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*Keynote Address: Global Trends in Advanced Reactor Developments, and the Role of the IAEA*  
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Due to further increases in the world's population along with further industrialization and economic development, global energy demand will surely continue to increase in the 21<sup>st</sup> century.

In the second half of the 20<sup>th</sup> century nuclear power has evolved from the research and development environment to an industry that supplies approximately 16% of the world's electricity. In these 50 years of nuclear development a great deal has been achieved and many lessons have been learned. At the end of 1998, according to data reported in the Power Reactor Information System, PRIS, of the IAEA, there were 434 nuclear power plants in operation and 36 under construction. About 9500 reactor-years of operating experience have been accumulated by today.

The continued contribution of nuclear energy to energy needs depends on several key issues. The degree of global commitment to sustainable energy strategies and recognition of the role of nuclear energy in sustainable strategies will impact its future use. Technological maturity, economic competitiveness and financing arrangements for new plants are key factors in decision making. Public perception of energy options and related environmental issues as well as public information and education will also play a key role in the introduction of advanced designs. Continued vigilance in nuclear power plant operation,

and enhancement of safety culture and international co-operation are highly important in preserving the potential of nuclear power to contribute to future energy strategies.

To assure that nuclear power remains a viable option in meeting energy demands in the near and medium terms, new reactor designs for all principle reactor lines and for different applications are being developed in a number of countries. Common goals for these new designs are high availability, user-friendly features, competitive economics and compliance with internationally recognized safety objectives.

World-wide, considerable efforts are being made to develop advanced nuclear power. Various organizations are involved, including governments, industries, utilities, universities, national laboratories, and research institutes. Expenditures for development of new designs, technology improvements, and the related research for the major reactor types combined is estimated to exceed US\$ 2 billion per year.

This paper gives an overview about nuclear power technology development programmes and projects in Member States and the role of the IAEA as a forum for information exchange and co-operative research.