State program of socio-economic development of the Far East and the Baikal region as a prerequisite for Asia Pacific region global energy integration
Actual acting programs:

1. State program “The social and economic development of the Russian Far East and the Baikal region until 2025” approved by the Russian Government (March 29, 2013)

2. Complex program of energy system development of the Russian Far East and the Baikal region until 2025 approved by the Russian Energy Ministry (May 16, 2012)

The energy system development program results

• The increase in capacity factor (load factor) of the thermal power plants from 39% to 54%.
• 15% fuel consumption reduce for generation of 1 kWh due to the new efficient generating capacity building.
• The East energy system hydropower plants sales increase from 9.8 TWh in 2011 to 13.5 TWh in 2012.
• New generating capacity - 4.2 GW
• New power grids 35-500 kV – 14 600 km
• New transformer substations - 8.3 MVA

The total investment requirements – approx. 19 billion US dollars, including:
- The federal budget - 4, 845 billion US dollars (prices of the respective years);
- Extra-budgetary resources (investment of energy companies, loans) – 13 billion US dollars (prices of the respective years);
- Other funds (funds of the regional budgets, investments by private companies).
Public policy in the energy sector of the Russian Far East and the Baikal region

- Focus on advancing energy system development (social infrastructure leads to a life quality level increase, industrial infrastructure leads to economic growth);

- The new network paradigm (priority to the development of interregional and international energy “bridges” – super-grids);

- Innovation implementation (co-generation, hybrid power plants, adaptive grids);

- The private investors involvement (public-private partnership).
National energy systems integration is not the result of energy development programs of stand-alone Asia-Pacific countries, but a necessary condition for a development.

This is the reaction of the energy industry for the globalization of the world economy.

The need for a global energy system integration is the guarantor of energy security in the region.
FEEMC is a professional and well-skilled territory-oriented and socially responsible company

FEEMC, JSC. was founded by Unified Energy System of Russia on 16 July 2001 to represent functions of executive body for many of energy companies in the Russian Far East. In 2008, after UES of Russia was reorganized, FEEMC, JSC priority business was determined as 'implementing investment projects to develop power infrastructure in the Far East of Russia'.

The equity capital of FEEMC, JSC is 54,367,064,000 rubles (≈ 1,753 billion US dollar).

The share of the Russian Federation is 99,99%.

The company manages 11 investment projects focused on the Far East power industry development on 4 territories of the Far Eastern Federal District (Primorsky Krai, Amur Province, the Republic of Sakha (Yakutia) and Magadan Province).

The main parameters of investment projects of FEEMC, JSC:

- **3,316.6 km** of power transmission lines with voltage classes from 6kV to 220kV
- **49.8 MW** of installed capacity of the power generating facilities
- **1268.6 MW** of transformer capacity
- **163.67 Gcal/h** of thermal power generating by mini-thermal power plants

For the last few years FEEMC, JSC. has accumulated necessary production facilities on the territories of the Far Eastern Federal District. In 2008-2012 more than 3,500 people were involved in the projects of FEEMC, JSC.
FEEMC, JSC experience in the energy infrastructure development

HV line 220 kV "Chernyshevsky – Mirny- Lensk-Peledui", Republic of Sakha (Yakutia)
(the power infrastructure for the Eastern Siberia-Pacific Ocean pipeline system)

“Taken into consideration the FEEMC business experience in Western Yakutia and our high resulted working cooperation, I want to ask a Company to include “Suntar - Nyurba” HV line project into the investment program of the Company “.

Egor Borisov, the President of the Republic of Sakha (Yakutia)
Perspective investment projects of FEEMC, JSC

**The name of the project**

- Construction of the HVTL 220 kV Mirny – Suntar – Nyurba with 2 substations (3 and 4 start-up complexes), Republic of Sakha (Yakutia)
- Construction of two single circuit 220 kV HVTLs (Peledui – Chertovo Koryto – Sukhoi Log – Mamakan) with 220/110 "Chertovo Koryto" substation, 220/110 kV "Sukhoi Log" substation and the extension of the open distributive system at 220 kV "Peledui" substation, the Republic of Sakha (Yakutia), Irkutsk Province
- Construction of the 220 kV double circuit Ust'-Omchug – Omchak HVTL with modernization of 220 kV "Ust'-Omchug" substation, Magadan Province
- Construction of the 220 kV "Omchak" substation, Magadan Province
- Construction of the 220/110 kV Maya – Khandyga – Teply Klyuch – Razvilka – Nera Novaya HVTL, the Republic of Sakha (Yakutia); Magadan Province
- Construction of the 220 kV Mirny – Chayandinskoe OGCF – Talakanskoe OGCF – Peledui HVTL, the Republic of Sakha (Yakutia)

**State customer – The Energy Ministry of Russian Federation**

**Investment portfolio:**

3,3 billion US dollars
Acceleration of the Eastern Gas Program

«Asia Pacific market is the most capacious in the world, and in the next few years the volume of gas supplied by Gazprom will exceed it’s shipments to Europe. Eastern Gas Program is our priority and it is actively developing now, but due to the the gas demand growth dynamics in the Asia-Pacific region, we will now give it a significant additional acceleration», - the President of the Russian Federation V. Putin
Objectives of the project:
- To provide the power supply for the development and operation of Chayandinskoye and Talakansky oil and gas condensate fields in the south-west of the Republic of Sakha (Yakutia) by transmission Vilyuyskyi Cascade HPP and Svetlinskaya HPP with the first category of reliability.

The main parameters of the project:
- The length of the 220 kV single-circuit HV line - 620 km
- Power substations - 2x125 MVA, 6x63 MVA
- The construction cost - 602 million US dollars

State program for integrated gas production, transportation and supply system in Eastern Siberia and the Far East with the possibility of gas exports to China and other Asia-Pacific countries (Eastern Gas Program) was approved in September 2007 by the Ministry of Industry and Energy of the Russian Federation.

FEEMC, JSC had initiated the project of centralized power supply of the Eastern Gas Program in 2011.
The United Energy System of Asia

The current state of Asia-Pacific region energy system makes to be actual the idea of national energy systems integration

Objectives of the project:
• To create conditions for economic growth in the Asia-Pacific region by improving access to energy resources
• To improve the reliability of the national power systems of the Asia-Pacific region through the integration of advanced network infrastructure and the renewable energy resources involvement

The main parameters of the project:
• Term - 30 years
• The length of the high voltage DC line - 39000 km
• The construction cost – 26 billion US dollars
“Developing the Far East energy infrastructure, we will connect it to the European part of the energy system, so it become easy for us to overrun the necessary raw materials and energy flows from one part to another, and go to the European and Asia-Pacific markets both easily”, - the President of Russian Federation V. Putin
Asian ringed network (Asian super-grid)

The huge energy potential of Russia, including renewable energy sources, is the real basis for the international energy union construction in Asia

Objectives of the project:

- To create conditions for economic growth in the Asia-Pacific region by improving the access to energy resources.
- To improve the reliability of the national power systems of the Asia-Pacific region through the integration and the renewable energy sources involvement.

The main parameters of the project:

- Term - 12 years
- The length of the high voltage DC line - 2350 km
- The wind power plants capacity - 1.5 GW
- The gas-fired plants capacity - 2.2 GW
- The hydroelectric power capacity - 2 GW
- The solar power plants capacity - 0.5 GW
Asian super-grid: Russian involvement (stage 1)

The main parameters of the project:

- Term - 3 years
- The length of the high voltage DC line – 50 km
- The wind power plants capacity – 100 mW
- The gas-fired plants capacity – 1 GW
Asian super-grid: Russian involvement (stage 2)

The main parameters of the project:

• Term - 4 years
• The length of the high voltage DC line - 2300 km
• The wind power plants capacity - 1 GW
• The gas-fired plants capacity - 0.6 GW
• The hydroelectric power capacity - 1 GW
• The solar power plants capacity - 0.5 GW
Asian super-grid: Russian involvement (stage 3)

The main parameters of the project:

- Term - 5 years
- The length of the high voltage DC line - 4000 km
- The wind power plants capacity – 1,5 GW
- The gas-fired plants capacity – 1 GW
- The hydroelectric power capacity – 0.6 GW
- The solar power plants capacity - 0.5 GW
Thank you for your attention!