



EXECUTIVE NUCLEAR SEMINAR

EXENUC 2012 Session

Program Content

AIMS

- ✓ TO PROVIDE AN UNDERSTANDING OF MAJOR OPPORTUNITIES AND THREATS FACING NUCLEAR BUSINESSES
- ✓ TO FEATURE HEAVY COMPONENTS OF PWR'S PRIMARY LOOP WITH 1:1 SCALE MOCKS-UP

The seminar features the main sensitive issues which have to be considered by decision-makers and executives whilst developing nuclear activities, *ie.*: worldwide market trends, latest state-of-art technologies, new nuclear financing, strategic insight of fuel cycle, latest safety and security standards, industrial standards requested by PBOs and underlying the supply chain.

Lectures are given in English by French top-level experts worldwide renowned.

PROGRAM OF 2-DAY CONFERENCES

➤ A DARWINIAN HISTORY OF NUCLEAR REACTORS

⇒ **Speaker** A. Vallée, Scientific Director, INA

⇒ **Content** A comprehensive history of nuclear reactors' development will lead participants to understand strengths and weaknesses of nuclear activities. LWR reactors are dominants among other technologies because they were developed by the industry for the industry. However, some other kinds of reactors have survived in niche markets for specific reason such as the CANDU reactors. Besides the reasons of success, it is important to understand the reasons for failure: what lessons can be drawn from the up-to-now unsuccessful development of High Temperature Gas Reactors or of Fast Breeder Reactors?

➤ CURRENT SITUATION OF THE NUCLEAR ENERGY MARKET : MAIN PLAYERS

⇒ **Speaker** D. Vignon, CEO, NucAdvisor (former Framatome CEO)

⇒ **Content** After a fast development during the sixties and seventies, the nuclear industry spent close to two decades with a very low level of orders. The consequence was a huge reorganization of the sector with a move out of some major companies which sold their nuclear business (like Westinghouse, now CBS, or Babcock & Wilcox...) and the merging of some other ones (Framatome and Siemens, Hitachi and GE, American Utilities,...). Meanwhile, the current nuclear renaissance sees the emergence of new players e.g. in China or Korea. All are now competitors in a global market which have drastically changed compared to the situation of the seventies: the International Agency in Vienna is now a real key player, the role of States is still important but not as dominant as it was in the past and the nuclear business has to learn how to play the game according to new financing rules.

➤ SUPPLY CHAIN FOR NEW BUILD

⇒ **Speaker** R. Deboos, Suppliers Relation Manager, Nuclear Engineering Division, EDF

⇒ **Content** Nuclear power development requires a broad supply chain as a support. Developing local capacities is a key for the success of a nationwide program and could offer opportunities for export. The supply chain is covering a vast scope of activities: supply of raw materials, casting and forging, manufacturing of equipment, civil engineering, mechanicals, electrical, project management... In any area, the availability of a skilled workforce well aware of the major challenges in the industrial nuclear energy sector is a basic necessity. Participants will learn the key features for being part of the supply chain and the kind of requirements they will have to fulfill.



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➤ **PWR TECHNOLOGY**

⇒ **Speaker** A. Vallée, Scientific Director, INA

⇒ **Content** The basic operational principles of the new generation of PWR didn't differ from those which were put in place in the first ones. Nevertheless, the feedback from experience, mostly in safety, led to additional features and complexity; as a counterpart, to keep the generated electricity cost competitive, the power level and the performances were dramatically increased. The lecture presents how a PWR is designed and operates and details the different steps (in term of safety and operational performances) which were done to design the last generation.

➤ **NUCLEAR SAFETY**

⇒ **Speaker** S. Crombez, Nuclear Pressure Equipments Director, ASN
(French Nuclear Safety Authority)

⇒ **Content** Nuclear safety requires the involvement of all stakeholders in the achievement of safety goals. Engineered safety systems in nuclear plants are not sufficient to ensure them and risk prevention is a key issue. Safety has to be a basic concern throughout the supply chain and for anyone involved in the construction and operation of nuclear facilities.

The lecture will teach participants on basic principles of safety and on the respective roles and responsibilities of the safety authority, the operator, the constructor and the manufacturers.

➤ **ECONOMY & FINANCE OF NUCLEAR ENERGY**

⇒ **Speaker** M. Lecomte, Expert Founder, NucAdvisor

⇒ **Content** The relative costs of generating electricity from nuclear plants present few characteristics which make it very specific compared to the other means. First, the most significant part of the cost is due to the capital cost; that means that the financial engineering and the construction duration are keys element for the final price of the electricity. Second, the cost of electricity generated with uranium is mostly insensible to the volatility of fossil fuel price. As a matter of fact, key elements for nuclear electricity generation are the capital cost and then, an efficient and effective operation of the reactor. New schemes for financing nuclear reactors are looked for with more fluidity in the debt besides the reference one with an Utility acting as investor and operator.

➤ **FUEL CYCLE**

⇒ **Speaker** J-L Salanave, Chief Technology Officer (CTO) AREVA NC

⇒ **Content** The lecture will describe the main industrial players and the engineering processes in the different activities related to the fuel cycle: uranium mines, enrichment, fuel assemblies manufacturing, reprocessing, interim storage and final disposal. Subjects like uranium resources duration, non proliferation issues linked to enrichment and reprocessing will be highlighted.

➤ **NUCLEAR LAWS & RULES**

⇒ **Speaker** Legal Adviser, Environmental Law, AREVA

⇒ **Content** International treaties, conventions and protocols promoted by the IAEA are providing a basic legal framework to the use of nuclear energy. In addition, countries using or moving toward the use of nuclear energy have to adapt their own set of laws and rules to its specificities: labor, health, responsibilities and insurances, independent control by competent bodies etc. The result is more or less the settlement of a specific legal domain around the use and storage of radio elements.

The main purpose of the lecture is to provide to the participants the main sensitive items they have to consider when developing their nuclear activities.



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DAY 3 (1/2 DAY)

➤ **PRESENTATION OF THE CETIC: MAINTENANCE PREPARATION, QUALIFICATION AND TRAINING CENTRE**

⇒ **Speaker** Pierre-Alain LHOTE, CETIC EDF General Manager

⇒ **Content**

One of the major stakes in any NPP is to optimize operations of maintenance and repairs. To do so, EDF and AREVA, the French Parent Bodies Organizations (PBOs), have implemented a training centre to prepare site operations. The CETIC is a unique facility driving the French nuclear fleet to its performance.

➤ **CETIC VISIT A UNIQUE FACILITY**

Get access to 1:1 scale mocks-up of primary system components designed for training on maintenance operations in reactor and refueling.



DATES

- EXENUC05 FROM 19TH MARCH TO 21TH MARCH 2012, LE CREUSOT
- EXENUC06 FROM 21ST MAY TO 23RD MAY 2012, CHALON-SUR-SAONE
- EXENUC07 FROM 15TH OCTOBER TO 17TH OCTOBER 2012, LE CREUSOT
- EXENUC08 FROM 10TH DECEMBER TO 12TH DECEMBER 2012, CHALON-SUR-SAONE

TUITION FEES

- **1 500 € per delegate**
- above 2 delegates belonging to the same company: **1 250 € per delegate**

This is inclusive of tuition fees, Delegate Pack and 3 lunches but does not include accommodation and dinner. On request: Special rates for accommodation. Fees are not liable to VAT.

For French businesses, tuition fees are subject to be registered into CPD and to apply for public funding via the company's OPCA.

VENUE IN BURGUNDY

You will be informed of the location after registering. On request: special arrangements for transfer between railway station and the hotel.

TO REGISTER, PLEASE FILL THE REGISTRATION FORM ON-LINE:

www.inuclear-academy.com