

**2008 Working Group on  
Energy Cooperation in Northeast Asia**

ENERGY TRADE: BUILDING-IN EFFICIENCY, CONSERVATION AND  
SUSTAINABILITY

**Russia's  
Northeast Asia  
Energy Efficiency and Conservation Policy**

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**The Northeast Asia Economic Forum (NEAEF)**

Honolulu, 19-21 March 2008

# **Outline of Presentation**

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# 1. Foundations for Russia`s Policy on EEC

Over transition period, Russia`s **energy production and exports increased** substantially, however the **growth slowed down**.

Russia`s general perception is that the EEC measures are required to **sustain economic development, and meet extensive energy export commitments**.

Critical issues for domestic EEC policy: **Improvement of efficiency in energy production and use** (development of new deposits, enlargement of capacities, expansion of infrastructure, etc.).

General line of **external policy**: commitment to the **St. Petersburg Plan of Action on Global Energy Security (July 2006)** to enhance global energy security through increasing transparency, predictability and stability of global energy markets; **enhancing energy efficiency and energy saving**; diversifying the energy mix; and **addressing climate change and sustainable development** (Press Conference by Minister of Foreign Affairs Sergey Lavrov, the UN Economic Commission for Europe, February 12, 2008)

## 2. Challenges and Progress: the EEC at Glance

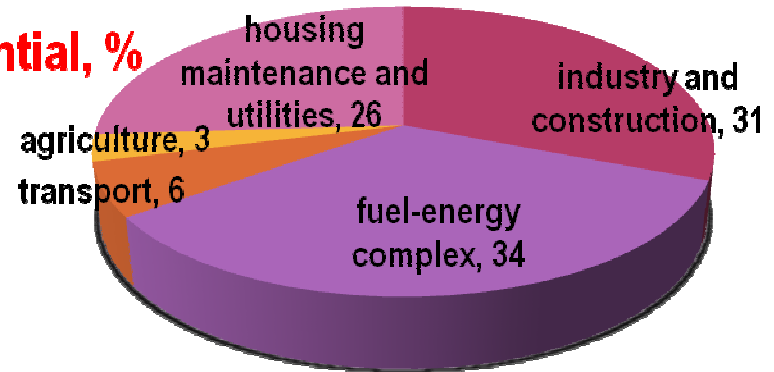
### The Energy Strategy 2020

total annual energy losses 39 % - 47 % or 360 – 430 mln toe ;

#### Projections for 2020 vs 2000:

energy efficiency improves by 60%,  
GDP energy intensity decreases by 50 %;

#### Energy saving potential, %



#### Achievements, 2006 vs 2000:

GDP energy intensity - 76.7 % (the Strategy`s target 82.4 %);  
energy resources consumption - 103.5 % (2006 GDP growth rate 6.8 %);

#### The ERI RAS` estimates

1990-1998: GDP ↓ 39.3 % ;  
energy consumption ↓ 30.5 %;  
CO2 emissions ↓ 33.3 %;

1999-2005: GDP ↑ 60.4 %;  
energy consumption ↑ 9.7 %;  
CO2 emissions ↑ 7.6 %;  
GDP intensity ↓ 68.7 %;  
GDP carbon intensity ↓ 32.8 %.

The progress is by 75-80 % attributed to the structural shifts in the industrial complex;  
technological improvements lag behind.

## 2. Challenges and Progress: fuel-energy complex

... **extremely ineffective**

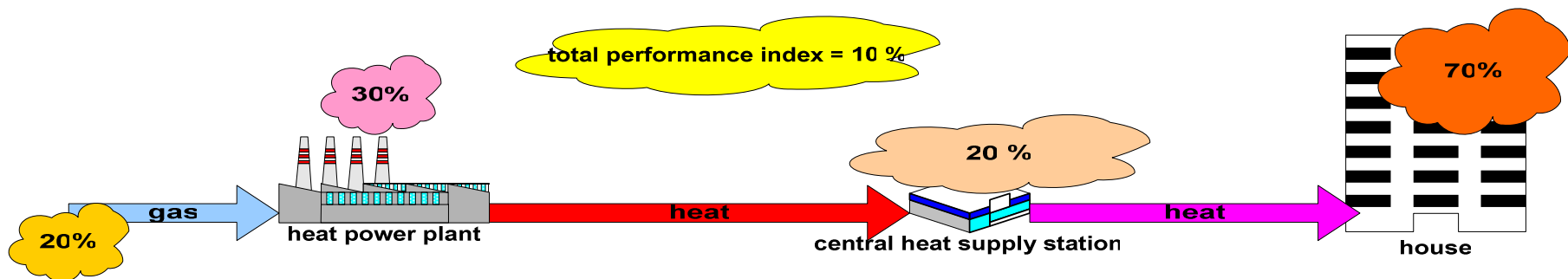
- ratio of fossil fuels extraction, e.g., for oil, averages at 30 % and equals to annual loss of 15 bln t;
- associated gas flaring results in 24.4 % gas waste;
- waste of heat in transmission system – 60 %; heat losses in housing sector – 70 %, etc.

### Russia`s Power Sector :

30 % GHG emissions; 25 % emissions of air pollutants; 60 % water resources use

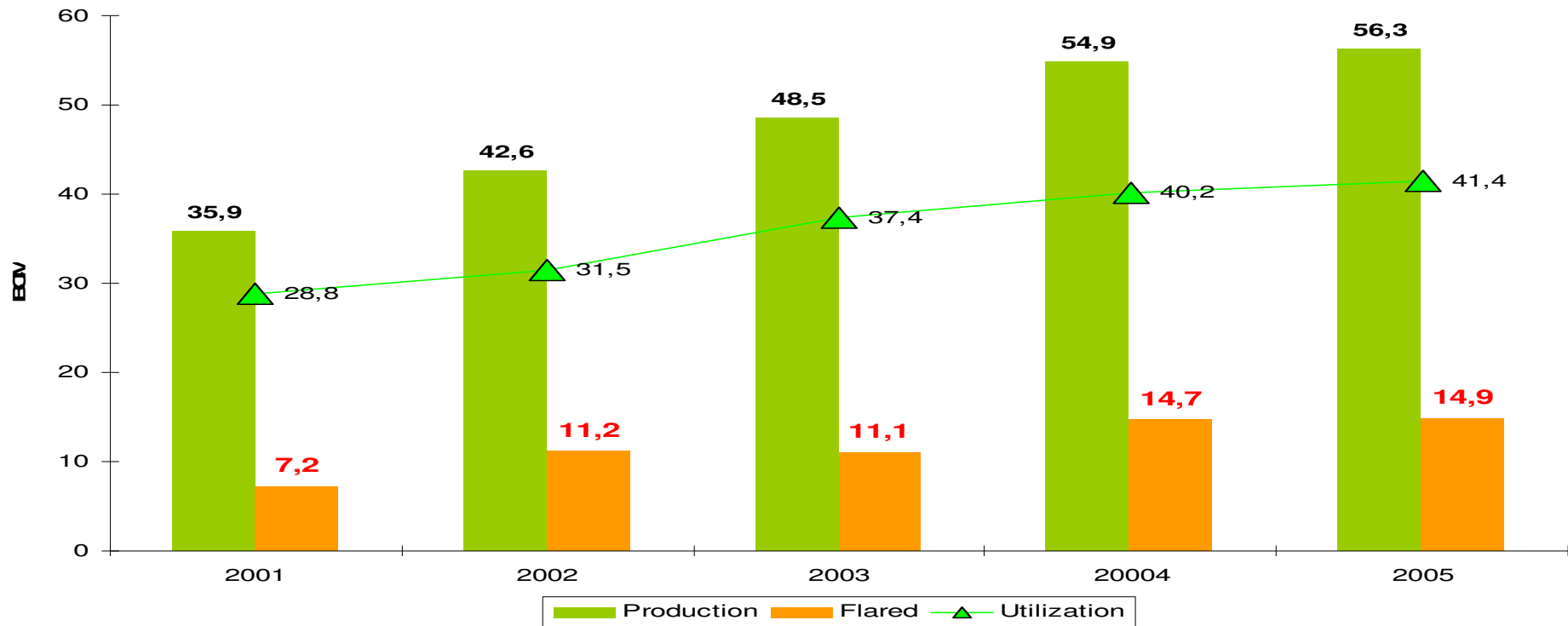
### Barriers to introduction building-in efficiency and energy conservation practices

differing system of building norms and regulations; complicated character of compulsory system of construction materials` certification; not every technology efficient abroad is applicable in Russian climate; outdated technologies of building engineering and design; constructing companies are not necessarily abiding by technical specifications; Improper system of building exploitation and maintenance; socio-economic aspects (new technologies are unknown, not affordable, etc.)



## 2. Challenges and Progress:

Associated gas utilization stood at 73.6 %, as of 2005



**Measures needed to improve utilization of associated gas:** legislative and regulatory; fiscal incentives encouraging investments into associated gas utilization projects; adequate system of payments for environmental pollution resulting from flaring, etc.

### **3. Domestic Policy on EEC: Changing Grounds**

#### **Government`s reasserted control**

- state-owned energy companies dominate, while private business plays minor role;
- foreign business makes comeback, but in a modest scale, and mostly in the downstream sector;

#### **More transparent regulation**

- official policy concerning large energy projects clarified
- customs and tariff policies predictability achieved;
- import duties exemptions for equipment which is not domestically produced introduced;
- a zero rate extraction tax for flammable natural gas and associated petroleum gas set;
- legislation “On amending the law “On Energy Saving”, “On Supporting Renewable Energy Use”, “On Alternative Motor Fuels”, “On amending the law “On Energy Saving”, etc.

#### **Ongoing liberalization**

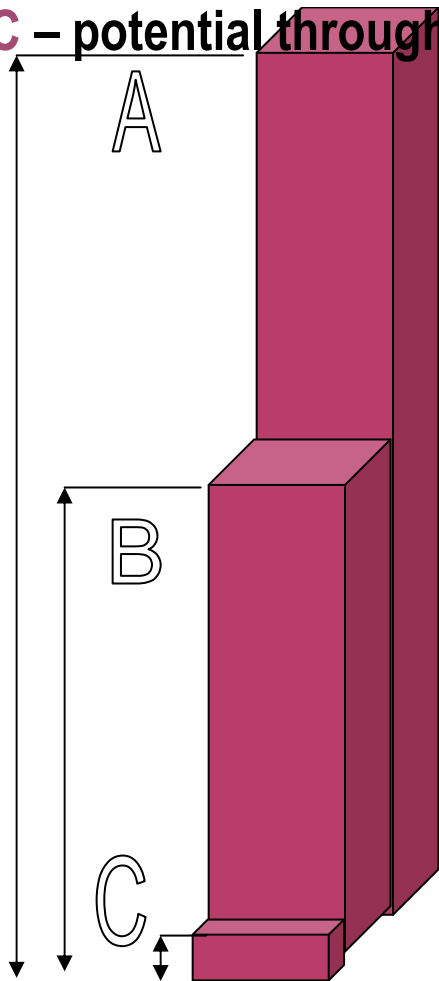
- oil prices liberalized;
- privatization of the power infrastructure (completion by 01.07.2008);
- gradual increase of gas and power prices with liberalization to be completed by 01.01.2011;
- Introduction of free gas and power markets - electronic trading systems since 2006;
- oil products stock exchange operates since March 2008; etc.

### 3.1. Goals and Dimensions: Scenarios and estimates by MEDT

**A – technological potential** (energy efficiency comparable with the EUs`) ~ **380 mln toe**

**B – economic potential** (replacement of obsolete equipment) ~ **180 mln toe**

**C – potential through regional and corporative programs** ~ **10-12 mln toe**



The MEDT`s estimates on (C) in 22 regions

|                            | Investment,<br>US \$ mln | Share, % | Potential economy of energy<br>resources, thousand toe |
|----------------------------|--------------------------|----------|--|
| Power industry             | 848                      | 52       | 422  |
| Housing sector             | 536                      | 33       | 1531   |
| Pulp and paper<br>industry | 77                       | 5        | 58   |
| Chemical industry          | 10                       | 0.6      | 15   |
| Oil industry               | 34                       | 2        | 87   |
| Metallurgy                 | 119                      | 7        | 243  |
| Total                      | 1624                     | 100      | 2357   |



## 3.2. Policy Tools: Domains of the Government Policy on the EEC

- **liberalization** (price, competitive environment, market-oriented legislation & regulation; e.g. drastic reform in power sector (RAO UES of Russia), - improvements in system of resources development (Gazprom, Rosneft, etc.);
- **regulation** (specifications, standards & norms, e.g. Introduction of emission standards EURO - 3 (1.01.2008), - 4 (1.01.2010), - 5 (1.01.2014);
- **support to the strategic initiatives** (federal target programs; industries` , regions` and corporations` programs )

### Federal Programs:

- Federal Program “Energy Efficient Economy” 2002-2005 up to 2010;
- Concept of the Federal Program “Energy Efficient Economy”2007-2010 up to 2015”;
- The Energy Strategy 2020 (prolonged up to 2030 is under deliberation);

### For specific sectors:

- Strategy for Exploration and Development of Offshore Oil and Gas Resources up to 2020; the General Plan for Electric Power Industry up to 2020; the Federal Program on Nuclear Energy Sector Development up to 2015;

### Regional Initiatives:

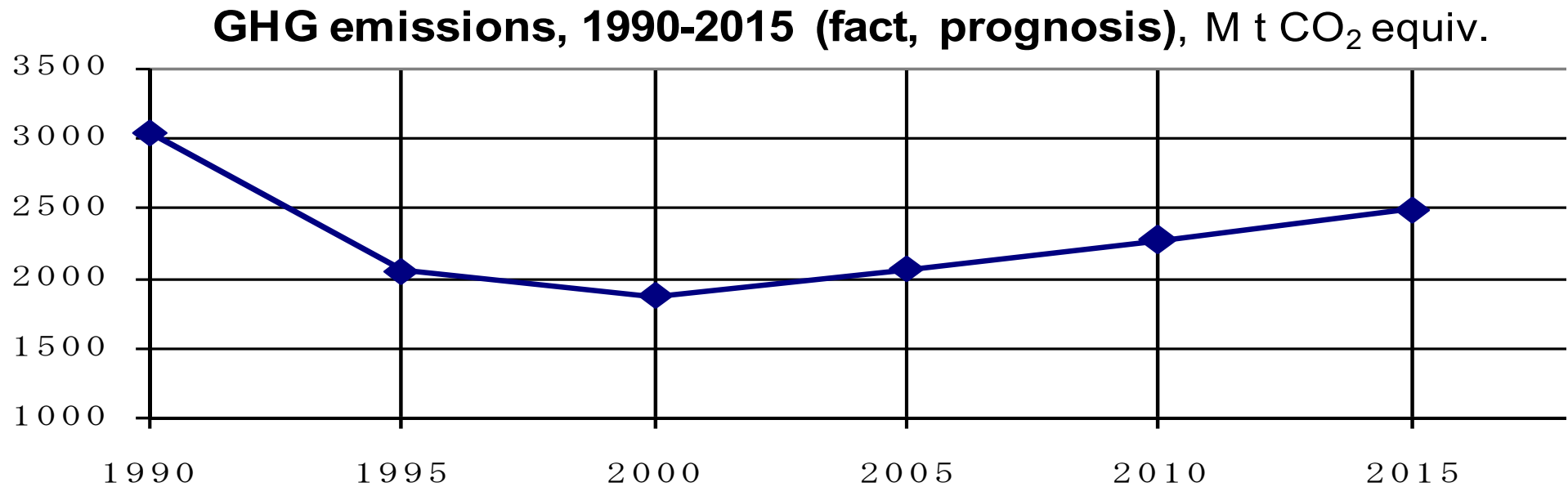
- 45 territories have legislation on the EEC, 47 regions implement the EEC programs; over 600 projects; 24 EEC centers; over 80 NGOs

### Corporations` involvement:

- RAO UES of Russia, Gazprom, Lukoil, Nornikel, Uralsky ore mining-processing company, Severstal, etc.

### 3.1. Goals and Dimensions

Mid-term Program on Russia`s Social and Economic Development (endorsed on January 19, 2006) meets requirements of the Kyoto Protocol **Despite Russia`s low energy efficiency** (GDP PPP energy intensity is 3.1 times as high as that of Japan, as of 2004), volume of CO2 emission in 2008-2012 remains under the Kyoto Protocol obligations and allows Russia to sell quota of 3 bln t CO2 equiv.



Source: the Ministry of Economic Development and Trade

## 3.2. Policy Tools: Federal Target Scientific-Technical Programs

**Energy and Energy Conservation** and **Sustainable Development** are among the priority dimensions of Russia`s scientific-technical policy.

### **Energy and Energy Conservation**

- Recycling and complex utilization of recycled resources and waste products
- Development of natural resources` deposits and extraction of mineral resources
- Technologies of decreasing risks and lessening hazards of natural disasters and technogenic catastrophes
- Monitoring of atmosphere, biosphere, hydrosphere, and lithosphere

**Sustainable Development** : Hydrogen energy  
Energy conservation  
Renewable sources of energy  
«Clean coal»  
Environment-friendly transport

### **Projects under the 2002-2006 Federal Target Scientific-Technical Program**

- **Sustainable Development 27 projects**
- **Energy and energy conservation 40 projects**

Including critical technologies: hydrogen technologies – 9 ; alternative and renewable energy – 8 ; energy from non-organic resources – 10 ; energy saving systems of transmission, distribution, and consumption of heat and electricity – 4 ; energy efficient engines – 3 ; technologies of nuclear energy, nuclear fuel cycle, safe handling of radioactive wastes and spent radioactive fuel- 2

## 4.1. Global and Multilateral Frameworks

- **The UN Climate process** - the United Nations Framework Convention on Climate Change (UNFCCC), the Conference of the Parties (COP), the Kyoto Protocol
- **G-8 Format**

**The Gleneagles Process** (2005 Gleneagles Summit ) - the “G20 dialogue” between the “G8+5” (Brazil, China, India, Mexico, and South Africa) and 20 rapidly growing nations. **Plan of Action on Climate Change, Clean Energy and Sustainable Development** (2005)

**G-8 St. Petersburg Plan of Action on global security** (2006)

**G-8 Heiligendamm Summit, Growth and Responsibility in the World Economy** (2007)

- **Negotiation of a post-Kyoto agreement (Bali Dec 2007)**
- **Multilateral agreements on trade and investment conditions in energy sector (WTO, Energy Charter Treaty)**
- **International Platform on Energy Efficiency with G20 and IEA**
- **International Initiatives:** IEA, JODI, IEF, Participation in the Global Gas Flaring Reduction Partnership of the World Bank and the Extractive Industry Transparency Initiative
- **Dialogues** with producer, transit, and consumer countries, e.g., Energy Dialogues in formats Russia - U.S.; Russia – EU, etc.

## 4.1. Global and Multilateral Frameworks

- **Financing Energy Efficiency Investments for Climate Change Mitigation (2006-2009)** (UN Foundation Inc., UN Fund for International Partnerships, UN Economic Commission for Europe) one of the mechanisms to meet obligations under the United Nations Framework Convention on Climate Change (UNFCCC), Kyoto Protocol.
- **Multilateral initiatives** (The **3R** initiative (reduce, reuse and recycle), proposed by Japan at the G8 Sea Island Summit in June 2004; Renewable Energy Policy Network for the 21st Century (**REN21**), initiated by Germany at the International Conference for Renewable Energies in June 2004)
- **Cooperation with international organizations** (**UNIDO** International Center for Hydrogen Energy Technologies **ICHET**; United Nations Economic Commission for Europe, **UNECE**; **World Bank**; Global Environment Facility, **GEF**; etc.)
- **International partnerships** (The Carbon Sequestration Leadership Forum – **CSLF**; The International Partnership for the Hydrogen Economy - **IPHE** ; The Methane to Markets Partnership – **M2M**; The Global Bioenergy Partnership– **GBEP**; The Renewable Energy and Energy Efficiency Partnership – **REEEP**, etc.)

### Russian Government – GEF/ UNDP

- **energy efficiency and energy conservation in education**
- **energy efficiency in housing sector**

### Russian Government – GEF/ World Bank

- **renewable energy**

### Russian Government - United Nations Economic Commission for Europe

- **energy facilities renovation in health care system**

### Russian Government - Canadian International Development Agency (CIDA)

- **Canadian know-how on energy efficiency for Russia**

### Ministry of Education and Science – GEF/ UNDP

- **standards and labeling for energy efficiency**

## 4.1. Global and Multilateral Frameworks

**Russia – EU** : advanced, diversified, transforming into new forms

### **The Permanent Partnership Council (PPC)**

**Russia -EU collaboration on energy efficiency** - Joint Thematic Groups on Energy Efficiency and Energy Infrastructure within the EU-Russia Energy Dialogue; Action Plan;

**The Energy Efficiency 21 project (EE 21)** – one of the tools to enhance trade and co-operation in energy efficient, environmentally-sound techniques and management practices;

**The EU's Framework Programme for Research and Technological Development: FP-6 2002-2006; FP-7 2007-2013**

**Table. Russian Energy Efficiency Demonstration Zones (RUSDEM )**

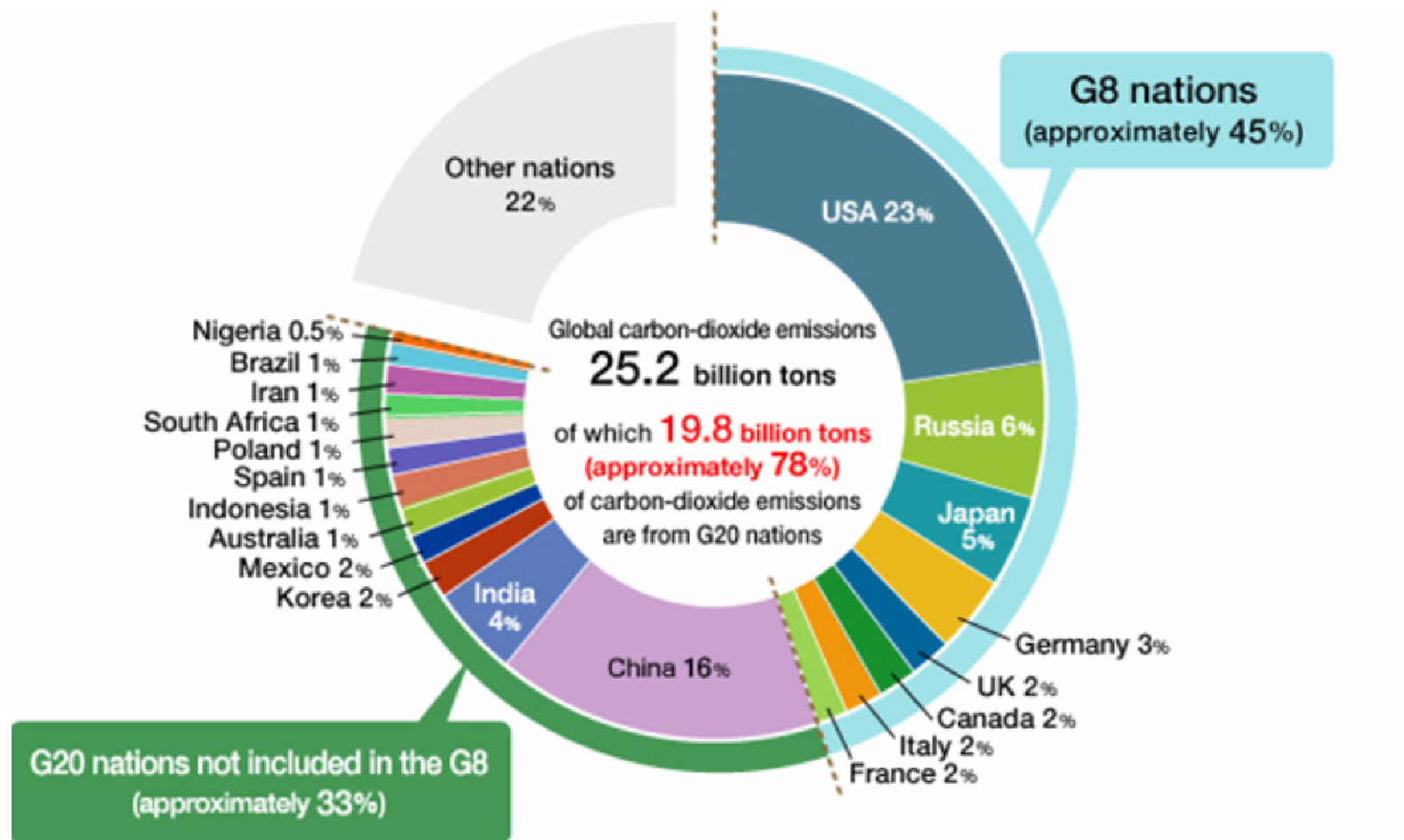
| <b>Demo zone</b>       | <b>Category/ Number of projects</b>                          |
|------------------------|--|
| <b>Chuvashia</b>       | <b>EE in buildings/ 3</b>                                    |
| <b>Moscow</b>          | <b>EE in buildings/ 3</b>                                    |
| <b>Nizhny Novgorod</b> | <b>EE in buildings/ 2, Street Lighting/ 1</b>                |
| <b>Saratov</b>         | <b>Heat Supply/ 4, EE in industry/ 2, Street Lighting/ 1</b> |
| <b>St. Petersburg</b>  | <b>EE in buildings/ 1, Heat Supply/ 1, EE in industry/ 2</b> |
| <b>other regions</b>   | <b>EE in buildings/ 3</b>                                    |

Source: retrieved from <http://www.unece.org>

# 4.1.1. Kyoto Protocol

## Global carbon dioxide emissions, 2003, %

Source: Ministry of Environment, Japan



## 4.1.1. **Kyoto Protocol:** Implementation

### Principal Steps on Legislation and Institutionalization

- Federal Law on Ratification of the United Nations Framework Convention on Climate Change (UNFCCC) UN Framework Convention 4.11.1994 N 34-FZ;
- Federal Law on Ratification of the Kyoto Protocol 4.11.2004 N 128-FZ;
- Interagency Commission on Climate Change Problems (set up January 22, 1994; undergone a number of transformations, Decree);
- National Register of the Assigned Amount Units (February 20, 2006, Decree);
- National System of the GHG Emissions Accounting (March 1, 2006, Decree);
- Procedure of the JI projects` approval and monitoring (May 28, 2007, Decree);
- Annual Reports on GHG inventories to the UNFCCC Secretariat

MEDT received over **30 applications on JI projects**, as of March 2007.

**Total investment:** over \$ 1 bln, including \$ 240 mln under Kyoto mechanisms.

**Major sectors:** housing sector, gas and power industry



## 4.1.1. Kyoto Protocol: RAO UES of Russia

### RAO UES of Russia

- Electricity output 70 % of Russia`s total
- Heat output 33 % of Russia`s total [<http://www.rao-ees.ru>]

### RAO UES of Russia is about to finalize its reform

- Generation & Supply → Private Property & Market
  - Dispatching & Transmission and Distribution Grids → Government Property & Government Regulation
- 
- 1998 – beginning of the RAO UES` activity on mitigation of the negative anthropogenic impact
  - 2005 – Program on the RAO UES` Environmental Policy

**Energy Carbon Projects, Ltd.** , a subsidiary of the Energy Carbon Fund of RAO UES, established to execute activity under the frame of Kyoto Protocol mechanisms

### Projects on GHG Emission Reduction under JI mechanism

| Company          | Investor               | ERUs          | Investment       |
|------------------|------------------------|---------------|------------------|
| WGC-6            | Clean Planet Group, UK | 550,000 t CO2 | 4.5 mln Euro     |
| RGC-1            | Fortum, Finland        | 5 mln t CO2   | 70 mln Euro      |
| over 94 projects | pending deals          | 55 mln t CO2  | 350-400 mln Euro |

## 4.2.1. Far East in Context of Russia`s EEC policy

...within the context of traditional interpretation of the EEC

### Programs

- the Program on refining industry development in the East of Russia up to 2015;
- the Program on long-term development of energy sector in Eastern Siberia and Far East up to 2020;
- the Program for the Development of a Unified Gas Production, Transportation and Supply System in East Siberia and the Far East Including Potential Gas Exports to China and other Asia-Pacific Countries up to 2030 (Vostok 50);
- the Federal Program on Economic and Social Development of the Far East and Trans Baikal Region up to 2013 (new version envisages prolongation to 2025); etc.

### Projects to fulfill the programs

**East Siberia, Sakhalin, West Kamchatka**, gigantic with yet many unanswered questions project – **ESPO**, etc.

... new prospects

### Regional Initiatives

Development of bioenergy based on utilization of timber industry`s wastes - round table within exhibition on timber processing technologies, Khabarovsk, April 2007

## 4.2.2. Possible Areas for Cooperation: Much in difference ...indifference ?

### Differently focused EEC policies:

- Russia – EEC is a means to development and sustaining resources production and export;
- China – ensuring rapidly enlarging energy supply;
- Japan – highly efficient complex EEC policy;
- Korea – given increasing attention;
- Mongolia – prioritized development of energy resources, the EEC tasks within common frameworks;
- DPRK ... important, to have it started right

### Instruments and Measures:

largely executed - normative; commonly employed - financial, R&D; limitedly spread - informative, educating; rarely practiced - voluntary agreements (except for Japan, partially - Korea, smaller extent - China)

### No framework embracing all NEAs:

- **Greater Tumen Initiative** (Russia, China, ROK, DPRK, and Mongolia)
  - (\*) Strategic Action Plan 2006 – 2015, focus on transport, energy, tourism and investment with environment as a cross-cutting theme; (\*) GTI Energy Board (agreed in November 2007) ;
  - (\*) Environmental Impact Assessment (EIA) within Global Environment Facility (GEF) TumenNet Environment Strategic Action Program/ **non-member Japan**;
- **The Asia-Pacific Partnership on Clean Development and Climate** (US, China, ROK, Japan, India, Australia)/ **non-participants Russia, Mongolia, DPRK**;
- **The Intergovernmental Collaborative Mechanism on Energy Cooperation in North-East Asia** (**non-members Japan and China**);

## 4.2.2. Possible Areas for Cooperation

...most practically achievable - through the Kyoto Protocol mechanisms

Russia`s cooperation on EEC is most progressed with Japan

- carbon credit trading (bilateral talks underway);
- JI projects: companies-designated operational entities: Japan Quality Assurance Organization (JQA); Deloitte Tohmatsu Evaluation and Certification Organization (Deloitte-TECO); JACO CDM., Ltd.; Japan Consulting Institute (JCI);
- CDM (with regard to China, Korea and Mongolia): additionally to mentioned Japanese companies, Korea Energy Management Corporation (KEMCO); Korean Foundation for Quality (KFQ);

Russia – IBRD agreement on project “Financing of the target environmental investment in the Russian Federation” which is to be funded by the Japanese government (Decree No. 49, 26.01.2007)

**Latest update from the UNFCCC secretariat: submitted design documents for JI projects**, as of March 15, 2008: Reduction of methane emissions in the gas distribution network of (\*) Smolensk Oblast, (\*) Orenburg Oblast, (\*) Republic of Bashkortostan; Catalytic N<sub>2</sub>O destruction project in the tail gas of nitric acid plants at (\*) Nevinnomyssky Azot, (\*) Novomoskovsky Azot”; (\*) Utilisation of CMM on coal mines of OAO “SUEK-Kuzbass”; (as of March 18, 2008); (\*) Nitrous oxide abatement in nitric acid production at LLC Mineral Fertilizer Plant of Kirovo-Chepetsk Khimichesky Kombinat .

As of February 1, 2008, Japanese government approved: China-hosted 119 CDM projects, Korea - 8 CDMs, Mongolia-based 2 CDMs, Russia – 1 JI.

Intra-regional framework wise, seems appropriate to add the EEC issues to the agenda of the Intergovernmental Collaborative Mechanism on Energy Cooperation in North-East Asia, Japan`s and China`s accession are crucial.

Plenty of opportunities for the EEC cooperation in the Far East and Siberia. Also with regard to alternative and renewable sources, e.g. Kamchatka - geothermal generation

As conditions for the Kyoto Protocol implementation are set, new forms of cooperation are unfolding with the B2B initiatives becoming more vibrant and new spheres of business boosting.