Long-term energy scenario use and development in Russia

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IRENA 2nd webinar series on national experience in long-term energy scenario (LTES) use and development

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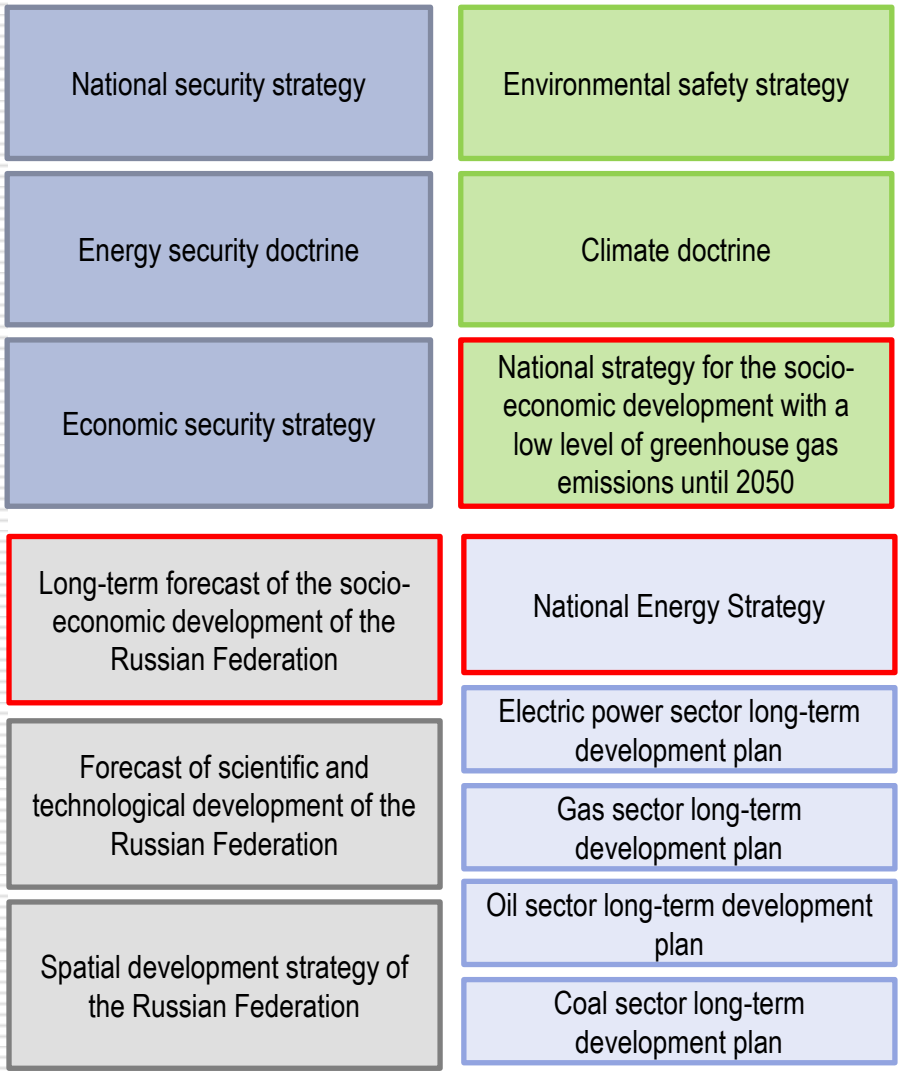
Development of scenarios. Inclusion of climatic factors in the strategic planning system.



- Climate policy documents become a part of a hierarchical strategic planning system.
- At the same time, environmental goals do not dominate strategic planning. They are (and will be) always harmonized with the goals of stable economic growth, ensuring the country's energy and economic security.
- The documents defining the energy sector development are formed in accordance with long-term forecasts of economic development (taking into account the implementation of national goals of low-carbon development in Russia and in other countries, their impact on the export of Russian resources and goods)
- The integrated parameters of energy sector development are determined by the Energy Strategy.
- Technologically (and regionally) detailed plans for separate energy industries are carried out in special long-term development forecasts (General Schemes of the industry development)

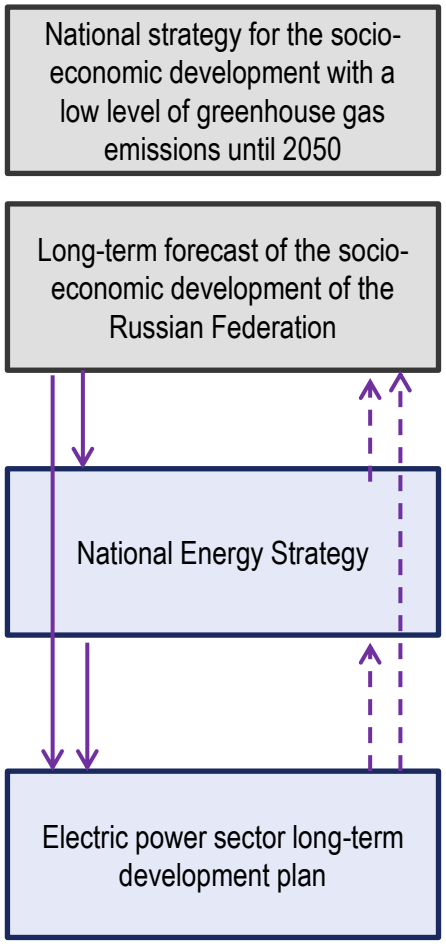
Development of scenarios. Interaction between the long-term economic and energy scenarios

Ministry of Economic development
- Macroeconomic parameters
- Energy efficiency (excl. energy sector)
- Low-carbon transformation of the national economy

Analytical and modelling support
- Russian Academy of Sciences
- Independent consulting groups and institutes

Ministry of Energy
- Energy sector development and transformation of the energy balance structure
- Energy export and the security of domestic energy supply
- Technological forecasting in energy sector (incl. storage, hydrogen, CCUS, etc)
- Long-term plans for the power sector development (incl. RES and NUC)
- Long-term plans for the fuel supply industries development

Analytical and modelling support
- Russian Academy of Sciences
- Independent consulting groups and institutes
- Engineering/design institutes (corporate or industry level))



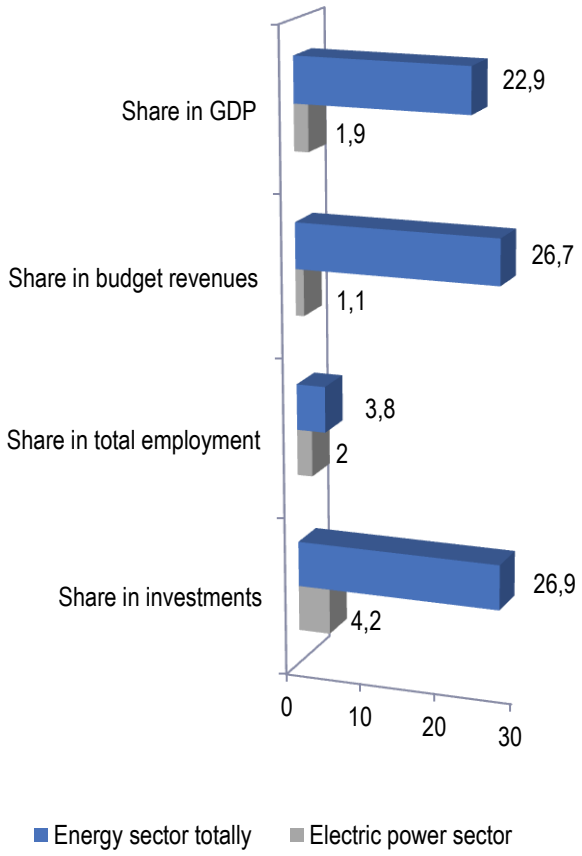
- Does not include detailed quantified scenarios
- Formulates the priorities and key measures
- Strategy provisions MUST be accounted (and grounded in figures) in the long-term economy and energy forecasts

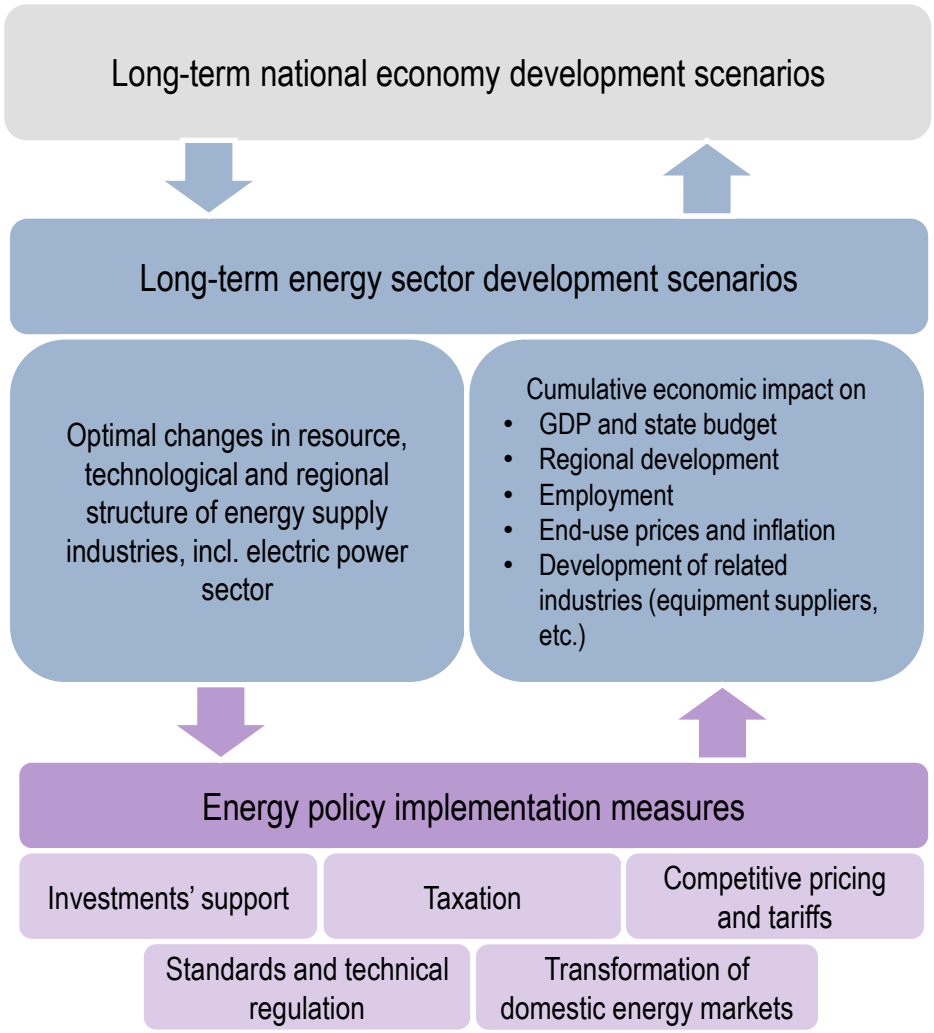
- Key macroeconomic parameters by 2-3 scenarios for 15 years
- International trade (incl. energy export)
- Forecast of sectoral structure pf GDP
- Changes in the regional structure of the economy

- Long-term (15-20 years) integrated forecast of energy sector and projected energy balances are developed as a ground for the Energy Strategy targets.
- Economic requirements (investments, prices and taxes)
- Long-term economy forecasts are used as a basis for the energy demand projections

- Regional electricity and heat demand projection and capacity requirements based on the long-term economy forecast
- Cost and performance data of generating technologies, screening analysis based on LCOE
- System-wide least-cost optimization of generating capacity and electricity production mix by zones of national power system (IPS)
- Economic requirements (investments, prices and taxes)

Use of scenarios. Economic rationale for LTES. Harmonizing energy and economy scenarios





Use of scenarios. Enhancing of their credibility and acceptance

	Regular scenario elaboration	Expertise of results	Alternative scenarios	Notes
Ministries and other government bodies, regional authorities	-	+	Rare	Harmonization between departments and different levels of government. Working groups, incl. experts
Scientific organization and institutions	+	+	+	Discussion of the approaches, tools and results. Development of scenarios beyond the official forecasts.
Independent consulting groups and organizations	+	+	Rare	Discussion of the approaches and results. Alternative assessments for separate parameters
Energy and environmental experts and organizations	-	+	Rare	
Russian Parliament	-	+	-	Parliament hearings (committees, round-tables, expert panels, etc.)
Energy business associations	-	+	+	Discussion of the approaches and results. Alternative business scenarios. Working groups and expert panels
Energy consumers associations	-	+	+	Discussion of the approaches and results. Alternative business scenarios. Working groups and expert panels

Scenario capacity building. Who develop scenarios?

- Ministry of Energy has no its own in-house modelling capacity
- Russian Energy Agency (Minenergo subsidiary) provide statictical and analytical support
- For the long-term scenario develeopment, distributed modeling resources from different organizations are used
- The configuration of modelling teams depends on the type of forecast (Energy strategy, or separate energy industries plans)
- The closer cooperation and coordination with modeling teams developing long-term economy forecasts is very desirable

Key modelling tasks in the long-term energy forecasts

Modelling of international energy markets: prices and competitiveness of Russian energy resources

Modelling of domestic regional (!) energy demand based on the macroeconomic forecasts

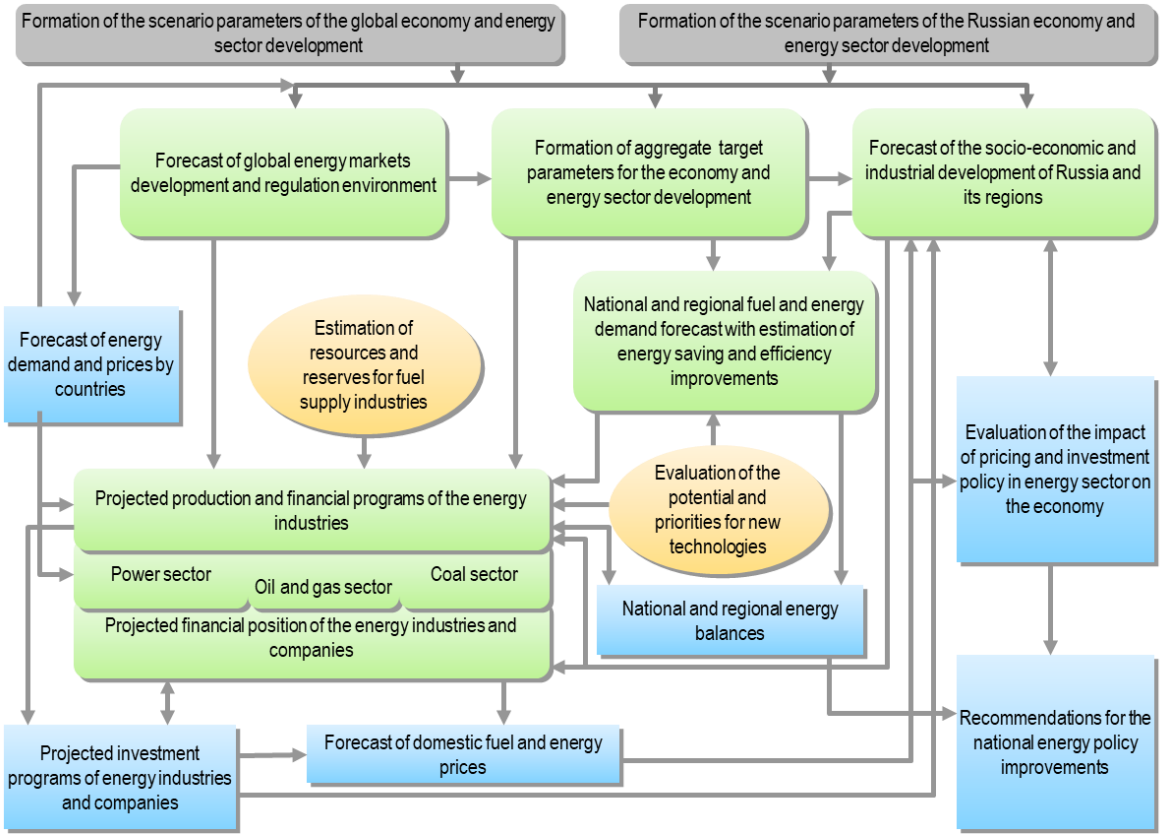
Technological forecasting and evaluation of changes in the interfuel and technological competition

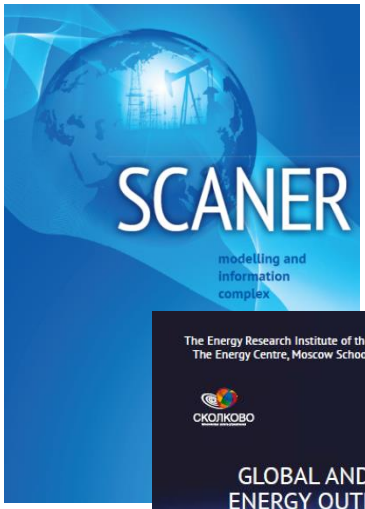
Modelling of optimal energy supply structure (by regions and energy resources/carriers)

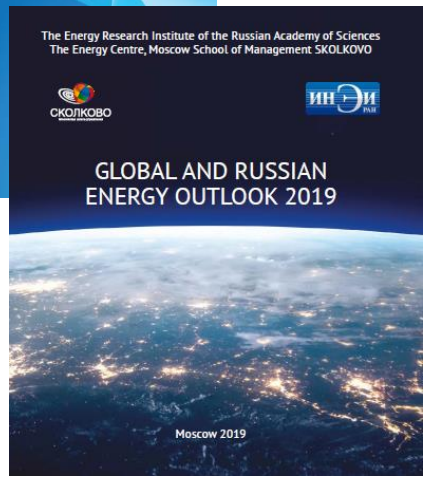
Modelling of domestic energy markets and projection of prices

Projection of financial requirements for the LTES implementation and its macroeconomic consequences

Scenario capacity building. ERI RAS SCANER modeling system for LTES







«SCANER» is a tool for the system analysis of the Russian energy sector development for the mid- and long-term prospects (to 2030-50) as an important part of national economy and global energy markets. Integrating the powerful modeling and informational resources, SCANER provides:

✓Unique informational support to the analysis and forecasts (regularly updated databases on the national and regional economy, energy sector, energy balances and markets)

✓Multi-level co-ordination system of energy forecasts focused on the formulation of rational scenarios of the economy, energy sector and energy companies' development

✓Huge flexibility and fast adaptation of the models and their calculation modes under the separate forecasting requirements

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Thank you for attention!