Status and Prospects of Nuclear Power Development in Russia

Report of the Russian Federation Minister for Atomic Energy

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February 4, 2003
Helsinki

Ministry of the Russian Federation for Atomic Energy

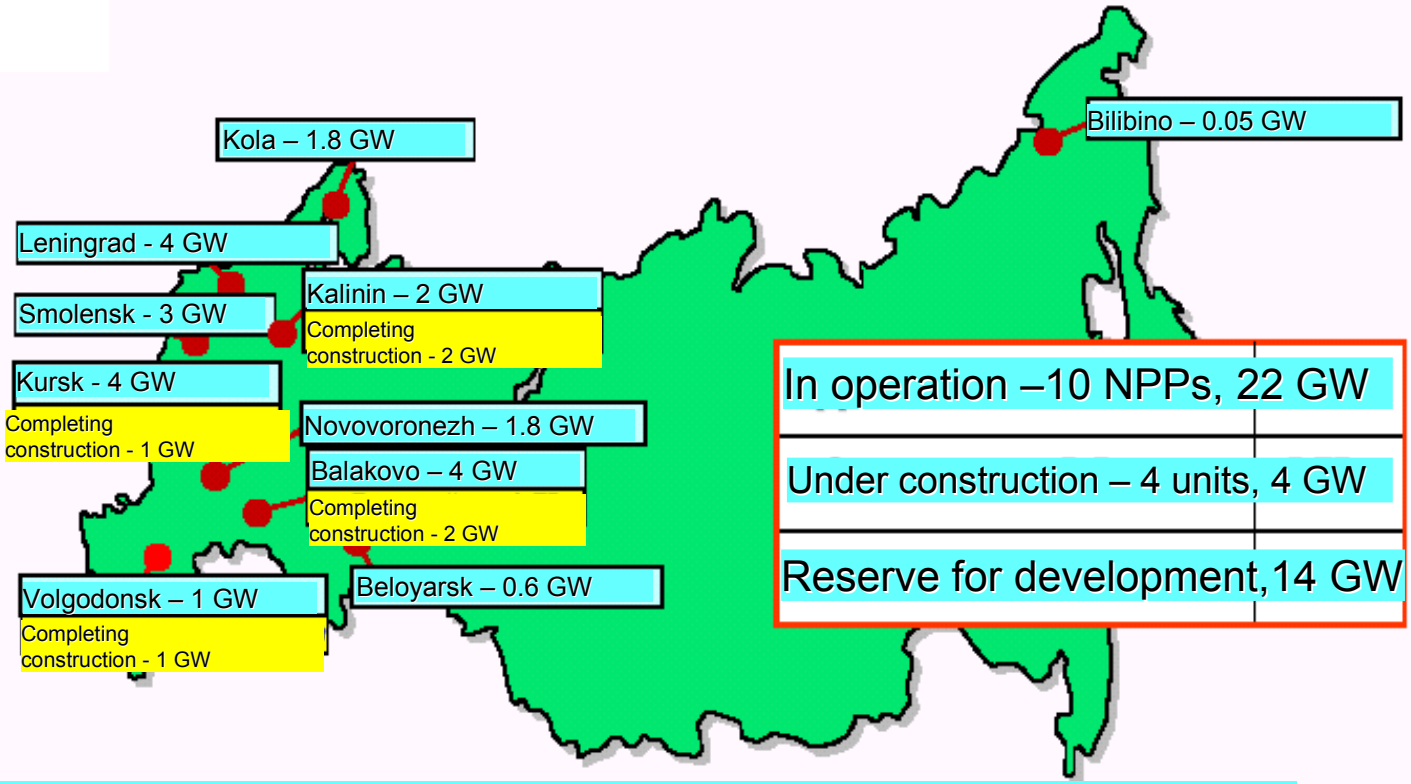
Program documents

- Strategy of nuclear power development in Russia for the first half of the XXI century
- Energy strategy of Russia
- Federal program “Power effective economics for 2002 – 2005 and 2010 perspective”, section” Safety and development of nuclear power”»
- Laws and decrees of the President of the Russian Federation:
  - RF Federal Law of 21 November 1995 No 170–FZ “On Nuclear Energy Utilization”
  - RF Federal Law of 21 July 1997 No 116-FZ “On Industrial Safety of Hazardous Production Facilities”
  - RF Federal Law of 10 January 2002 No 7-FZ “On Protection of Environment”
  - Decree of 10 July 2001 No 828 “On the Special Commission for issues of foreign origin fuel assemblies import to the Russian Federation territory”

Priorities of Nuclear Power Development

- Providing for NPP safety
- Electricity production efficiency enhancement
- Power units modernization and service life extension
- NPP output increment and increase
- Innovation technologies implementation

Nuclear Power Plants in Russia

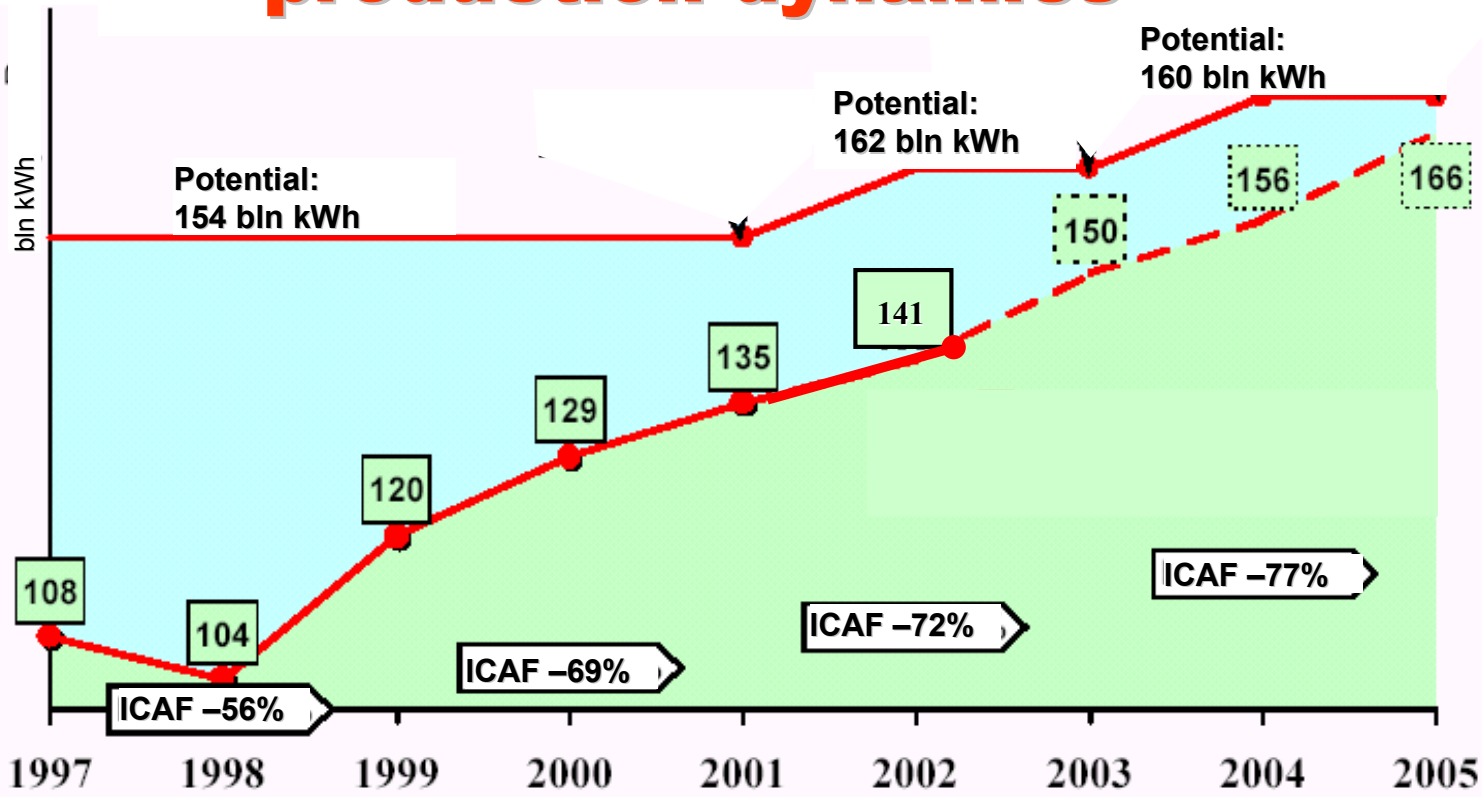


NPP share: in capacity 11.5%

in production 15%

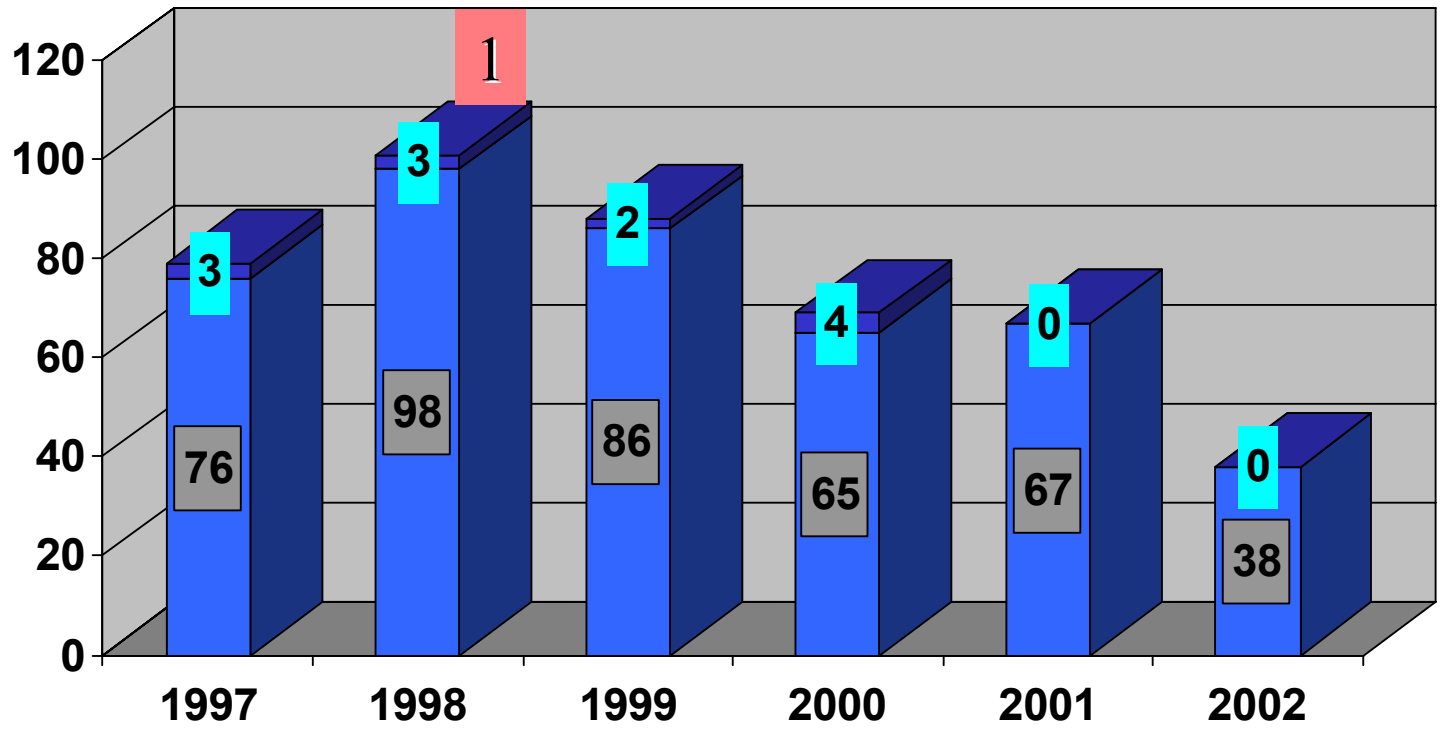
(21% in the European Region)

NPP electricity production dynamics



There is a reserve for production increase at operating NPPs up to 30 billion kWh annually

Dynamics of events at NPP



Events not important for safety – “0” level and lower on the INES scale

Events important for safety – level “1” on the INES scale

Events important for safety – level “2” on the INES scale

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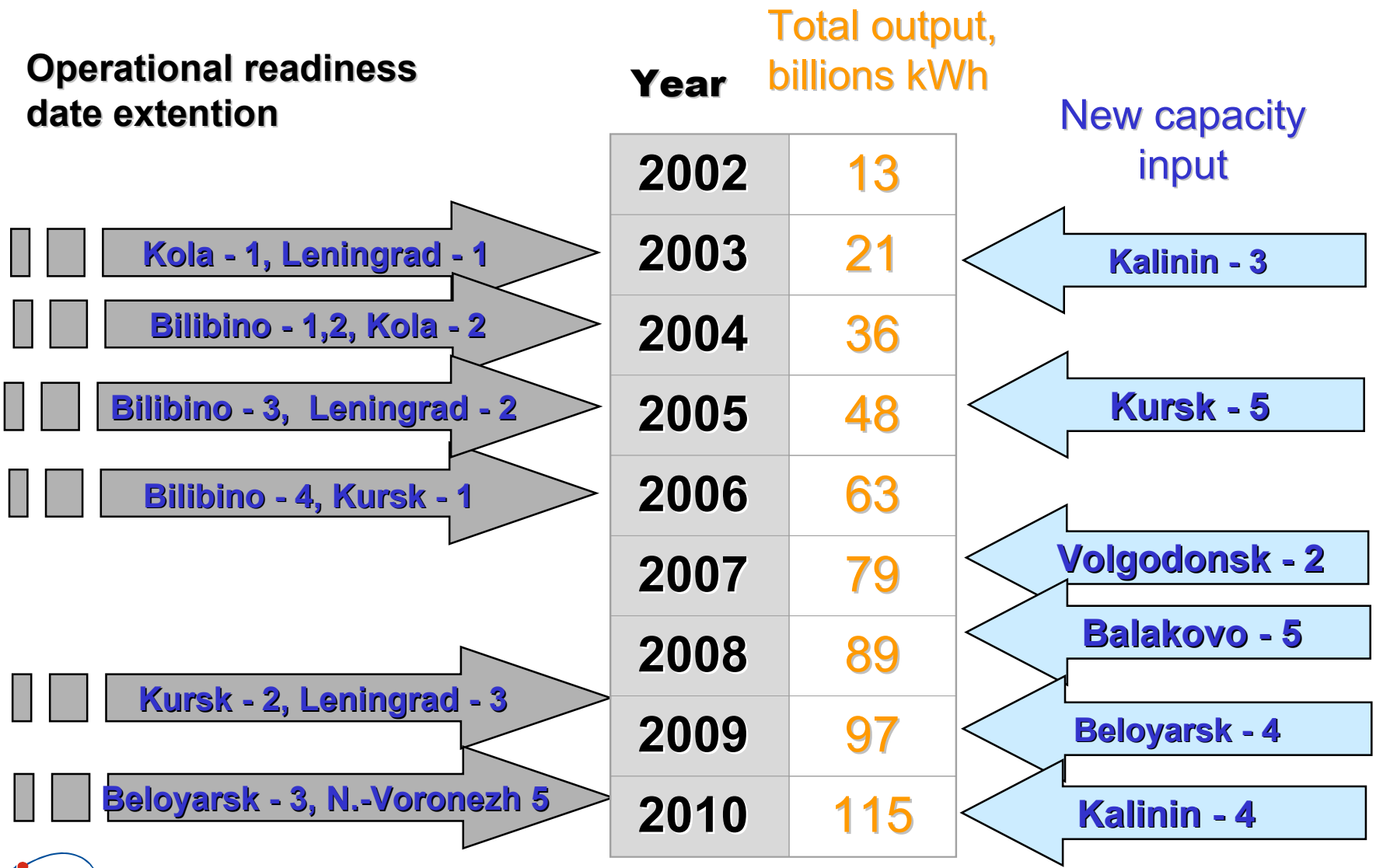
NPP resource potential



New VVER-1000 abroad

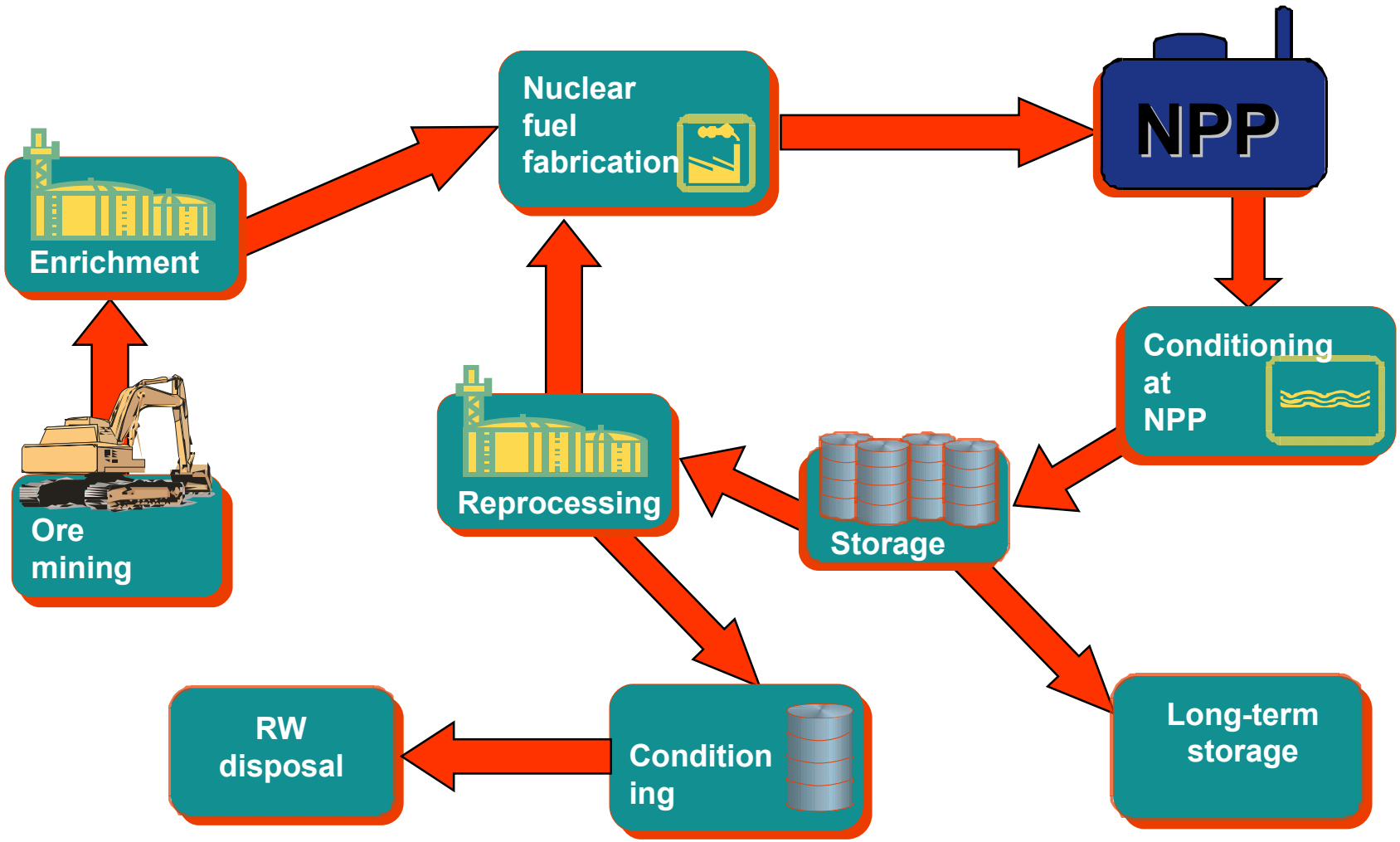
New construction:

- Tyanvan NPP in China
- Busher NPP in Iran
- Kudanculam NPP in India

Completing construction:

- Khelminitsky and Rovensky NPP in Ukraine

Closed fuel cycle



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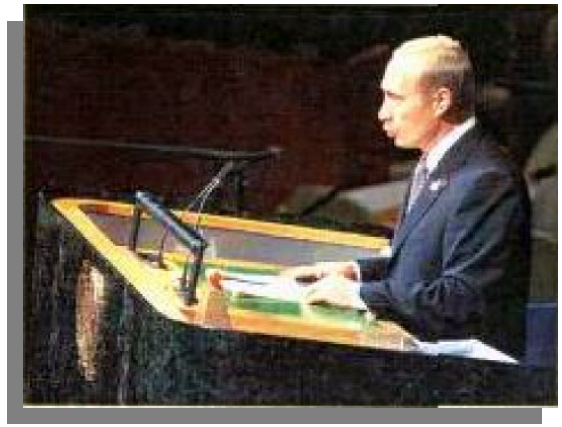
Task of Russia at the international market of services for spent nuclear fuel management

- Nuclear fuel cycle contracted deliveries implementation
- Providing for nuclear weapon non-proliferation regime
- Providing for the future nuclear power resource base involving uranium and plutonium regeneration
- Financial resources provision for solving ecological problem in Russia accumulated during nuclear weapon program implementation
- National infrastructure development for spent nuclear management meeting international standards

President of Russia Vladimir Putin initiative at the UN Millennium Summit



It is necessary to safely cut off nuclear weapon scattering paths.
It can be provided for, interalia, by the exclusion of
enriched uranium and pure plutonium from the use
in peaceful nuclear power programs.

Burning up of plutonium and other radioactive elements
gives opportunity for the final solution of the RW problem.
It will open to the world principal new prospects
of the safe life in our planet.

Russia proposes to develop and implement an appropriate
international project with the IAEA participation.

Future nuclear power should provide for:

- Safety and competitiveness of NPPs
- Fuel supply task solution for wide scale nuclear power programs
- Solving problems of spent nuclear fuel and radioactive waste management
- Technological support of the non-proliferation regime of nuclear materials suitable for weapon use

Advanced designs of power units

Power unit	Designation	Planned putting in operation
Upgraded VVER-1000	Base power unit for domestic market and export	Before 2010
VVER-1500	For effective replacement of first generation units and output increase	After 2013
WK-300\NHPP	Electricity and heating for Russian towns (regional application)	After 2010
BN-800	For plutonium utilization and ecological problems solution	2010
Innovation technologies	Fast reactors with heavy and light liquid metal coolant (BREST, SVBR, BN) High temperature gas-cooled reactors (GT-MGR)	After 2015