Partnership between Business and Education – Cooperation Synergy as a Success Factor of Innovative Development

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Rosneft is the World's Largest Oil and Gas Corporation

- Countries where the company operates
  - Refineries
  - Upstream Assets

- 24 countries of presence
- 74 regions in Russia where the company operates
- 352,000 employees — company personnel
- 1,097 hydrocarbon production licenses in Russia and abroad
- Largest subsoil user in Russia
- 13 refineries in Russia and stakes in 5 refineries abroad
- Extensive retail network — 2,962 retail stations
Mission Statement and Strategic Goals *

The Rosneft mission is to efficiently unlock Russia’s energy potential, ensure energy security and take natural resources with care. Rosneft is the locomotive of the Russian oil and gas industry and, in performing its activities, is the guarantor of efficient use of the country’s unique resource base and energy security.

**UPSTREAM**

**Oil and Condensate Production:**
stabilize Brownfield production in an efficient way. Through starting up new projects, increase development of challenged reserves and fields with complicated reservoirs. Build portfolio of efficient international projects holding long-term growth potential.

**Exploration:**
add reserve in an efficient way. Discover reserves to build and progress new oil and gas producing clusters.

**Offshore Projects:**
implement unique prospects for ramping up HC production and value creation on the basis of shelf projects, and achieve Company’s leadership in the shelf oil and gas production.

**GAS BUSINESS**
Add shareholder value to the Company through growing gas production underpinned by highly efficient long-term sales portfolio.

**REFINING, COMMERCE AND LOGISTICS**

**Refining:**
• being industry’s leader in terms of performance and safety;
• optimizing refining configuration
• to meet market demands and be stable in changing tax regime;
• funding own development and development of other segments.

**Commerce and Logistics:**
Maximize profitability from placing the products of other business segments of the Company

**INTERNAL SERVICES**
Form technological OFS business able to ensure industry’s best economic and technological efficiency.

**TECHNOLOGIES AND LOCALIZATION**

**Technologies:**
become global technological company and transfer cutting-edge technologies for production of new types of reserves

**Localization:**
localize technologies, equipment manufacturing and service provision, and ensure strong multiplicative effect across related industries both in the areas of operations and across the country in general.

* According to the Company Annual Report
Developing Russian Continental Shelf — One of Strategic Priorities for Company's Business

• Rosneft is the largest subsoil user on Russia's shelf: it holds 55 licenses for areas on the continental shelf of the Russian Federation containing reserves of 41,5 billion tons of oil equivalent*.

• Rosneft license areas are mainly located in the following regions:
  - West Arctic — the Barents Sea, the Pechora and the Kara Seas (19 projects)
  - East Arctic — the Laptev Sea, the East Siberian and the Chukchee Seas (9 projects)
  - Far East — the Sea of Okhotsk (20 projects)
  - Russia's southern seas — the Black Sea, the Azov and Caspian Seas (8 projects)

* According to the Company web-site (https://www.rosneft.ru/business/Upstream/offshore/)
Continental Shelf Development is Locomotive for Progressing Research and Transportation Complexes in Company and Related Industries*

* According to Company's press releases, publicly available information

- Developing the Onshore Support Base for shelf projects in the West Arctic including the industrial cluster of OFS facilities (in Murmansk)
- Developing the Center of Arctic Competencies (on the basis of the Murmansk State Technical University)
- Establishing a training center to provide personnel for shelf projects, equipment and technology localization (in Murmansk)
- Developing the Arctic Research and Design Center for Offshore Development (in Moscow)
- Developing the Zvezda Shipbuilding Complex (in Bolshoy Kamen) — manufacturing vessels of up to 350 Kt, elements for offshore platforms, ice-class vessels, special-purpose vessels and other marine facilities
Development of Continental Shelf Generates Substantial Demand for Rare Skills Specialists

Offshore Field Development

- Specialists in marine geology, geophysics, geotechnical surveys, offshore drilling
- Service engineers for platform equipment
- Designers of substructures of offshore platforms and subsea production facilities
- Specialists in designing and managing power supply at drilling platforms and offshore oil fields
- Specialists in offshore emergency and oil spill response
- Specialists in setting up offshore field infrastructure
- Specialists in offshore safety and assessment of offshore operations risks

Logistics and Transportation Including Shipbuilding and Repair

- Shipbuilding and ocean engineering
- Designing and building ships to be used in Northern offshore areas
- Technical operations and use of ships and shipboard equipment
- Welding procedures and equipment
- Power supply and electrical engineering

R&D

- Hydrology
- Glaciology
- Meteorology
- Marine geology
- Marine biology and ichthyology
Rosneft Corporate Training System Proved to Be Efficient Both Internally and Internationally

**System Goal:** replenish Company's human resources and train highly skilled specialists to resolve business strategic objectives over the longer term

<table>
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<tr>
<th>COMPANY</th>
<th>Over 400 thousand people-training courses</th>
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<td>60 corporate training centers;</td>
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<td>Over 20 thousand people passed through assessment of leadership and professional competencies</td>
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<tr>
<th>VOCATIONAL SCHOOLS</th>
<th>24 partner vocational schools, training much-wanted workers, over 1 thousand people received on-the-job training</th>
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<tr>
<th>UNIVERSITIES</th>
<th>54 partner universities; 17 specialized departments; over 6.5 thousand students received on-the-job training; 490 students — receive Rosneft scholarship</th>
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<td>1,237 graduates joint the Company</td>
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<tr>
<th>SCHOOLS</th>
<th>105 Rosneft-classes in 25 regions; 2.5 thousand pupils; 621 school leavers entered specialized university departments</th>
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**International Level**
- Training personnel for international and joint projects

**National Level**
- Supporting the state educational policy – training engineers and highly skilled workers

**Regional level**
- Developing infrastructure of schools, vocational schools and universities, raising the quality of education

**Corporate Level**
- Stable influx of young specialists to the Company. Continuous training throughout the whole career with the Company

The system is being rolled out to deliver Company's business objectives
Rosneft's Partnership With Educational Institutions Enables Synergy Effect

Building up partner relations with basic, vocational and higher educational establishments (schools, vocational schools and universities) makes it possible to successfully implement Rosneft's business projects.

Result of Rosneft cooperation with educational establishments:

1. Progressing production technologies.
2. Ensuring HR security — recruiting and developing personnel to meet current and future business demand.
3. Ensuring labor quality and operational safety based on health, safety and environmental standards.
4. Raising management efficiency — at strategic and operational levels, increasing financial performance.
5. Stimulating innovative activities and innovation implementation.

Annual Rosneft investments into joint projects with educational establishments exceed 2.5 bln rubles.
Business and education:
Educational cooperation synergy

Company demand

- Ensure that the Company has a permanent influx of personnel trained to fit for business purposes:
  - qualified blue collars;
  - qualified engineers (bachelors, engineers, masters);
- High quality additional vocational education for the Company employees;
- Ensure the highest qualification of employees and researchers.

Educational Institutions' capabilities

- High school student vocational counseling and pre-university tutorial, based on the Company's demand;
- Blue collar vocational training programs;
- Industry-specific higher education programs;
- Specialist refresher training and retraining to fit business purposes;
- Postgraduate and postdoctoral studies
High school interaction

Interaction areas

- High school student additional education in industry-specific disciplines (mathematics, physics, informatics, chemistry, foreign languages), with the engagement of academicians.
- High school student vocational counseling (testing, visits to production facilities, vocational tryouts, getting a blue collar profession during school years).
- Corporate culture introduction (arranging workshops, taking part in high school activities, creating a Company branded zones at schools).
- Teacher refresher training and material incentives.
- Equipping the specialized classrooms with training and laboratory equipment.

The following arrangements are in place in the RF regions to meet the business development needs, including offshore and support projects:

- 19 Rosneft classes encompassing 452 high school students in Sakhalin Region, Khabarovsk and Primorsk Territories, the Republic of Sakha (Yakutiya), Arkhangelsk and Murmansk regions;
- In 2016, the above classes yielded 200 high school graduates, 100% of them were admitted to universities, 64% of them chose the industry-oriented specialties;
- 01 September 2017 — Rosneft classes will be opened in Bolshoy Kamen (with the support of Zvezda Ship-Building Yard), Lensk and Mirny (with the support of Taas-Yuryakh Neftegazdobycha).
Interaction with professional education and higher education institutions (universities and colleges)

Company partners:
- Lomonosov Moscow State University
- Admiral Makarov State University of Maritime and Inland Shipping
- St. Petersburg Maritime Technical University
- Gubkin Russian State University of Oil and Gas
- Moscow State Institute of International Relations (University) of the RF Ministry of Foreign Affairs
- Far Eastern Federal University
- University-linked colleges (Nakhodka, Bolshoy Kamen)
- Admiral Nevelskoy Maritime State University
- Murmansk State Technical University
- Northern (Arctic) Federal University
- Far Eastern Shipbuilding College

University and college education
- Participation in the Board of Trustees in 9 Universities
- Company-specific university education > 220 pers. (by 2020)
- University/college students practical training at the Company Subsidiaries > 650 pers. per year.
- Company-ordered Master programs in offshore development, shipbuilding, ocean engineering at 6 universities.
- Shipbuilding department opening at the FEFU branch in the city of Bolshoy Kamen.
- Supporting the series of competitions arranged as part of the Ice Mechanic Winter School on the basis of the FEFU Engineering School.
- Scholarship and grant support to students and academicians.
- Academicians practical training at the Company Subsidiaries.

Company employees education and training
- MSU and RSU vocational retraining programs in E&A, drilling, field infrastructure setup, survey and offshore project management >150 pers./year.
- Compulsory training - platform clearance, well management in case of a well control incident, offshore safety basics, emergency situation response actions (BOSIET) > 50 pers./year.
- White collar training - a corporate MBA program at MGIMO (with a focus on Arctic shelf development); mini MBA at SPMTU > 60 pers./year.
- Blue collar job training (shipbuilding, electrical and radio fitting, pipelaying, welding) > 200 pers./year.
- Company’s participation in the WorldSkills professional excellence contests.
Company demand

- Analysis of the global scientific and technical achievements and innovations in the fuel and energy complex;
- Recommendations on ensuring maximum implementation efficiency of projects and initiatives;
- Carrying out the scientific and research activities as part of the Company projects;
- Target innovative projects implementation based on the Company's order.

Educational Institutions' capabilities

- Scientific potential of the universities' academic teaching staff and international class experts;
- Universities' research and methodological background (results of scientific, research, innovative and analytical activity);
- Deployment of university infrastructure (laboratories, research centers, test facilities) for conducting R&D and TIP.
Scientific and innovative activity in the Arctic shelf

- 12 scientific and research expeditions were completed in 2012-2016 in the Barents, Kara, East Siberian, Chukchi and Laptev Seas.

- Work was carried out to practice the elements of the ice situation management system (experiments were conducted to make physical effects on icebergs)

- Integrated research was carried out which made it possible to understand and control the environmental situation in the areas of the Company operations. The obtained information was integrated in the Kara Sea Environmental Atlas

- Projects are being implemented jointly with FEFU to study the Arctic and Far Eastern shelf.

- Jointly with Lomonosov MSU, the Company is developing a Russia's Arctic Region Atlas and implementing the scientific Arctic research projects.

- Further ice research and hydrometeorological studies are scheduled to be conducted in summer 2017, including maintenance of stand-alone meteorological stations and field experiments in iceberg propulsion.
Company demand

- Availability of a modern practical training facilities;
- High equipment capability of the research facilities;
- Modern auditorium space availability;
- Modern campus availability (housing facilities, sports, cultural, leisure and medical facilities), to accommodate nonresident and foreign students, invited lecturers and Company employees who come for refresher training.

Educational Institutions' capabilities

- Tutorial and training facilities of universities and colleges;
- Scientific and laboratory facilities, technology parks of universities;
- Modern auditorium space, conference halls, business centers;
- Space for arranging mobile exhibitions;
- Dormitories, hotels;
- Sports and recreational facilities.
Educational institutions infrastructure development

Gubkin State University of Oil and Gas

Laboratory facilities:
Flow dynamics of marine production facilities and transport systems;
Geological and geophysical technologies for developing Arctics and Northern Seas;
Technical facilities to ensure safety of marine oil and gas facilities

St. Petersburg Maritime Technical University

The Company’s Marine Drilling Center with the block for geological and engineering support to drilling, equipment models and vessel mockups

Nevelskoy State Maritime University

Laboratory for maintenance design and marine equipment repair
Murmansk State Technical University

Laboratory for 3D visualization of marine petroleum projects

Far Eastern Shipbuilding College

Learning and practice classes

Far Eastern Federal University

Ice research laboratory

Educational institutions infrastructure development
**Rosneft**

- Successful business development and achievement of global technological leadership in the energy industry
- Development of the Company's scientific, technological and innovative potential
- Ensuring the Company's staff sufficiency in the long-term

**Educational institutions**

- Ensuring the educational institutions' competitive ability and demand for their graduates in the labor market
- Education quality improvement
- Ensuring the practice-driven nature of education
- Scientific developments commercialization
- Scientific and educational infrastructure development

**Cooperation synergy** — an innovative development success factor
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