



ROSATOM

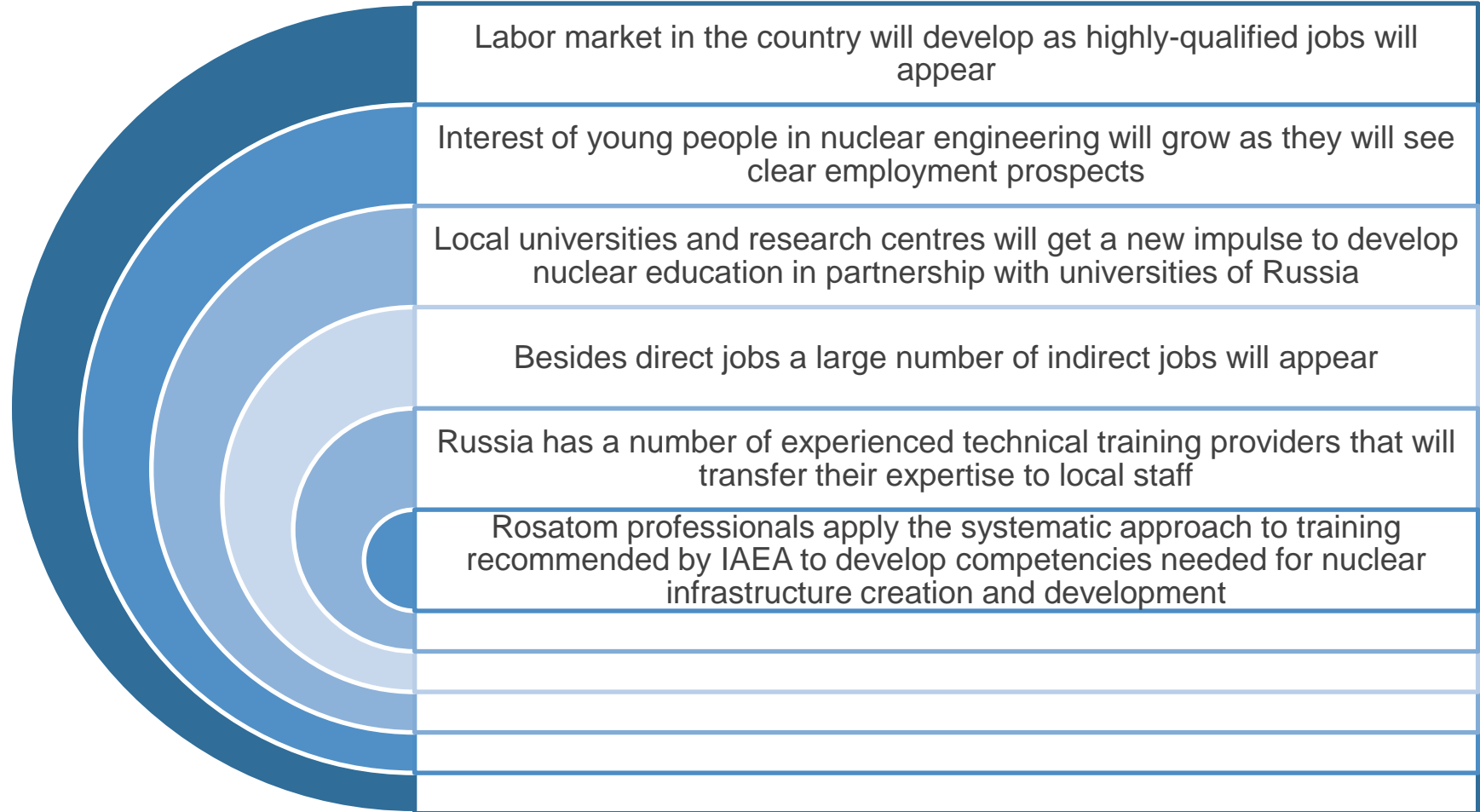
STATE ATOMIC ENERGY CORPORATION "ROSATOM"

State Corporation "Rosatom" Approach to Nuclear Personnel Training

*Larissa Strutskaya, PhD
HR Director, Rusatom Overseas*

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Rosatom offers HR solutions for nuclear infrastructure development integrated with other areas



Rusatom Overseas is an Integrated Provider of HRD Solution for New Comers

NEW COMER COUNTRY

NEPIO

REGULATORY BODY

OPERATING ORGANISATION

SERVICE ORGANISATIONS

UNIVERSITIES

R&D ORGANISATIONS

Rusatom Overseas HRD solution on the basis of SAT approach (IAEA)

T&D needs analysis

Programmes design

Development of training materials

Implementation of training

Training effectiveness evaluation

Providers of HRD elements and services

Universities in Russia

ROSATOM and subsidiaries

Partner organisations in Russia

Partner organisations outside Russia

We work for a variety of local organizations, involved in nuclear power development, to transfer our knowledge and expertise to local partners

Nuclear facilities including NPPs, Research Reactors, RadWaste Management, Spent Fuel Management

NEPIO & Government Agencies (Ministries, etc.)

Owners, Operating Organizations, Corporations (e.g. Headquarters)

Regulators (including Nuclear)

R&D organizations

Emergency Response and Civil Defence organizations

We develop Human Resources for the entire Nuclear Power Programme and for new NPP builds

Technical support organizations

Educational institutions

Specialized training organizations

Professional organizations (e.g. Nuclear Society, Junior Nuclear Professionals)

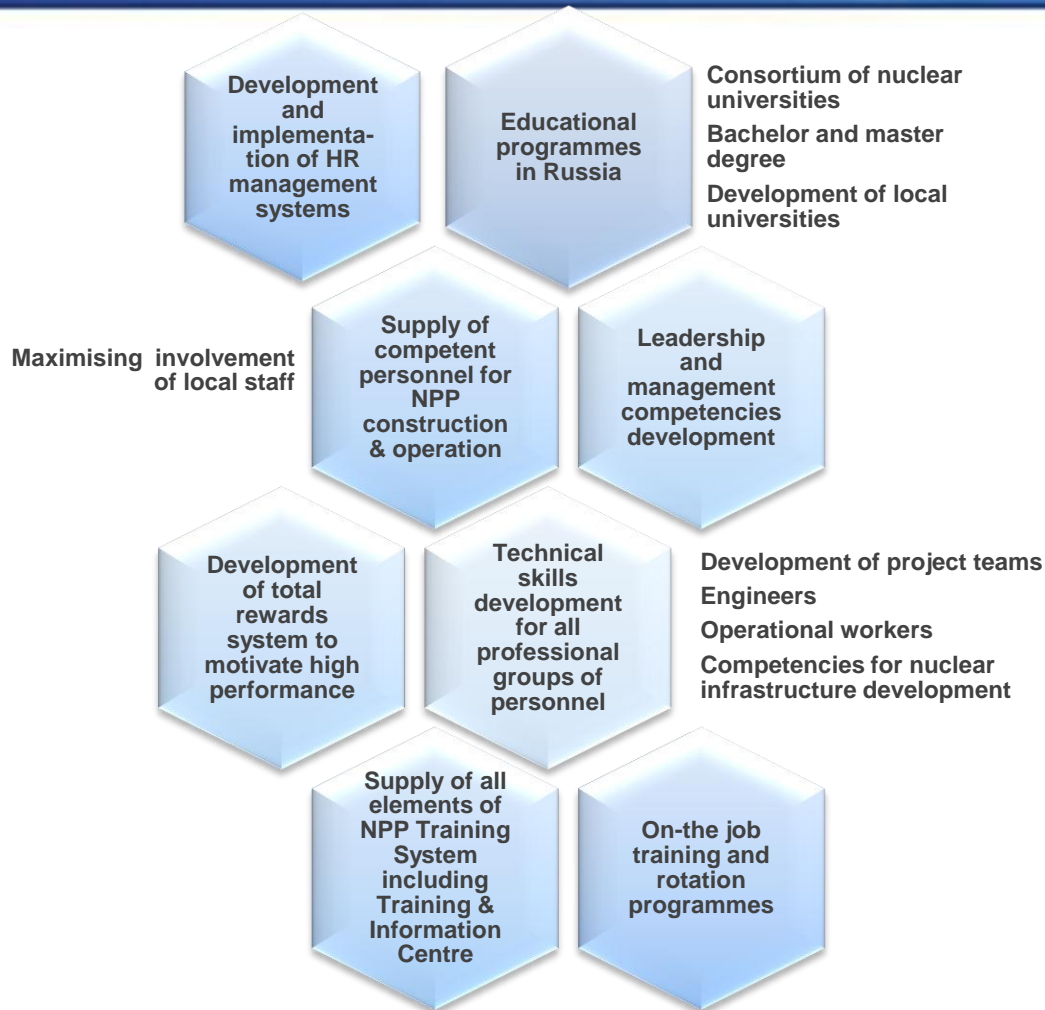
Organizations involved in nuclear or rad activities (including transport, security, fire fighting)

Construction Project Management Local Team, Equipment Vendors, Suppliers, Construction, Local Industry

Electricity transmission and distribution organizations

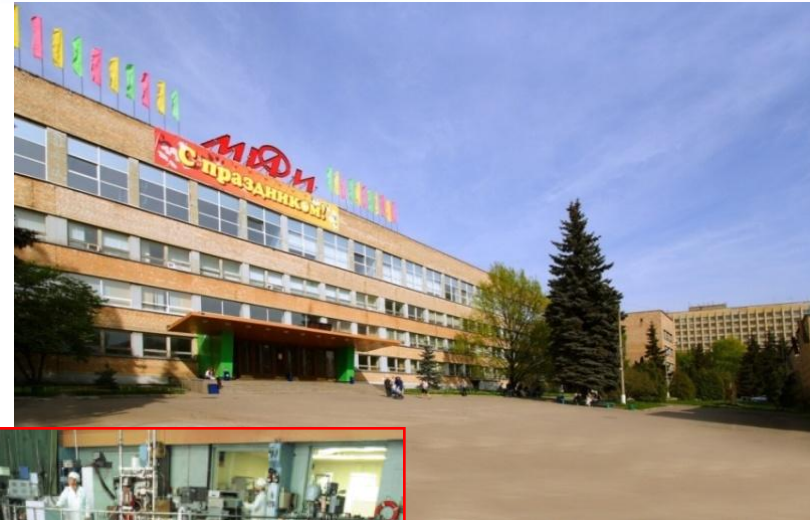
Finance institutions

Key elements of Rosatom HR development product: programmes and services



Education: National Research Nuclear University MEPhI

- Founded in 1942. Tens of thousands of highly qualified specialists graduated from MEPhI.
- Main directions of training:
 - Research & Development
 - Design & Engineering
 - Fundamental Sciences
 - Information Technologies
- 10 thousand students.
- 700 postgraduates and doctoral candidates.
- 1400 professors, lecturers, etc (majority of them with academic titles and degrees).
- Six Nobel Prize winners used to work at MEPhI.
- 25 educational-research buildings

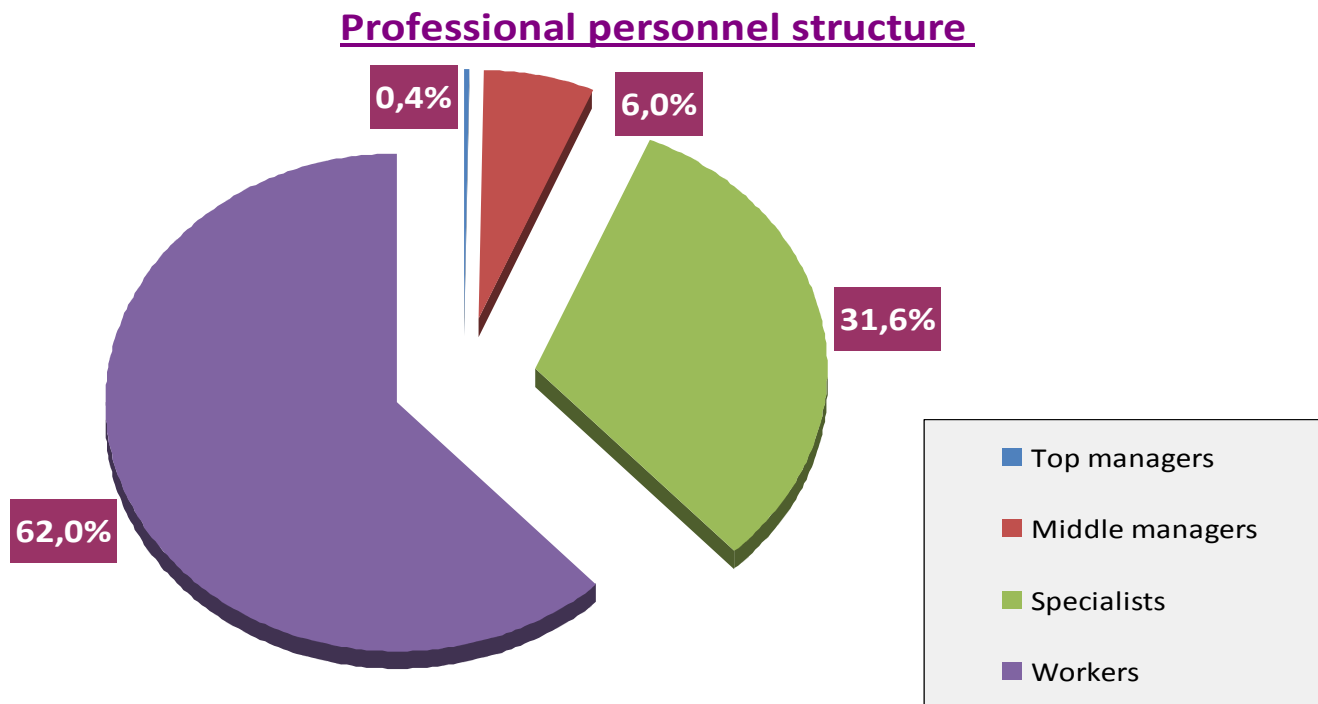


Training and development. HR categories to be developed

An example of HR categories for a Russian NPP.

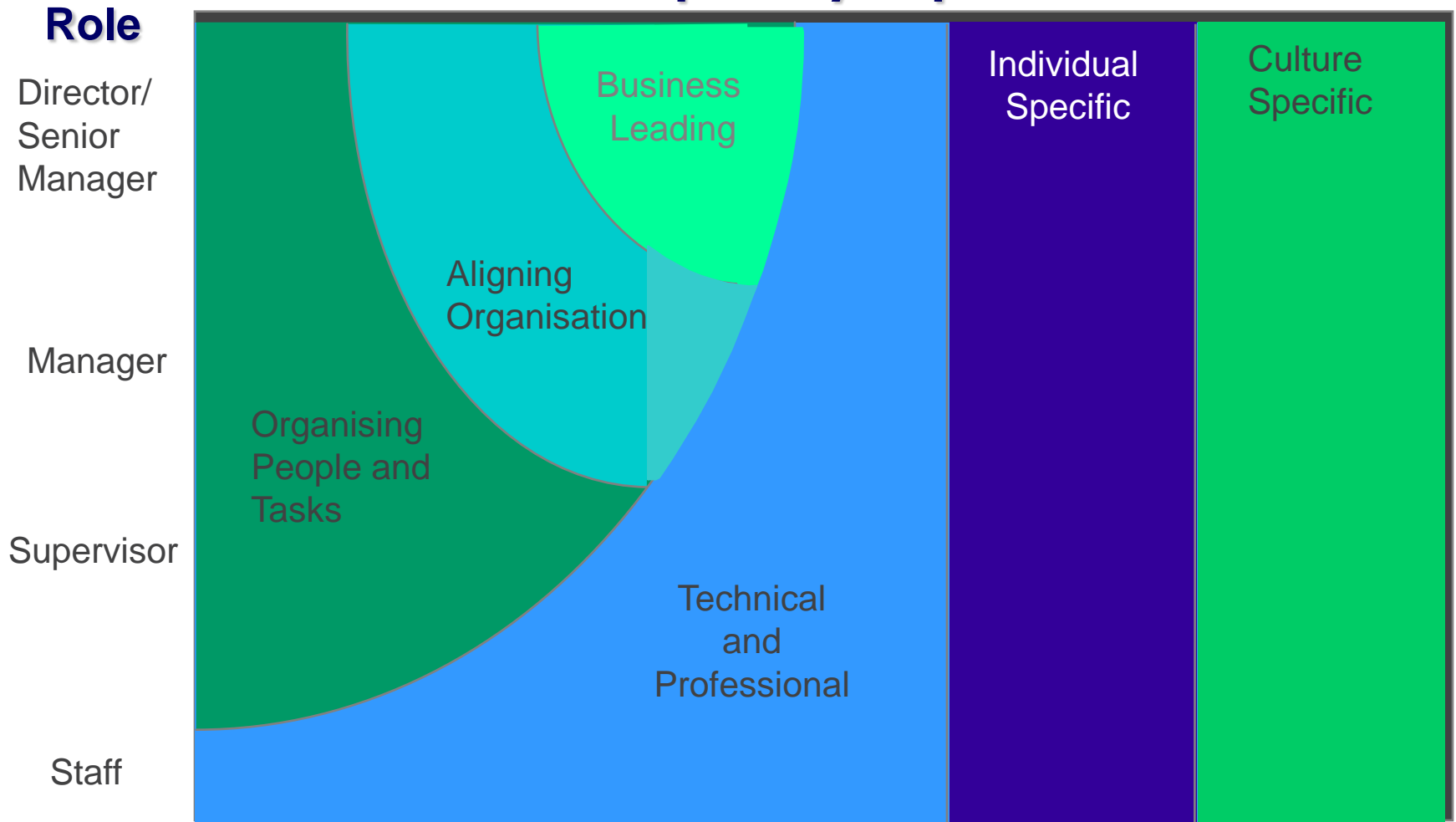
Specific nature of the industry implies high requirements for the personnel qualifications

An example of HR categorization (Russian NPPs)



Training and development. Identifying competencies of HR categories to be developed

SHL Competency Map*



* The use of the Map is authorized by SHL Russia

Sample sets of competencies

Technical competencies of NEPIO Director

- Broad knowledge of the national culture
- Understanding of the current industrial and economic status and the economic development goals for the nation.
- General knowledge of nuclear power and associated legal and technical aspects
- The ability to acquire respect and trust within the government, industry and the public.

(IAEA TECDOC 35095 NEPIO)

Managerial/ Corporate competencies

- Achieving Results
- Business/Commercial Focus
- Change Management
- Effective communication
- Making Decisions
- People Development
- Safety Management
- Strategic Thinking

(IAEA TECDOC 1024 Selection, competency development and assessment of NPP managers)

Technical skills and competencies development. Sample programmes

- Training on Energy Planning
- General Training on establishment of Nuclear Infrastructure (on all 3 phases, 19 issues of Milestone approach, and all main actions in establishing Safety Infrastructure, for all organizations involved in NP programme)
- General training on conduct of first NPP project phases: Pre-project, Project decision-making, Construction, Operation and Decommissioning, including Risk Management for NP programme & NPP project (including siting, FS and BIS)
- Training on Safeguards & Non-proliferation
- Training on nuclear technologies, VVER and other Russian technologies and NPP projects
- Training on BDBAs, severe accident management and Emergency Preparedness and Response
- Training on Fuel Management (including Spent Fuel Management) and RadWaste Management
- Training on Design Safety & Safety Assessments

Training Centre as a core of NPP personnel training system

- **Infrastructure of Training Centre**

- **Training Programs (all categories of personnel)**
- Training tools:
 - Full-Scope Simulator (1 FSS per 2 power units)
 - Simulator for study on transients and emergencies
 - Part-task simulators
 - Mock-ups for maintenance and other personnel
 - Computer base training, eLearning...

- **TC as a Competency & Knowledge Centre**

- Knowledge maintain regarding VVER technology
- Simplification and optimization of NPP personnel training
- National Centre of nuclear technology knowledge
- Integration with an *Information Centre*
- Information Centre is an up-to-date high-tech cinema theater equipped by panorama 3-D projection, computer graphics and animation, stereo sound and interactive consoles



Technical skills and competencies development. An example of using a full scope simulator

- **Scope of training:** > 700 persons for on site
- **Categories of plant personnel:**
 - Operating
 - Maintenance
 - Managers
 - Surveillance and testing
- **Training venue:**
 - Customer's Site
 - Vendor' site (reference unit)
 - Mixed approach (preferable)
- **Support of the training:**
 - Training tools (FSS, eLearning, training programmes, mock-ups)



Full Scope Simulator Training at Tianwan NPP Operations Training Centre (Sept 2010)

Full-scope simulators for Foreign Customers built by Rosatom



Tianwain NPP (China)



Kudankulam NPP (India)



Bushehr NPP (Iran)



**Full-Scope Simulator
(2006)**



**Full-Scope Simulator
(2007)**



**Compact
Simulator
(2006)**



**Full-Scope
Simulator
(2010)**

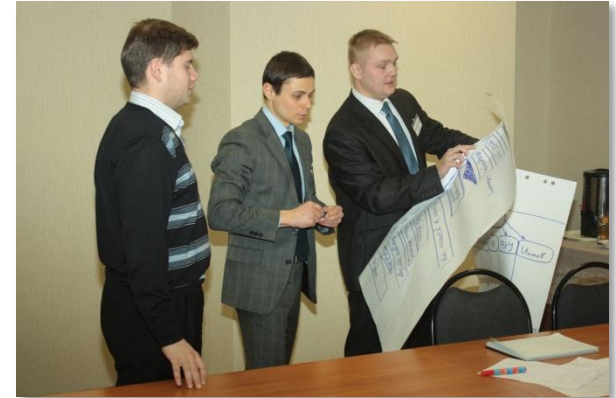
Growing Nuclear Leaders: Management and Leadership development programmes for nuclear industry by Rosatom Corporate Academy

- **Development and organisation of assessment procedures aimed at identifying the current level of management/leadership competencies:**
 - ✓ *Assessment centres for top and middle management positions in nuclear industry*
 - ✓ *Online psychometric assessment procedures*
 - ✓ *360° and 180° assessment*
- **Design, development and delivery of training programmes**
 - ✓ *Interactive training sessions, seminars, business games and learning projects for managers in nuclear industry*
 - ✓ *Individual leadership development programmes for top and middle managers as well as for talented young employees with high potential*
 - ✓ *Individual coaching programmes for nuclear managers*
- **Training programmes for in-house trainers at NPPs**
 - ✓ *“Train-The-Trainers” modular programmes (development of trainer’s skills, teaching contemporary training and facilitation techniques, certification of in-house trainers)*
 - ✓ *Handing over training programmes and training materials to in-house NPP trainers, follow-up activities*
- **Management and organisational consulting**



Understanding nuclear business: development of key business competencies

- **Design, development and delivery of specific training programmes aimed at developing the understanding of nuclear business and underpinning skills in the following areas:**
 - ✓ *Economics and finance in nuclear industry,*
 - ✓ *Implementation of contemporary IT-systems in nuclear industry*
 - ✓ *Integrated management systems*
 - ✓ *Purchasing standards and procedures*
 - ✓ *Human resource management*
 - ✓ *Legal issues*
 - ✓ *Project management*
 - ✓ *Public relations and communications*
 - ✓ *Global and regional electricity markets*
- **Organisation of international seminars, master-classes and round-tables with world-known experts, consultants and business practitioners in nuclear field**
- **Development of competency profiles for professional competencies, assessment of professional competencies in nuclear industry**
- **Business simulation “Effective management of a NPP” (launch in September 2012)**



Summary: benefits of Rosatom customers



Partnership with local universities in creation of Nuclear Centres of Excellence



Huge amount of new jobs for local personnel



Transfer of expertise through creating nuclear training system



TC construction and training of local instructors

Thank You for Your Attention!

Larissa Strutskaya

HR Director, Head of Human Resource Development
JSC “Rosatom Overseas”

E-mail: LaMStrutskaya@rosatom.ru

Phone: +7 (495) 730-08-73