



FEDERAL ENVIRONMENTAL, INDUSTRIAL AND NUCLEAR  
SUPERVISION SERVICE OF RUSSIA  
(ROSTECHNADZOR)

# Interface from Russian Regulator to TSO

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International Conference on Challenges Faced by TSOs in Enhancing Nuclear Safety and Security:  
Strengthening Cooperation and Improving Capabilities, 27-31 October, Beijing, China



## Safety Regulation Prime Objectives



- Health and life protection
- Environment preservation
- Property protection
- Nuclear science and technology development promotion
- Promotion of international regime strengthening



Appropriate State Nuclear Safety Regulatory Authorities



## Bodies for State Safety Regulation in Atomic Energy Use

**ROSTECHNADZOR**

*Technical aspects of nuclear and  
radiation safety and security*

**EMERCOM**

*Fire protection*

**Federal Medical and Biological  
Agency**

*Radiation safety of personnel*

**Federal Service for Surveillance  
on Consumer Rights Protection  
and Human Wellbeing**

*Radiation safety of population*

**Ministry of Natural Resources  
and Environment**

**Federal Supervisory Natural  
Resources Management Service**

*Environmental aspects*



## Rostekhnadzor

- a state authority for nuclear safety regulation
- a regulatory and competent authority according to the Conventions

### Main Safety Regulatory Functions

Safety regulations development and enactment

Licensing of activities in the field of nuclear energy use

Supervision of nuclear and radiation safety and physical protection

Emergency preparedness and response



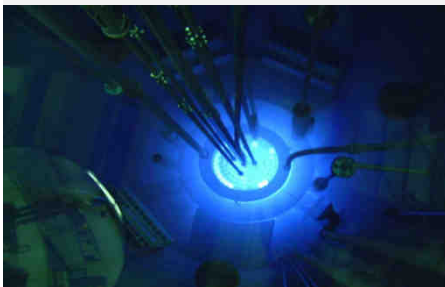
# ROSTECHNADZOR



**34** operating NPP units  
**4** NPP units under preparation for decommissioning  
**7** NPP units under construction  
**1122** equipment design and manufacturing plants  
**665** engineering, design and expert organizations



**17** nuclear fuel cycle plants and **109** facilities, incl. but not limited:  
**15** production reactors  
**26** nuclear material processing facilities  
**12** installations for R&D using NM  
**99** storage facilities for NM, SNF and RW



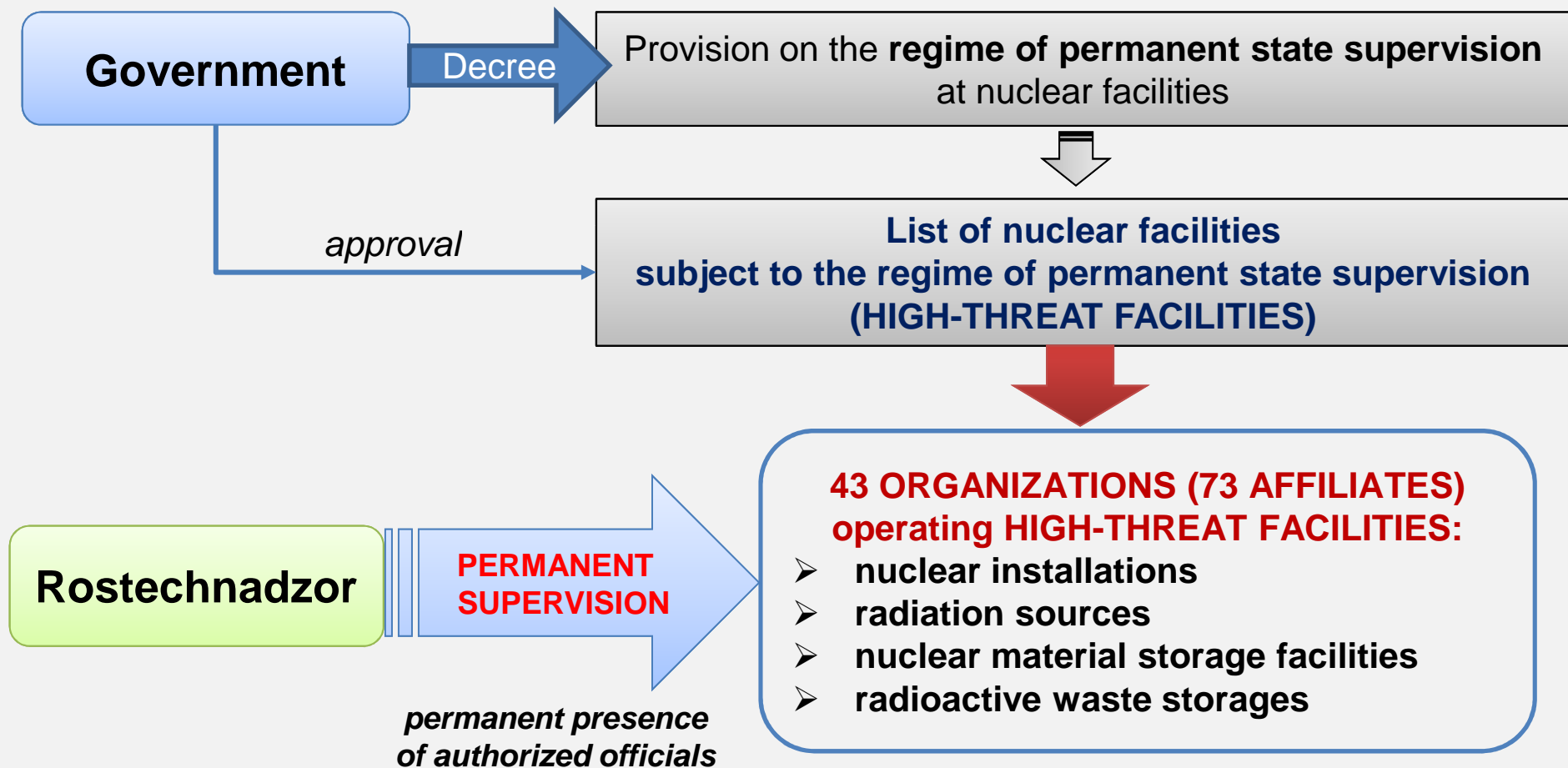
**65** nuclear research installations  
**4506** radiation-hazardous facilities (including RW storage facilities)



**24** nuclear fleet facilities: **11** nuclear ice breakers (**4** – in operation, **2** – reserved, **4** – shut-down, **1** under construction),  
**5** nuclear service vessels, **2** nuclear material storages,  
**2** RW storages, **1** floating liquid RW processing plant,  
**1** floating power unit (under construction), **2** prototype benches



## State Permanent Supervision Regime at Nuclear Facilities





## Organization Chart of Rostechnadzor

### CHAIRMAN

5 Deputy Chairmen

Deputy Chairman for Nuclear Safety Supervision

7 Functional  
Departments

3 Departments for nuclear and  
radiation safety and security  
(132 staff members)

6 Departments for Industrial  
Supervision

### TERRITORIAL DEPARTMENTS

6 Interregional Territorial Departments for Nuclear  
and Radiation Safety Supervision  
(942 staff members)

24 Regional Departments for Industrial  
Supervision

### TECHNICAL SUPPORT ORGANIZATIONS

Scientific and Engineering  
Centre for Nuclear and  
Radiation Safety (SEC NRS)  
(~350 staff members)

VO Safety  
(~700 staff members)

Organizations for Industrial  
Supervision support



# SUPPORT

## Technical Support Organizations





## Organizational Context for TSO

The Federal Law “On the Use of Atomic Energy” establishes «Organizations of scientific and technical support for the authorized safety regulatory authority»



Decree of the Government of the Russian Federation of April 30, 2013 establishes TSO criteria and recognizes SEC NRS and VO Safety as official TSOs of Rostechnadzor



### TSO Criteria

- **Founder** – the authorized body
- **TSO:**
  - ✓ is licensed for safety review
  - ✓ performs R&D
  - ✓ performs studies, tests, reviews related to safety assessment
  - ✓ is a member of international organizations



## TSOs Main Missions



**SEC NRS**



**VO Safety**

**Safety Review**

**Drafting Regulations and Guides**

**Refresher Training, Postgraduate Training and Education Development**

**International Cooperation**

R&D in the field of nuclear and radiation safety

Publishing Activity

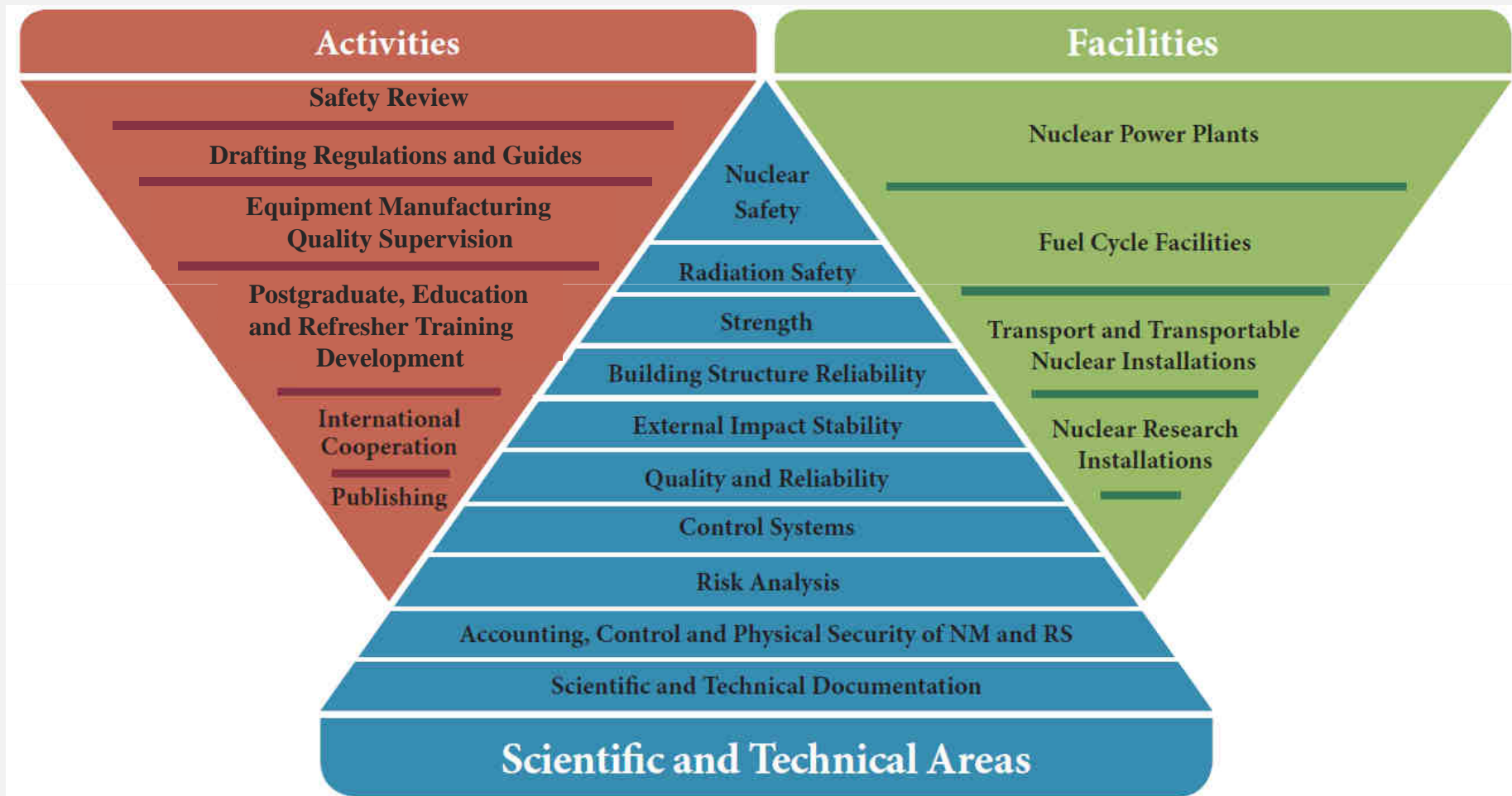
Emergency preparedness and response

Inspections and Oversight over safety sensitive equipment manufacturing, assessment of compliance

Inspections during the lifecycle



## TSO Activities





## SEC NRS Organizational Chart



**DIRECTOR**

**4 Deputy Directors**

### Scientific and Technical Divisions

Nuclear Power Plants  
Safety Division

Nuclear and Radiation  
Safety Division

Strength Division

Nuclear Research  
Installation Safety Division

Radiation  
Safety Division

Building Structure  
Reliability Division

Fuel Cycle Facilities  
Safety Division

Quality and Reliability  
Division

External Impact Stability  
Division

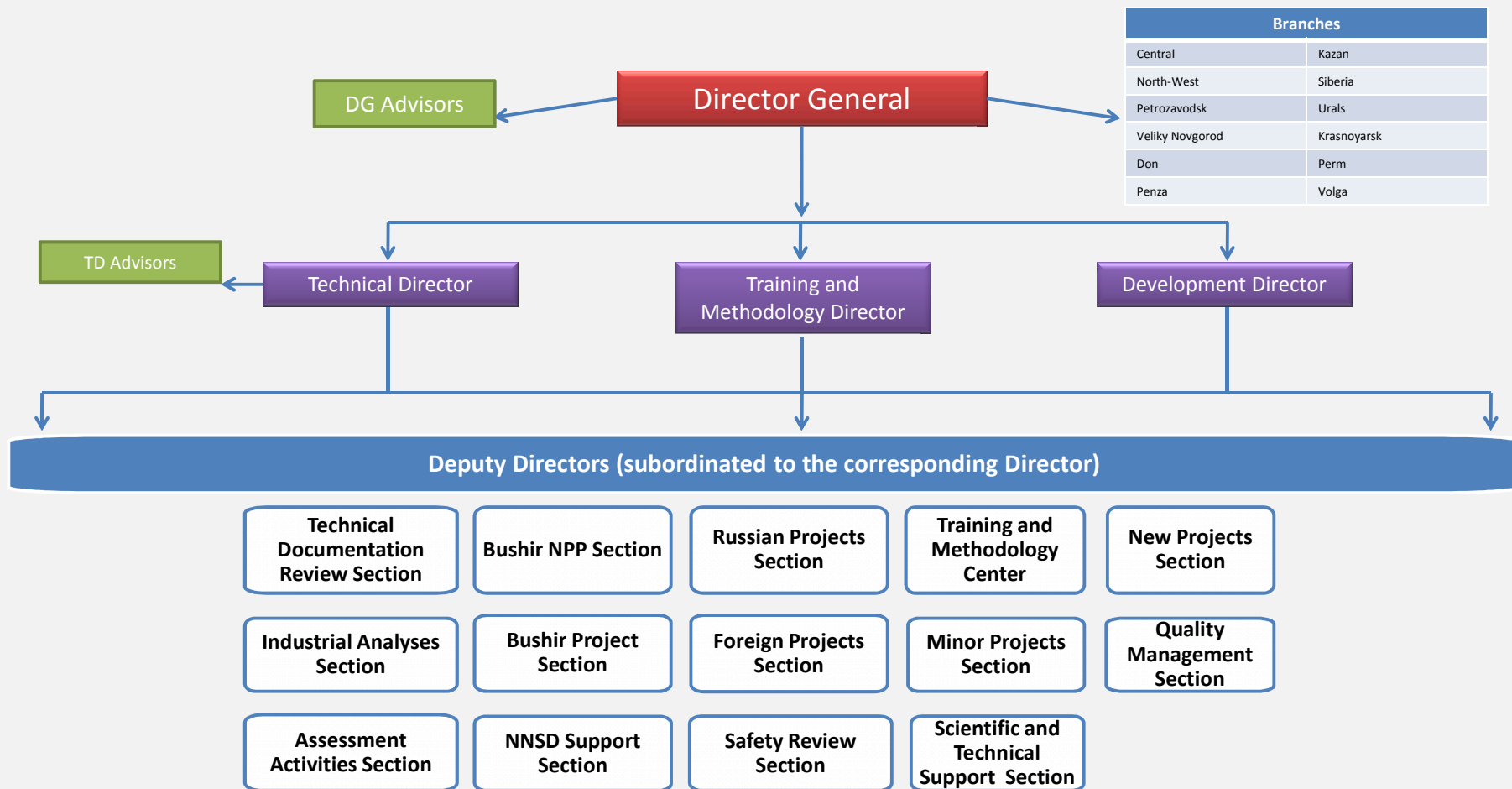
Transport and Transportable  
Nuclear Installations Division

Risk Analysis Division

Accounting, Control and Physical  
Security of NM and RS Division



## Partial Organization Chart of VO Safety





## Safety Review

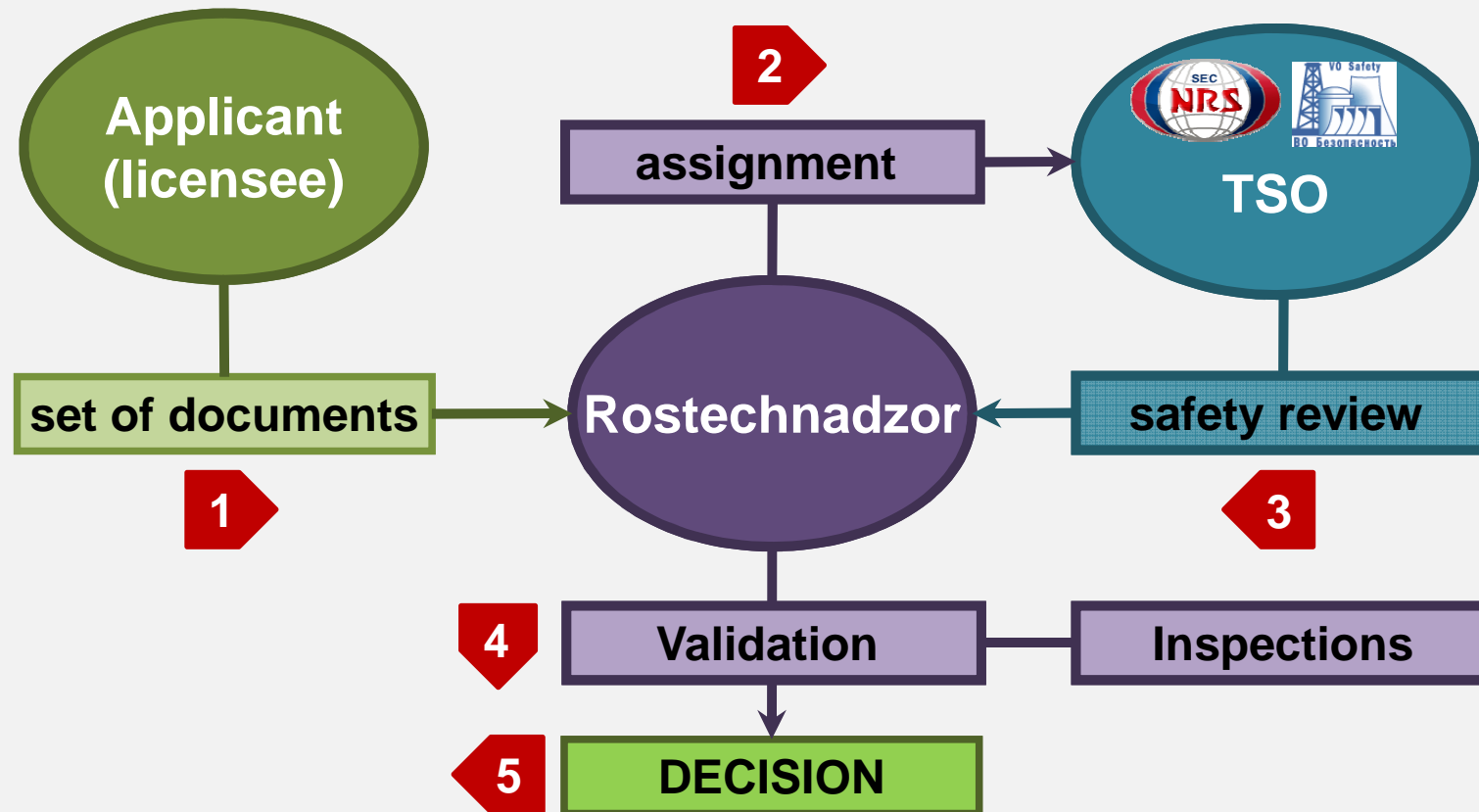
### Federal Law “On the Use of Atomic Energy”...

Safety review of nuclear facilities subject to permanent state supervision

- ✓ organized by the authorized body on state safety regulation (Rostekhnadzor)
- ✓ performed by its TSO only – **SEC NRS, VO Safety**



## Rostechnadzor Interaction with TSO





## Safety Review Qualification



- ✓ Rostechnadzor License  
№ GN-13-101-2534
- ✓ Quality management system  
certified under ISO 9001:2008  
by TUV Rheinland







## Safety Review Qualification



- ✓ Rostekhnadzor License  
№ GN-13-101-2449
- ✓ Quality management system certified  
under ISO 9001:2008 by TUV SUD





## TSO Safety Review Results

**210**

- safety reviews annually (in average)

**250+**

- safety assessment reports released in 2013

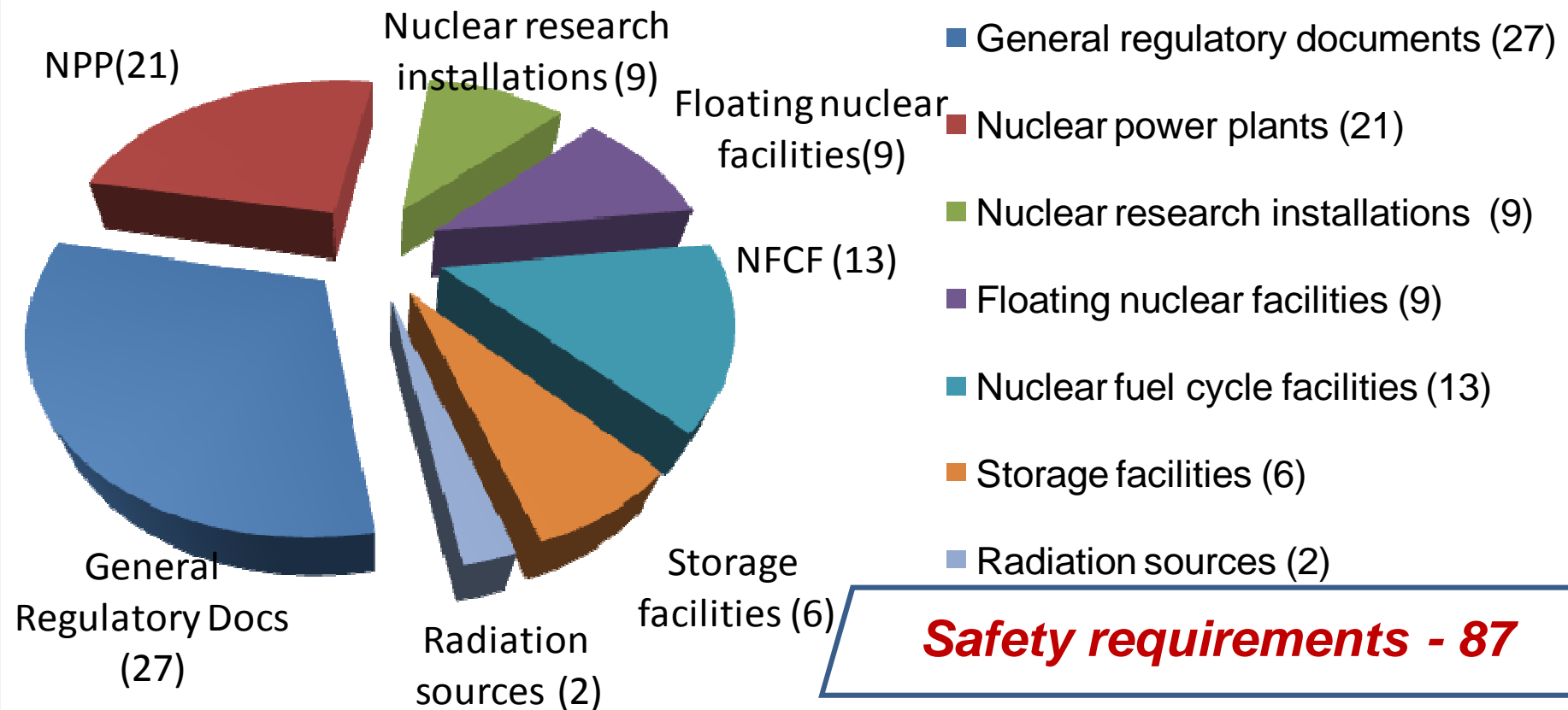
**3200+**

- safety assessment reports released in total

- ✓ Conclusions of the most complex safety reviews are subject for Scientific and Technical Council meetings



## Federal Regulations in the Field of Atomic Energy Use



**Safety Guides – 84**



## TSOs Priority R&D in the field of nuclear and radiation safety (1)

- ✓ Nuclear and radiation safety
- ✓ Strength and operational capability of equipment and pipelines of reactor installations
- ✓ Methods on BDBA and accidents consequences calculation
- ✓ Probabilistic Safety Analysis
- ✓ Accounting, control and physical security
- ✓ Safety of RW, SNF and RS management



## TSOs Priority R&D in the field of nuclear and radiation safety (2)

- ✓ Reliability and stability of building structures against external impacts
- ✓ National Reports of the Russian Federation on fulfillment of obligations resulting from:
  - Convention on Nuclear Safety
  - Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management



## TSOs Priority R&D in the field of nuclear and radiation safety (3)

- ✓ Scientific and technical support by TSO to Rostechнадзор's Technical Emergency Center



*Regular joint exercises with the Operator at Rostechnadzor Technical Emergency Center with involvement of SEC NRS experts*





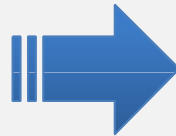


# International Cooperation

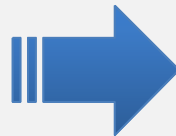


## International Cooperation of Rostekhnadzor and its TSOs (1)

**Bilateral  
Cooperation**



**Multilateral  
Cooperation**



**The use of the best practices in order to reach the convergence of regulatory approaches and to strengthen the effectiveness of regulatory activities**





## International Cooperation of Rostechnadzor and its TSOs (2)

- IAEA (GNSSN, RCF, TSO Forum)
- OECD/NEA (CNRA and MDEP)
- VVER Regulators' Forum
- WENRA



**TSOs actively participate in Commissions, Committees and Working Groups as members and observers**

**TSO support in preparation to and conduct of IAEA IRRS Mission and Follow-up Mission to the Russian Federation in 2009/2013**



## TSOs Assistance to Countries Planning to Construct Their First NPP Using the Russian Design

- **Socialist Republic of Vietnam**
- **Republic of Turkey**
- **Republic of Belarus**
- **People's Republic of Bangladesh**
- ...

### Main areas of assistance

- ✓ review of the existing regulatory and legal framework
- ✓ development of regulatory documents on safety
- ✓ training of regulatory authority personnel
- ✓ consulting of regulatory authority experts





## Further TSO Activities

1

- Support in implementation of **Rostechnadzor Action Plan on IAEA IRRS Follow-up Mission results**

2

- Further revision and drafting regulations

3

- Knowledge management and exchange of the best practices to extend expertise in the area of nuclear and radiation safety

4

- R&D activities and safety reviews to support regulatory decision making

5

- Scientific and technical support for the embarking countries



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# Rostekhnadzor

## 295 Years

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