

## NUCLEAR ENERGY SERIES

<b>Provisional Title</b>	<b>Integrated Life Cycle Risk Management for New Nuclear Power Plants</b>
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### 1. RATIONALE

Structuring a nuclear power plant (NPP) construction project for success requires the identification, the understanding and control of all the risks associated with their impacts on the technical requirements and economic assessments.

Risk management constitutes a system of decisions directed towards what needs to be done in order to reduce unacceptable risks. The problem of choice is, in most cases, based on economic analysis for the optimal utilization of financial resources. However, the technical basis for quality control and quality assurance in NPP construction will be more and more important for 60 or 80 years NPP operation than reducing cost. Thus, it is necessary to consider the integrated approach to bring about maximum risk reduction with the available means considering technical requirements and economic assessment.

The integrated risk management process, when applied to the NPP construction project, provides a tool to assess quality, cost and schedule. Risk assessment and management is increasingly a major project management activity for both the safety and non-safety system, structures and components to deal effectively with uncertainty and unexpected events. Stages of risk management can be defined, as follows:

- Risk management planning;
- Risk identification;
- Qualitative risk analysis;
- Quantitative risk analysis;
- Risk response planning; and
- Risk monitoring and control.

### 2. OBJECTIVE

The purpose of this NES publication is to provide practical guidelines on various aspects of integrated risk management for NPP construction projects, and to share experiences among Member States regarding good practices in this area.

It is planned to highlight the importance of having appropriate risk management policies, especially considering the various contractual and organizational arrangements that exist in different construction and operating organizations and Member States. Specifically, this NES publication aims to share experiences from Member States related to risk management for NPP construction project, including refurbishment and share experiences related to the development and use of different tools and techniques for NPP construction project risk management.

### 3. SCOPE

This NES publication will provide practical guidelines how to identify and build a successful risk management strategy focusing on NPP construction project with following issues:

- Understand the risk framework, and that it includes all relevant types of risk;
- Develop meaningful metrics for monitoring the effectiveness of risk management;
- Develop risk profile: identifies key risk areas to represent the main or critical areas in NPP project planning and implementation; and
- Develop the strategies and techniques to manage or mitigate risks such as reduction of risk, retention of risk, transfer of risk.