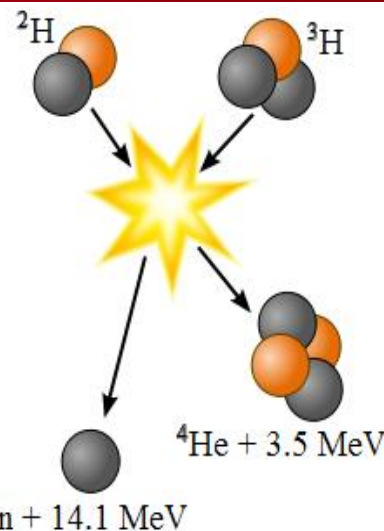
$\Rightarrow$  Important to get fusion taken into account  
in long term energy scenarios

# 2- Acceptability of fusion

## Fusion is nuclear

The need to warrant acceptability by the public has been recognised very soon

- ⇒ It is part of the ITER objectives: *demonstration of the scientific and technical feasibility of fusion as an **environmentally friendly** energy source*
- ⇒ Fusion research has given itself very challenging goals in terms of materials in view of drastically **limiting waste production (SEE NEXT)**
- ⇒ Fusion has **intrinsic safety features**:
  - ⇒ R&D and reactor design should aim at (technically) **consolidate these features**
  - ⇒ All potential issues related to **tritium** shall be seriously anticipated
- ⇒ Fusion shall draw all possible **lessons from fission**

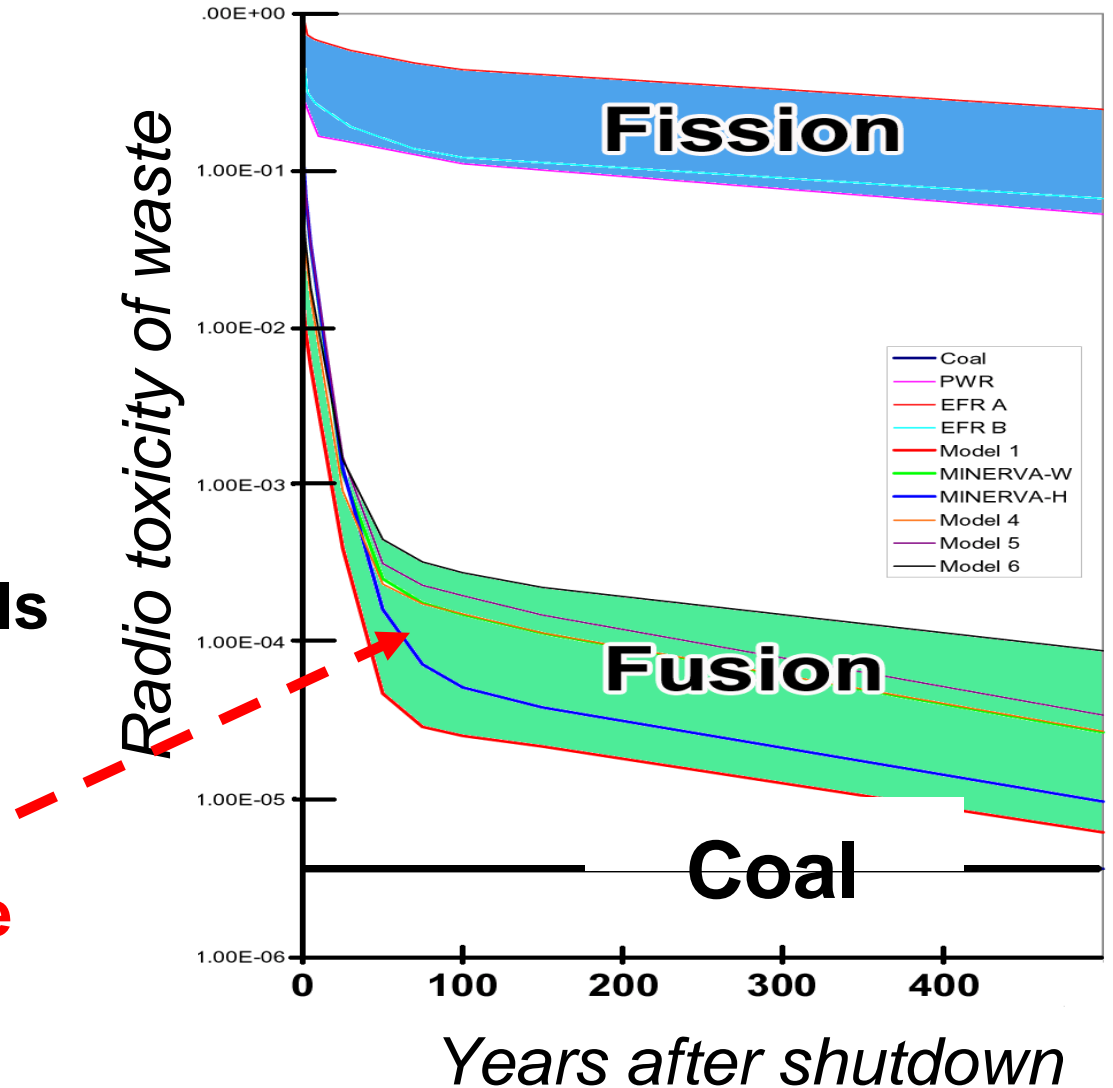


# Societal considerations drive technical research goals

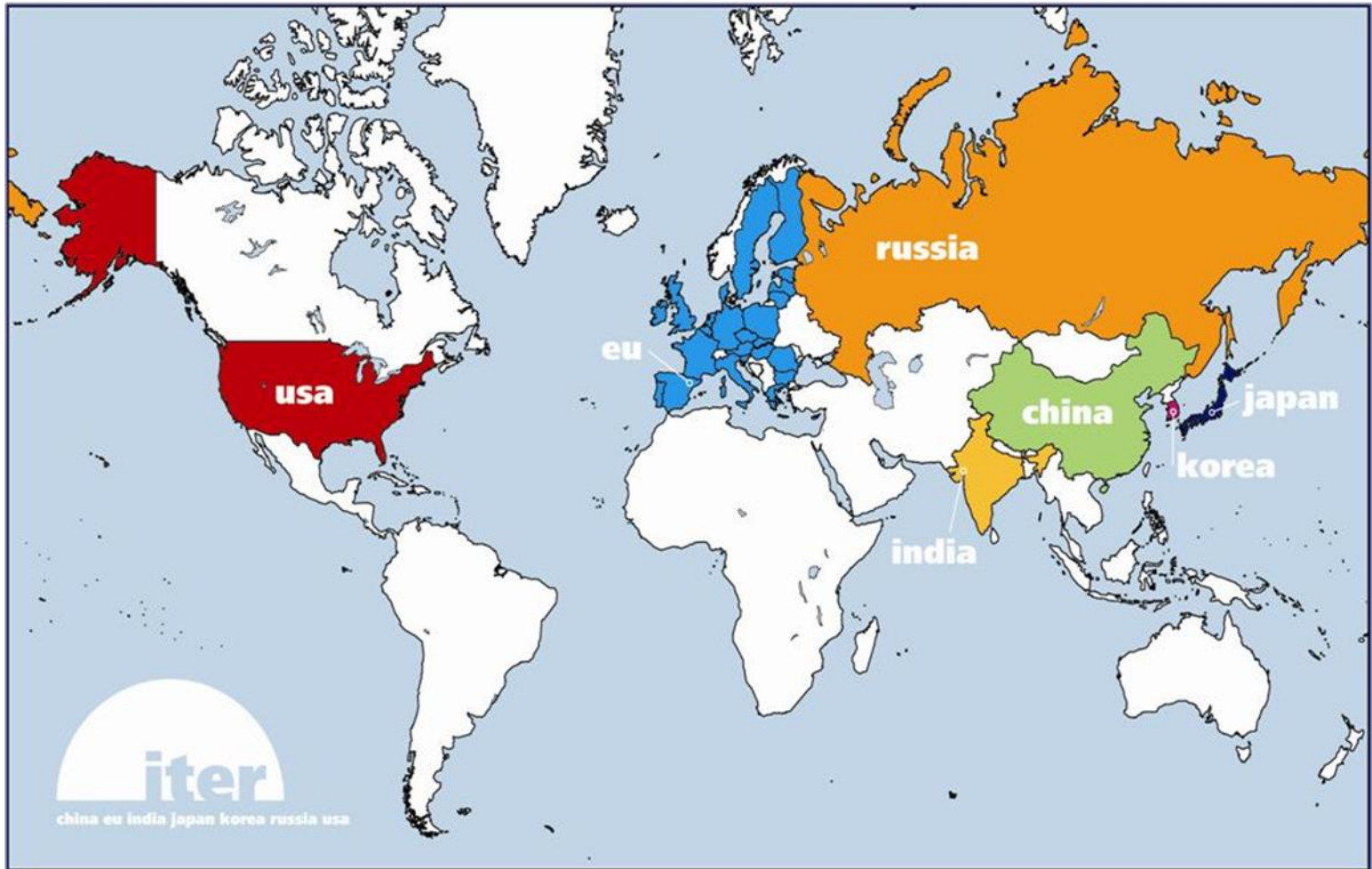
The « 100 years goal »

100 years “cooling” after fusion power plant shutdown should be sufficient so that most materials could be reused / recycled

=> A tough challenge in terms of materials development



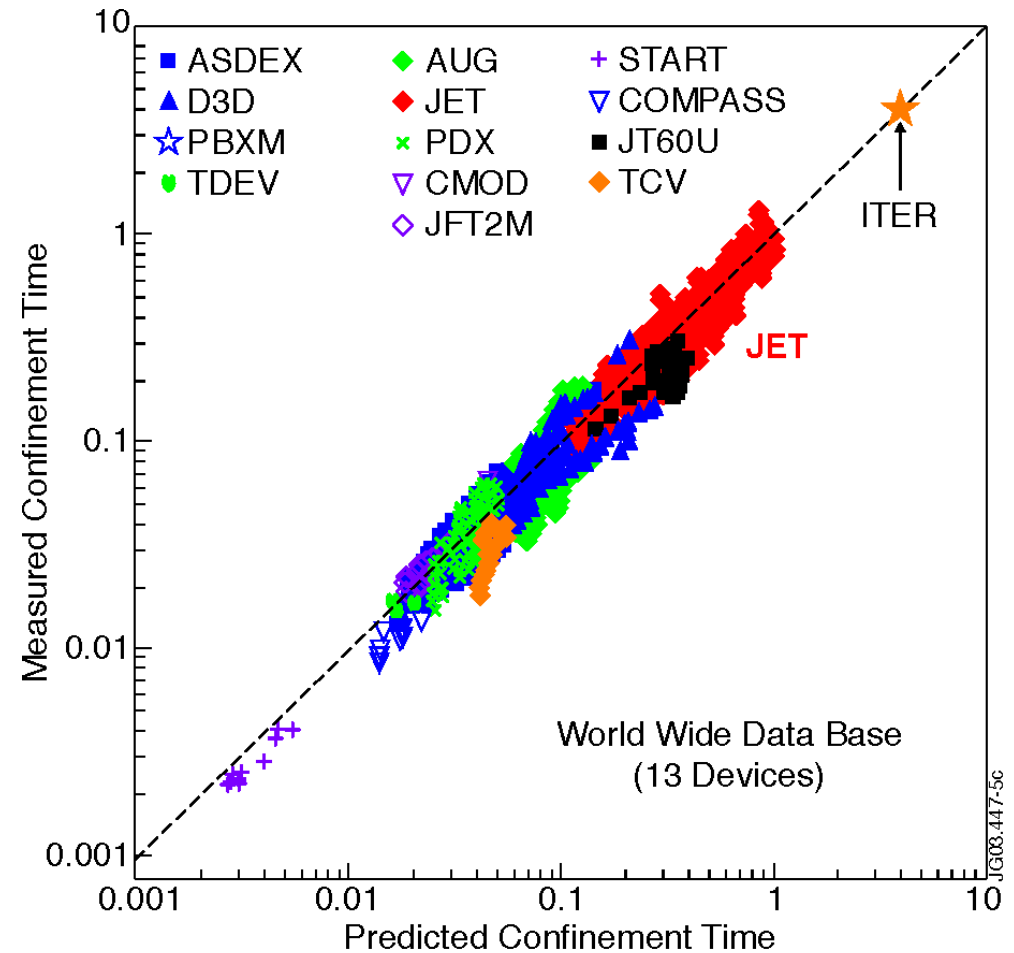
# 3- An international endeavour



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## RESEARCH and TECHNOLOGY:

The international character of ITER has fostered an **unprecedented collaborative scientific effort at world level**



# 3- An international endeavour

**Intercultural aspects:  
ITER could be seen as an **intercultural laboratory**  
contributing to learn how to further improve  
relationships at world level**





## 4- Industrial development and economic impact

- **Industry:**
  - **Development of forefront technologies**
  - **Spin-offs**
  - **Networking at international scale**
- **Large international research facilities with significant local impact (JET, ITER):**
  - **Employment**
  - **SMEs**
  - **International Schools**
  - ...

*From kindergarden to  
Baccalaureat*

*Bilingual teaching, seven  
language sections*



*Over 600 pupils in Sept. 2013  
Half are ITER children (IO staff and  
contractors)*