

## FOREWORD

In the future for developing regions and remote areas one or two power reactors in the 50 MW(e) to 100 MW(e) range could be appropriately applied for electricity and heat production. Introducing and managing such a small programme with conventional reactor systems would require a mature supporting technological infrastructure and many skilled and highly trained staff at the site, which might be a problem for some countries. An increased number of small conventional reactors (e.g. with on-site refuelling) would increase the burden and expenditure for assuring security and non-proliferation. To this end, the time has come to develop an innovative small reactor concept that meets the following requirements: reliable, safe operation with a minimum of maintenance and supporting infrastructure, economic competitiveness with alternative energy sources available to the candidate sites, and significant improvements in proliferation resistance relative to existing reactor systems.

Successful resolution of such a problem requires a comprehensive systems approach that considers all aspects of manufacturing, transportation, operation, and ultimate disposal. Some elements of this approach have been used previously in the development of propulsion (ship and space) nuclear power systems, with consideration given to many diverse requirements such as highly autonomous operation for a long period of time, no planned maintenance, no on-site refuelling and ultimate disposition.

It is with this focus that the IAEA convened the Advisory Group on Propulsion Reactor Technologies for Civilian Applications in Obninsk, Russian Federation.

This meeting, which included participants from ten countries (Canada, China, Egypt, France, India, Indonesia, Japan, the Republic of Korea, the Russian Federation and the United States of America) brought together a group of international experts to review and assess the propulsion reactor design features and operational experience, mode of its alternative application, as well as to discuss the systems approach and requirements for innovative small reactors and rationale for selecting them.

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