



# Meeting of UNECE Group of Experts on Gas

## PROSPECTS OF LNG DEVELOPMENT IN REGIONS OF RUSSIA PRODUCTION AND FORMING OF EFFICIENT MARKET



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# Structure of the presentation

- **Current situation**
- **Prospects of LNG development**
  - ✓ **In regions of Russia**
  - ✓ **On the example of Kostroma region**
- **Problems and solutions**
- **Proposals**



# LNG facilities operating in Russia



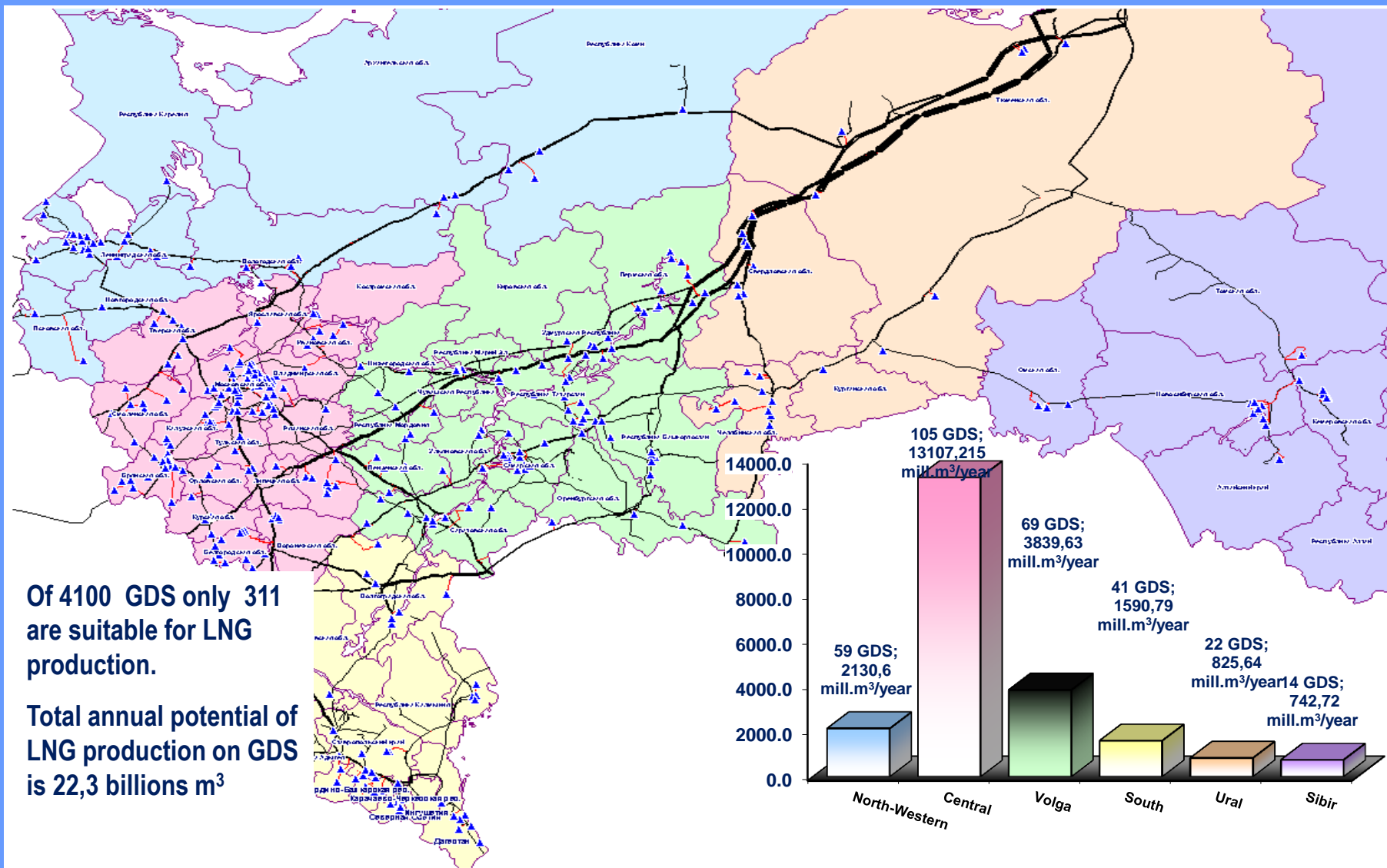


# Prospects of LNG development in regions of Russia

- Level of natural gas supply for regions of Russia – 57,8 %. Objects that are not supply with natural gas are located far from existing natural gas network and their connection to the grid is not economically viable
- It reasonable to convert on LNG only objects that use expensive fuel, such as:
  - ✓ diesel
  - ✓ heavy oil
  - ✓ heating oil
  - ✓ electricity
- Each region of Russia has from 20 to 400 objects, that use diesel, heavy oil, heating oil and electricity as a fuel
- The cheapest ways to produce LNG are – on GDS and CNG stations
- Potential of LNG production on GDS in Russia - 22 ,4 billion standard m<sup>3</sup>/year
- Potential of LNG production on CNG stations in Russia – 1,3 billion standard m<sup>3</sup>/year



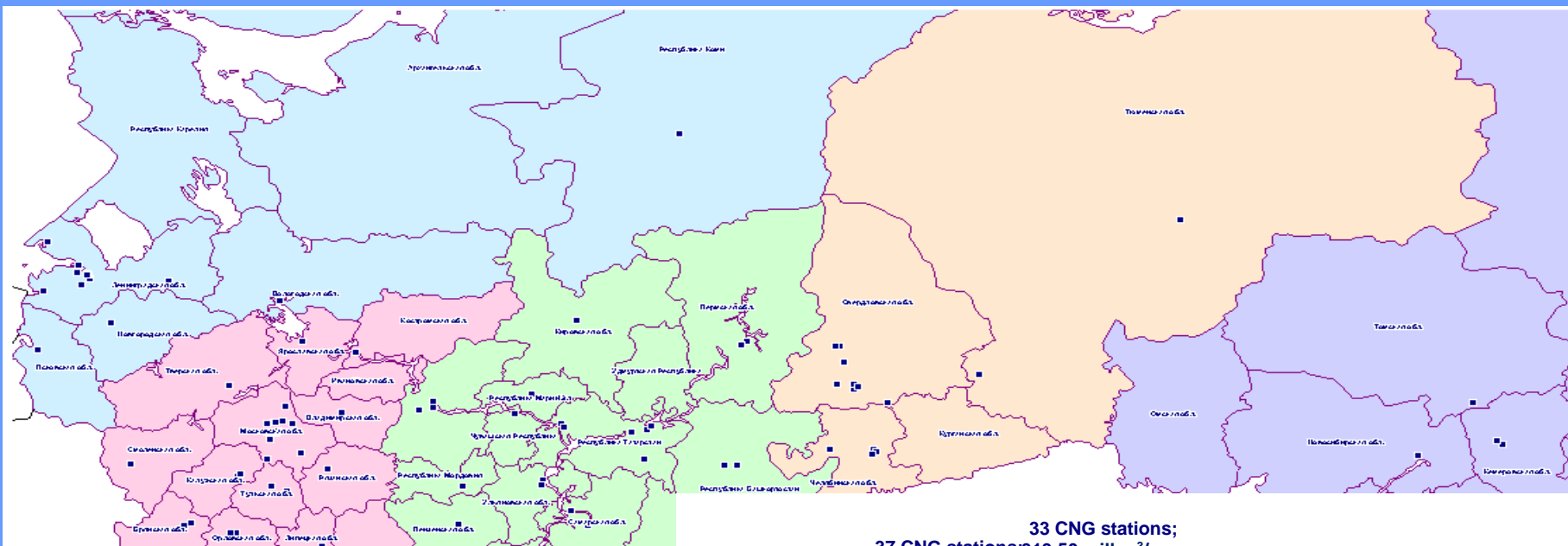
# Potential for LNG production on GDS





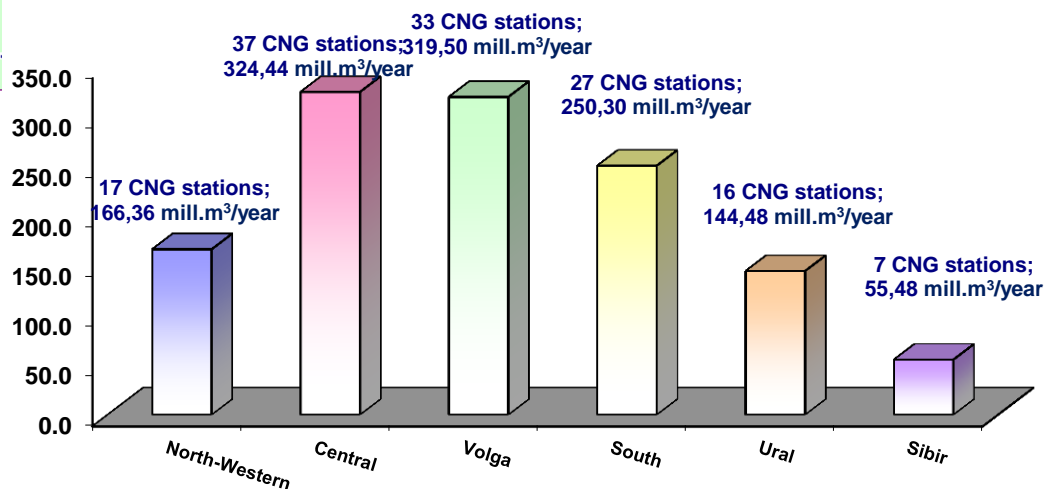


# Potential for LNG production on CNG stations



Of 219 CNG stations:

- ✓ Suitable for LNG production - 137
- ✓ Total annual potential of LNG production on GDS - 1,3 billions m<sup>3</sup>





# Basic directions of small-scaled LNG consumption

- As gas supply for energy facilities:
  - Boiler houses and CHP units for small towns and villages;
  - Small industrial consumers;
  - Domestic and commercial consumers;
- As motor fuel:
  - Marine and river vessels bunkering;
  - Dump trucks;
  - Intercity buses;
  - Heavy vehicles;
  - Railways locomotives;
  - Municipal CNG vehicles;
- As backup and emergency fuel



# Potential of annual LNG consumption in Russian regions

- For remote towns and villages gas supply – 4,6 millions tones;
- As motor fuel for road transport – 2,5 millions tones;
- As a motor fuel for vessels bunkering – 1,35 millions tones;
- As a motor fuel for railway locomotives – 740 thousands tones;
- As backup and emergency fuel – 1,0 millions tones;

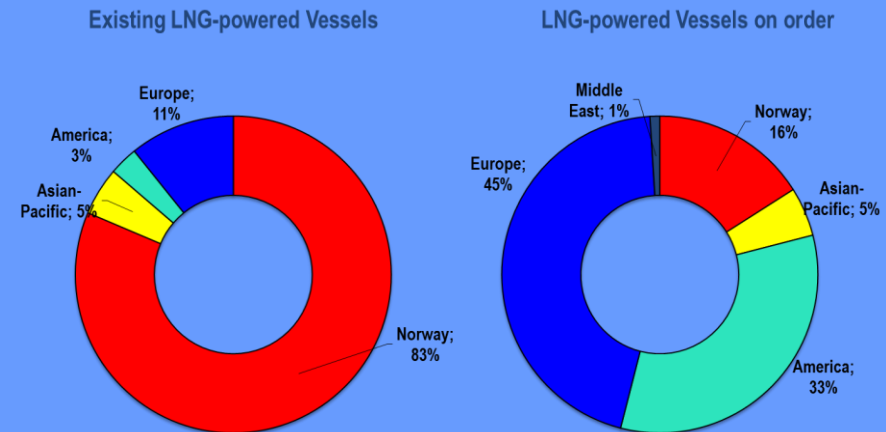






# LNG for bunkering in Baltic and North Seas area

- Regulation:
  - International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) compels ship owners to drastically reduce emission of sulphur, NOx and other polluting agents (in effect as of January 1, 2013);
  - European Commission Directive 2014/94/EC requires completion of LNG Bunkering infrastructure network in core TEN-T ports by 2025





# Problems of small-scaled LNG market development

## Low level of legal framework:

- Outdated requirements of normative documents for LNG infrastructure design and operation
- Difficulties with obtaining approvals for construction
- Fire safety regulations for LNG infrastructure is not match real level of risk

## High price for domestic equipment :

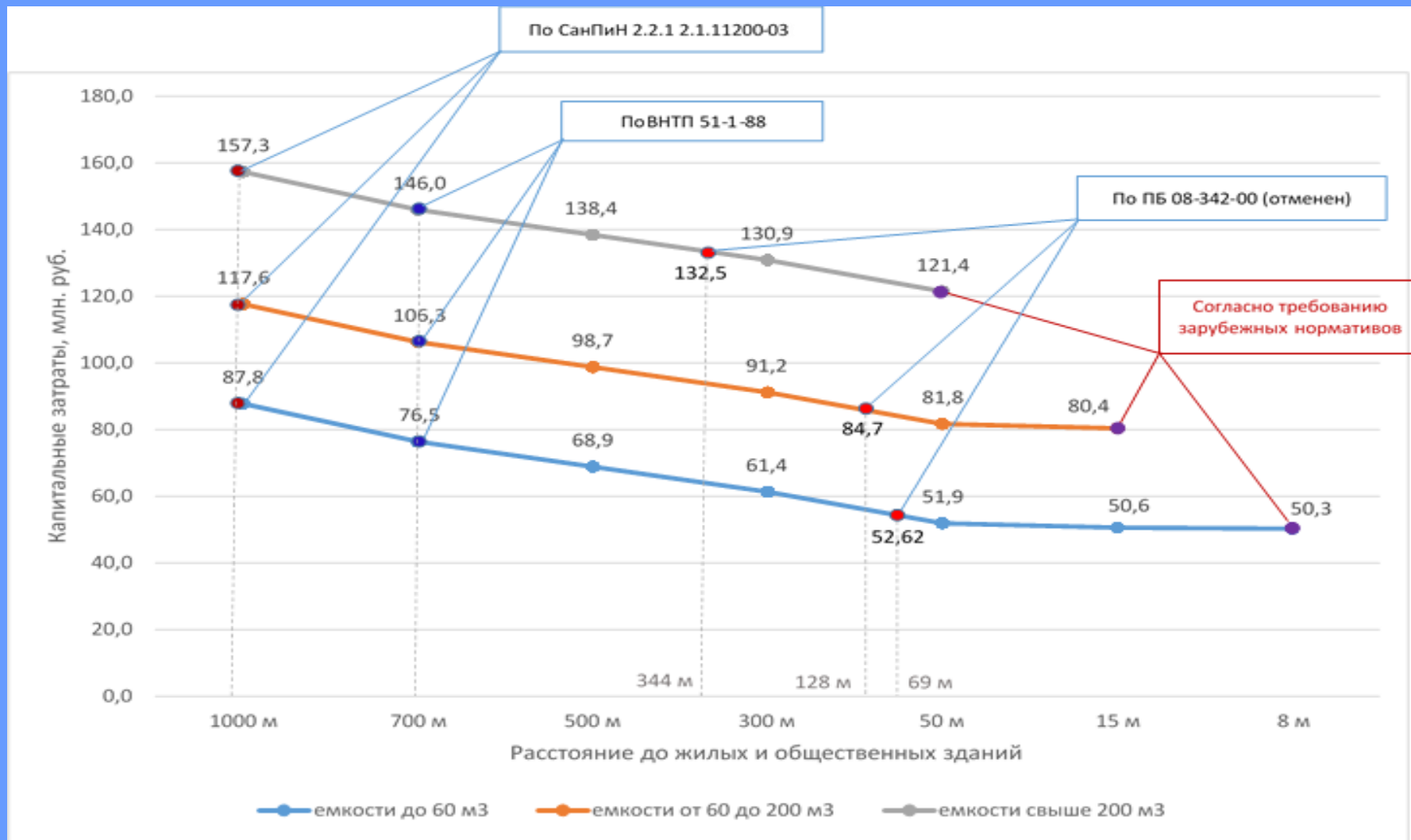
- Low competition level among domestic cryogen equipment producers
- Absence of incentive to develop technologies an decrease cost of equipment

## High gas price for end-user:

- Absence of LNG pricing mechanisms
- Big share of foreign equipment that price is dependent on economic situation
- Absence of interaction mechanisms among LNG gas supply participants



# Comparison of Russian and foreign norms for LNG infrastructure placement

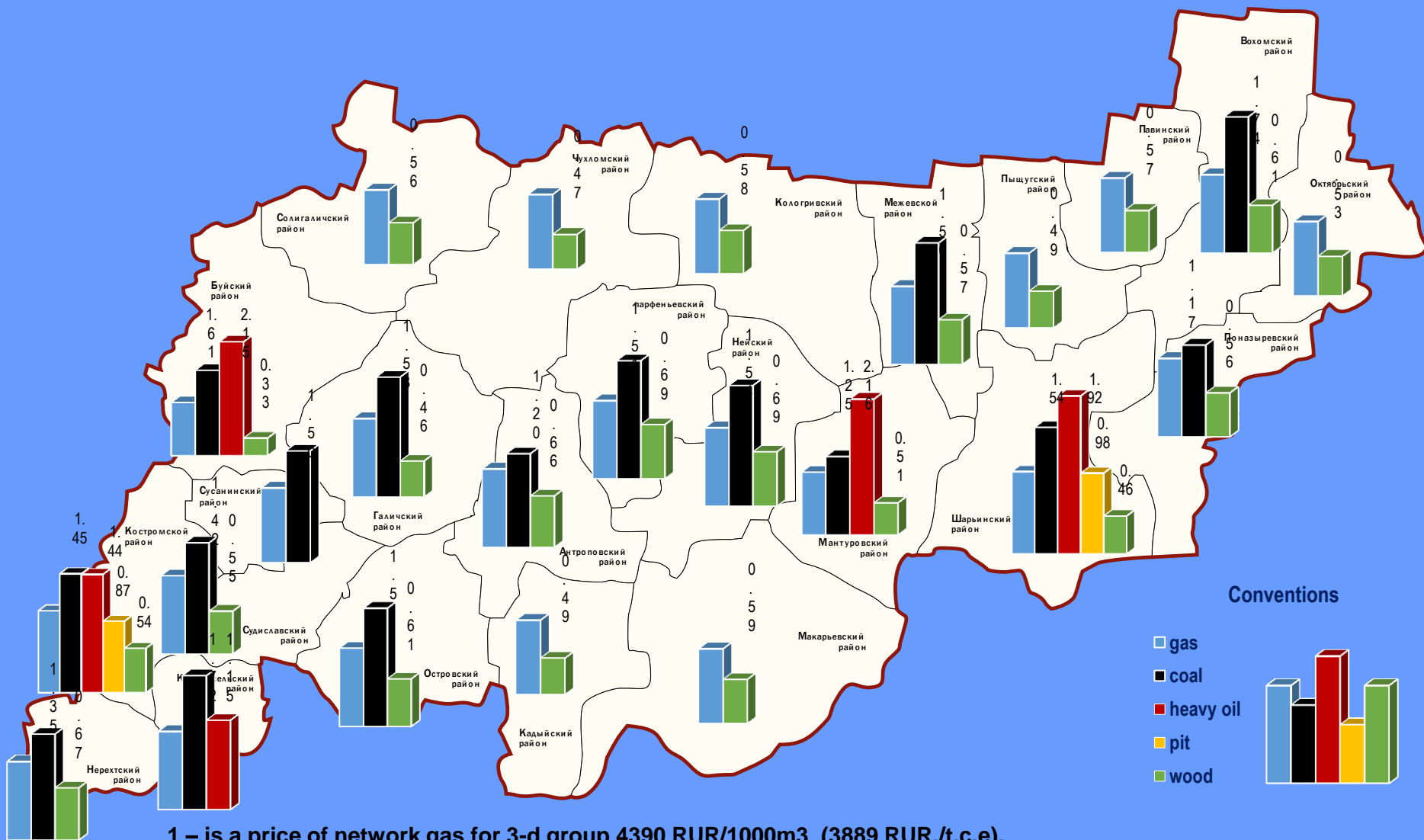


Necessary to change Russian norms in accordance with foreign. Requirements changing from Russian to foreign decrease autonomy gas supply projects capital cost and improve projects economic.



# Comparison of fuels prices with natural gas prices

(example – Kostroma region)



1 – is a price of network gas for 3-d group 4390 RUR/1000m<sup>3</sup> (3889 RUR./t.c.e).

Deviations of prices for different fuels to natural gas price are:

coal – from 1,15 to 1,74; heavy oil - from 1,15 to 2,16; pit - from 0,87 to 0,98; wood - from 0,33 to 0,69.



**THANK YOU!**