



State Atomic Energy Corporation

Rosatom

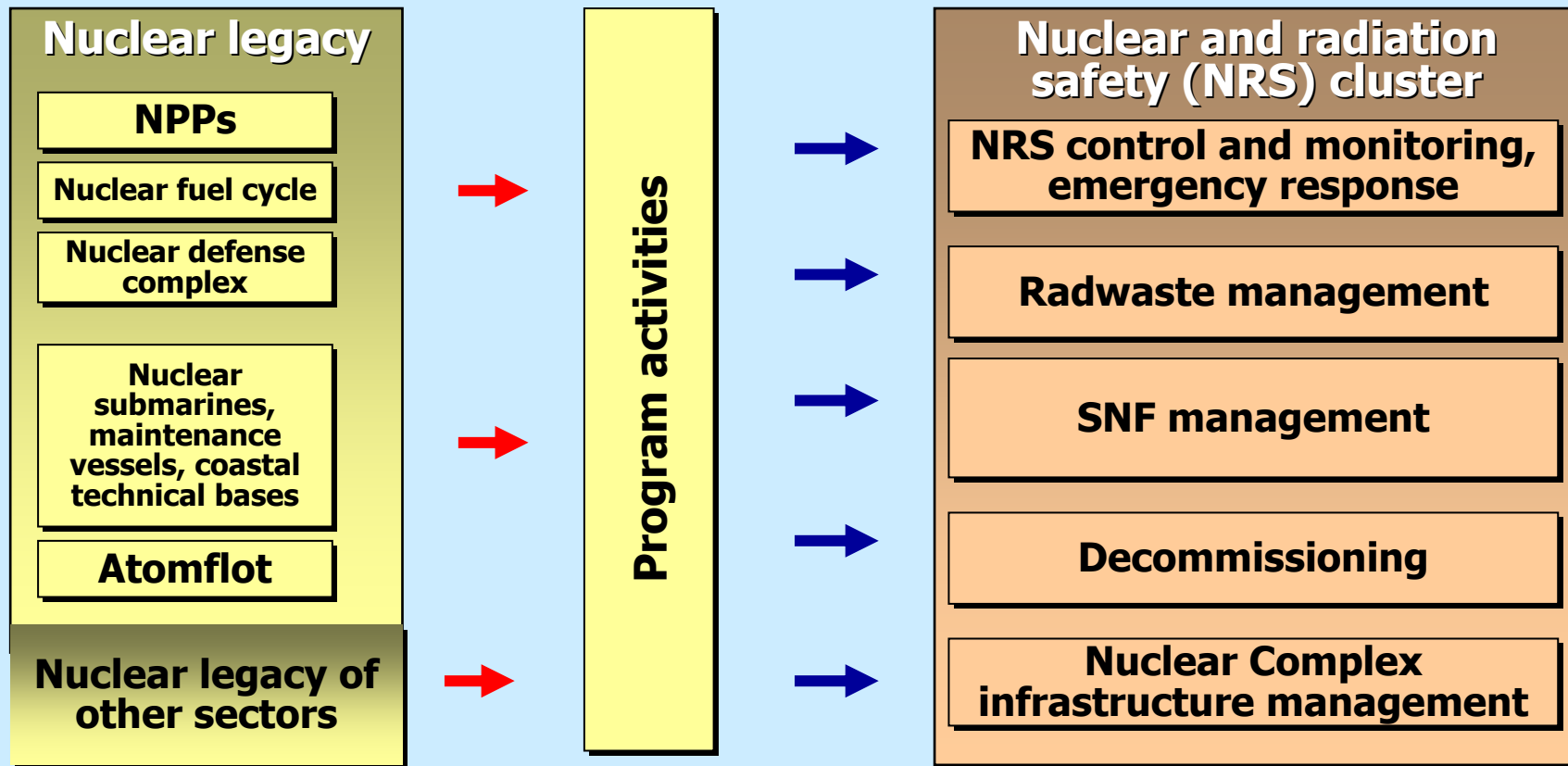


**Main Tasks of the Federal Targeted Program
“Nuclear and Radiation Safety Assurance for the
Period 2008 – 2015”**

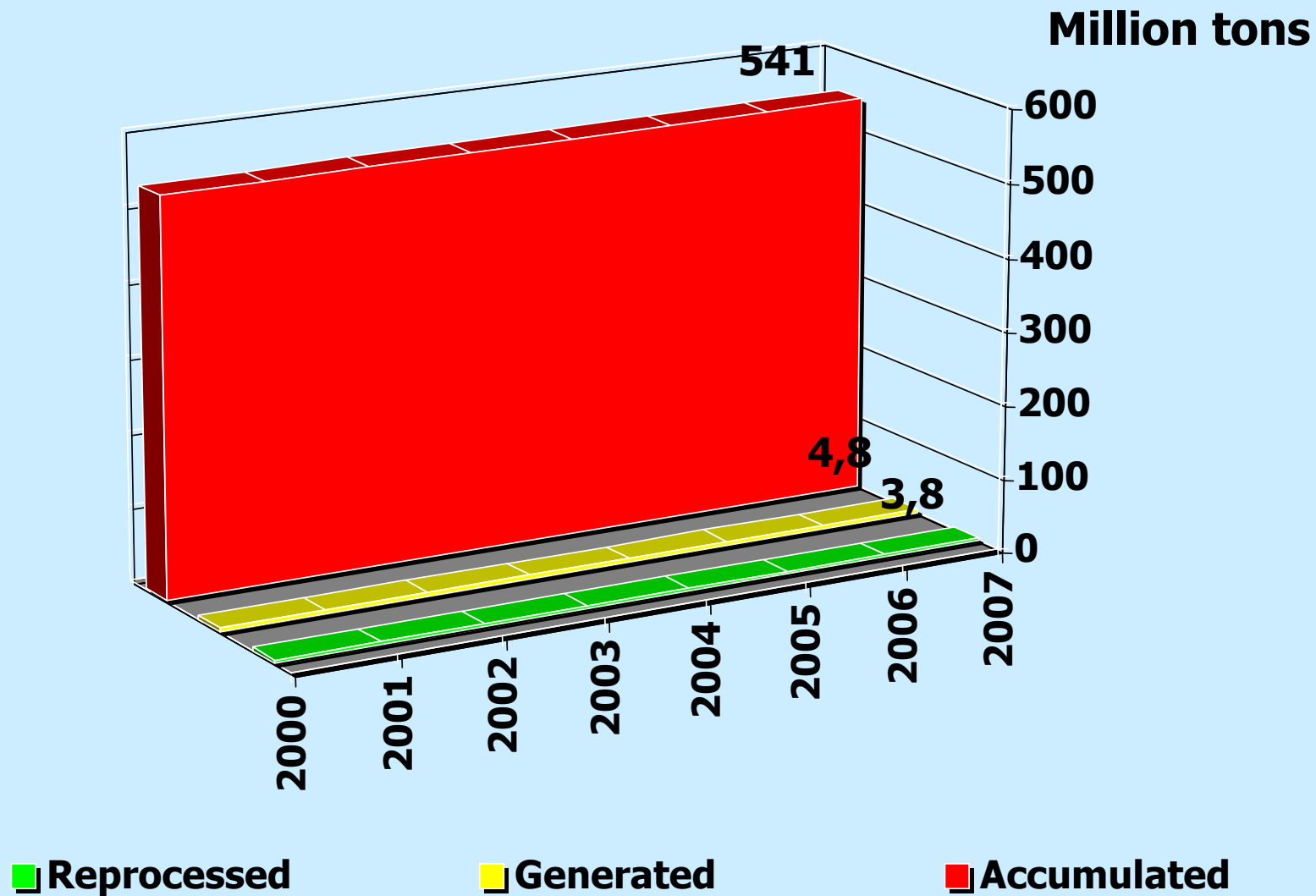
E.G. Kudryavtsev

**Director of the Department for SNF and RW management and
Nuclear Facilities decommissioning**

Nuclear and Radiation Safety cluster to ensure the Program implementation

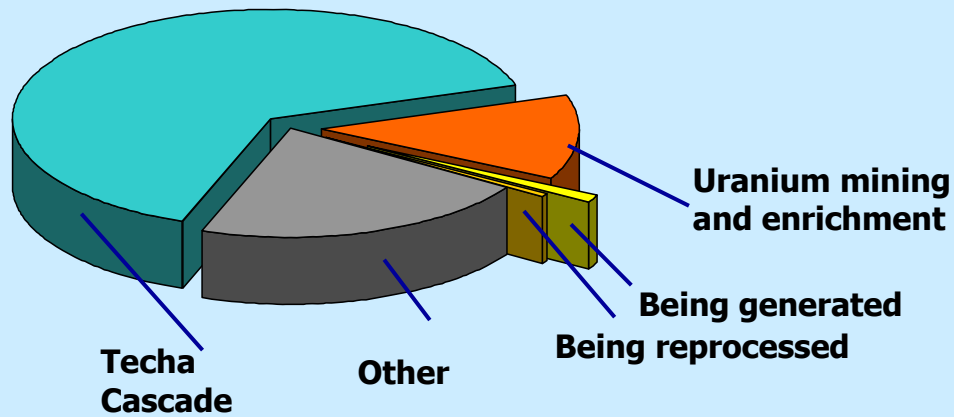


RadWaste generation and accumulation in Russia

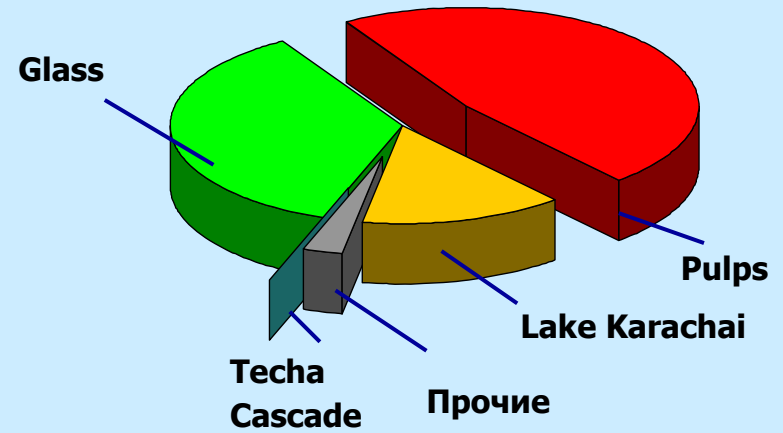


Accumulated Radwaste in the Russian Federation

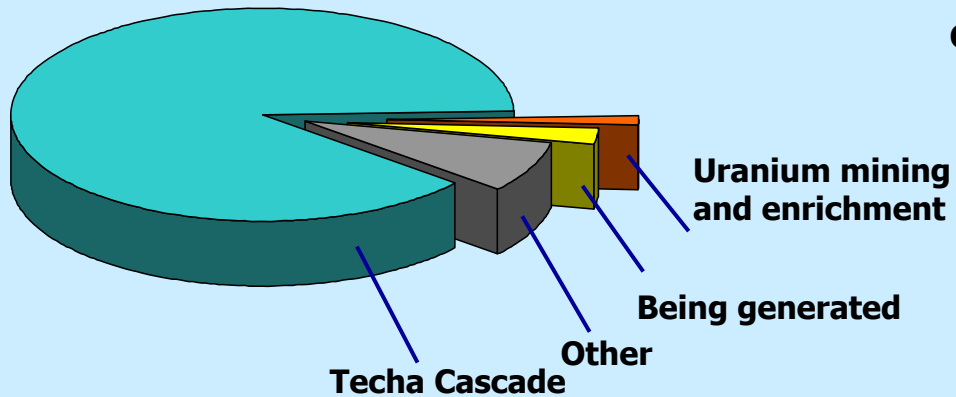
Radwaste quantity – 2008
(540 million tons)



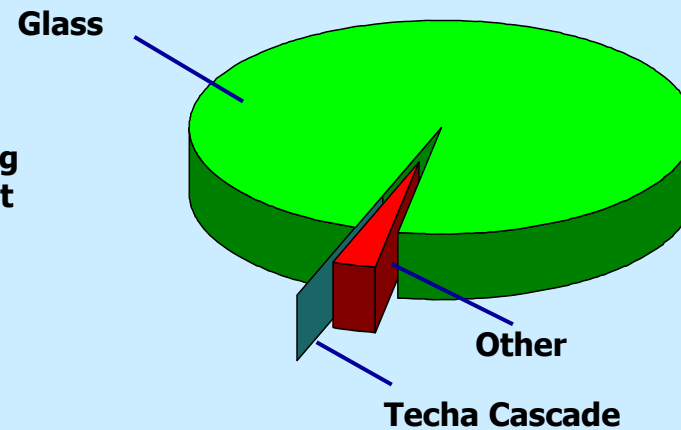
Radwaste activity – 2008



Radwaste quantities – 2025
(385 million tons)



Radwaste activity – 2025



Russian RadWaste management Law

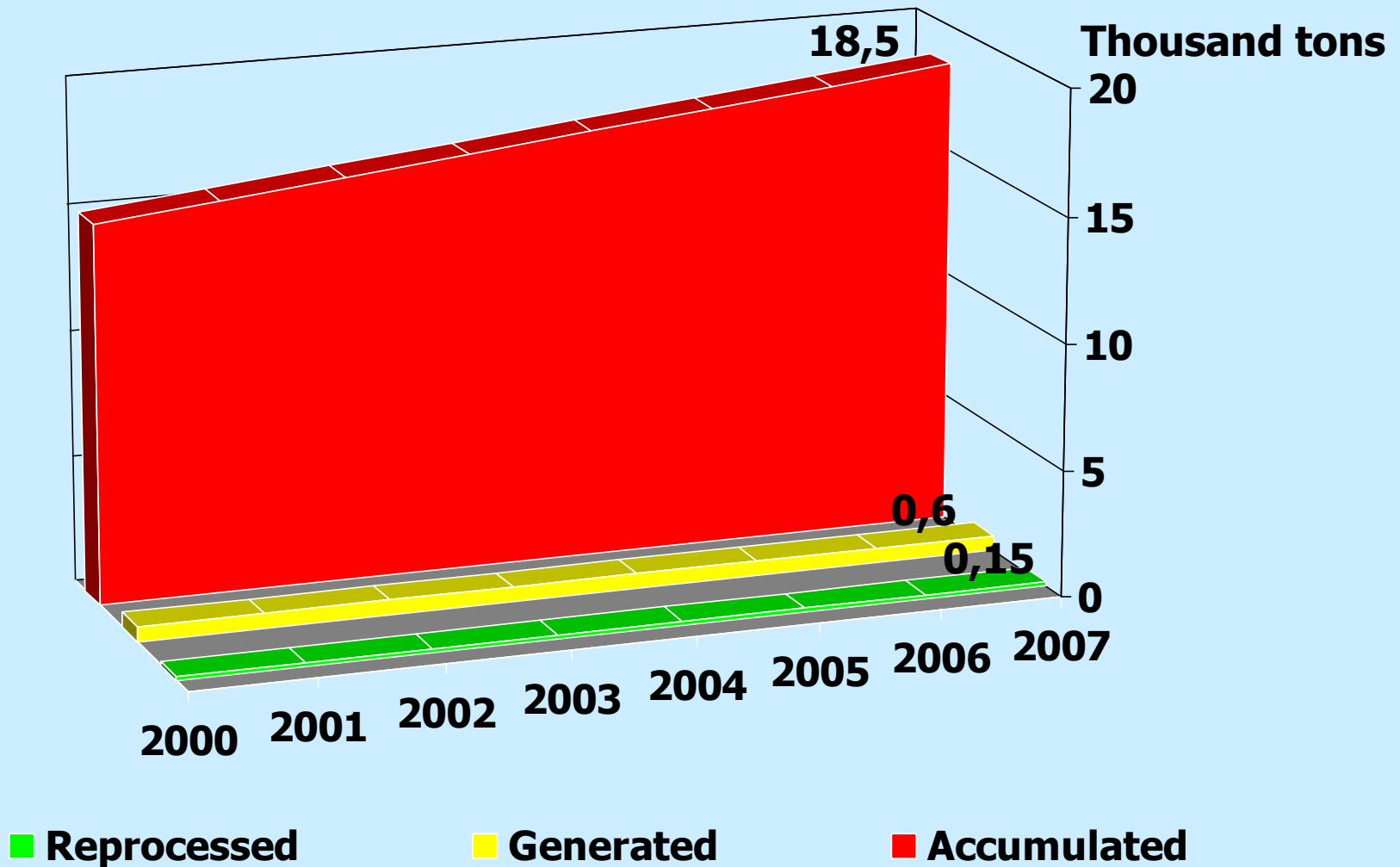
Main concept of the draft Law:

- 1. Creation of legal tools to make radwaste producers transfer the waste for its obligatory safe final disposal;**
- 2. Fixing the State's commitments on all accumulated radwaste and final liability.**

Legal aspects of the draft law:

- 1. Determination of legal regime for different RW categories management depending on their potential danger**
- 2. Ownership of RW and financial liability of RW producers and of the State**
- 3. Establishing organizational and financial basis of unified State System for RW management**
- 4. Measures to stimulate RW producers pay for the final stage of management:**
 - RW producer must transfer the wastes to the national operator under the control of the State System of RM and RW accounting**

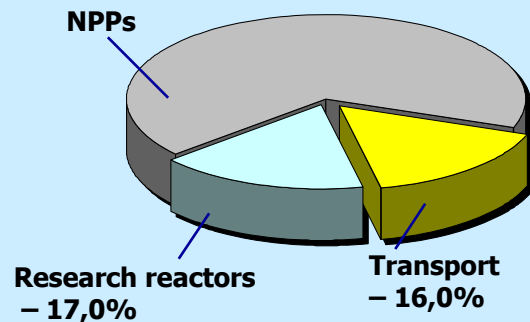
SNF problems



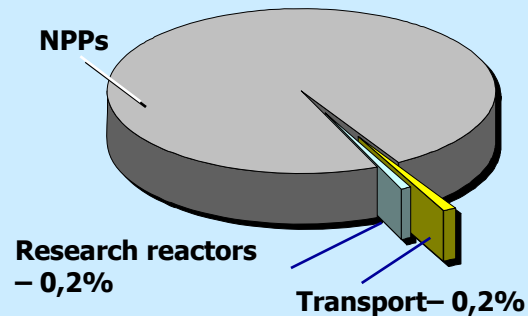
No capacity and technologies exist for some SNF types reprocessing

Breakdown of accumulated SNF in Russia

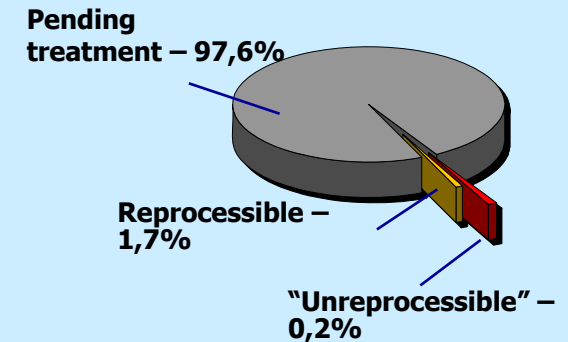
Irradiated fuel rod assemblies (over 170 thousand FA)



Uranium (over 18.5 thousand tons)



U-235 (app. 190 t.)



Priorities in the field of SNF management

1. Establish new infrastructure at Mining Chemical Combine (MCC) and NPPs, form a SF Management Fund, adopt a law on SNF (Draft Law - 2008)
2. Decision on preparation to unreprocessable SNF disposal (ice-breakers zirconium-uranium fuel, some research reactor fuels, etc)
3. MCC: construction of new Dry storage facility (vault - type)
4. PO Mayak: full use of RT-1 capacity to reprocess "problematic" SNF types (including damaged SNF from RBMK, RRs, NSs, AMB etc.).

RT-1 Radiochemical Plant, PA Mayak - I

Design capacity - 400 t/year, at present annual reprocessing rate up to 120 t of SNF (VVER-440, BN - 600, nuclear subs, RRs)

Reprocessed uranium is recycled for RBMK fuel fabrication

In mid-term perspective besides current reprocessing additional capacity to reprocess the “problematic” fuel types (DAV, AMB etc.)

The condition of functioning is to implement measures aimed at ensuring environmental safety relating to PA Mayak operation, phased reduction and elimination of liquid radwaste releases.

Federal Target Program on nuclear and radiation safety provides for allocation of more than 17 billion rubles to resolve the issues related to environmental safety of FSUE PA Mayak activities.

RT-1 Radiochemical Plant, PA Mayak - II

In order to reduce and stop liquid radwaste discharge the FTP on nuclear and radiation safety provides for the following :

- Development of strategic solutions of the problems related to the Techa Cascade of Reservoirs;
 - Conservation of Reservoirs V-9 (Lake Karachai) and V-17 (Old Swamp);
 - Creation of conventional sewage system diverting treated effluents into the left-bank channel;
 - Construction of facilities for treatment of special sewage system water and of low- and intermediate- level radioactive waste;
 - Building of liquid and heterogeneous intermediate-level radioactive waste cementation facility;
 - Building of solid radwaste reprocessing facility and construction of near-surface storage facility for solid low- and intermediate- level waste;
 - Establishment of modern radioecological monitoring system.
- To continue operation of HLLW vitrification the FTP envisages the Building No120/12 enlargement to install additional electric melters EP-500/5,6 and new storage facility.

Nuclear Decommissioning Problems in Russia

SC Rosatom facilities

| Type | 2008 | 2025 |
|-------------------------------|------------|------------|
| NPP unit | 4 | 14 |
| Commercial U-graphite reactor | 10 (12) | 15 |
| RR | 14 | 30 |
| Other | 100 | 120 |
| Total | 130 | 179 |
| Decommissioned | 2 | > 50 |

Nuclear submarines (20.03.2008)

| NSs | Total | North-West region | Pacific region |
|--|-------|-------------------|----------------|
| Withdrawn from the Navy | 198 | 120 | 78 |
| Decommissioned | 164 | 105 | 59 |
| At the stage of decommissioning | 11 | 5 | 6 |
| At anchorage (pending decommissioning) | 20 | 9 | 11 |
| Special solution (accident NSs) | 3 | 1 | 2 |

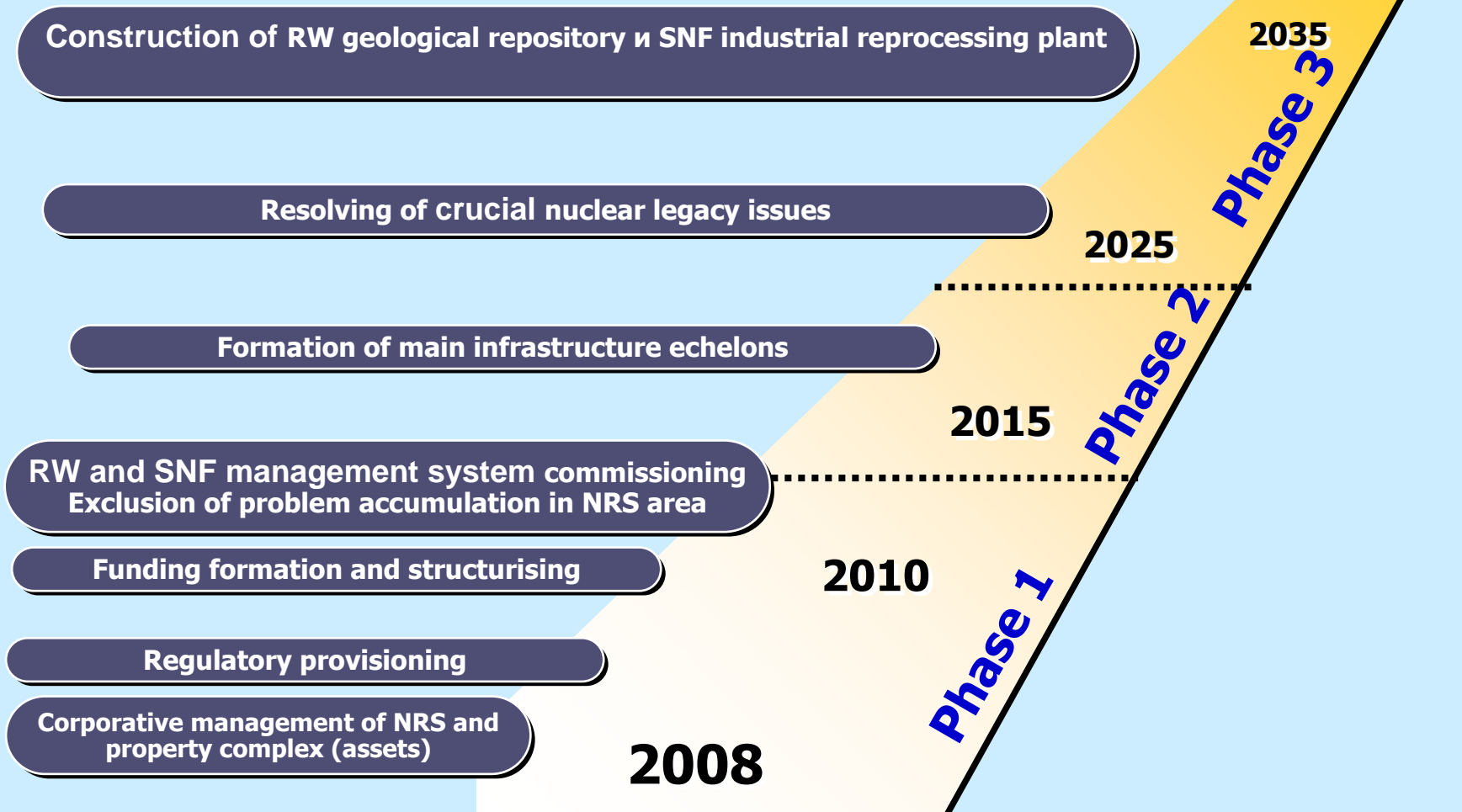
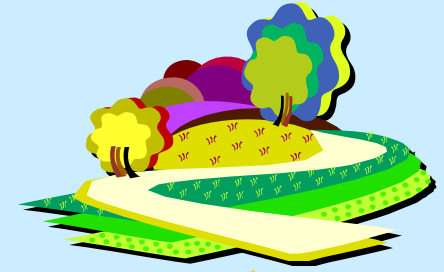
Decommissioning priorities

1. Practical start of large-scale activities (FTP on NRS)
2. Adoption of Federal Law (ToR, Concept, Draft Law - 2008)
3. DecomFund formation
4. Corporative system establishment

Financial provisions for nuclear and radiation safety activities (million rubles)

| Source | 2008 | 2009 | 2010 | 2008–2010 |
|---|---------------|----------------|----------------|----------------|
| FTP NRS (state budget) | 9989,0 | 14861,0 | 16010,0 | 40860,0 |
| NS decommissioning (state budget) | 2033,5 | 2145,3 | 2241,9 | 6420,7 |
| NS decommissioning (international assistance) | 3193,2 | 3760,4 | 2671,9 | 9625,5 |
| Irradiated fuel assemblies removal (research and power reactors) | 3030,3 | 3018,6 | 5513,0 | 11561,9 |

Main phases and goals of NRS unit activities



Number of facilities utilizing atomic energy in the Russian Federation

Civil nuclear facilities

(including 31 power units at 10 NPPs)

– 213

Nuclear material storage facilities

– 454

Radiation sources

– 16475

Radioactive substances and radwaste storage facilities

– 1508

Major activities for RadWaste management safety improvement in FTP (29,7 billion rubles)

- Storages for 120 000 m3 (new build and reconstruction) for NFC system**
- Storages for 140 000 m3 (new build and reconstruction) for Radon (RosRAO) system**
- Decommissioning of 140 facilities**
- Safety improvement of 80 facilities**
- Decontamination & Rehabilitation – 1.6 mln. m2**

Major activities for Spent Fuel management safety improvement in FTP (69,3 billion rubles)

- Construction of Dry storage facility at MCC site (37 000 mt) for RBMK and VVER-1000 fuels**
- AMB fuel management complex at PA Mayak**
- Enlargement of the Centralized wet storage facility at MCC site (8400 mt)**
- Demo-scale new radiochemical facility at MCC site**
- Other, including research and nuclear submarine fuel**



State Atomic Power Corporation Rosatom



Thank you for your attention!