Russian Power Sector Outlook: Opportunities for Integration into Northeast and Southeast Asia Energy Interconnection

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ERI RAS – experience in system energy studies

Energy Research Institute of the Russian Academy of Sciences (ERI RAS) was established in 1985 for the fundamental studies of national energy policy development and implementation.

2. USSR SCIENTIFIC AND TECHNICAL PROGRESS PROGRAM – 1985-1989
7. ENERGY STRATEGY of Russia up to 2035 – still in Government
10. GENERAL SCHEME for power sector development and assets allocation up to 2020 - RF Government resolution 22.02.2008 #215-r
11. GENERAL SCHEME for power sector development and assets allocation up to 2020 and for 2030 prospect – RF Government protocol 3.06.2010
12. GENERAL SCHEME for power sector development and assets allocation up to 2035 – RF Government resolution 09.06.2017 #1290-r
«SCANER» is a tool for the system analysis of the Russian energy sector development for the mid- and long-term prospects (to 2040-50) as an important part of national economy and global energy markets. Integrating the powerful modeling and informational resources, SCANER provides:

- Unique information support for the analysis and forecasts (regularly updated databases on the national and regional economy, energy sector, energy balances and markets)

- Multilevel coordination system of energy forecasts focused on the formulation of rational variants of the economy, energy sector and energy companies’ development

- Huge flexibility and fast adaptation of the models and their calculation modes for new forecasting requirements
Global and Russian Energy Outlook
Main Investment Priorities (up to 2035):
- New Nuclear Reactors (VVER-TOI, “Fast” Reactors) – up to 22 GW
- RES – at least 5 GW (with possible further increase to 10-15 GW)
- Effective Thermal Power Plants – CCGT (localized) + Coal USC
- Modernization of Existing TPPs (about 50 GW)
- Smart-grids and demand response
Opportunities for Integration into Northeast and Southeast Asia Energy Interconnection

- **South Yakutia Hydro Complex**: 8 GW
- **Wind Potential**
- **Flood Control Hydro**: 3.2 GW
- **Wind Potential**
- **New Coal TPP up to 8 GW**
- **Wind Potential**
- **New Gas TPP up to 4 GW**
- **Solar Potential**
- **Nuclear Complex up to 5 GW**
Power grid integration project require the integrated cost/benefit analysis on the national and supranational levels.

We need to find the mechanisms how to share the expected positive effects among all the project participants as well as compensate through the common efforts the possible negative effects for separate countries.
Several Questions We Need to Address Together

Affordability of the changes in the energy security conditions
• Breaking the structure of energy balances
• Decrease of the energy independence (self sufficiency of energy supply)
• Challenges for the local fuel suppliers

Affordability of the changes in the power system security conditions
• Needs for the reservation of super-grid capacity, cost and allocation of the reserves
• Needs for adaptation of the power system to the huge amounts of intermittent RES generation, incl. storage technologies
• Needs for multilevel super-grid dispatching and challenges for the national dispatching systems – as well as markets
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Thank You for Your Attention