



**ENERGY  
BEYOND  
BORDERS**

## **Basic activities of the Fund “Energy beyond borders” in the field of smart-grid**



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- ✓ **INTER RAO UES is a diversified energy holding owns electric power generation, engineering, distribution and trading assets in Russia and other countries**
- ✓ **The company takes a leading position in the electric power import-export business in Russia**
- ✓ **The company develops the new directions of business, including the fuel business, engineering and energy efficiency**
  - ✓ **330 thousands shareholders**
  - ✓ **28 thousands MW power capacity**
  - ✓ **30 000 km electricity grid**
  - ✓ **27 steam and nuclear power plants in 6 countries**



Name of Organization	"ENERGY BEYOND BORDERS" Science, Technology and Innovation Fund
Established in	September, 2011
Address	12, Krasnopresnenskaya nab., Moscow
Legal Form of Organization	Fund, Noncommercial organization
Founders	Inter RAO UES Group
Highest managing body	Supervisory Council



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- Support of R&D and innovation activities;
  - Financing of creation of R&D deliverables;
  - Promotion of the leading schools of thought in Russia and world-wide;
  - Creation of favorable conditions for Russian economy modernization and innovation progress;
  - Participation in co-funding of the large projects allowing Russian companies to obtain leading positions in the energy industry, promotion of modern technologies for electric power industry.



## Strategic goals

- Implementations of the INTER RAO UES Group Strategy tasks
- Development of science and technology capabilities for the purposes of innovative development and technological upgrading of the company
- Achievement INTER RAO UES Group leadership in the energy sector



## Strategic objectives

- Development of the advanced energy technologies defining modern science and technology progress in the sector
- Increase of active equipment energy efficiency, its reliability and safety, improvement of ecological indicators
- Development of management and marketing innovations





## Approaches of the INTER RAO UES Group R&D Program

- portfolio approach (Blocks of actions)
- strict result orientation (implementation)
- target indicators on each Block of actions
- accordance of thematic areas of action of the R&D Program to the main directions of the INTER RAO UES Group Program of Innovation Development
- **accordance of thematic areas of "key" actions of the Program to priorities of the energy sector Technology Platforms**
- co-financing
- synergistic effect





**R&D and Innovation Program of the Fund** stipulates system-based activities in the following areas (national technology platforms):

- R&D activities for environmentally safe thermal power of high efficiency
- R&D activities for small-scale distributed power generation
- **R&D activities for intelligent power system of Russia (smart grid, generation, distribution, consumption)**
- R&D activities in the field of bioenergy





- **Smart grid purpose:** providing of consumers with power supply of pre-determined conditions;
- **Meaning “subjects of smart grid”** (in addition to the activities for energy transfer, distribution and consumption, as traditionally focused in mass media) also could be shared to power generation facilities (partially) and some of power supply sources, to make them smart power supply sources;
- **Among the sources of intellectual electricity** includes not only renewable energy, distributed generation and small, as proclaimed by most experts, but most importantly, all generating sources operating in parallel in the Power Grid of Russia;
  - etc.



# Basic activities of the Fund in the field of smart-grid



- **«smart power generation»**  
(power plants of INTER RAO Group)

Work in the field of reliability efficiency and safety electrical CHP (the main circuit, the circuit's own needs), power quality, control system power turbines and boilers, measures to optimize the downloads units operating in parallel, recommendations with respect to the load mode of performance, implementation of traffic control commands, etc

- **«smart sale of electricity»**  
(power supply companies, trading block of INTER RAO Group)

Work in the field of billing systems, optimization of power sales and power generation companies

- **«интеллектуальная электрическая сеть»**

Work in the field of quality management systems of electricity, substation control system, active-adaptive network, etc



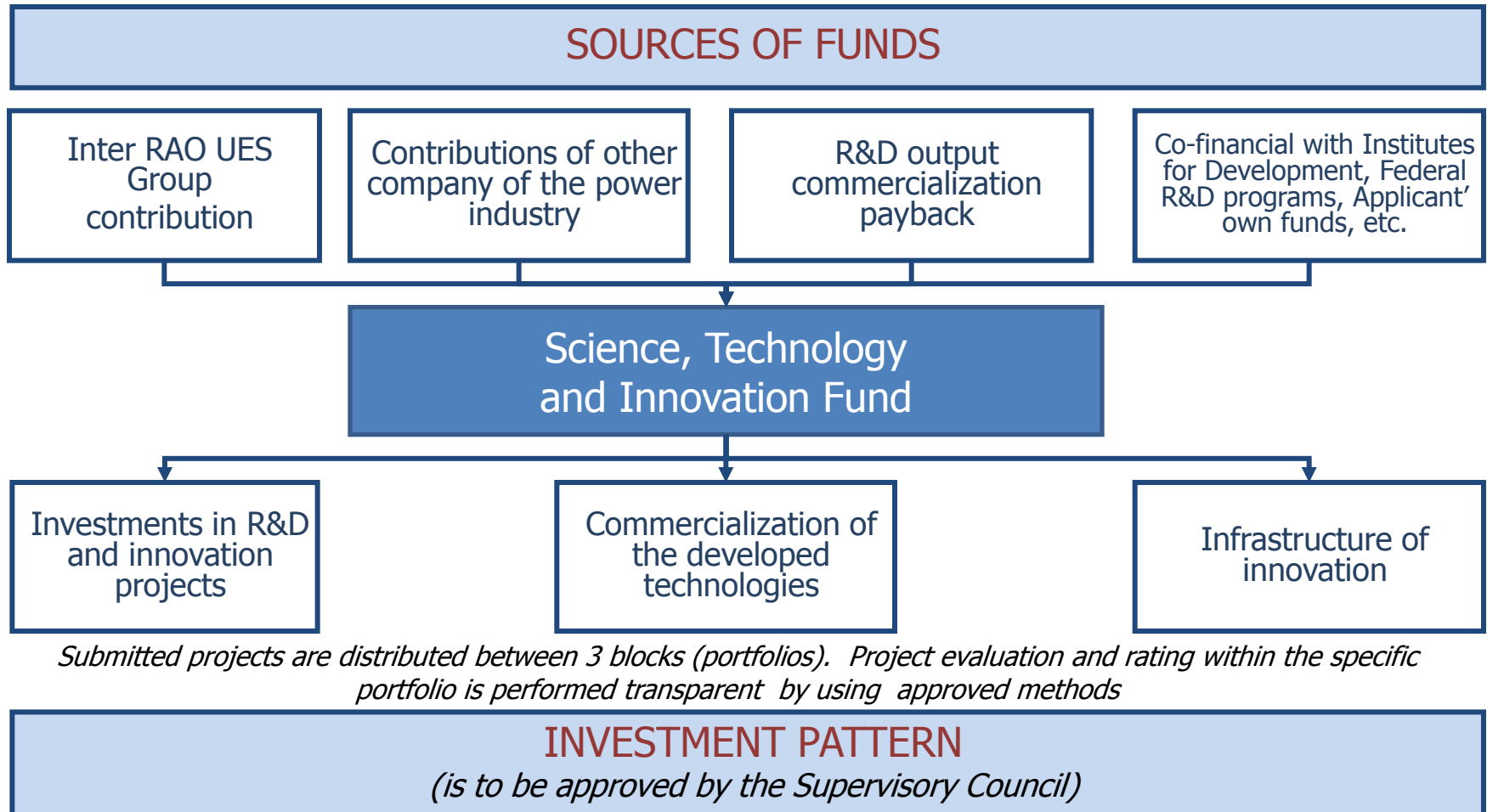
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attention**



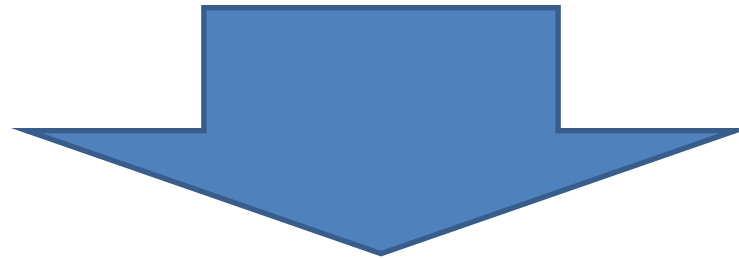
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# Fund Resource Income/Investment Diagram





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- **Technology modernization**
  - **Improvement of human capital assets**
  - **Effective Management**



**Energy Innovation Growth**



## Purposes of Establishing R&D and Innovation Fund



- Realization of the Government Innovation Policy
- Increasing of R&D investment efficiency
- Focus on the major R&D projects
- Increasing of the transparency of R&D investment mechanisms

# Approaches to the Development of R&D and Innovation Program



## Portfolio approach:

- Distributing of submitted applications in four sectors (portfolios)
- Forming the R&D Program in order to meet requests from the Major Departments of Inter RAO UES Group (“applications from the top level”) as well as from power plants and other subdivisions (“applications from the grass-root level”)
- Professional expertize and classification of projects involving leading experts in the industry
- Implementation of random choice methods for involving experts from scientific and business communities
- Keeping a status of “portfolio excessive filling ”
- Using sets of criteria depending on the portfolio.

