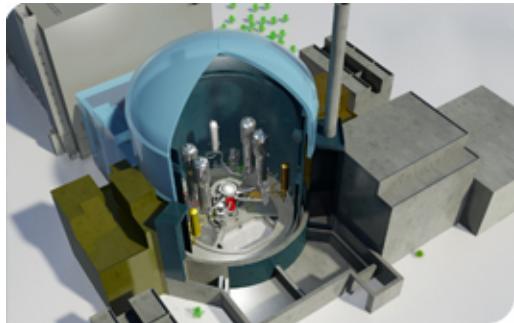




## EPR™ REACTOR: THE VERY HIGH POWER REACTOR (1,650 MWe)



Safety and operational performance are the key strengths of the EPR™ reactor. This pressurized water model is also the first generation III+ reactor to be deployed on an international scale, being built in three different countries.

[Contact us regarding this solution](#)

### FIELD REPORT #5: NUCLEAR ENERGY

Since March 11, the energy context has changed but not fundamentals: produce a safe and affordable electricity to meet the growing energy demand.

Find out how AREVA helps customers achieve their objectives for safe and profitable plant operation, as well as long-term public acceptance.



### Read the Field Report

The EPR™ reactor has an electrical production capacity of more than 1650 MWe, which places it among **the most powerful reactors in the world**. A direct descendant of previous models manufactured by AREVA, the EPR™ pressurized water reactor is based on **tried-and-tested technologies and principles**. It is classified as a generation III+ reactor due to the level of safety obtained and the economic savings that it achieves in relation to the earlier models.

From a safety point of view, the EPR™ reactor ensures an unequalled safety level thanks to a drastic reduction of the probability of severe accidents as well as of their consequences on the environment. In addition, it is particularly resistant to external incidents (airplane crashes, etc.).

Economically, it achieves an unrivalled level of **competitiveness** because electricity production costs are **reduced by 10%**, compared with current plants. It also produces less waste.

It is currently under construction in **Finland** (Olkiluoto), in **France** (Flamanville) and in **China** (2 units in Taishan), and is currently undergoing certification in the **United States** and the **United Kingdom**.

### SAFETY, COMPETITIVENESS, FLEXIBILITY

#### Safety

**Unrivalled level of safety:** Resistance to plane crashes and seismic vibrations; quadruple safety device redundancy; core meltdown risk further reduced and minimization of the consequences from such an accident thanks to a special compartment isolating the molten core.

**Active and passive safety systems :** designed as an extension of the Konvoi (Siemens) and N4 (AREVA) reactors, the EPR™ reactor combines active and passive safety systems to increase safety and provide better process control over plant operation



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## Competitiveness

**High power:** The power output of the EPR™ reactor originates from the size of its larger core, which is capable of holding more fuel, and its advanced nuclear steam supply system comprising 4 primary coolant loops.

**Reduced operating costs:** Reduction in fuel consumption and easier system maintenance.

**Maximized electrical production through** reliable components, proven technologies and maintenance during operation, permitting shorter unit outages.

**Environmental protection:** Reduction in fuel consumption per kWh and production of long-life waste products (-15%), through improved thermal efficiency and uranium utilization.

**An unrivalled experience on large projects:** AREVA is the only manufacturer to benefit from 40 years continuous experience in the design and construction of nuclear power plants; there are three programs for construction of EPR™ plants underway, enabling AREVA to gather unrivalled experience; almost all primary circuit components are designed and manufactured by AREVA.

## Innovation for performance

Two innovations contribute to the EPR™ reactor's high thermal efficiency: Steam generators with an axial economizer provide increased steam pressure and noticeably increase the reactor's thermal efficiency. These components were developed and tested in the N4 type reactors.

A neutron reflector surrounding the core reduces fuel consumption by limiting neutron leakage. It increases the lifespan of the reactor pressure vessel by limiting its irradiation and its embrittlement.

## Service life: 60 years

## Flexibility

**Load follow:** between 60 and 100% nominal output, the EPR™ reactor can adjust its power output at a rate of 5% nominal power per minute at constant temperature, preserving the service life of the components and of the plant.

**A varied choice of fuels:** An EPR™ power plant can operate with uranium enriched up to 5%, reprocessed uranium or MOX fuel (in variable proportions according to customer needs and up to 100%).

**Irradiation cycle:** fuel cycle length possibility between 12 and 24 months, for better management of a power plant fleet.