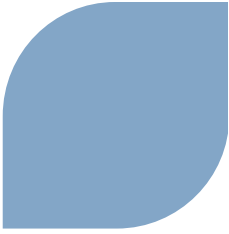


AREVA' EPR Experience

Helsinki, January 24th, 2013

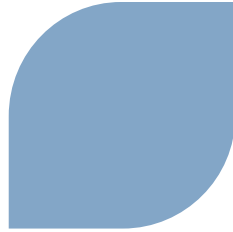




AREVA NP Purchasing process



Procurement: Scope of Activity



- ▶ **Procurement for Construction in a project covers all aspects of procurement from the tender phase to the beginning of the warranty period including:**
 - ◆ Suppliers selection
 - ◆ Orders placement
 - ◆ Follow up of deliveries

- ▶ **Procurement in a project ensures that equipment or services are delivered on time for construction, and within a defined budget according to quality and technical requirements, in respect of contractual obligations of the final client:**
 - ◆ Until the end of warranty period
 - ◆ Support on project during call for guarantee

Lessons learnt – key success factors for local companies

Selection process

- ▶ Safety culture implementation
- ▶ Supply chain control
- ▶ Quality requirements understanding
- ▶ Project management capacity

And also :

- ▶ Documentation management
- ▶ Design monitoring and software qualification
- ▶ Manufacturing activity control (test...)

Supplier involvement

- ▶ Top management commitment
- ▶ Employees safety culture
- ▶ Quality Assurance + Quality Control

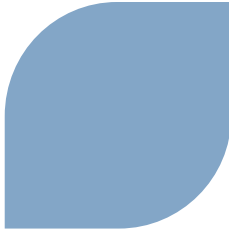
And also :

- ▶ Sub-contractor management
- ▶ Non-conformance management
- ▶ Dedicated team
- ▶ Partnership / JV with experimented suppliers / Consortium



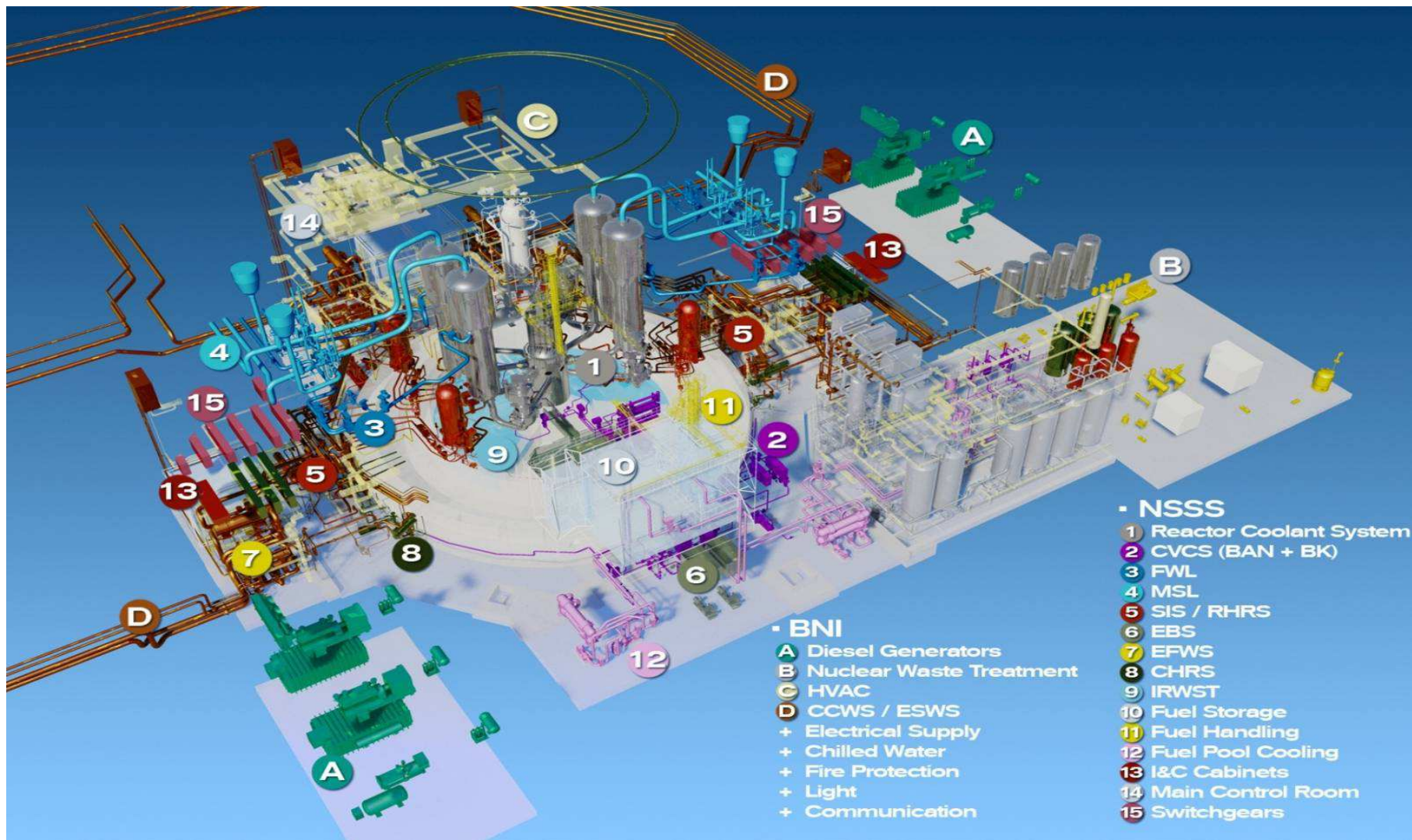
No compromise on quality requirements

EPR Project - Scope of supply



- ▶ **AREVA will manage directly the scope related to Nuclear Island**
 - ◆ System Design, Concept Design, Basic Design, Detail Design Layout, all planning activities
 - ◆ Procurement of all mechanical equipment (incl. piping), all electrical and I&C equipment, HVAC equipment
 - ◆ Installation of all equipment and commissioning as well as overall coordination of Plant commissioning
- ▶ **Turbine Island is managed with a partner or the Client itself**
- ▶ **Civil Works is managed with a partner or the Client itself**
- ▶ **Balance of Plant is managed with a partner or the Client itself**

Typical NI packages (NSSS + BNI)



Main Components Heavy components of the NSSS

Heavy component of the NSSS are critical

- Reactor Pressure Vessels
- Reactor Pressure Vessel Internals
- Primary Equipment Heavy Support
- Control Rod Drive Mechanisms
- Main Reactor Coolant Piping
- Main Reactor Coolant Pumps
- Steam Generators
- Pressurizer

Steam Generators



EPR™ Project Typical Scope of External Procurement

▶ EPR Nuclear Island

◆ Mechanical Equipment

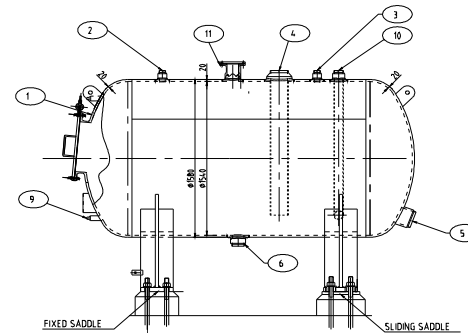
- Cranes, Fuel Handling Equipment
- All Pumps (excluding Main Coolant Pump)
- All Pressure Vessels (excluding Pressurizer and RPV)
- All Heat Exchangers (excluding Steam Generators)

All Filters / Process Components

All Waste Components

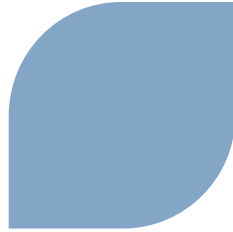
Fire Fighting Equipment

Physical Plant Protection Equipment



EPR™ Project

Typical Scope of External Procurement



▶ EPR – Nuclear Island

◆ Subgroups of Valves – System-Specific

- Main Steam Safety Valves
- Main Steam Relief Isolation Valves
- Main Steam Relief Control Valves
- Main Feedwater Control Valves
- Pressurizer Safety Valves
- Pressurizer Spray Valves
- Severe Accident Valves
- Control Valves

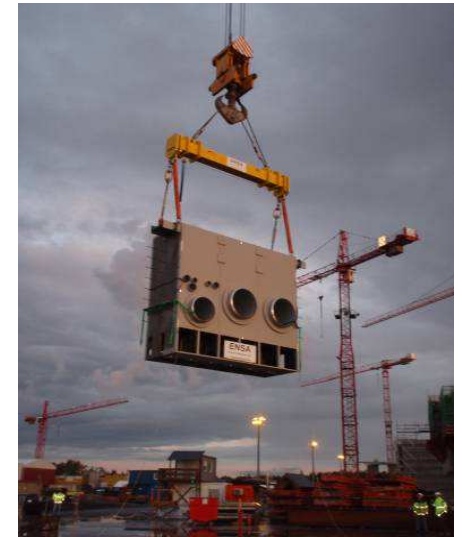


EPR™ Project Typical Scope of External Procurement

▶ EPR – Nuclear Island

◆ Piping and Support Materials Supplies

- All piping material (excluding Primary Loop)
- All fittings, forgings, elbows, flanges, compensators
- All support material incl. steel structures



EPR™ Project

Typical Scope of External Procurement

▶ EPR – Nuclear Island

◆ HVAC Equipments

- Refrigeration Units / Chillers
- Containment Isolation Dampers
- Gas-Tight Dampers, Isolation Dampers
- Fire Dampers/Smoke Relief Dampers
- Fans (Ventilators)
- Heaters, Air Heating Unit, Humidifiers
- Silencers, Filters



EPR™ Project

Typical Scope of External Procurement

▶ EPR – Nuclear Island

◆ Components for Electrical System

- Diesel Generators (EDG and SBO)
- MV-Switchgears, LV-Switchgears
- Batteries, UPS
- Containment Cable Penetrations
- Transformers, AC/DC Converters, DC/AC Inverters
- Cables (LOCA Cables and Non-LOCA Cables)
- Cable Trays including Support Structures
- Building Technology Equipment for complete electrical infrastructure



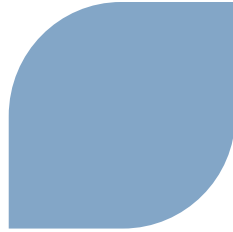
Purchasing: Key criteria

▶ awarded supplier shall :

- ◆ **Agree with Areva sustainable development and Value Charter**
- ◆ **Be compliant with RfQ requirements**
 - Technally (technical solution; applicable code; Qualit class requirement; documentation...)
 - Qualified for the requested scope
 - cost breakdown
 - Warranty
 - Packing and delivery time
 - Alignment with contractual requirements (project TC's and contract)
- ◆ **Be financially healthy**

... and last but not least... be cost-competitive!

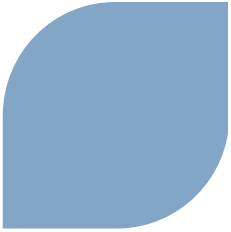
OL3 Feedback: experience with Finnish industry



- ▶ **Developp the appropriate industrial scheme with partners to cover the full scope you are interested in (Engineering Cpy + Manufacturing Cpy + Erection Cpy).**
- ▶ **Partner with experienced companies already involved in the OL3 project for the same scope to target the whole package.**
 - ◆ **Finnish suppliers**
 - ◆ **French suppliers**
 - ◆ **German suppliers**

Either though JV, consortium or as a Tier 3

- ▶ **Optimize your cost... AREVA has a sound knowledge of the market price...**
- ▶ **...and not minimize the impact documentation and inspection activities.**



Thank you

