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COMMISSION

Community research

FP7 Euratom

European Commission
DG for Research
Simon WEBSTER





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Contents

- **R&D under the Euratom Treaty**
- **FP7 Specific Programme of indirect actions in:**
 - Nuclear fission and radiation protection
 - Fusion energy
- **Work programme for 2007**





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R&D under the Euratom Treaty

- **Title II, Chapter 1: Promotion of Research**
- **Article 7:**
 - ➔ “Community research and training programmes shall be determined by the Council, acting unanimously on a proposal from the Commission, ...”
- **Euratom programmes**
 - ➔ No co-decision
 - ➔ Adoption requires unanimity amongst MS
 - ➔ Run in parallel with EC programmes
 - ➔ Use same funding instruments (except for fusion)





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Energy R&D in FP7 – objectives

- **To transform the current fossil-fuel based energy system into a more sustainable one based on a diverse portfolio of energy sources and carriers combined with enhanced energy efficiency, to address the pressing challenges of security of supply and climate change, whilst increasing the competitiveness of Europe's energy industries**





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Euratom FP7 fission & RP – objectives

- **Establish a sound scientific & technical basis for the safe long-term management of hazardous radioactive waste**
- **Promote safer, more resource-efficient and competitive exploitation of nuclear energy**
- **Ensure a robust and socially acceptable system of protection of man & the environment against the effects of ionising radiation.**





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Euratom FP7 fusion – objectives

- **Develop the knowledge base for, and realise ITER as the major step towards, the creation of prototype reactors for power stations which are safe, sustainable, environmentally responsible, and economically viable**



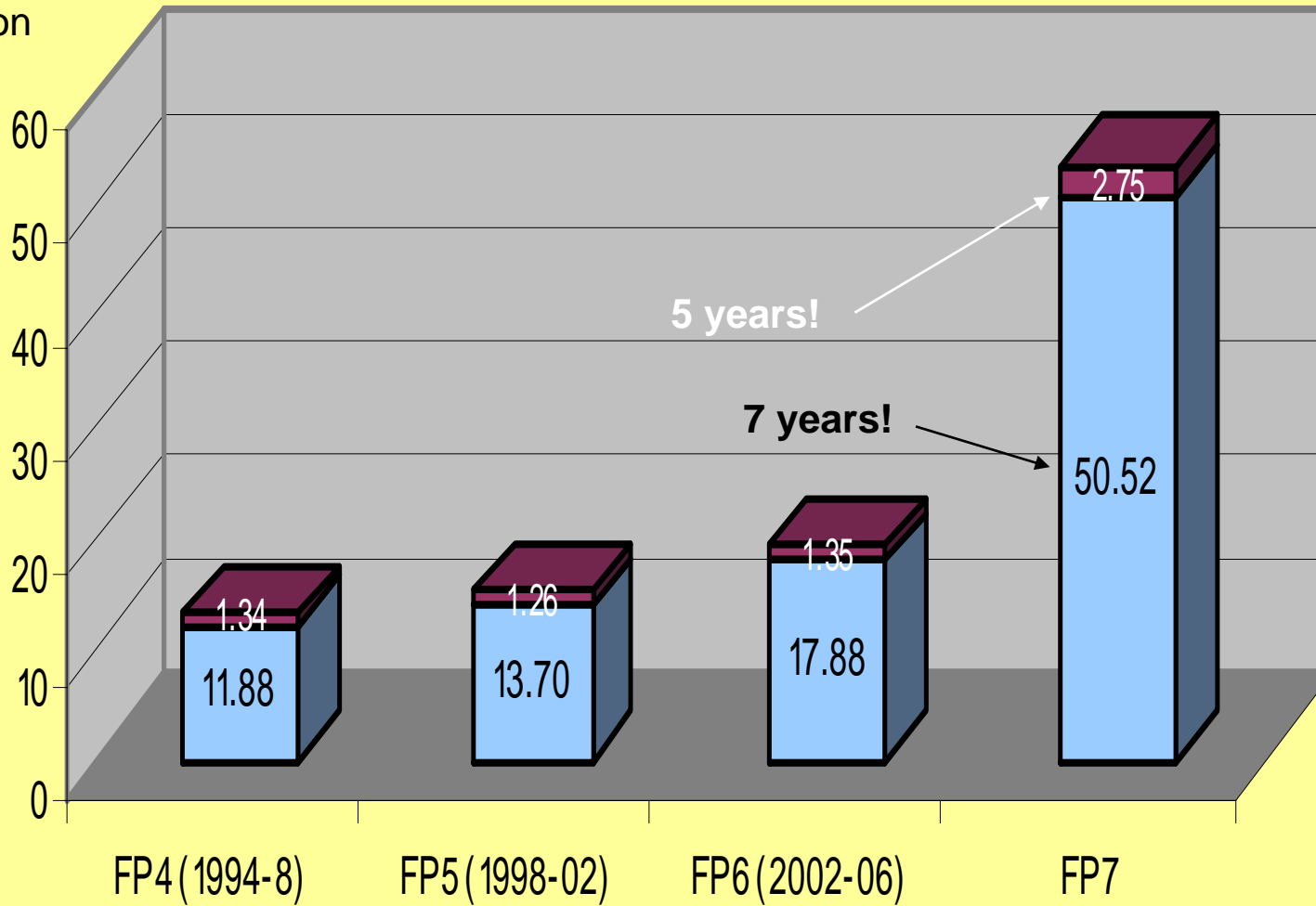


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EC vs. Euratom

€ Billion



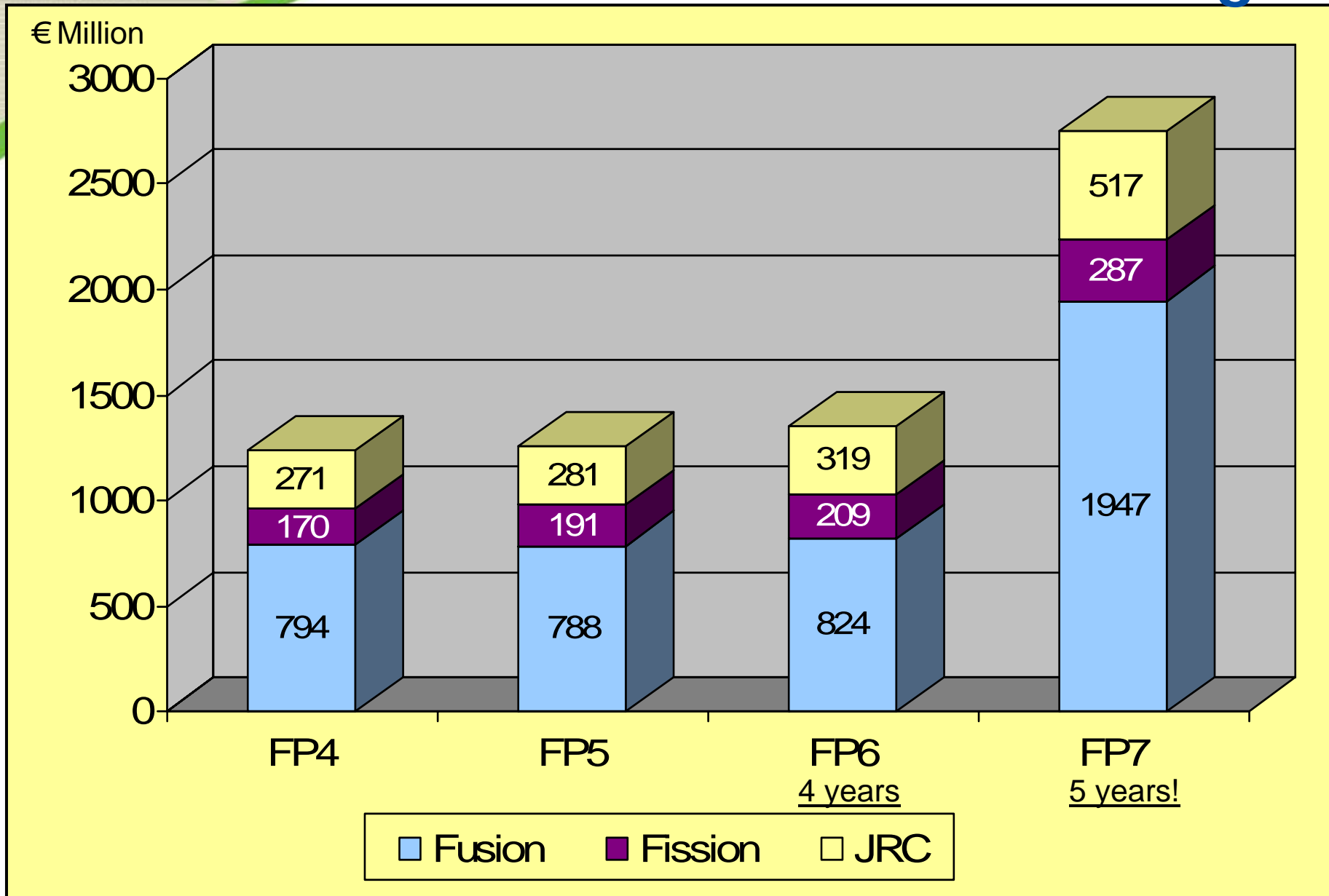
■ EC ■ EURATOM



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Euratom research budget





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Fission programme – key issues for implementation

- Programme must remain flexible to respond effectively to results of on-going research, emerging issues and political priorities
- Similar instruments to FP6 allow important continuity
- Enhanced coordination with national & industrial programmes essential
 - “Technology Platforms” can build on the structuring effect of FP6 instruments & enable more effective use of FP funds
- International cooperation a key overall policy objective





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Specific Programme – fission & RP areas of activity

C
A
R
D

Management of radioactive waste:

- Geological disposal
- Partitioning & Transmutation

S
N
F
-
T
P

Reactor systems:

- Nuclear installation safety
- Sustainable nuclear systems

Radiation protection:

- Risk from low doses
- Medical uses of radiation
- Emergency management

Key cross-cutting activities:

- Research infrastructures
- Human resources, mobility & training





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Topics in 2007 work programme

- **Radwaste management**

- Operational safety of geological repositories
- Phenomenology & PA
- Partitioning processes

- **Nuclear systems**

- Numerical simulation tools
- Innovative fuel / cladding for Gen.IV systems

- **Radiation protection**

- Non-cancer low dose effects
- Medical uses of radiation
- Optimal approaches to emergency monitoring

- **Infrastructures**

- Support to ESFRI roadmap projects

- **Human resources**

- Training schemes planned for 2008 work programme

- **Cross-cutting**

- Materials for Gen.IV & transmutation technologies

**One call of
€52M**





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Specific Programme – fusion areas of activity

Realisation of ITER

**R&D in preparation
of ITER operation**

**Technology activities in
preparation of DEMO**

**R&D activities for
the longer term**

**Human resources,
education and training**

Infrastructures





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JET and the Fusion Associations

- Euratom - CEA (1958)
France
- Euratom - ENEA (1960)
Italy
- Euratom - IPP (1961)
Germany
- Euratom - FOM (1962)
Netherlands
- Euratom - FZJ (1962)
Germany
- Euratom - Belgian State
Belgium (1969)
- Euratom - RISO (1973)
Denmark
- Euratom - UKAEA (1973)
United Kingdom
- Euratom - VR (1976)
Sweden
- Euratom - Conf. Suisse
Switzerland (1979)
- Euratom - FZK (1982)
Germany
- Euratom - CIEMAT (1986)
Spain



- Euratom - IST (1990)
Portugal
- Euratom - TEKES (1995)
Finland
- Euratom - DCU (1996)
Ireland
- Euratom - ÖAW (1996)
Austria
- Euratom - Hellenic Rep.
Greece (1999)
- Euratom - IPP.CR (1999)
Czech Republic
- Euratom - HAS (1999)
Hungary
- Euratom - MEC (1999)
Romania
- Euratom - Univ. of Latvia
Latvia (2002)
- Euratom - IPPLM (2005)
Poland
- Euratom - MHST (2005)
Slovenia





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Fusion 2007 work programme

- **International agreements, incl. ITER**
- **European Joint Undertaking**
 - EU domestic agency for ITER & Broader Approach
- **Contracts of Association**
 - bilateral contracts between research organisations in MS and Associated States (CH)
- **European Fusion Development Agreement**
 - JET + other fusion devices
- **Other multi-lateral agreements**
- **Human resources, education and training**
 - support via calls for proposals or EFDA
- **Coordination and support actions**





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Conclusions

- **Community R&D under Euratom Treaty is well established**
- **In particular, fusion research is an ERA success story**
- **Fission & RP research in Europe is being restructured thanks to FP6**
- **Next phase...**
 - ➔ Fusion: Construction of ITER
 - ➔ Fission: Setting-up of Technology Platforms
- **The continuing Community research effort is instrumental in this process**

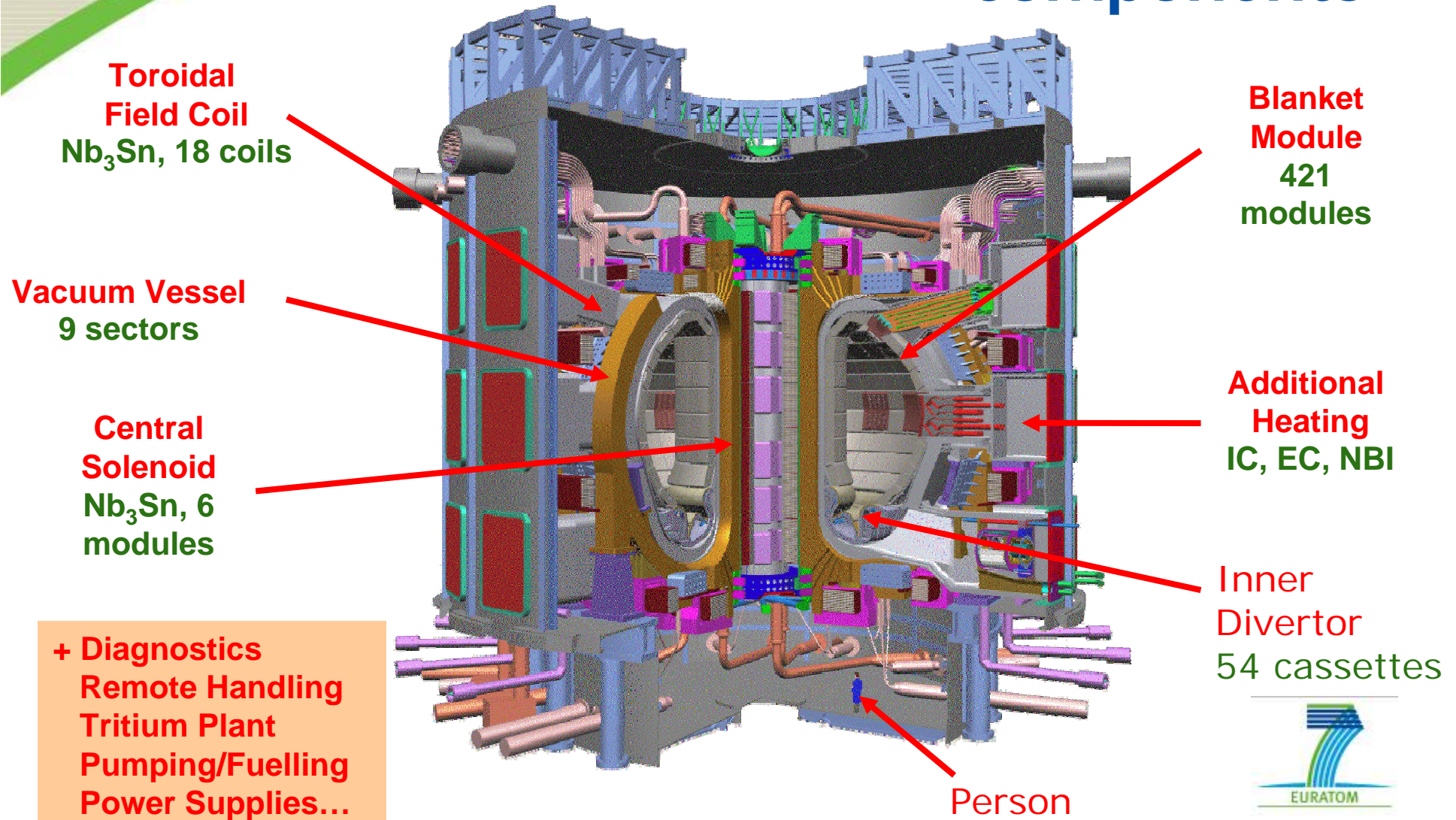




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ITER showing the EU components

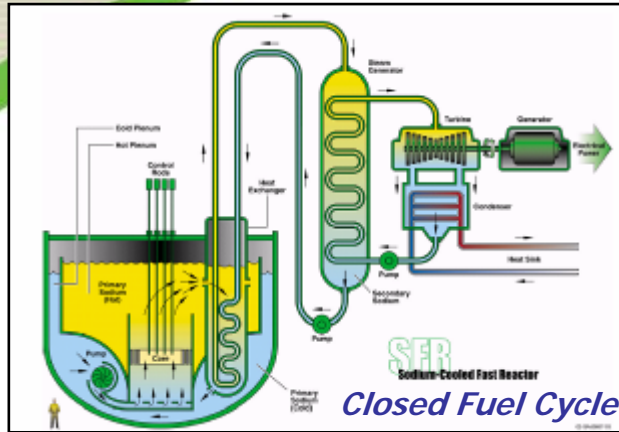




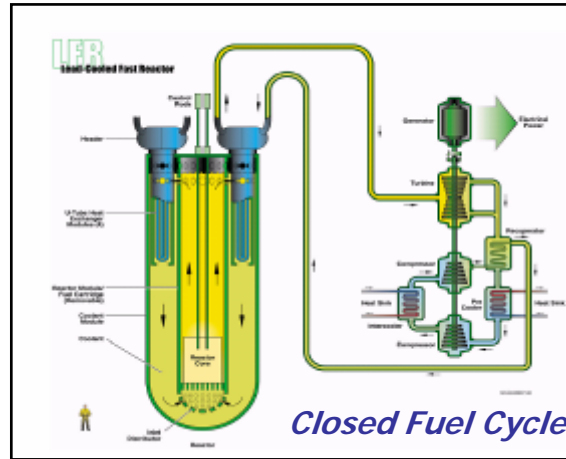
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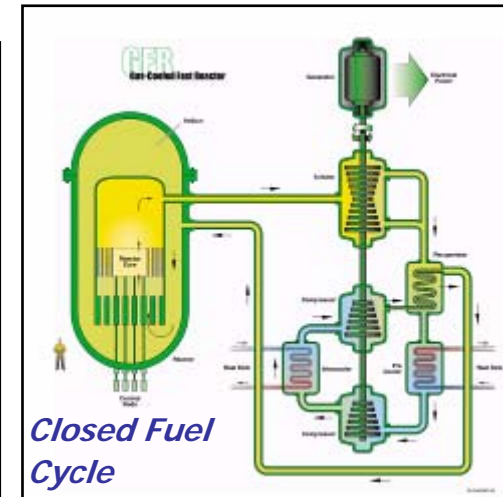
Six innovative concepts



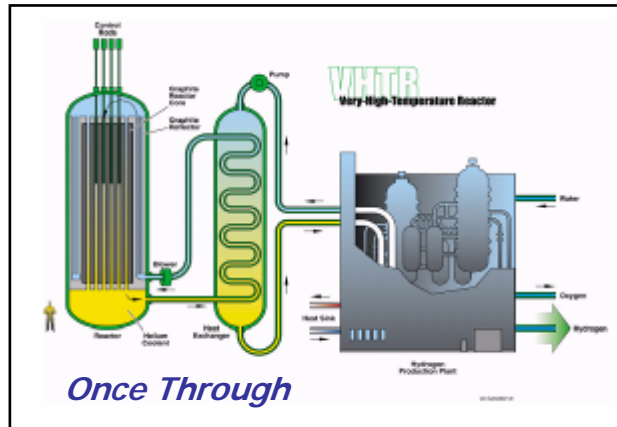
Sodium Fast reactor



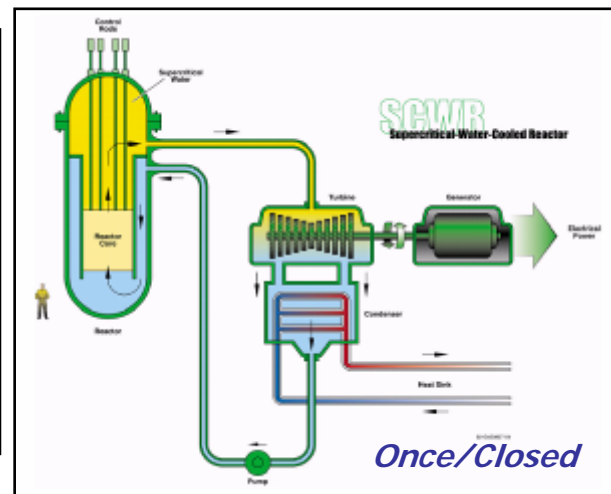
Lead Fast Reactor



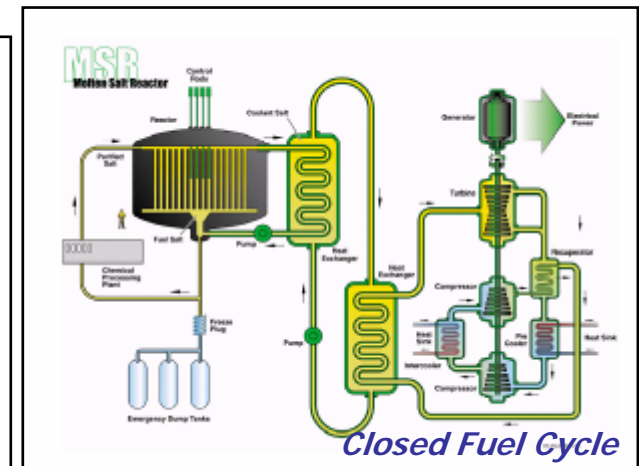
Gas Fast Reactor



Very High Temperature Reactor



Supercritical Water Reactor



Molten Salt Reactor





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Thank you for your attention!

