

**Federal Environmental, Industrial and Nuclear Supervision Service**



Scientific and Engineering Centre for  
Nuclear and Radiation Safety



**ETSON**

EUROPEAN  
TECHNICAL SAFETY  
ORGANISATIONS  
NETWORK

# Response to the IAEA Action Plan on Nuclear Safety by TSO

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[www.secnrs.ru](http://www.secnrs.ru)

## Action Program on IAEA Action Plan on Nuclear Safety Implementation



- **Developed by Rostekhnadzor and Rosatom**
- **70 actions on national and international levels included**
- **Authorities involved:**
  - ✓ **Rostekhnadzor**
  - ✓ **Rosatom**
  - ✓ **Ministry of Foreign Affairs**
  - ✓ **EMERCOM**
  - ✓ **Federal Medical and Biological Agency**
  - ✓ **Federal Service for Surveillance on Consumer Rights Protection and Human Wellbeing (Rospotrebnadzor)**
- **Available at Rostekhnadzor official web-site**
- **IAEA Board of Governors is informed twice a year on implementation progress**

# Contents of Action Program



1. Safety Assessments in light of accident at TEPCO's Fukushima Daiichi NPP
2. IAEA Peer Reviews
3. Emergency Preparedness and Response
4. National Regulatory Bodies
5. Operating Organizations
6. IAEA Safety Standards
7. International Legal Framework
8. Member States Embarking on Nuclear Energy
9. Capacity Building
10. Protection from Ionizing Radiation
11. Communication and transparency
12. Research and Development

**SEC NRS renders  
scientific and technical  
support to  
Rostechnadzor  
on all Program Actions,  
except for Action 5  
(Rosatom responsibility)**



### 1. Safety Assessment in light of accident at TEPCO's Fukushima Daiichi NPP (1/2)

2011-13 – SEC NRS review of stress tests reports for all Russian NPPs (in operation or under construction) carried out by the Operator (Rosenergoatom)

#### **Stress-Tests Results Conclusions**

- National regulations requirements to the Russian NPPs robustness against external impacts are met in general
- Developed design solutions and proposed actions on NPP external impacts robustness are recognized as sufficiently substantiated. Implementation is taken under control



# 1. Safety Assessment in light of accident at TEPCO's Fukushima Daiichi NPP (2/2)

- National Regulations are required to be enhanced to upgrade the requirements to NPP
  - siting
  - seismic stability
  - consideration of natural and man-induced external impacts
- Safety problems detected are not indicative of low or inadmissible NPP safety level



## 2. IAEA Peer Reviews (IRRS Follow-up Mission) (1/4)



- IRRS Follow-up Mission held on **November 11-19, 2013**
  - 15 experts from different IAEA member states
  - follow-up comprehensive assessment of regulatory activities
- **Objective:**
  - ✓ assessment of implementation of 2009 IRRS Mission recommendations and suggestions
  - ✓ review of 2 additional areas
    - Emergency Preparedness and Response
    - Post-Fukushima Regulatory Implications



Beijing, October 2014

## 2. IAEA Peer Reviews (IRRS Follow-up Mission) (2/4)



- Rostekhnadzor activity on improving the state safety regulation was recognized efficient
- Mission Report available at Rostekhnadzor official web-site
- Action Plan – developed

## 2. IAEA Peer Reviews (IRRS Follow-up Mission) (3/4)



### Examples of good practices

- Evaluation methodology on systematic emergency exercise and extensive and detailed regulations on the contents of licensee emergency plans
  - **Developed by SEC NRS**
- Proactive approach to update national regulations on transport of radioactive materials in parallel with the revision of the current IAEA Safety Standards
  - **Coordination and drafting of rules carried out by SEC NRS**
- Joint inspections with the foreign regulatory bodies (STUK, ASN)
  - **Interaction with the foreign RBs with active support by SEC NRS (including participation in inspections and meetings)**



## 2. IAEA Peer Reviews (IRRS Follow-up Mission) (4/4)



- Development of fast running models and codes for assessment of accident progression to support of Rostekhnadzor Technical Emergency Center
  - **Models developed by SEC NRS**
- Significant progress in development of Rostekhnadzor training programs. Annual workshops with Rostekhnadzor inspectors on oversight and licensing activity
  - **A number of training courses on nuclear safety regulation developed by SEC NRS and available in Rostekhnadzor information network**

### 3. Emergency Preparedness and Response (1/4)



Rostekhnadzor established and supports operation of **functional subsystem for supervision over nuclear and radiation hazardous facilities**

#### SEC NRS actions

- Scientific and technical support to Technical Emergency Center
- Participation in 2 expert teams of Technical Emergency Center
  - Analysis of Process Aspects
  - Analysis of Radiation Aspects

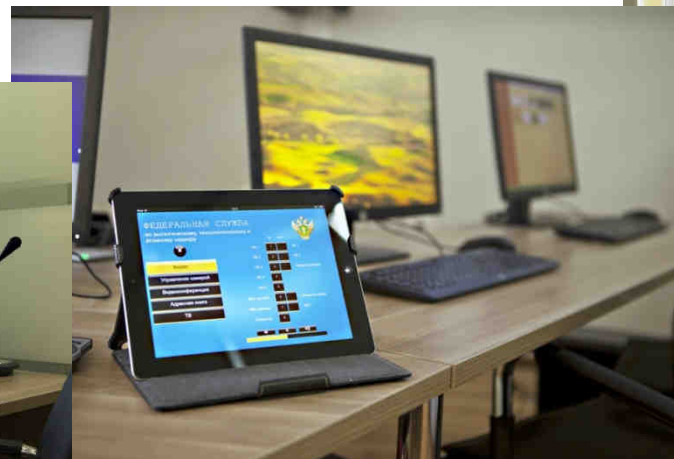
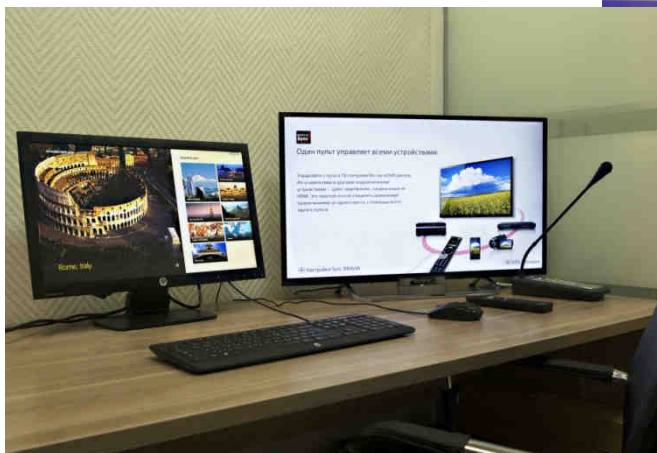


### 3. Emergency Preparedness and Response (2/4)



#### Improvement of Technical Emergency Center in 2013-2014

- Modernization of the Center rooms, equipment and communication channels
- Installation of new software (domestic and imported)
- Rostekhnadzor methodology estimating the efficiency of the Operator emergency response exercise is implemented



### 3. Emergency Preparedness and Response (3/4)



**Regulations drafted by SEC NRS to enhance the regulatory & legal framework**

New revisions of the National Safety Requirements:

- **“General Safety Provisions for Nuclear Power Plants”**
- **“Provision on the Procedure of Notification about Emergencies, Early Transmission of Information and Arrangement of Urgent Assistance to the Nuclear Plant in Case of Radiological Hazards”**, harmonized with the requirements of the IAEA Safety Standards GS-R-2 and the provisions of the General Safety Guide GSG-2

### 3. Emergency Preparedness and Response (4/4)



#### Safety Guides

- **“Minimization of the Secondary Contamination of Territories, Transport Routes and Transport Means at Elimination of the Accident Consequences at Nuclear Facilities. Methodology for Arrangement of Transport Maps and Decontamination Stations in the Areas with Different Levels of Contamination”**
- **“Minimization of Radiological Consequences for Public and Personnel during Elimination of Accident Consequences at Different Type NPP Units. Methodology for Optimization of Measures for Public and Territories Protection”**
- **“Recommendations on the Scope and Content of BDBA (including Severe Accidents) Management Guideline”**

## 4. National Regulatory Bodies



- Rostekhnadzor now is an independent regulatory authority (subordinating directly to the Government)
- The legal status of TSOs is specified and recognized by the Nuclear Law
- Safety Requirements Priority was established by law and the Safety Guides status was identified



## 6. IAEA Safety Standards

### SEC NRS actions

- Regular analysis of the Russian regulatory & legal framework for compliance with the IAEA Safety Standards
- Regular involvement in IAEA Safety Standards Commission and Committees activity

## 7. International Legal Framework



### **SEC NRS actions**

- Consideration of suggestions on amendments to the Convention on Nuclear Safety
- Involvement in IAEA Working Group on Effectiveness and Transparency

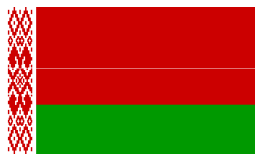


## 8. Member States Embarking on Nuclear Energy (1/2)



- ✓ Rostekhnadzor agreements with new-comer RBs
- ✓ Plans for Cooperation with the IAEA

### SEC NRS actions



- ✓ Training for Belarus regulatory body (IAEA Technical Cooperation programme)
- ✓ Workshops on safety regulation



- ✓ Workshops on safety regulation
- ✓ Training for TAEK specialists in the Training Center of the reference NPP (Novovoronezh)

## 8. Member States Embarking on Nuclear Energy (2/2)



### SEC NRS actions



- ✓ On-job training of the Vietnamese specialists and students in Moscow on VVER technology and safety regulation
- ✓ VARANS scientific visits to SEC NRS (IAEA Technical Cooperation programme)
- ✓ Drafting regulations to establish the regulatory framework of Vietnam
- ✓ Workshop on safety review in the licensing procedure



- ✓ Workshop for Bangladesh regulatory body employees on safety regulation

## 9. Capacity Building (1/2)



**SEC NRS**

**License for educational activity**



**SEC NRS program for capacity building:**

- staff education
  - training and exercises
- at the national, regional and international levels

## 9. Capacity Building (2/2)



### SEC NRS actions

#### **Regular professional skills improvement of SEC NRS employees and Rostechnadzor specialists**

- Workshops
- Lectures
- Scientific and technical conferences
- Participation in emergency response exercises in the Technical Emergency Center of Rostechnadzor, etc.

**Conferences, workshops, training courses organized by IAEA, ETSON and other international, foreign and national organizations**



## 10. Protection from Ionizing Radiation

### **SEC NRS regulations drafting in the areas**

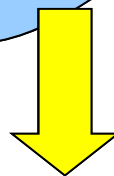
- Discharge of radioactive substances to the environments
- Transportation of radioactive materials
- Emergency planning
- Radwaste management



## 11. Communication and transparency (1/2)

Rostekhnadzor measures to strengthen the openness and transparency according the Convention on Nuclear Safety.

Information on the Rostekhnadzor activity and Regulation drafts are available and open to public on official web-site



[Rostekhnadzor official web-site](http://www.gosnadzor.ru)  
<http://www.gosnadzor.ru>

- Community liaison office
  - Public Council
  - Public Relations Contact Group
- on the basis of Rostekhnadzor Technical Emergency Center



## 11. Communication and transparency (2/2)

### Rostechnadzor actions within international and bilateral cooperation

- 2012 – open discussions with RBs of France (ASN) and Finland (STUK) on robustness of the Russian NPPs in light of lessons learned from the accident at the Fukushima-Daiichi NPP
  - **SEC NRS most active participation**
- June 2012 – scheduled Rostechnadzor inspection at the Balakovo NPP with ASN
- August 2014 – ASN participation in the emergency response exercise at the Kola NPP
- Regular joint workshops with foreign RBs representatives on nuclear and radiation safety regulation trends
  - **SEC NRS active participation in the workshops**



## 12. Research and Development

### SEC NRS actions

- R&D for existing and innovative nuclear facilities
- Bilateral (GRS, IRSN, etc.) and multilateral activity in different areas of investigation:
  - Neutronic-thermohydraulic transients, including severe accidents
  - Development of fast running computer codes for express safety assessments
  - Transportation of spent fuel and radwaste





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**Thank you for attention!**

