FUSION FOR ENERGY

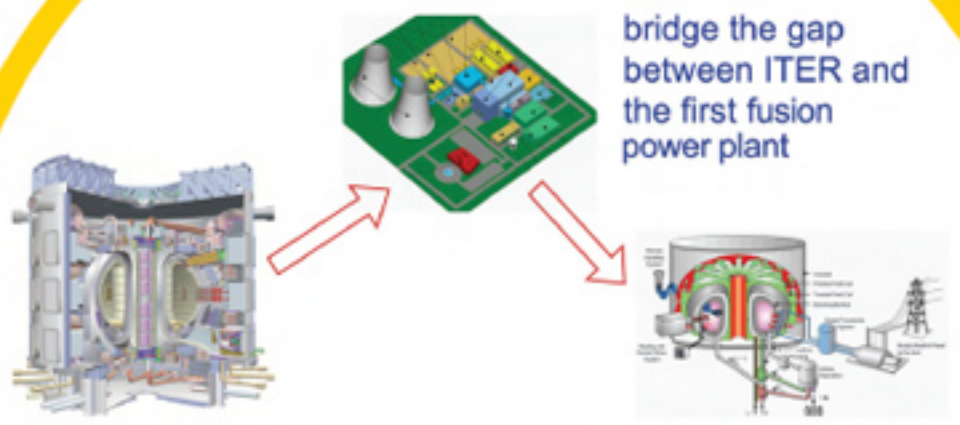
Towards a demonstration fusion reactor (DEMO)

ITER is not an end in itself: it is the bridge toward a first demonstration fusion power plant that produces electrical power.

The strategy to achieve this long-term aim includes a number of different elements: firstly, the development of ITER, research into special materials, development and use of existing fusion devices.

This will be followed by a demonstration fusion reactor (DEMO).

The expectation is that after DEMO, the first commercial fusion power stations can be constructed.



ITER: scientific and technological (partially) feasibility of fusion

DEMO: bridge the gap between ITER and the first fusion power plant

Fusion Power Plant: economically acceptable, safe and environmental friendly

FAST TRACK SCENARIO

Safety & Environment

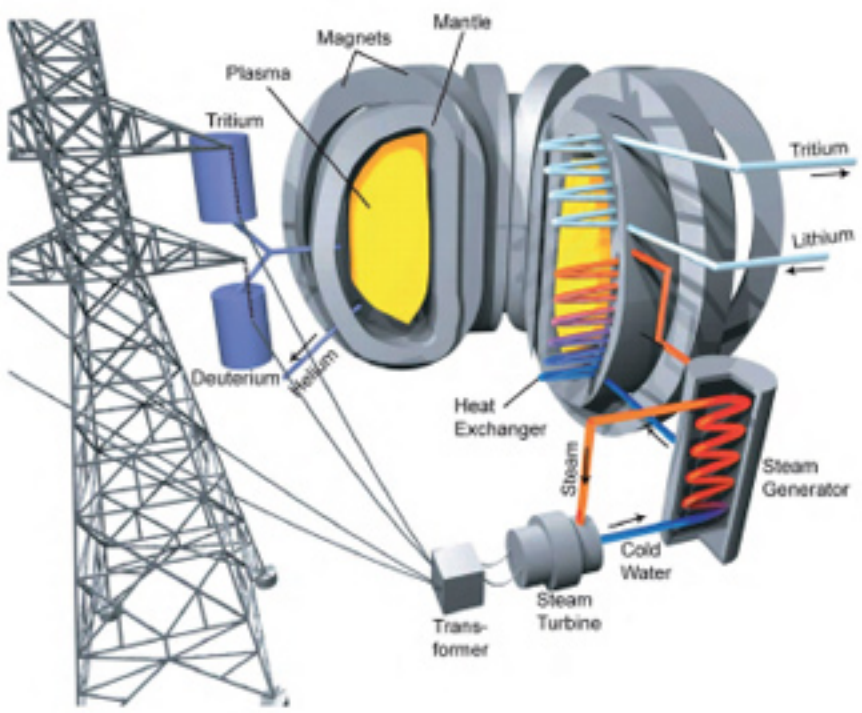
· Fusion power plants will be inherently safe. The amount of fuel is very small: only a few grams are enough for just a short time of operation.

· Fusion is not a chain reaction and can therefore not run out of control.

· Although the products of the fusion process are not radioactive,the structural materials of the vessel will become radioactive.

· However, if special materials are used, after 100 years of inactivity the radioactivity drops to such a low level that most materials can be recycled.

· The development of these special materials is an important part of the international fusion research effort and is the purpose of the International Fusion Materials Irradiation Facility (IFMIF).



Artists impression of a fusion power plant (Courtesy: EFDA)