Security of supply for a better tomorrow

Sustainability of Nuclear Fuel Cycles

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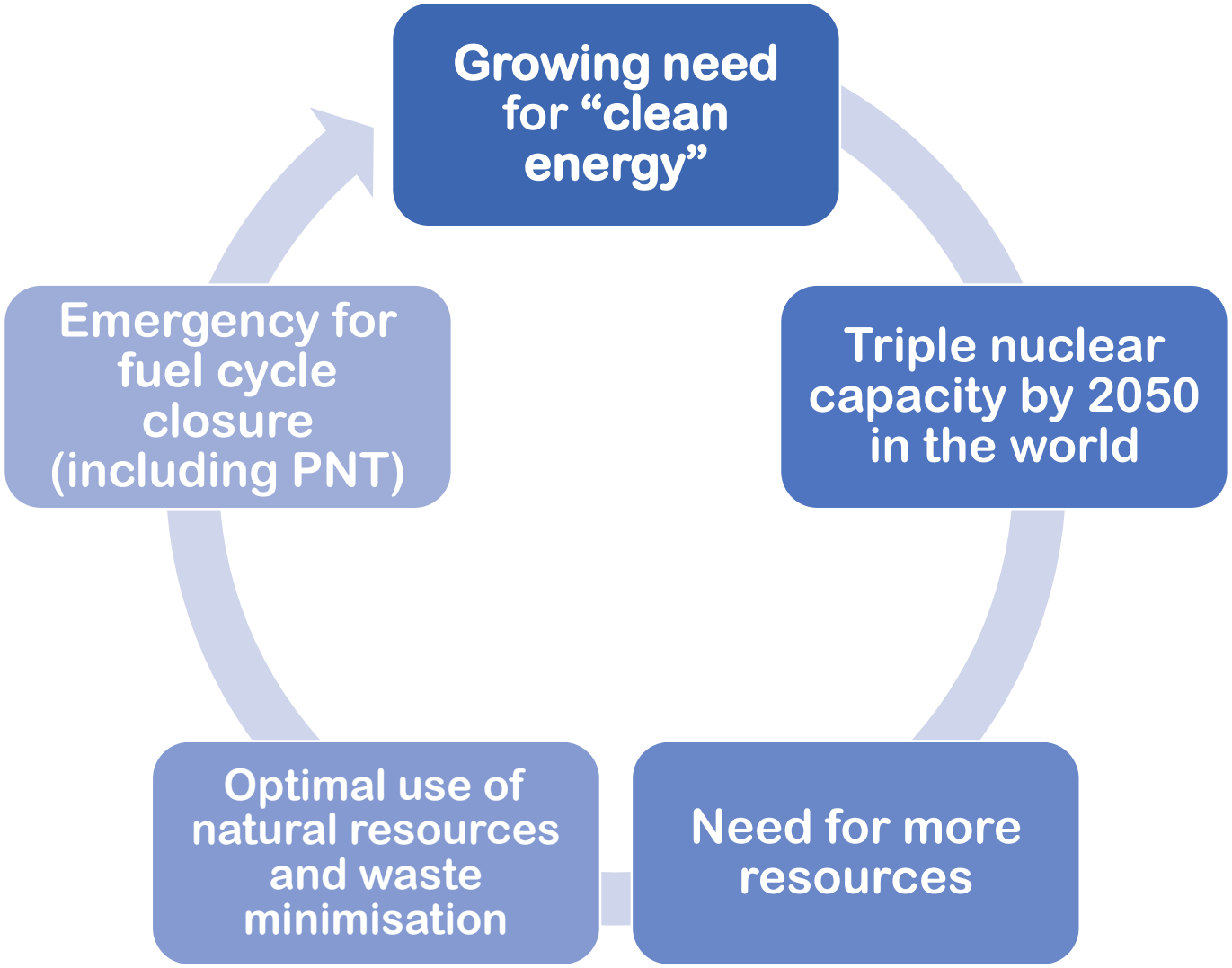
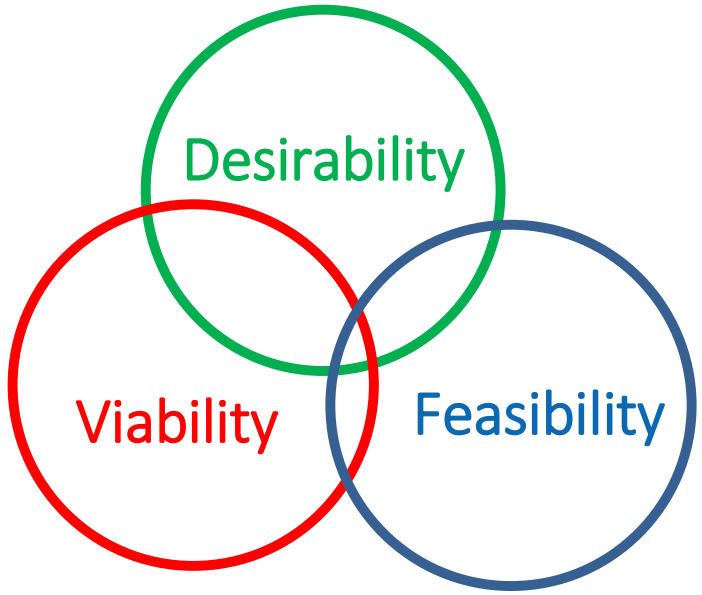
Why full recycling nuclear fuel today



Holistic approach rather than technology maturity

Societal aspects

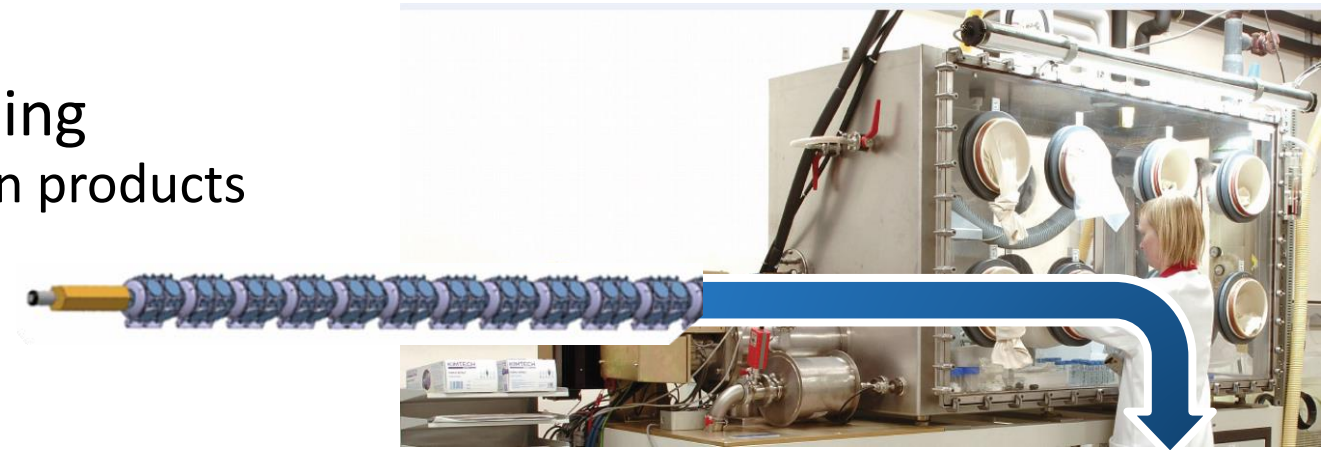
Economics

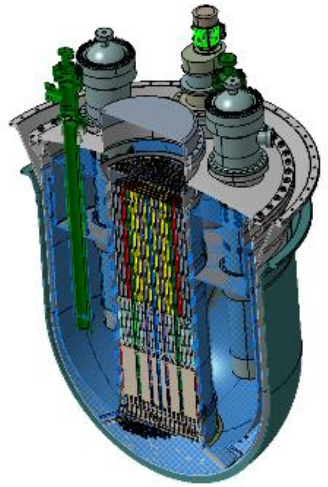


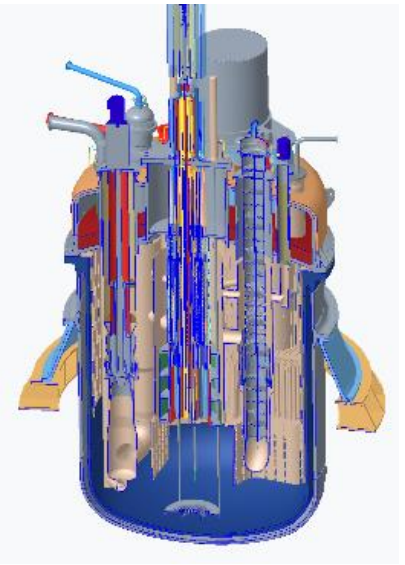
Technology

EURATOM FP : P&T building blocks strategy

1. Advanced (multiple) reprocessing
   - Separate U, Pu, Am, Np, Cm, fission products
2. Transmuter fuel
   - Create MA bearing fuel
   - Understand behaviour
3. Transmuter
   - Build safe machine that can burn MA
   - Fast neutrons needed
     - Accelerator driven system
     - Fast critical reactor
4. Transmuter fuel reprocessing
5. Ad. Fuels transportation, cooling, and handling*

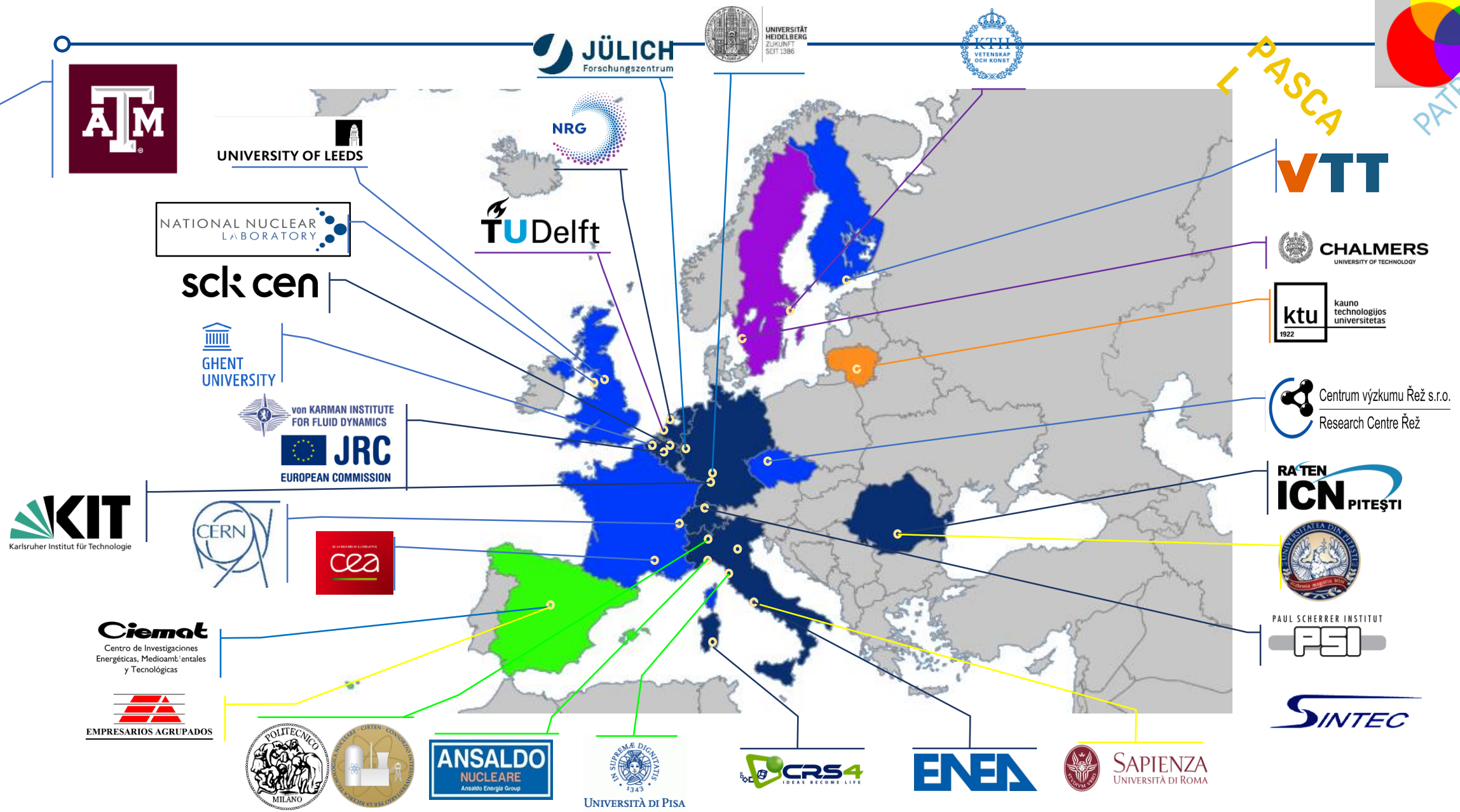






* supplement for OECD/NEA TF “Closing Fuel Cycle and P&T”

PARTNERS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Looking Ahead : for industrialization by 2050
Recommendations (no hierarchy implied)

- ***Encourage international collaborations on cross-cutting topics across technology "building blocks" and/or systems and existing initiatives***
- **Upgrade existing lab-scale separation facilities** to enhance the recovery of minor actinides (MA)
- **Scale up MA-loaded fuel fabrication facilities**, increasing production from 200 g/year to 2 kg/year)
- **Build demonstrators** for low TRL systems
- **Develop a reprocessing pilot** to efficiently recover actinides from the **irradiated advanced fuels**
- **Fund projects** for developing and acquiring new data **for Societal views on Fully closed fuel cycle**
- Consider projects addressing **assessment of the RoI of the pre-industrial demonstration** phase
- **Encourage projects encompassing Advanced Fuels logistics**