





New reactor designs and evaluations panel

AREVA perspective

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4 EPR™ Reactor Units Under Construction



- **US EPR Design Certification**
- **UK EPR Generic Design Assessment**

Synergies and series effect between EPR projects



- ▶ **Sharing best practices for construction project management**
- ▶ **Managing critical supplies**
- ▶ **Capitalizing on licensing experiences**
- ▶ **Preparing for commissioning and operation**
- ▶ **Ensuring consistency and reliability for the public information**

Harmonization of International Practices



- ▶ **MDEP initiatives for harmonization of practices aiming at**
 - ◆ Harmonizing regulatory frameworks
 - ◆ Harmonizing Codes and Standards
 - ◆ Sharing of resources and experience among regulators

- ▶ **But efforts are still necessary to move towards mutual recognition mechanisms between nuclear regulators and international certification process**
 - ◆ Reduction of uncertainties in licensing process
 - ◆ Homogeneous safety level worldwide
 - ◆ Facilitation for standardization of reactor designs
 - Licensable and constructible in every country with limited adjustments related to site specificities

- ▶ **This work should be extended to manufacturing activities**
 - ◆ Implementation of common international requirements for QA systems in the nuclear field, independent certification of QA systems recognized by “all”
 - ◆ Methodology for surveillance of manufacturing to be defined in common, then performed by a third party and recognized by all – with preparation of the corresponding file

EPR™ Standardized Design



▶ AREVA standard EPR™ concept combining

- ◆ Reference design defined by technical features
- ◆ Compliant with European Utilities Requirements
- ◆ The unique AREVA licensing experience
- ◆ Experience feedback from previous and current projects



▶ Replication of a sound basis with focus on specific adaptation studies

▶ Large scale effects for improved quality through stabilized industrial processes

- ◆ AREVA manufactured primary components + subcontracted equipment
- ◆ Reduction in lead time and construction durations
- ◆ Possible anticipation of standard components' production
- ◆ Strategic partnerships, qualification of local subcontractors to ensure a more dynamic response to market needs

Stabilized Industrial Process



► Experience acquired for the EPR main primary components manufacturing over the last decade allows

- ◆ Definition of “Best Practices” for manufacturing
- ◆ Definition of reference procedures and documents
- ◆ For the whole set of components manufactured by AREVA
 - Large forged, molded and machined parts
 - Heavy components
 - Mobile components



Reactor Pressure Vessel – St-Marcel

» For an optimized manufacturing process meeting high-quality requirements, in particular for forging of large ingots

Quality and Safety Processes



- ▶ **Nuclear safety requires no compromise on quality**
 - ◆ From Design to in-service inspection
- ▶ **Quality requirements**
 - ◆ Applied to our own processes
 - ◆ Extended to our partners and contractors
 - ◆ All over the supply chain
- ▶ **Development of safety culture internally and externally**
- ▶ **AREVA Qualification process for contractors and suppliers**
 - ◆ Quality management
 - ◆ Awareness of responsibility
- ▶ **International recognition of competence of AREVA's inspection body**



Conclusion



- ▶ **Mutual recognition mechanisms between safety regulators would benefit to safety worldwide**
- ▶ **Standardized reactor design, in particular for forgings,**
- ▶ **It would facilitate the deployment of large fleets of standardized reactors**
- ▶ **With possible anticipation of standard components' manufacturing without allocation to a contract**



EPR™ reactor construction site, Olkiluoto (Finland). 2011, July

AREVA is supporting MDEP work to strengthen its organization