



AREVA

Meeting the Challenges of the Nuclear Renaissance

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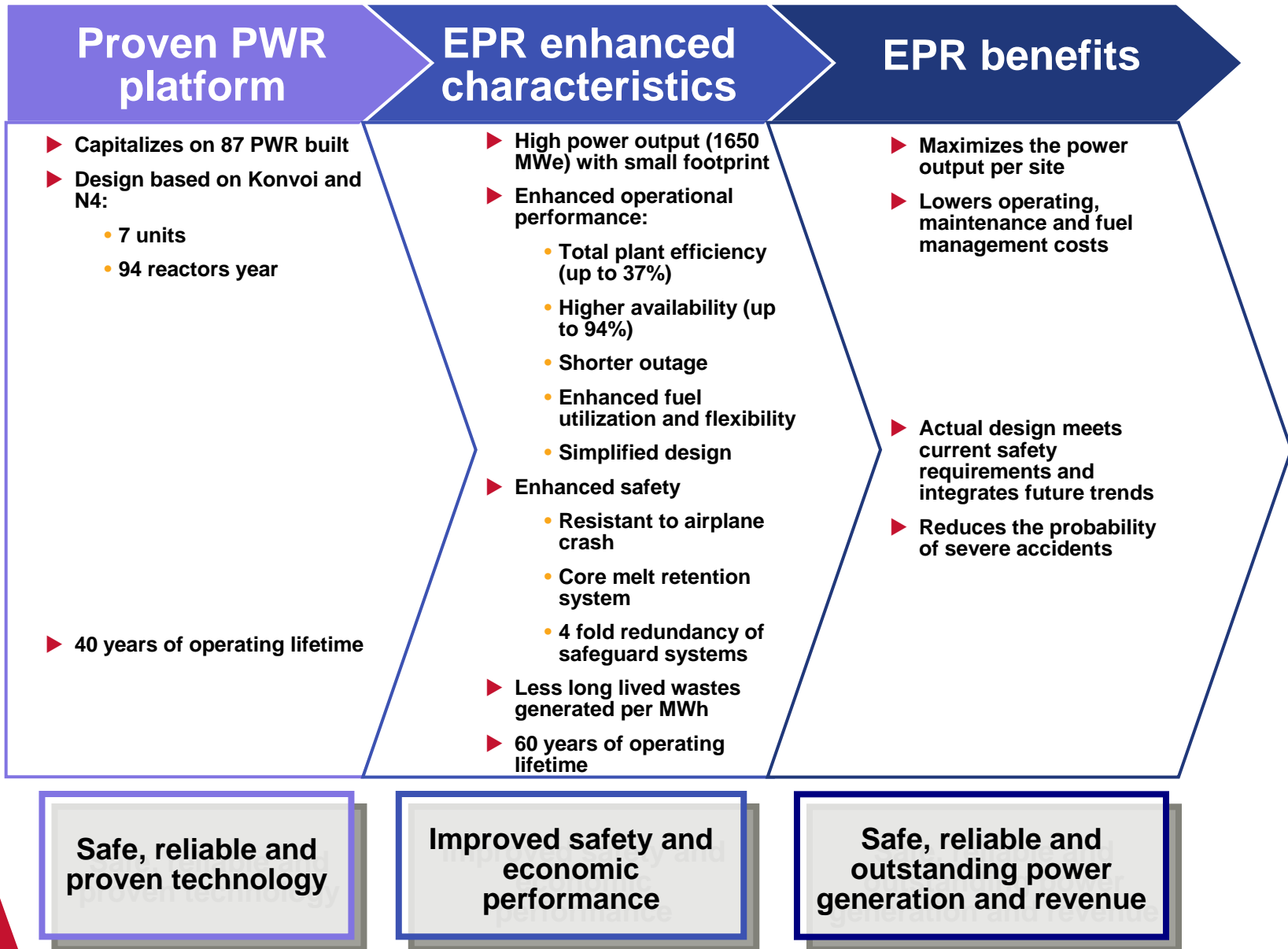
**WNA'07 London
September 6th, 2007**

Offer a design that incorporates the best of what came before...



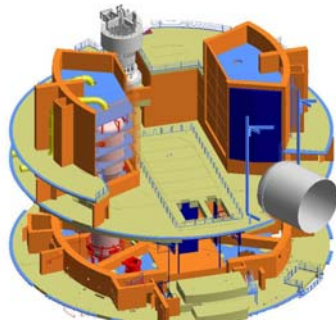
*...while providing new benefits with the certainty of a proven
and evolutionary technology*

EPR is an evolutionary Generation III+





The Four Train concept



- ▶ **Preventive maintenance during operation:**
 - ◆ **Quadruple redundancy of the safeguard systems allows on-line maintenance**
 - ◆ **Access to the reactor building during power operation allows preparatory work leading to shorter outages**

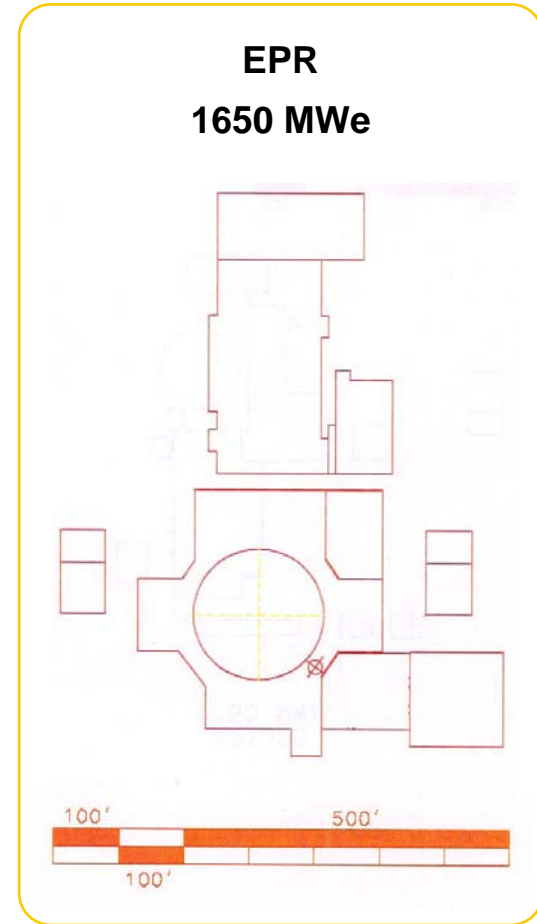
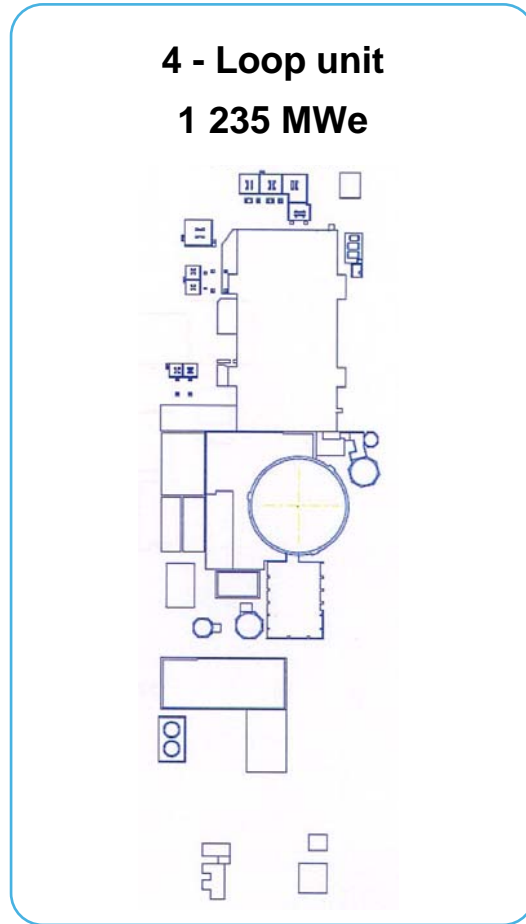
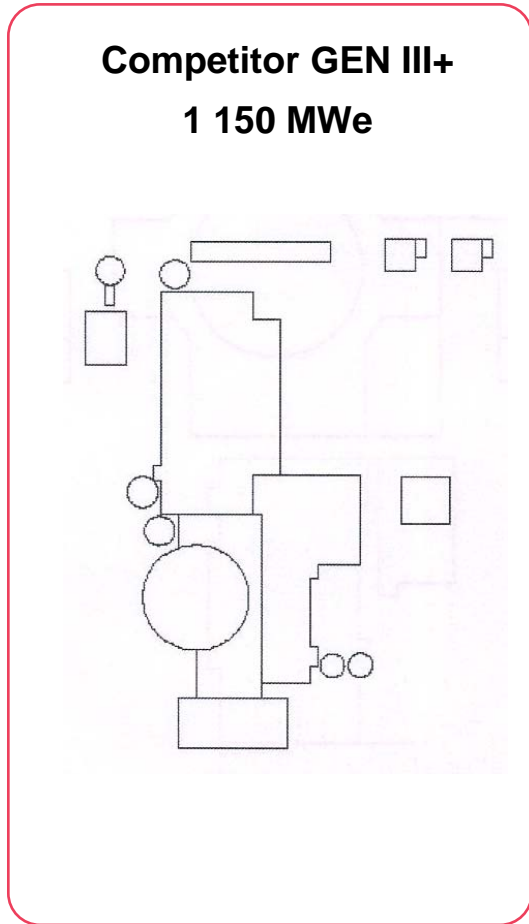
- ▶ **Possibility to have larger set-down areas facilitating the storage of large service equipment**

- ▶ **Faster cool down, depressurization and vessel head opening phases shorten the shutdown**

**Maximized power generation through greater availability:
design target up to 94%* over 60 years**

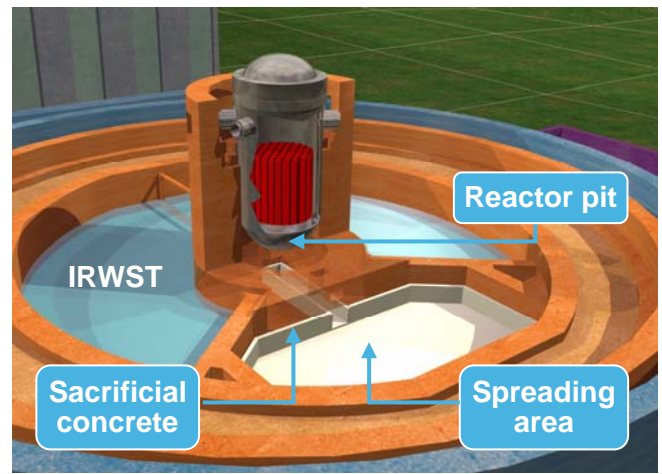
* Depending on local requirement for in-service inspection and fuel cycle length

Higher power output with similar footprint



Maximize your power output per site with the EPR

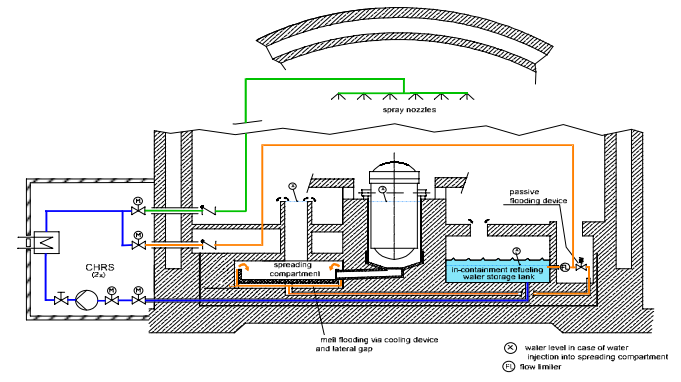
Passive System (Short term)



1. Temporary retainment in the reactor pit (gravity and metal gate)
2. Spreading in the large surface dedicated area (metal gate melting and gravity)
3. Flooding and cooling of the spreading area using IRWST (In-containment Refueling Water Storage Tank)

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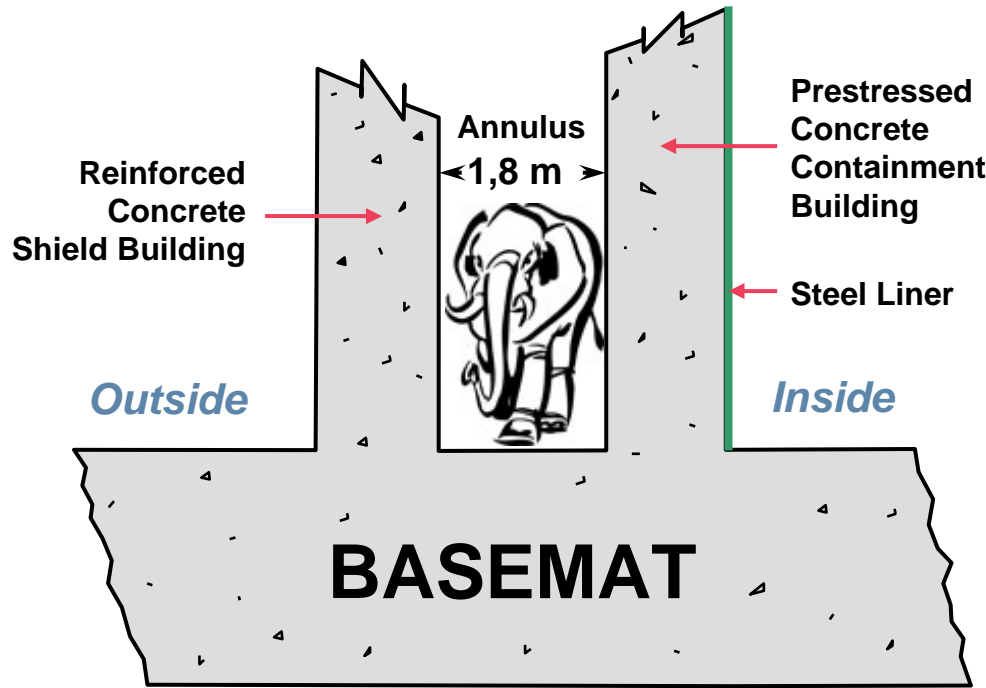
Active System (Long term)



1. Removal of containment heat:
 - Recirculation and coolant heat exchange
 - Containment spray system

**No need for significant off-site measures
improves Public acceptance**

Post 9/11 aircraft crash resistance



EPR Reactor, Fuel and two Safeguard Buildings are plane crash resistant:

No supplementary cost or licensing delay

Bolstering public and political acceptance

First down the Gen III+ learning curve



the licensing and building experience

EPR design currently being licensed by leading safety authorities

Construction License



February 2005



April 2007

Being Licensed



*Pre-application
February 2005*



*Submission
June 2007*

**AREVA supports a shorter licensing process
by providing comprehensive reference documents**

EPR the only Generation III+ under construction:

Under Construction



Olkiluoto 3, Finland

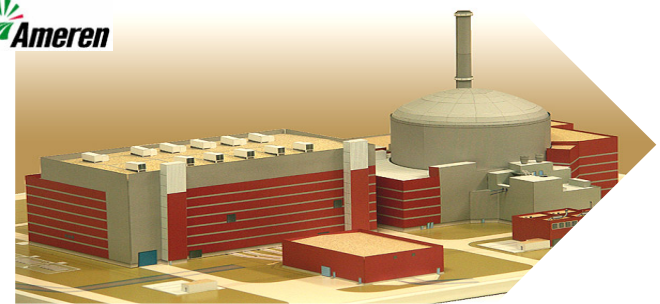


Flamanville 3, France

Project Preparation



Calvert Cliffs 3, U.S.

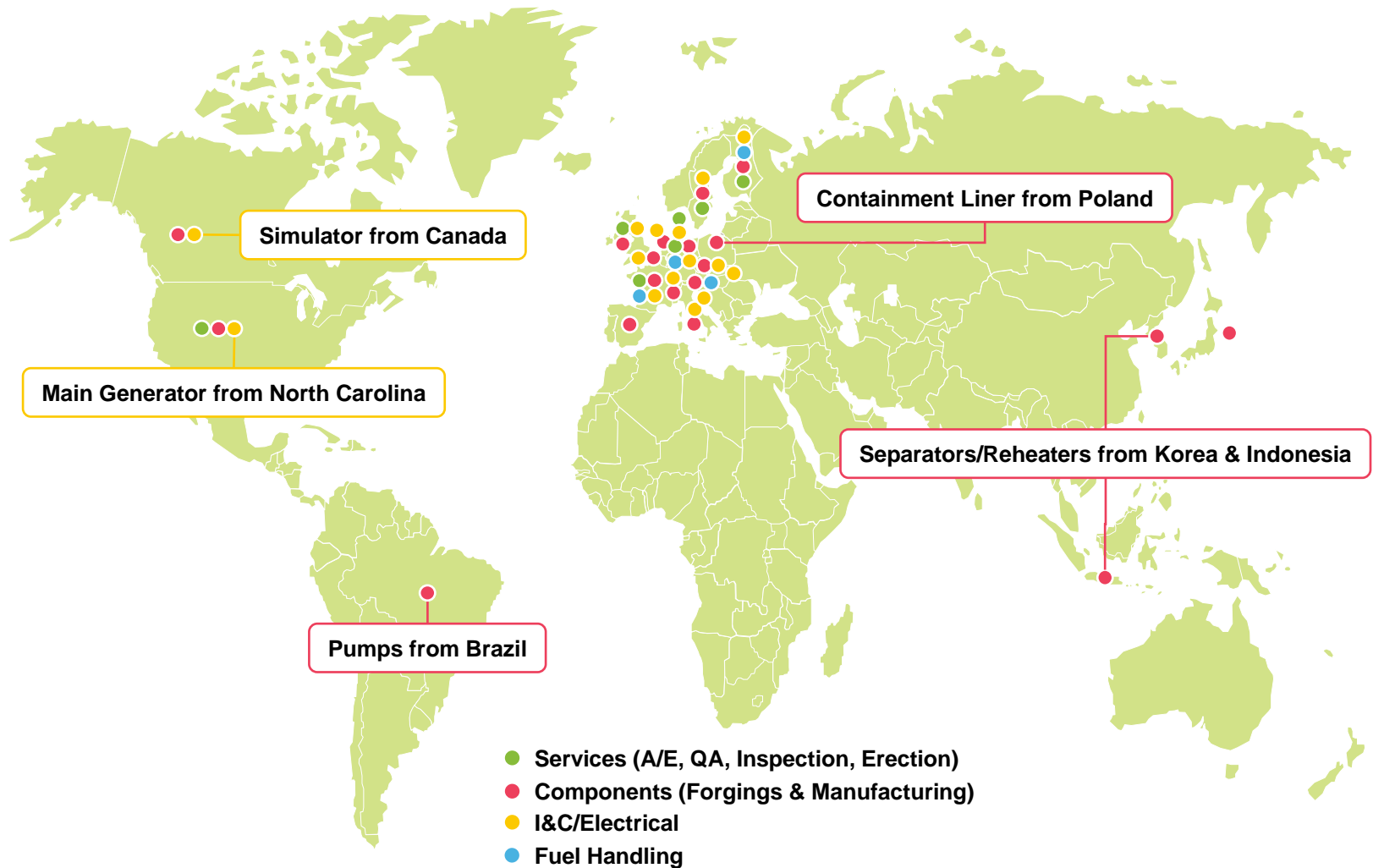


AmerenUE, U.S.

3 years of operating experience by 2015

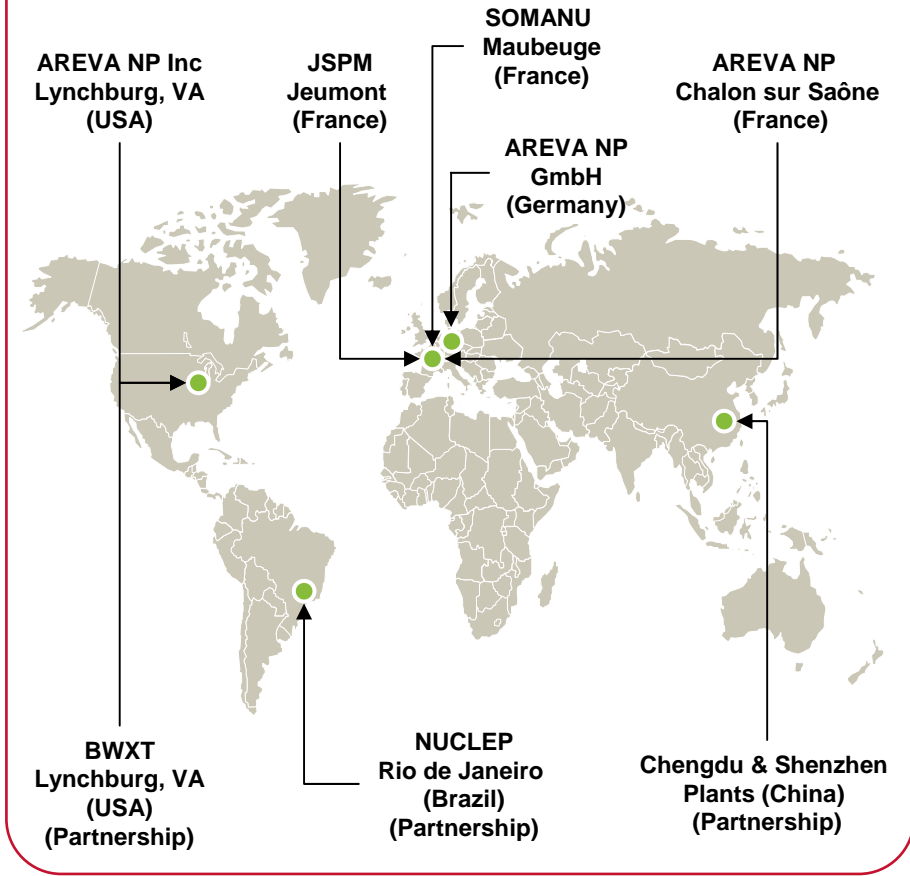


Experience in building a global supply chain

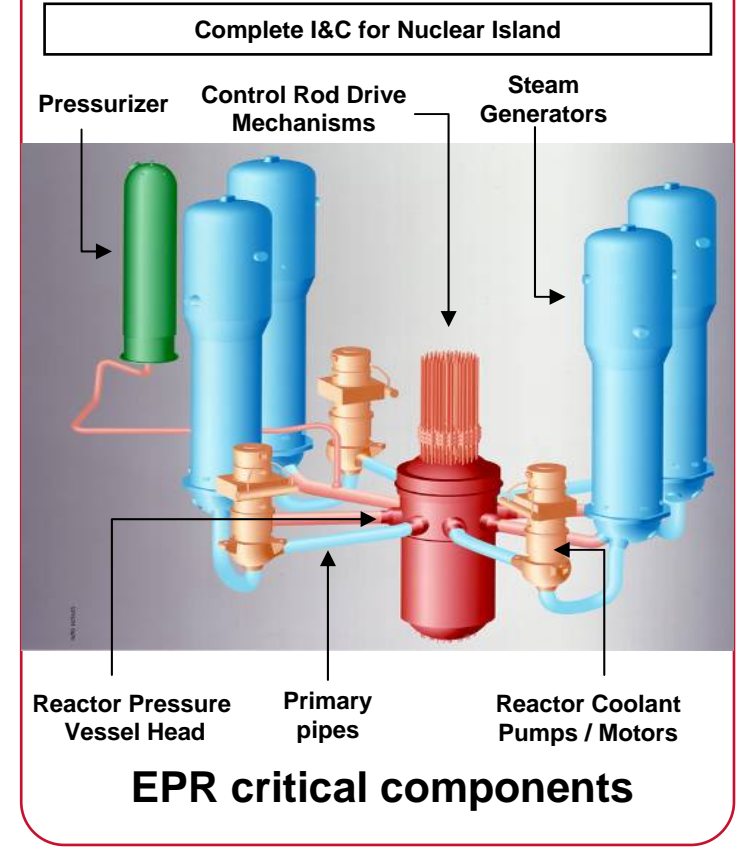


**Insuring resource availability
and strengthening local economies**

Worldwide industrial equipment manufacturing platform



Direct from AREVA's integrated plants



Guaranteeing quality, delivery and support



RPV Integrated Shell & Nozzles



RPV internals: FDD machining



PZR: Buttering of lower head



SG # 4: Lower part assembly

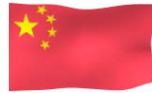
- ▶ **Importance of early detailed design completion**
- ▶ **Availability of “nuclear-ready” construction workers and subcontractors**
- ▶ **Coordination with the safety authority is a key success factor**
- ▶ **Selection and responsiveness of nuclear grade suppliers**
- ▶ **Organize timely Document Review and Approval process**
- ▶ **Manage challenging climate and geographical conditions**

The EPR fleet will benefit from a completed detailed design as well as construction and commissioning experience



USA

Selected



China

Significant step
achieved



South Africa

Short-listed



UK

Pre-licensing process



Baltic Project

Under preparation



LIETUVOS ENERGIJA

The fleet is well on its way...

- ▶ **Being part of an operator group (FROG)**
- ▶ **Shared experience**
- ▶ **Worldwide availability of spare parts and expertise**
- ▶ **Lower risks:**
 - ◆ **Reduced engineering and construction time and risks**
 - ◆ **Reduced operating and maintenance costs**
 - ◆ **Enhanced safety**

**Yes we're already making it happen at
AREVA**

It is not easy but it can be done



AREVA