

Approaches, Priorities and Reference Points regarding the Energy Strategy of Russia up to 2030

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The Energy Strategy of Russia up to 2030 (Energy Strategy 2030) was approved by the government of the Russian Federation on 27 August 2009. Great emphasis is placed on the role and significance of the Energy Strategy 2030 within the system of documents determining the strategic development of Russia. The aims and goals, and reference points and priorities, of Energy Strategy 2030 are examined in detail.

The Role of Energy Strategy 2030 in the System of Strategic Documents

Energy Strategy 2030 is not a document for direct action. It is a document for other strategic documents, and is elaborated on the basis of three key approaches:

- A systemic approach: an interrelationship with the key documents for strategic development;
- An evolutionary approach: a succession to the previous versions of the Energy Strategy;
- Stability and adaptability: the constancy of the chief aims and the capability for variation in the goals and mechanisms for their realization.

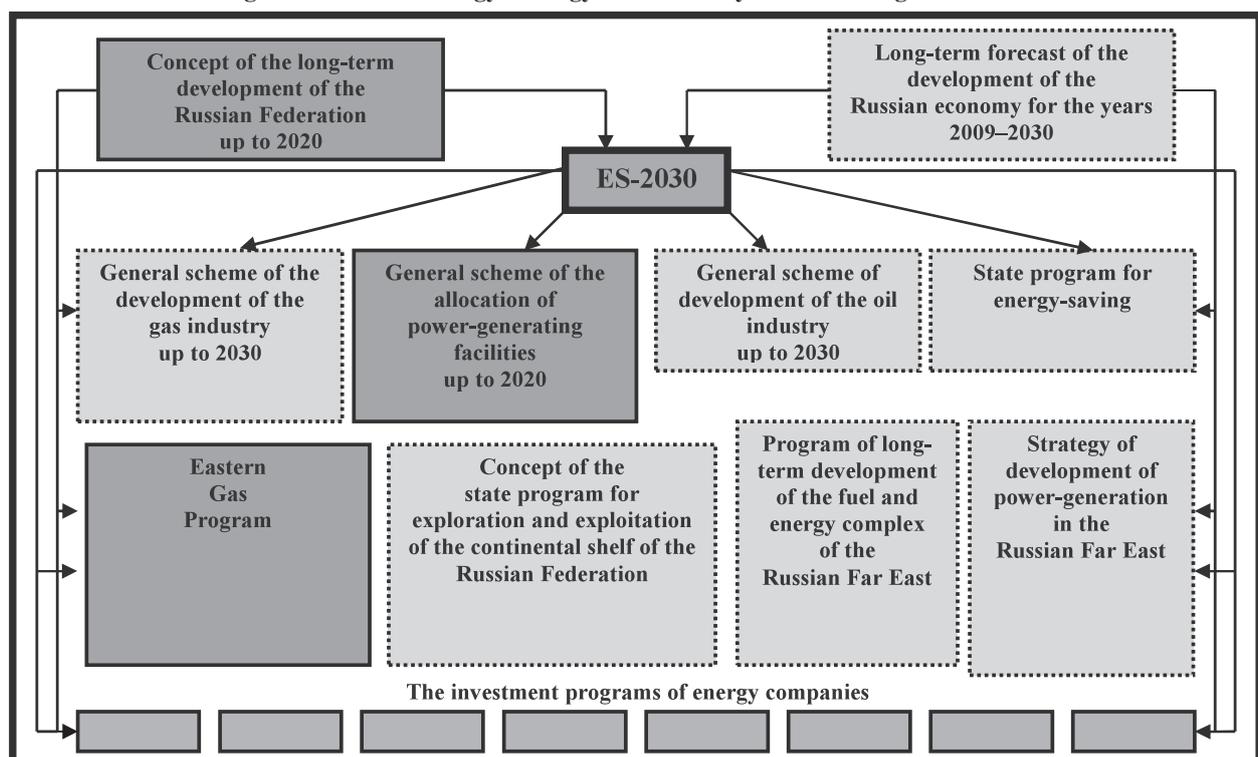
Energy Strategy 2030 cannot and should not be a substitute for the general schemes of the various industries of the fuel and energy complex (FEC), regional development programs, or the investment programs of energy companies. Energy Strategy 2030 determines the aims, goals and reference points for development with which these general schemes and programs should be in accord (Fig. 1).

The Aims and Goals of Energy Strategy 2030

The principal aim of Energy Strategy 2030 is the innovative and efficient development of the Russian FEC. It remains stable despite the fallout of the global economic crisis. In order to achieve this aim the following goals are defined in the document:

- A stable institutional environment;
- The modernization, extension and diversification of energy infrastructure;
- The energy and ecological efficiency of the national economy and FEC;
- The efficient propagation, extraction and

Fig. 1 The Role of Energy Strategy 2030 in the System of Strategic Documents



- processing of energy resources;
- The further integration of the Russian FEC into the global energy system.

gases in 2030 should not exceed the 1990-level by more than 5%.

The Priorities of Energy Strategy 2030

According to Energy Strategy 2030, the top priorities of the Russian FEC for the year 2030 are energy and ecological security, and energy and economic efficiency.

In the sphere of energy security the following strategic priorities of development were specified:

- An increase in electricity consumption per capita: no less than by 85% of the level in 2005 (Fig. 2);
- A decrease in the level of wear of equipment from 60% in 2005 to 35% in 2030;
- The maintenance of power generating reserves at a level of 17% of the total installed capacity of the Unified Energy System of Russia;

In the sphere of energy efficiency the following strategic priorities of development were specified:

- A 2-fold decrease in the specific energy intensity of GDP (Fig. 2);
- A gradual decrease in the specific losses and auxiliaries in FEC enterprises;
- The formation of an additional energy potential for economic development to the amount of 300 million tce/year

In the sphere of economic efficiency and ecological security the following strategic priorities of development were specified:

- A stable institutional and legal environment, the financial stability of the FEC;
- A 2-fold decrease in the specific emissions of pollutants from FEC enterprises into the atmosphere and hydrosphere;
- The amount of total emissions of greenhouse

The Stages of Energy Strategy 2030

The period of realization of Energy Strategy 2030 is divided into three stages in accordance with the internal and external conditions of development, peculiarities of the state energy policy and the general trends of social and economic development of the country, reflected in the Concept of the Long-Term Socio-Economic Development of the Russian Federation up to 2020 (Fig. 3).

The **first stage** takes place under conditions of global economic crisis, high volatility of global financial, stock and energy markets and a probable post-crisis renaissance of the global economy up to 2013-2015. During the first stage the role of the state in the FEC will increase due to the financial support for the realization of strategic projects and for key energy companies. The main goals for this period are the elimination of the consequences of the crisis, invigoration of the national economy, and modernization of the FEC.

The **second stage** proceeds in a more stable financial and market environment with the decreasing dependence of budget revenues and the national economy on the FEC. A peculiarity of the period is the considerable increase in the energy efficiency of the FEC, with its innovative development founded on domestic technologies, materials and equipment. During the second period, strategic energy projects in Eastern Siberia, the Far East, the Yamal Peninsula and the offshore Arctic Sea will be realized. The direct participation of the state in the FEC will be replaced with different types of cooperation with private companies, especially in the sphere of energy infrastructure and science. According to Energy Strategy 2030, the second period will last to 2020-2022.

The **third stage** is characterized by a substantial

Fig. 2 Expected Dynamics of the Specific Energy Intensity of GDP and Domestic Demand for Primary Energy Resources

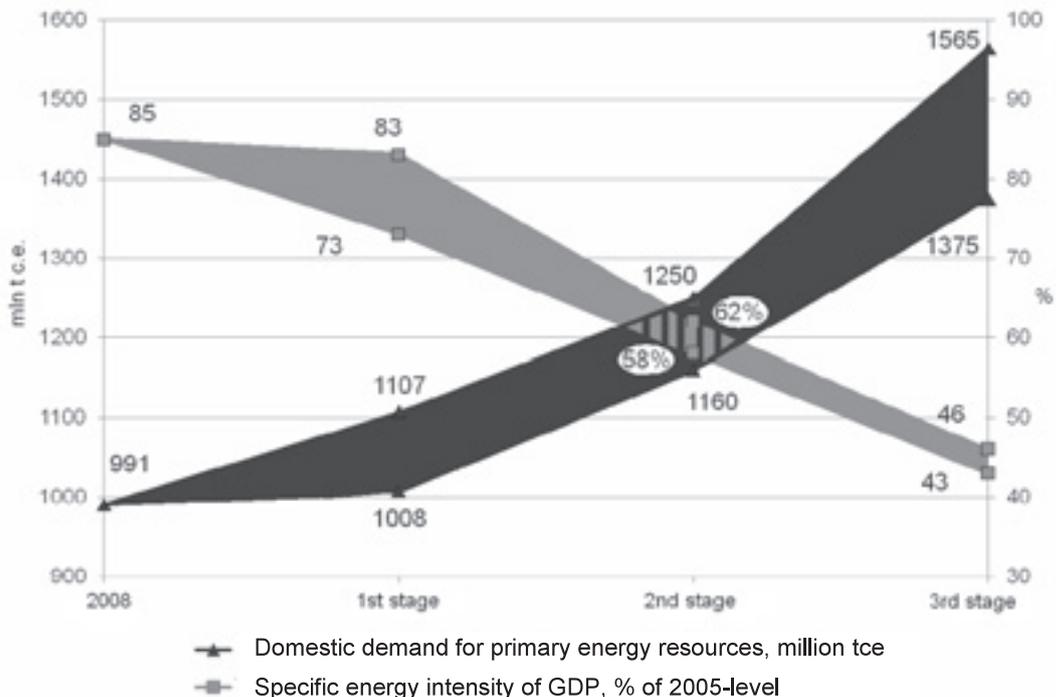


Fig. 3 The Characteristics of the Stages of ES-2030

First Stage (to 2013–2015)
<p><u>Main goals:</u></p> <ul style="list-style-type: none"> ➤ elimination of the consequences of the crisis and invigoration of the national economy ➤ modernization of the energy sector <p><u>External conditions:</u></p> <ul style="list-style-type: none"> ➤ possible post-crisis renaissance of the global economy ➤ volatility of the global financial, stock and energy markets
Second Stage (to 2020–2022)
<p><u>Main goals:</u></p> <ul style="list-style-type: none"> ➤ increase in the energy efficiency of the national economy and energy sector ➤ realization of energy projects in Eastern Siberia, the Far East, the Yamal Peninsula and the offshore Arctic ➤ innovative renovation of the energy sector <p><u>External conditions:</u></p> <ul style="list-style-type: none"> ➤ stabilization of the global energy markets ➤ decrease in the dependence of budget revenues and the national economy on the energy sector
Third Stage (to 2030)
<p><u>Main goals:</u></p> <ul style="list-style-type: none"> ➤ high-performance use of traditional energy resources ➤ gradual shift to the energy of the future <p><u>External conditions:</u></p> <ul style="list-style-type: none"> ➤ substantial decrease of the energy sector's role in the national economy

Fig. 4 The Development of Oil and Gas Complexes in the Eastern Regions of Russia



decrease in the FEC's role in the national economy. Meanwhile the Russian FEC will be in transition to energies of the future and its development will be determined by the highly-efficient utilization of traditional energy resources and the rapid development of non-fossil-fuel energy. The role of government in the FEC will be limited to the control of the institutional and legal environment and the support of new innovative spheres of the FEC. The third stage will end in 2030.

Strategic Initiatives of Energy Strategy 2030

Within the framework of Energy Strategy 2030 the following most important strategic initiatives of the Russian FEC were specified:

- The creation of oil and gas complexes in the eastern part of Russia;
- The development of the oil and gas potential of the Arctic Sea continental shelf and the northern regions of the country;
- The territorial diversification of energy infrastructure;
- Non-fossil-fuel energy;
- Energy-saving.

The creation of oil and gas complexes in the eastern part of Russia (the continental shelf of Sakhalin Island, Sakha Republic (Yakutiya), Magadan and Irkutsk oblasts, and Krasnoyarsk Krai) and the development of industrial, transport and social infrastructure will not only satisfy domestic demand for natural gas in the region but will also lead to the diversification of exports to the Asia-Pacific region. The exploitation of complex hydrocarbons will force the development of the petrochemical and gas-

chemical industries in the region and contribute to its rapid social and economic development (Fig. 4).

The development of the oil and gas potential of the Arctic Sea continental shelf and the northern regions of the country will compensate for the decreasing rates of oil and gas production in "traditional" regions. Natural gas production on the Yamal Peninsula, the continental shelves of the Barents, the Pechora and the Kara seas will satisfy domestic demand for natural gas in Russia and guarantee national energy security. The realization of the strategic initiative will make for the expansion of adjacent industries and the development of the Northern Sea Route (Fig. 5).

The territorial diversification of energy infrastructure is an imperative requirement for the sustainable long-term social and economic development of Russia. Among the most important infrastructure projects are the following: the "Eastern Siberia-Pacific Ocean" oil pipeline, the "North" and "South" petroleum pipelines, the "South Stream" and "North Stream" gas pipelines, and the gas-transportation system from the Yamal Peninsula (Fig. 6).

The development of non-fossil-fuel energy is determined by the stabilization of hydrocarbon production and the need for the limitation of the FEC's negative impact on the environment. Energy Strategy 2030 implies the expansion of nuclear and hydro energy alongside renewable energy—geothermal, solar, wind, biofuel and others. Putting into operation an installed capacity of 23-33 GW will increase the share of renewable energy in power generation from 0.5% to 4.5% in 2030 (Fig. 7).

The potential for energy-saving in Russia is estimated as 45% of current energy consumption. Consumption of

Fig. 5 The Exploitation of Oil and Gas Resources of New Regions (including the offshore Arctic)

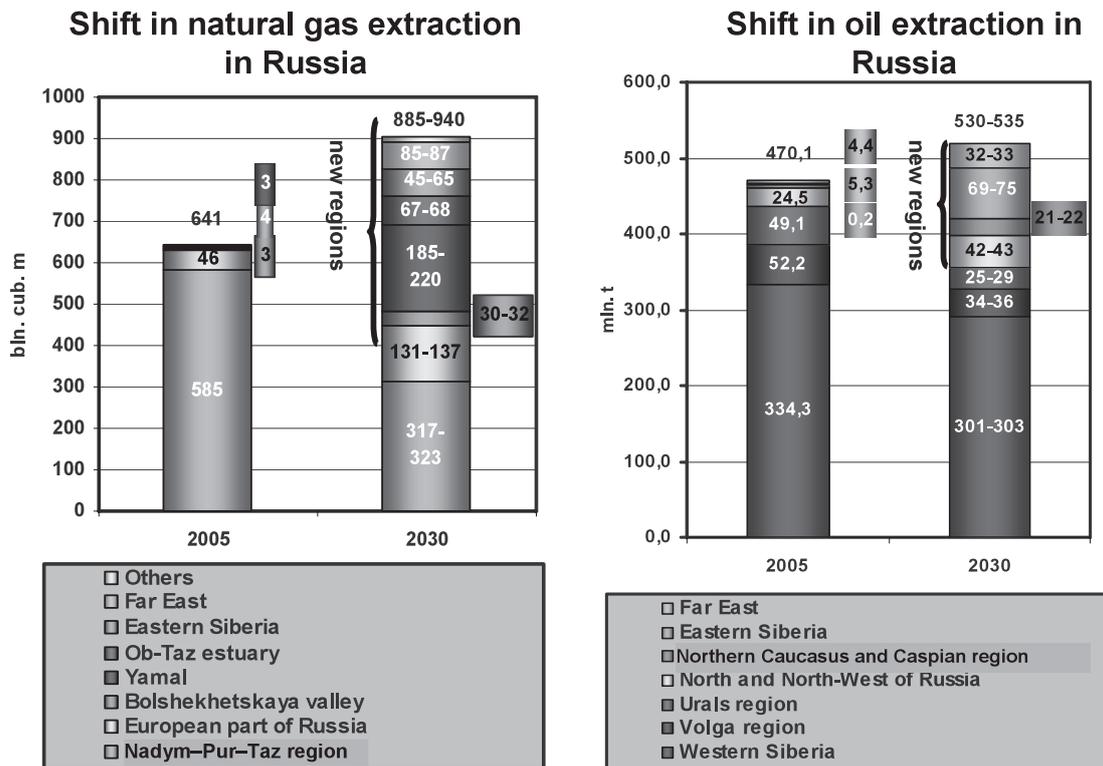


Fig. 6 Energy Infrastructure: Development and Diversification

OIL

➤ **Baltic Pipeline System-II: 50 million t / year**



➤ **Eastern Siberia–Pacific Ocean: 80 million t / year**



NATURAL GAS

➤ **North Stream: 55 billion m³ / year**



➤ **South Stream: 30 billion m³ / year**

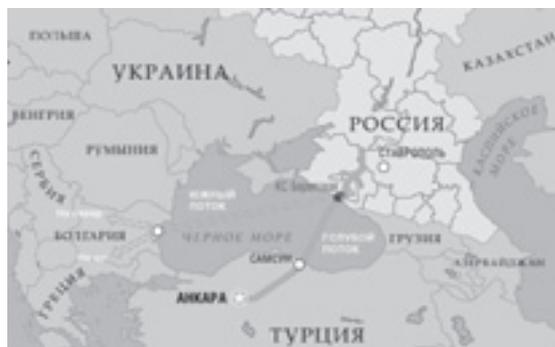
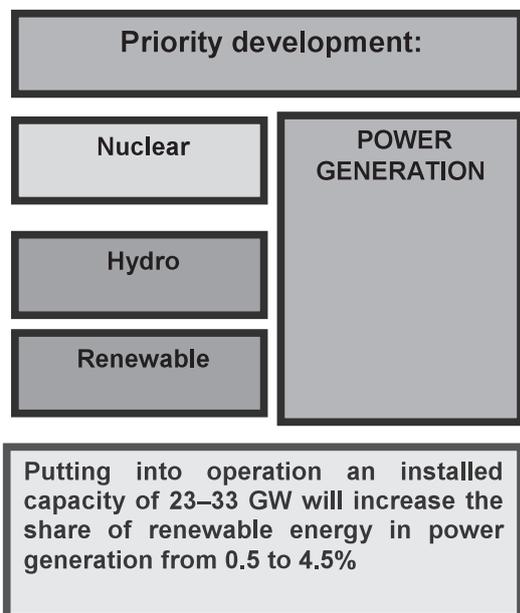
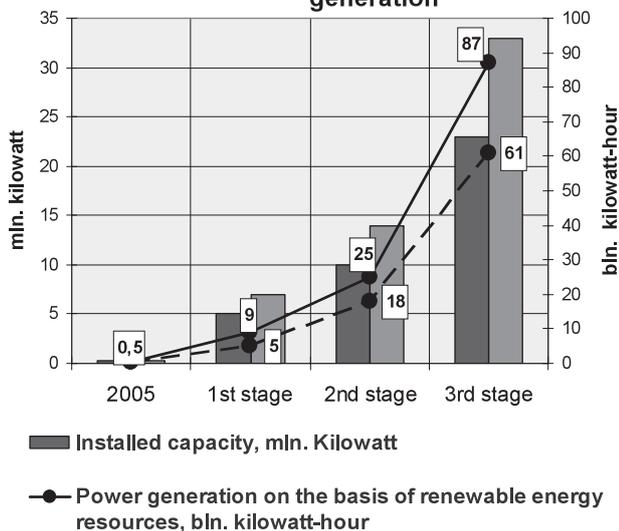


Fig. 7 Development of Non-Fossil-Fuel Energy



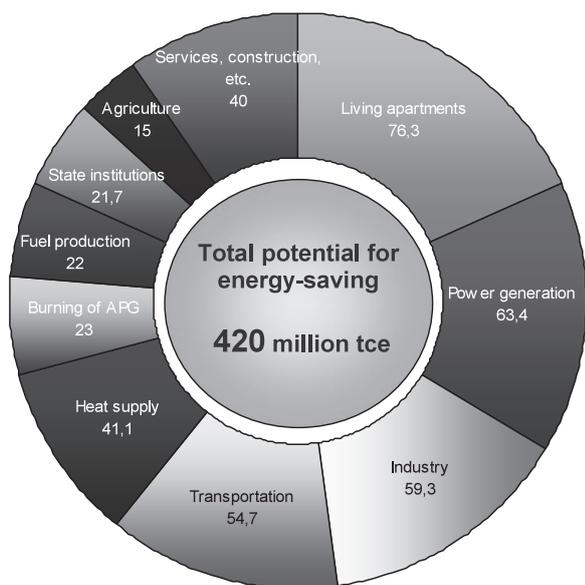
Forecasted development of renewable power generation



energy resources can be reduced by 20% in the heating supply, 30% in power generation, 40% in industry and transportation, and 50% in dwellings. Energy saving will significantly contribute to the harmonization of the fuel and energy balance of the country and the limitation of greenhouse-gas emissions. It will also lead to an increase

in revenues from the extra exportation of oil and natural gas (US\$84-112 billion) and an improvement in the competitiveness of the national economy under conditions of growing tariffs for energy resources.

Fig. 8 The Potential for Organizational and Technological Energy-Saving in Russia



Expected Results of Energy Strategy 2030

The realization of Energy Strategy 2030 will significantly contribute to the sustainable and innovative development of the national economy and guarantee the extended propagation of energy potential, the extension of energy infrastructure and the economic stimulation of other industries.

Russia professes to become a regional leader in the sphere of Eurasian energy security by means of:

- An effective influence on the stable and predicted dynamics of prices in regional markets;
- The utilization of the Russian energy infrastructure for the purpose of the rationalization of energy flows in Eurasia;
- The development and diversification of Russian energy exports;
- Active cooperation with energy exporters and importers.

By 2030 the Russian FEC will have become a highly-technological, effective and sustainable industry, oriented in its development toward human and innovative potential rather than toward natural resources.