



SESSION 3 Strategic Planning for introducing Nuclear Technology in the GCC Countries

PC-Based Simulator for Education in Advanced Nuclear Power Plant Construction

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The PC-based reactor simulation software PCTTRAN was recently expanded to cover light water advanced reactors. The plant models include Generation III+ advanced PWR and BWR. The evolutionary designs are Areva EPR and GE ABWR by adding cooling path redundancy and devices for severe accident mitigation. One-step further is the passive-cooled Westinghouse AP1000 and GE ESBWR. Combined with PCTTRAN's models of experimental pool reactor and conventional PWR and BWR with server accident and dose dispersion capability, it forms a complete series for education in nuclear technology. The PC-based simulation system helps to train the first generation of technical staff for countries entering the nuclear era.





Nuclear Education and Knowledge Management in Czech Republic

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Czech Republic, as a user of nuclear energy, needs a number of nuclear specialists for NPPs operation and also for R&D of new nuclear devices. They are educated in few technical universities and educational institutions of industrial companies. The main role in the nuclear education plays the Faculty of Nuclear Sciences and Physical Engineering of the Czech Technical University in Prague, which operates a training reactor VR-1. The "Czech Nuclear Education Network" (CENEN) was established for better cooperation, preservation and further development of a higher nuclear education and expertise.





Improvement of the NPP Personnel Simulator Training

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It is a common practice to have a full-scope training simulator for a specific plant or for a group of similar plants; this is widely used for operator training in a full range of plant operating conditions and for emergency training. However, use of a full-scope simulator for training is not always effective. Use of a full-scope simulator becomes more effective if to use the modular scheme of training and more simple simulators for a pre full-scope simulator training.



Chilean Nuclear Power in 2020: The Costs and Benefits of Building a First Nuclear Power Plant

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This paper evaluates the option of being able to begin construction on a first nuclear power plant in Chile in 2020. This implies that by 2020 (1) an appropriate Chilean regulatory authority has issued a site license and a construction permit, has the expertise to issue an operating permit, and can regulate nuclear plant operations and nuclear fuel management, (2) an owner-operator and financing has been committed, and (3) a system of handling fresh and spent nuclear fuel has been specified. At that time the net present value of the project can be calculated and compared with competing alternatives. Until that time, funds must be spent on regulatory and physical infrastructure preparation. Under this paper's assumptions and economic modeling, a country contemplating a first nuclear power plant should be willing to invest approximately \$65 million in this preparation, even though a nuclear power plant might never be built. This \$65 million arises from the possibility of international carbon dioxide controls that would greatly increase the cost of fossil fuel alternatives.

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