CURRENT SITUATION AND PROSPECT NORTHEAST ASIA ENERGY COOPERATION PROJECTS: RUSSIAN PERSPECTIVES

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First

It is necessary to take into account that Russia has serious intentions to become an active player at energy markets of NEA countries for a long time

EASTERN VECTOR OF RUSSIA'S ENERGY POLICY

- **Rapid and large-scale energy development in the Asian regions of Russia and penetration to the energy markets of the APR countries, particularly to the energy markets of Japan, China, Korea and other NEA countries should be considered as the key means for timely provision of the proper positions of Russia in this strategically important region of the world;**

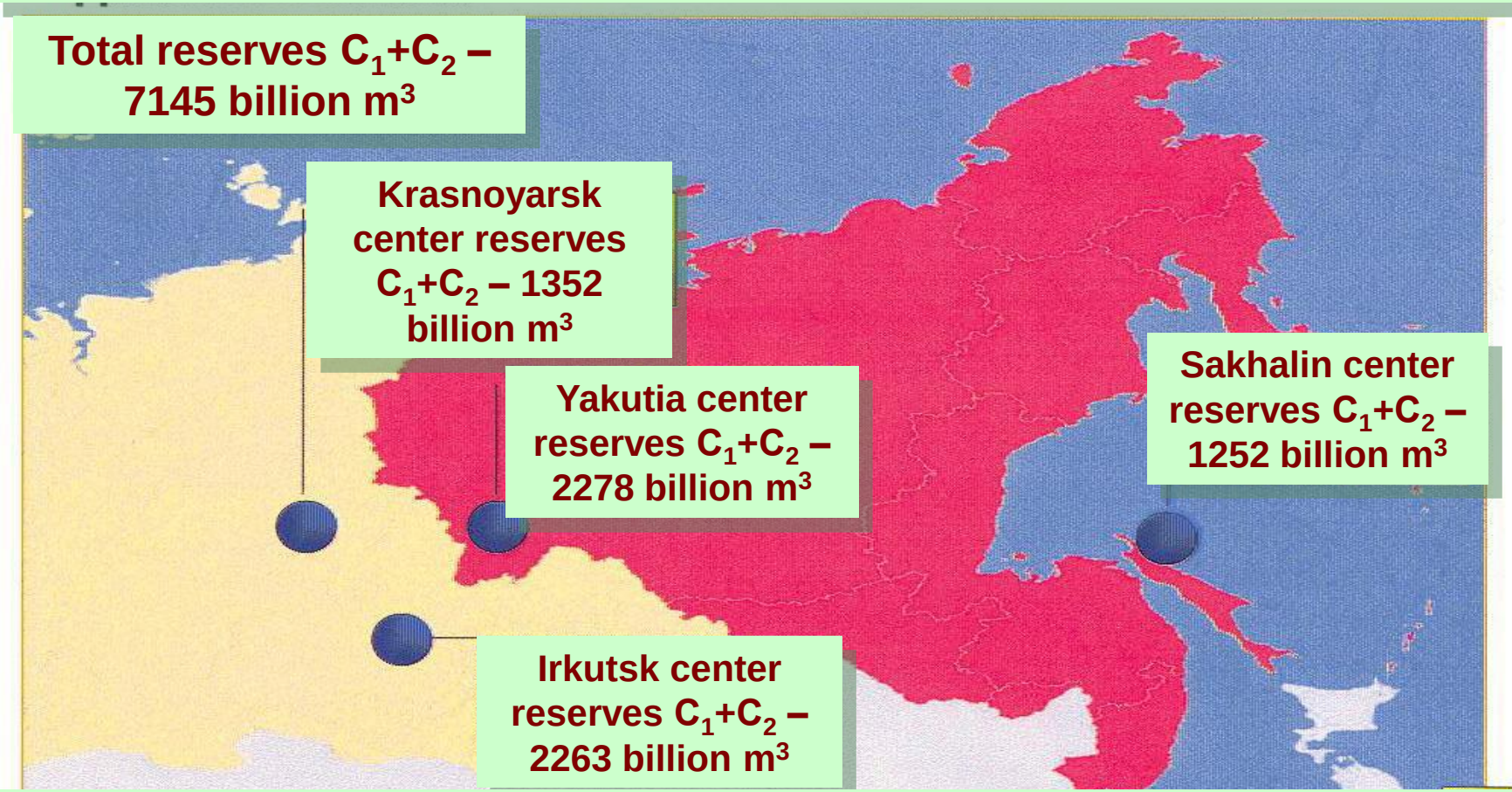
- **Formation of new fuel and energy bases in the Asian regions of the country will contribute to increase of energy security of Russia, restoration and strengthening of broken fuel and energy connections among the regions, solution of many principally important problems of federal, interregional and regional levels.**

Creation in the East of Russia and in Northeast Asia of the developed energy infrastructure in the form of transmission lines, interstate gas and oil pipelines will lead to decrease in cost of energy carriers, improvement of reliability of energy and fuel supply to consumers in different countries, alleviation of environmental problems.

Second

Considering Russia as a player at the energy markets of NEA countries, foreign experts, as a rule, focus their attention only on oil and natural gas export from Russia to NEA countries. And this is correct

PERSPECTIVE GAS PRODUCING CENTERS IN EAST SIBERIA AND THE FAR EAST



Source: **Program of constructing a unified system of gas production, transportation and supply in East Siberia and the Far East taking into account potential gas export to the markets of China and other APR countries (main provisions) – OSC "Gazprom", 2005**

FACTOR 1.

Russian energy resources become *more and more attractive* on the markets of NEA countries as a result of increasing investment and other risks in the Middle East.

FACTOR 2.

Supposedly the oil and natural gas markets in the East of Russia *will be rather limited.*

- **Potentialities of oil and natural gas production are many times higher than domestic demands**
- **Reliability of oil and natural gas supplies from the eastern regions of Russia to NEA countries is high.**

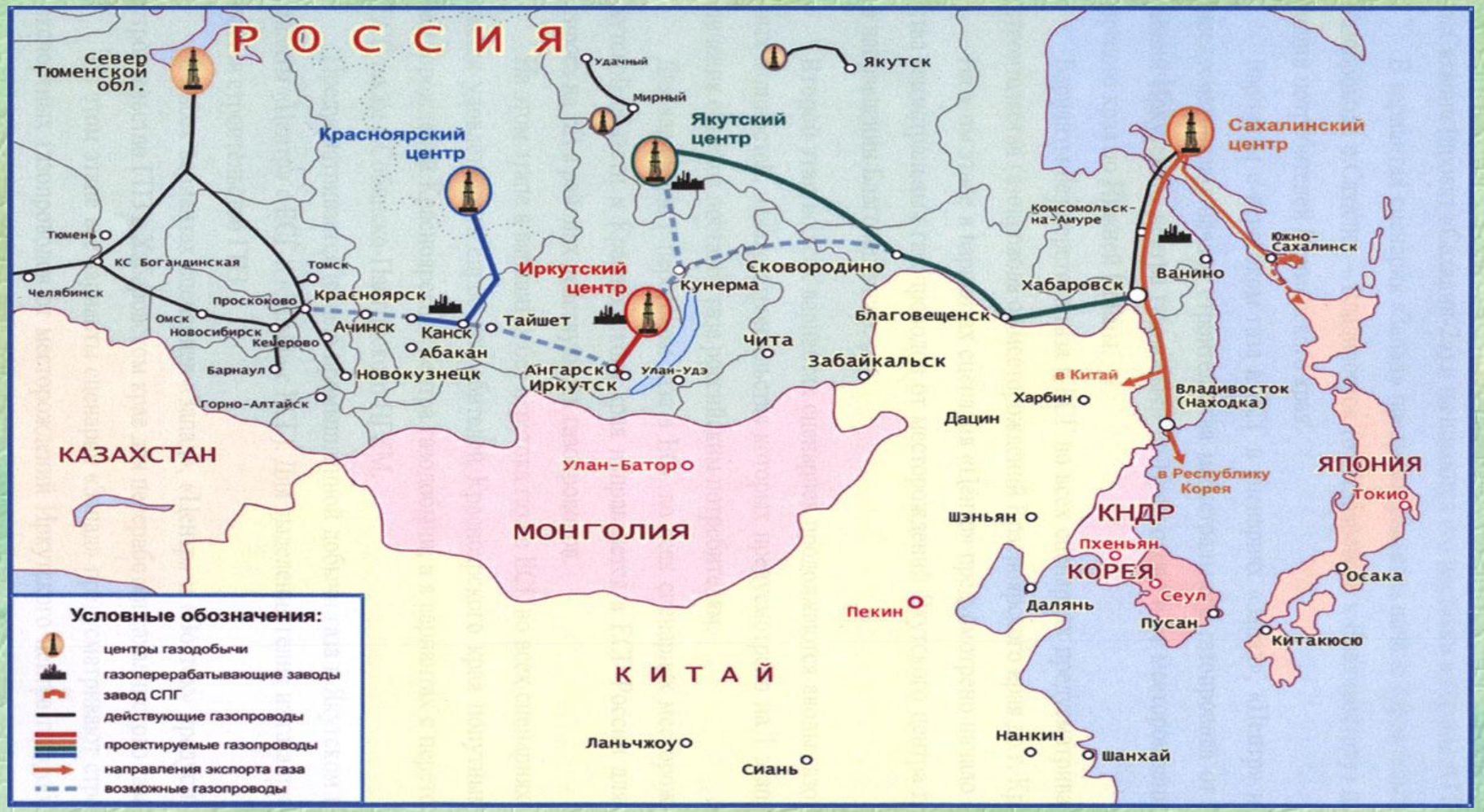
FACTOR 3.

Natural gas of the Siberian platform is unique in the content of helium and ethane, which essentially exceeds *its consumer value.*

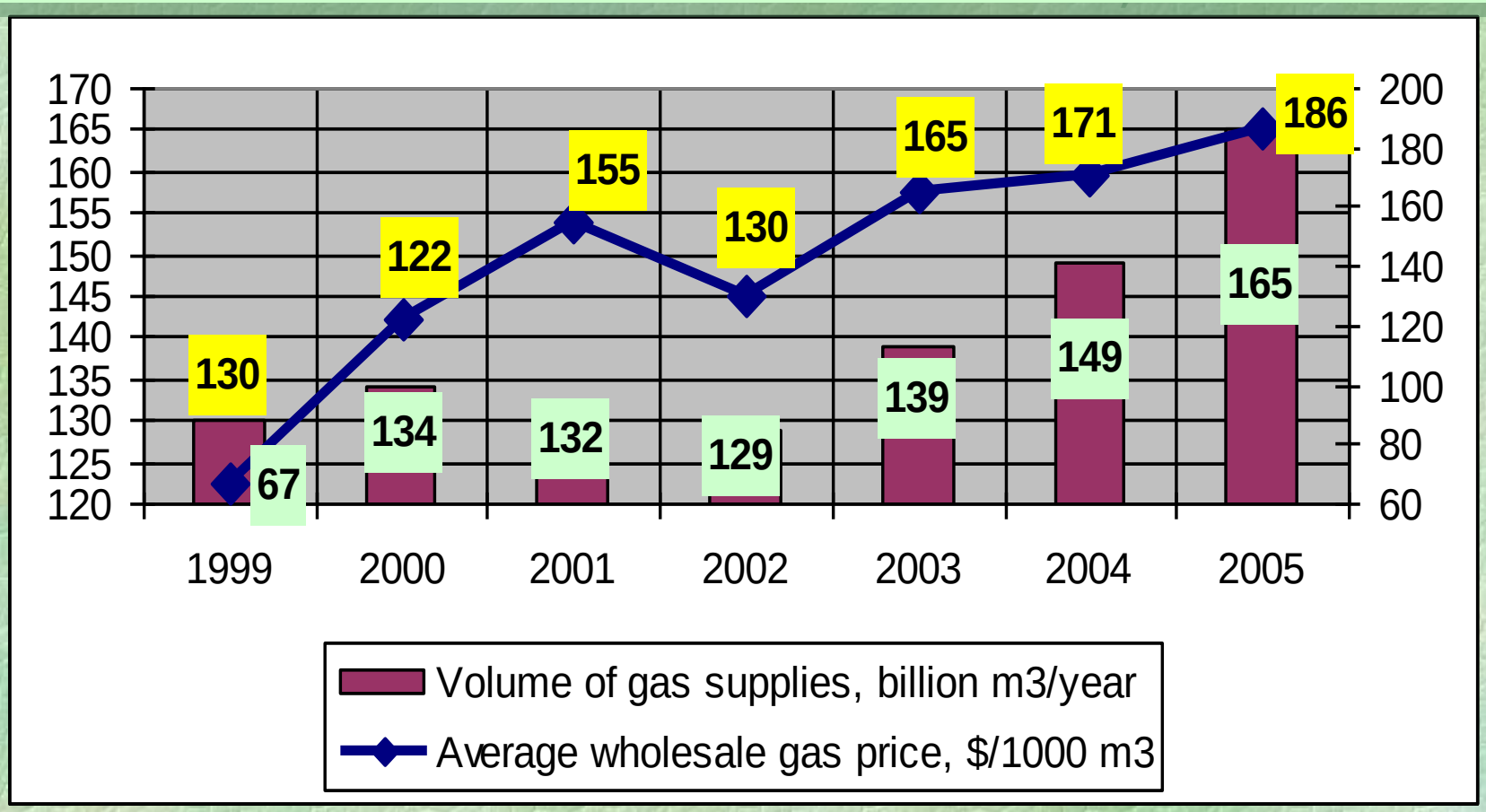
FACTOR 4.

The Russian government, regional authorities and companies have started a large-scale development of energy resources in the East of the country

SCHEME OF GAS FLOWS IN RUSSIA'S EAST – VARIANT "EAST"

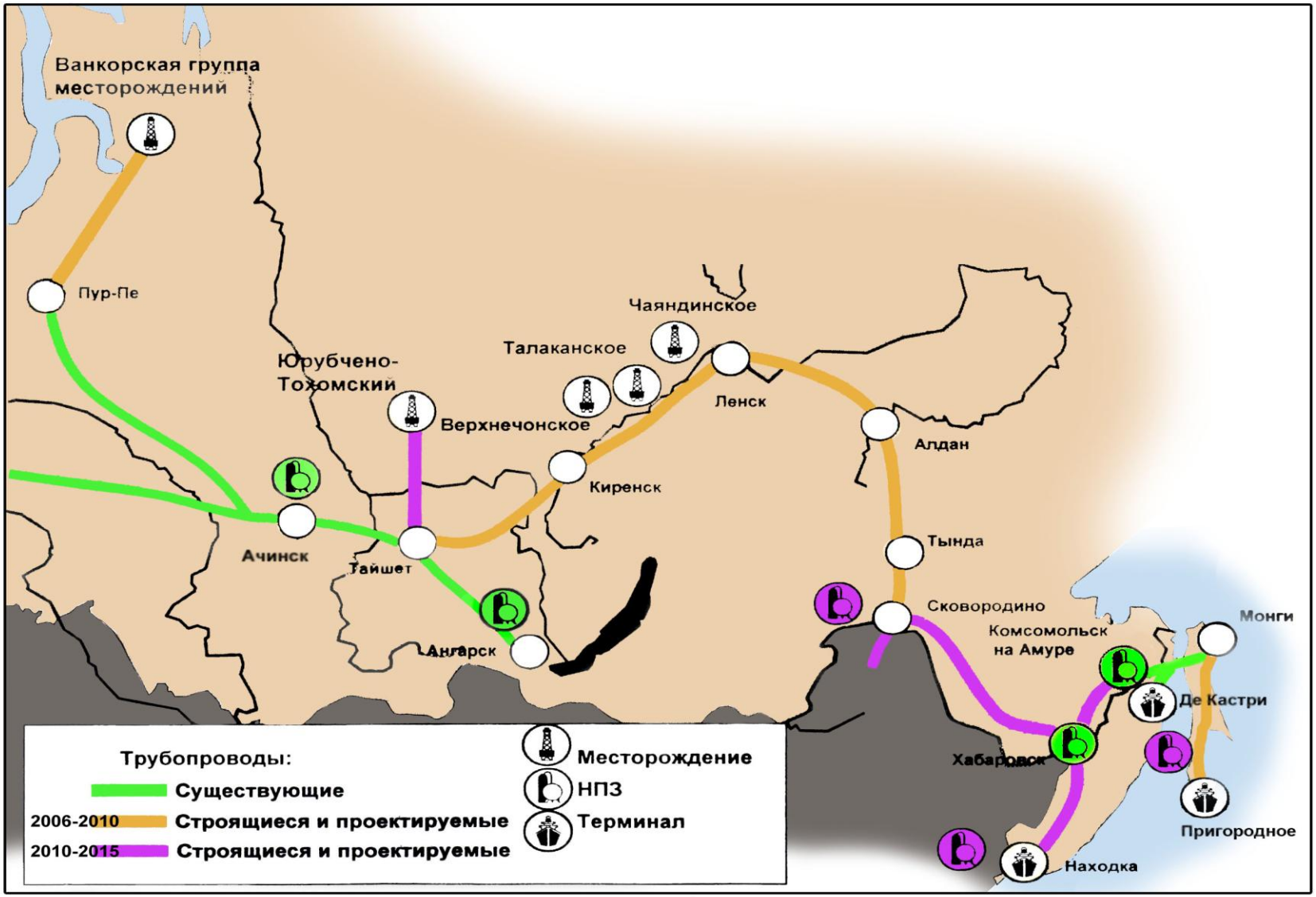


THE VOLUME AND THE AVERAGE WHOLESALE PRICE OF RUSSIAN GAS SUPPLIES TO EUROPE (WESTERN EUROPE, EASTERN EUROPE AND BALTIC STATES)



Source: InfoTEK - Consult: Monthly analytical bulletin, 2000-2005. The Russian statistical yearbook 2000-2004/ Federal State Statistic Service. - Moscow, 2001-2005. BP Statistical Review of World Energy, June 2005.

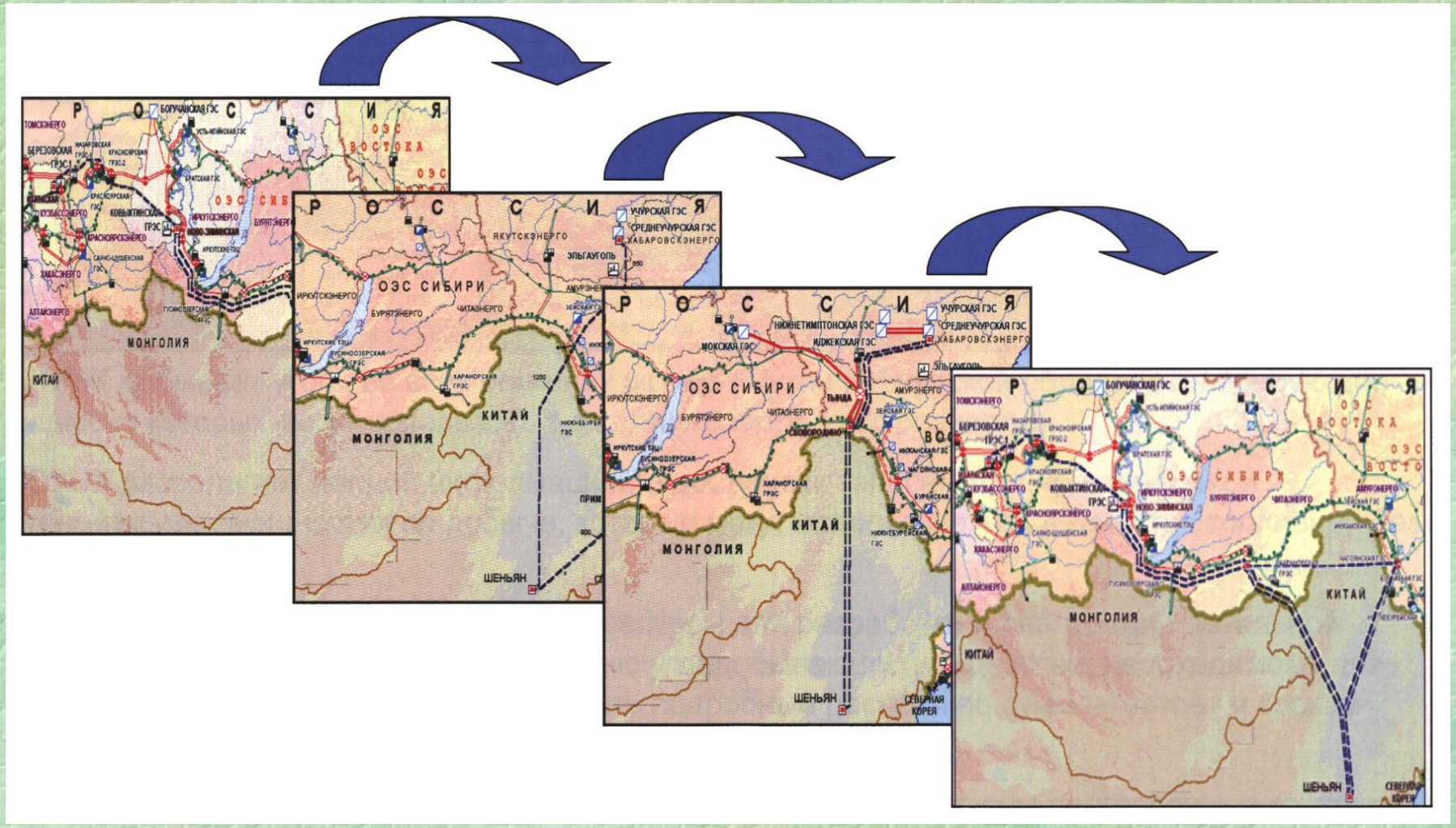
SCHEME OF OIL FLOWS IN THE EAST OF RUSSIA



Third

The Asian regions of Russia that have a direct access to the energy markets of NEA countries are rich in other energy resources

POSSIBLE VARIANTS OF POWER EXPORT TO CHINA

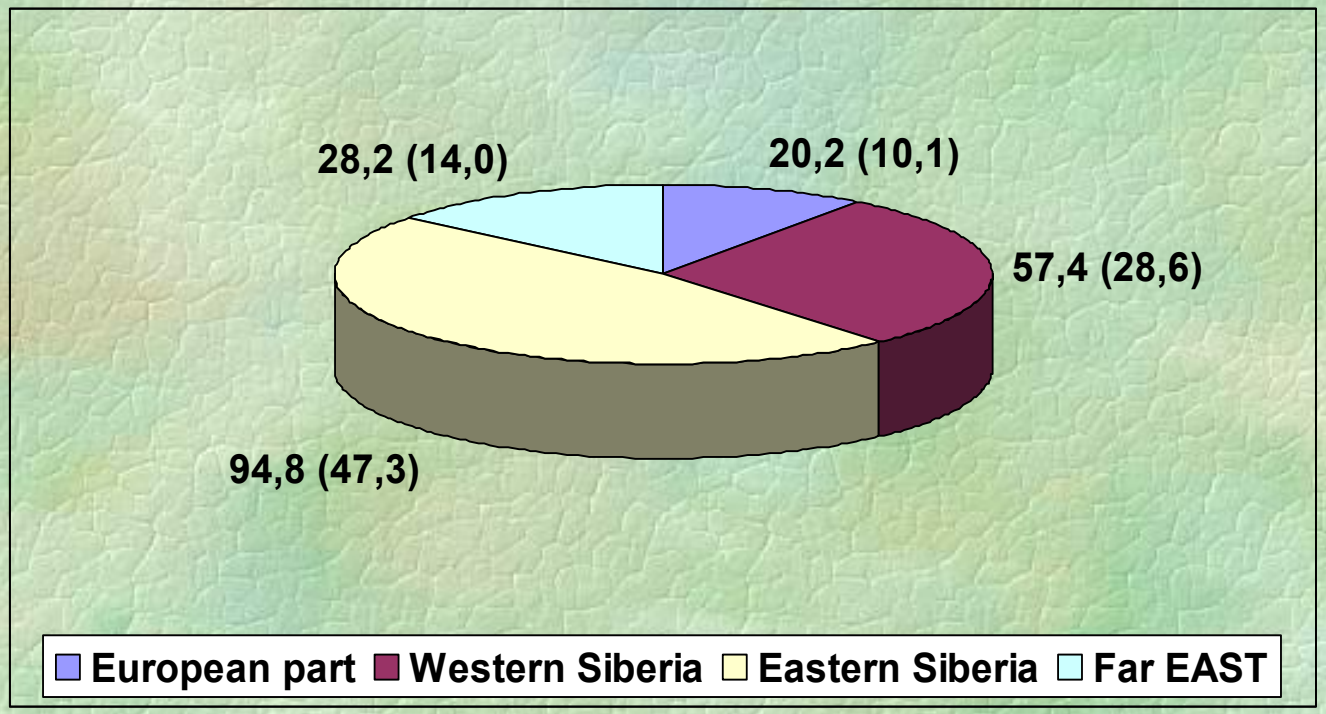


Fourth

Russia concentrates 30% of world coal reserves

DISTRIBUTION OF PROVED RESERVES OF COAL OVER THE TERRITORY OF RUSSIAN FEDERATION

Proved reserves, total 200.6 billion tons (100 %)



COAL EXPORT FROM RUSSIA, MILLION T/YEAR

Indices	Year				
	1995	2000	2001	2002	2005
Export, total	30.3	44.1	41.4	48.0	77.0
including:					
- NIS countries	9.1	6.1	5.1	5.0	7.0
- Other countries of Europe and Asia	21.2	38.0	36.3	43.0	70.0

BASIC CHARACTERISTICS OF THE ELGINSK DEPOSIT

- Estimated resources - 14 billion t
- Proved reserves for surface mining - 2.1 billion t
  (North-Western section)

Coal:
- hard of rank 2Ж, 2ГЖ
- moisture content - 7%
- ash content - 22-35%
- calorific value - 6700-6800 kcal/kg

Potential coal production and consumption:
- Production capacity of open pit - 30 million t/year
- Export: - concentrate for coking - 5 million t/year
  (ash content – 9%)
- Steaming coal - 15 million t/year (ash content – 14-16%)
- Domestic consumption - 3 million t/year

BASIC CHARACTERISTICS OF THE TUGNUISK OPEN PIT MINE

Design capacity – 9/9 million t/year

Coal:

- **hard of rank Д;**
- **moisture content – 10.1%;**
- **ash content – 18.3%;**
- **calorific value – 5200-7600 kcal/kg;**
- **sulfur content – 0.32-0.5%;**

Coal mining in 2006 – 5.4 million t
Coal supplies for export in 2006 – 3.5 million t

Elaboration and realization of the program documents governing the FEC development in East Siberia and the Far East

Concept and forecast of the long-term socio-economic development of RF for the time horizon to 2020 (being elaborated)

Energy strategy of Russia for the time horizon to 2020 (approved by the Government order № 1234-p in 2003), for the time horizon to 2030 (being elaborated)

Federal program «Economic and social development of the Far East and Trans-Baikal area for the time horizon to 2013»
(at the approval stage)

Strategy of social and economic development of the Far East, Republic of Buryatia, Irkutsk and Chita oblasts till 2025 (the draft of specifications is approved)

Scheme of the complex development of productive forces, transport and energy of Republic of Sakha (Yakutia till 2020 (supported at the Government meeting on 8.02.07)

Program of creation of the unified system of gas production, transport and gas supply in East Siberia and the Far East with potential gas export to the markets of China and other APR countries (approved by the order of Ministry of Industry and Energy of Russia №340 on 3.09.07)

General scheme of the gas industry development for the time horizon to 2030 (being elaborated)

General scheme of development of the oil and oil-product piped transport for the time horizon to 2020 (being elaborated)

General scheme of siting electric power industry installations for the time horizon to 2020 (the draft was approved at the Government meeting on 19.04.07)

Program of the long-term FEC development in the Far East till 2020 (being elaborated)

Program of oil refining development in the areas of East Siberia and the Far East (being elaborated)

Of particular significance at the current stage is consideration of interrelations and coordination of strategic developments in the FEC sphere that are at different phases of preparation and analysis

Source: The Energy Strategy of Russia: Eastern vector. Report of the Department of the State Energy Policy of Ministry of Industry and Energy of RF at the International Energy Forum. Khabarovsk, September 2007.

Fifth

Perspective energy development in East Siberia and the Far East till 2030 require huge investments. The estimated cost of such a strategy is $200-250 billion, $80-85 billion should be invested in development of oil and gas production and main oil and gas pipelines.

Such a strategy of energy development in East Siberia and Far East will not be realized without attraction of foreign investments. This is the next specific feature of Russia as a player at the energy markets of NEA countries.

Sixth

Russia should be considered as an active player on “the field” of Kyoto mechanisms

PRIORITY DIRECTIONS IN THE INTERNATIONAL ENERGY COOPERATION WITHIN THE FRAMEWORK OF THE KYOTO PROTOCOL

1. Auditing of energy and industrial enterprises → inventory of greenhouse gas emissions

2. Reconstruction of existing energy enterprises and construction of new ones (power and boiler plants) → sizable decrease of greenhouse gas emissions

3. Gasification of consumers → sizable decrease of greenhouse gas emissions

4. Utilization of nontraditional renewable energy sources → improvement of energy supply of remote consumers, reduction of greenhouse gas emissions

GASIFICATION OF INDUSTRIAL CENTERS IN EAST SIBERIA AND FAR EAST

- **CO_2 EMISSION REDUCTION AT GASIFICATION OF ENERGY ENTERPRISES IN THE MAIN INDUSTRIAL CENTERS, MILLION T/YEAR**

EAST SIBERIA		*FAR EAST*
52 ←	*COAL*	→ 30
29 ←	*GAS*	→ 21

CO_2 EMISSION REDUCTION

BY 44 % **BY 30 %**

E X A M P L E
KRASNOYARSK CITY (EAST SIBERIA)

- **Natural gas demand of energy enterprises, billion m^3/year** **- 4.2**
- **Priority energy enterprises for conversion to natural gas:**
  - **Krasnoyarsk CP-1 (420 MW, 1600 Gcal/h)**
  - **Krasnoyarsk CP-2 (440 MW, 1100 Gcal/h)**
- **Cost of modification, million doll.** **- 38.0**

- ***CO_2 emission reduction*** ***38%***

Seventh

The necessity to elaborate an integrated scientifically grounded strategy of energy development in the Northeast Asia countries taking into account import of Russian energy resources has become urgent

Thank you very much for your kind attention!