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# **RUSSIAN CONTEXT: energy strategy vs SDGs role of natural gas**

# Russian Energy Strategy 2035 contains targets that are consonant to the UN goals

- Dmitry Medvedev, PM:

- ✓ Reduce energy intensity of Russian GDP
- ✓ Reduce dependence of the energy sector on foreign technology and equipment
- ✓ Expansion of areas and formats of cooperation in energy; Diversification of energy exports in terms of geography and product structure
- ✓ Promoting energy cooperation in Europe, Asia, BRICS, etc..

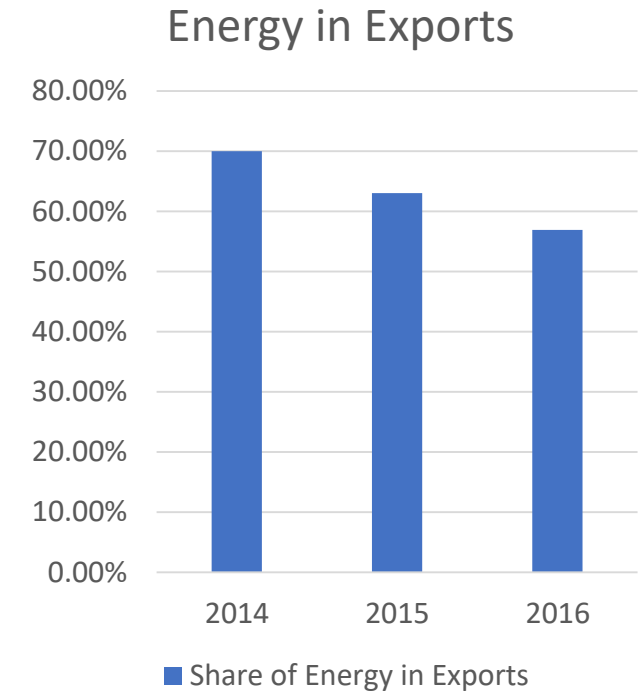
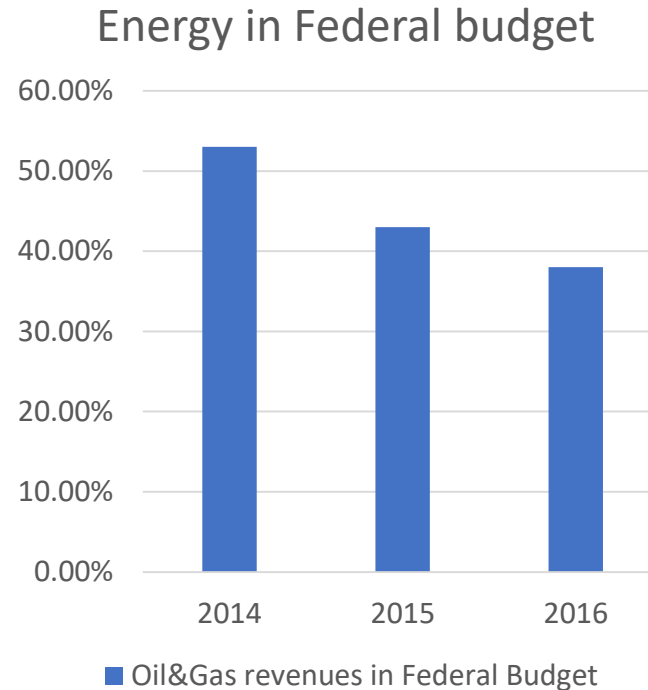
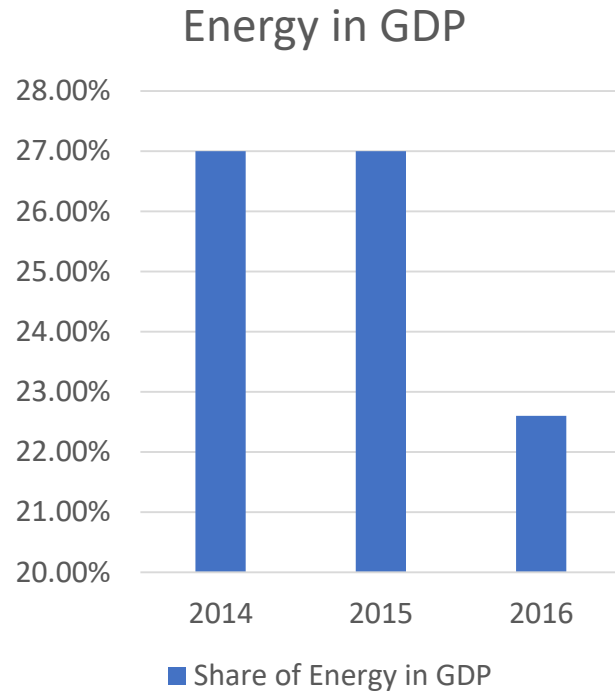
Source: [Russian Government](#)

- Alexander Novak, Minister of Energy:

- ✓ Reduce Russian economy's dependence on hydrocarbons in the interest of climate change, through developing generation capacities by hydroelectric PP, NPP and renewable energy plants
- ✓ Reducing Russian GDP energy intensity by factor of 1.6 by 2025
- ✓ Facilitate access to Russian energy consumers, by expanding energy supplies to Asia-Pacific Region
- ✓ Promote close cooperation with foreign partners and investors from around the world

Source: [Alexander Novak](#)

# The role of energy sector in the Russian economy

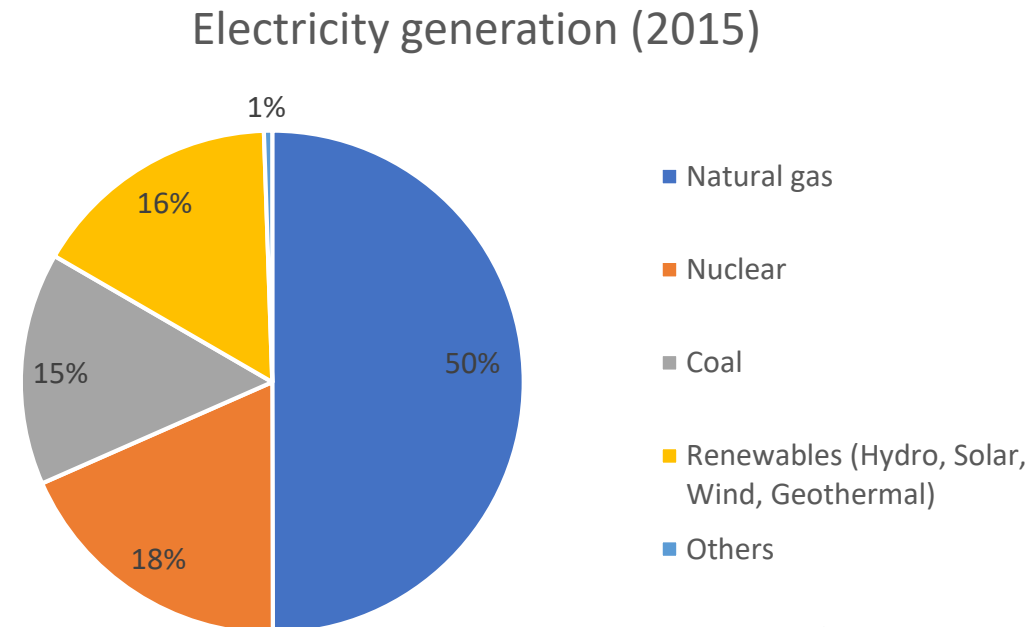
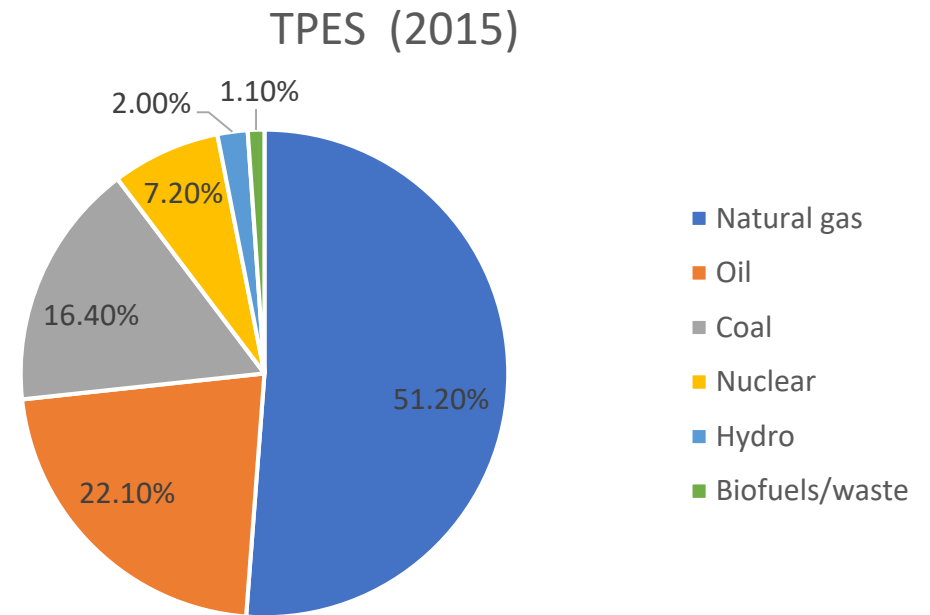


- The shares of energy in GDP, energy in the federal budget and energy in exports have all decreased (which is a good thing, since over-reliance of the economy on single sector is unsustainable)
- This is the result of ***conditions in international energy markets***, but at the same time this means a more balanced role for the energy sector in the Russian economy

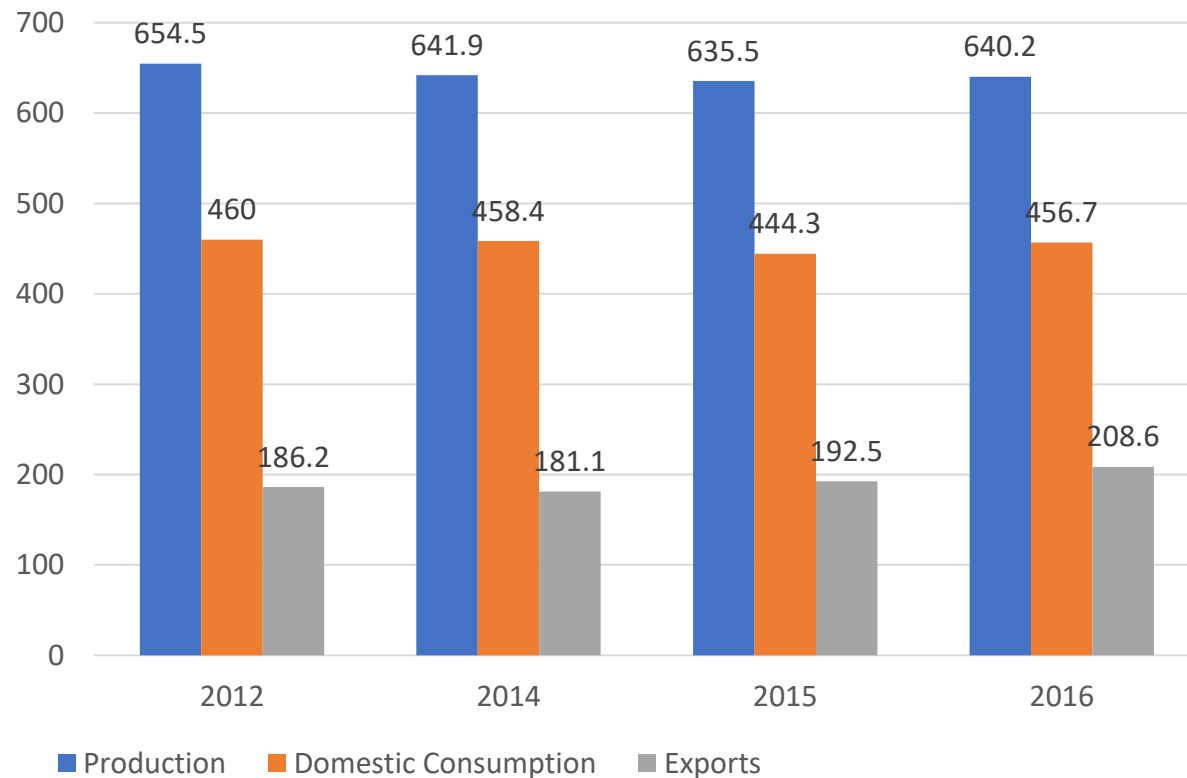
# Fuel mix balance

- Nuclear, hydroelectric power plants and renewable energy sources produce over one-third of Russia's electricity
- Almost 50% of electricity is produced at gas-fired power plants
- The European part of Russia (including Urals) relies primarily on natural gas + nuclear, while Siberia and the Far East use coal + hydro
- **84% of electricity is produced using clean sources of energy (if natural gas and nuclear are included)**
- **Fuel mix is unbalanced**

Sources: [Ministry of Energy](#); [IEA](#)

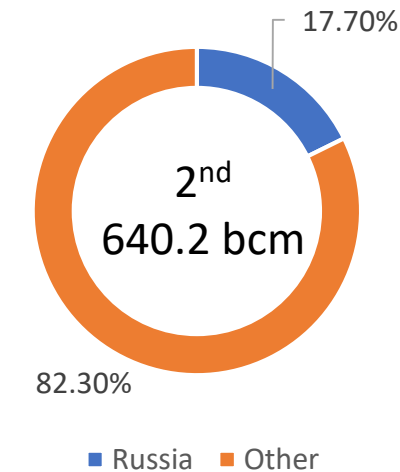


# Natural gas in Russia...

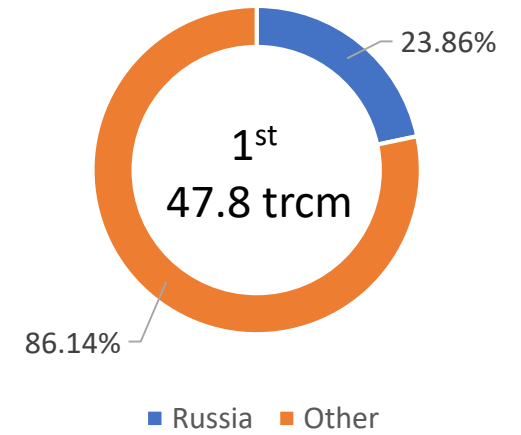


**... is so important, that any action in this sector has economy-wide effect**

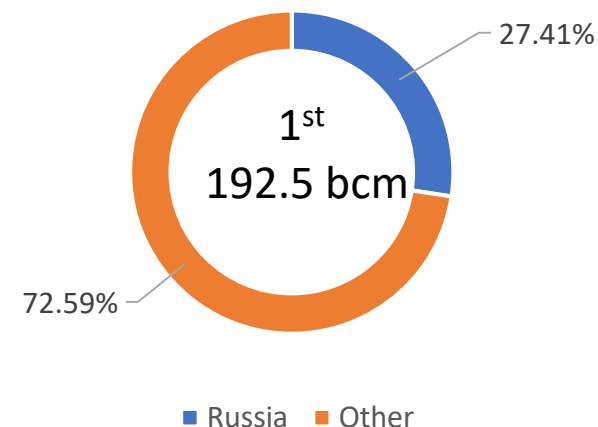
Share in world production



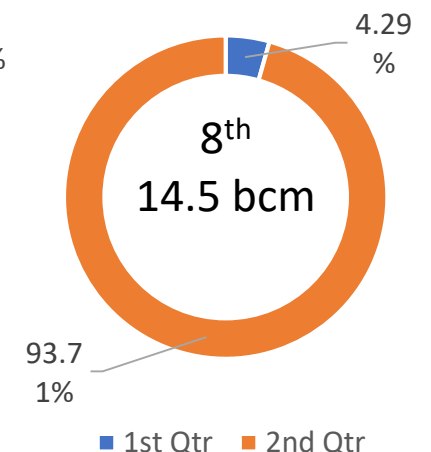
Share in world proved reserves



Share in global gas exports by pipeline

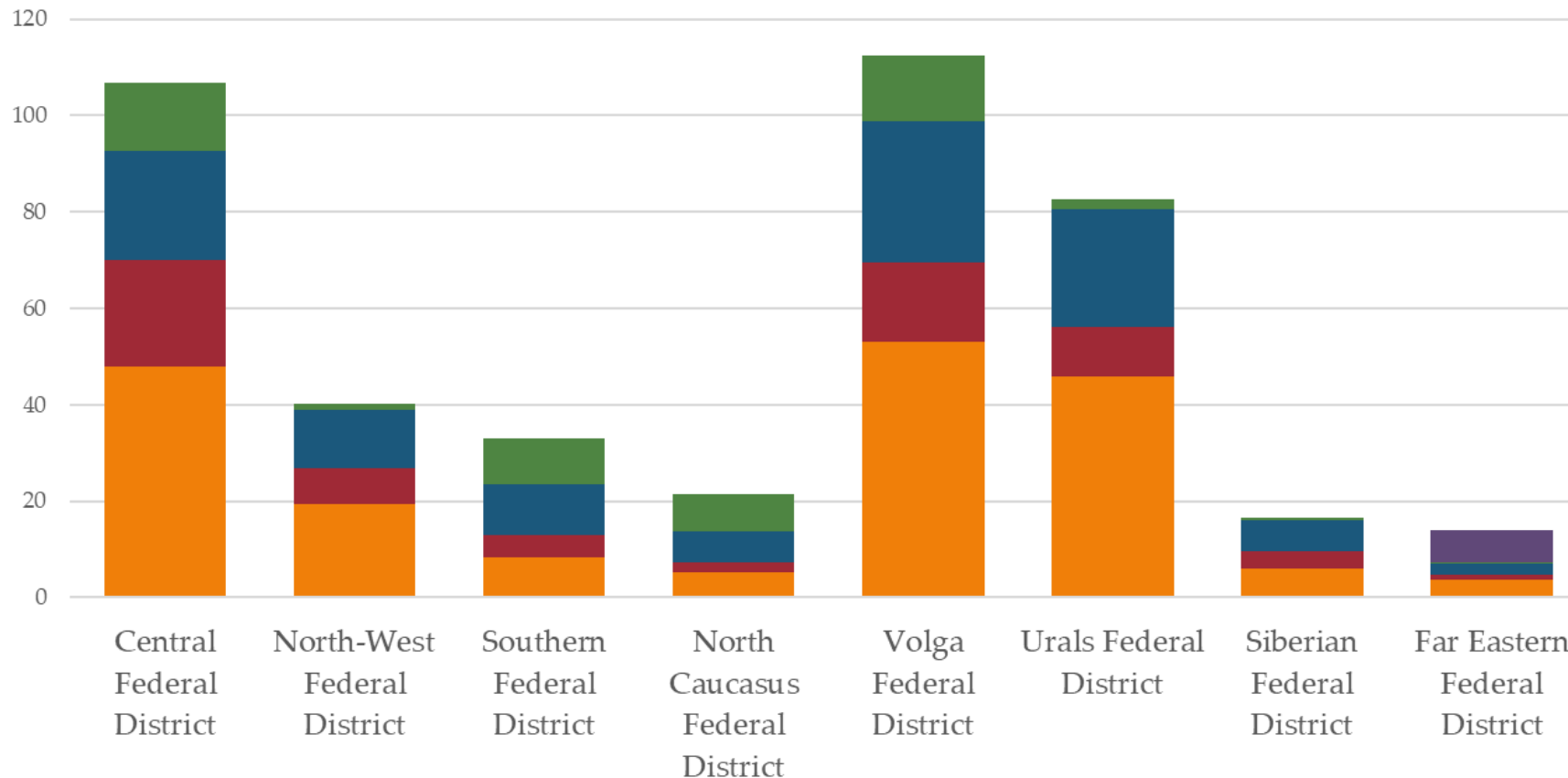


Share in global LNG exports



# Natural gas consumption varies significantly by region

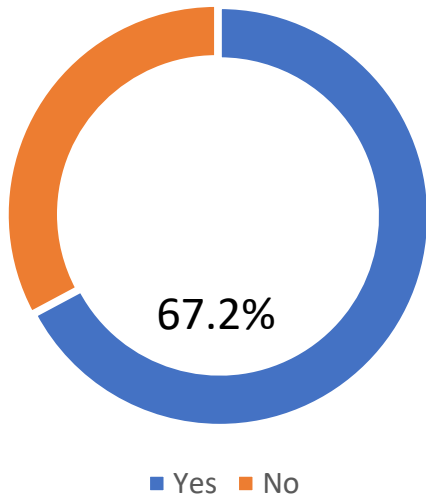
Russian gas consumption - regional breakdown (2011, bcm)



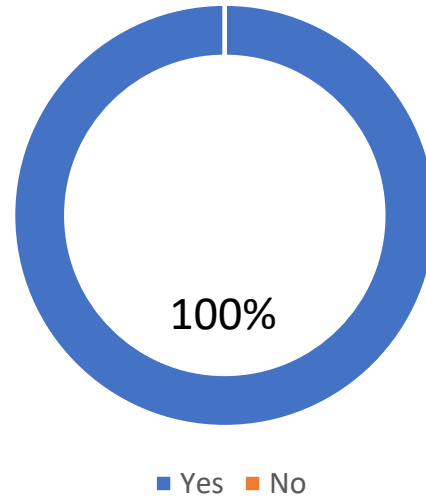
- Technical and other
- Residential
- Industry, agri., construction, etc.
- Boilers
- Power stations

# Access to energy services in Russia

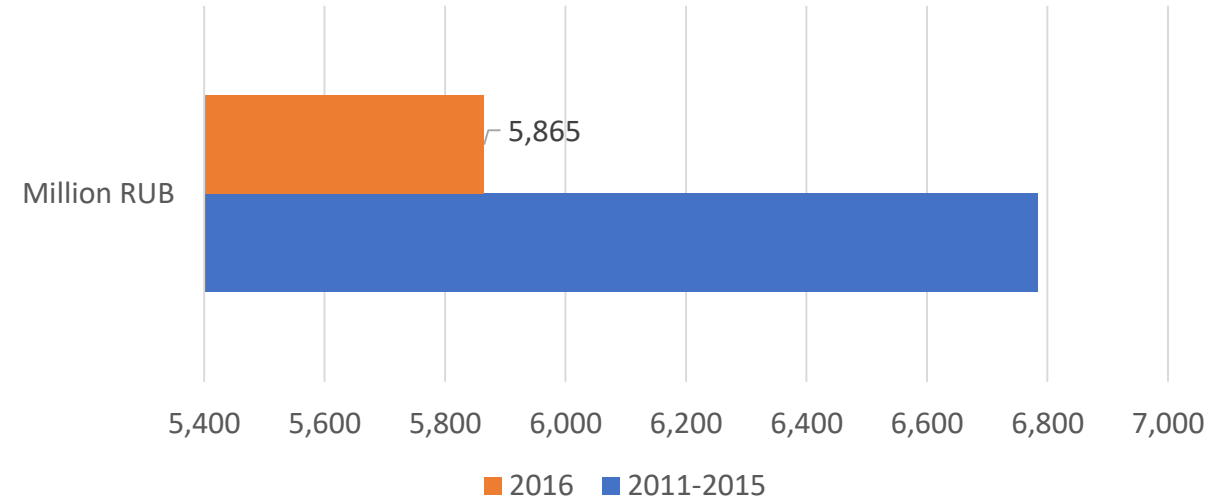
Access to natural gas



Access to electricity



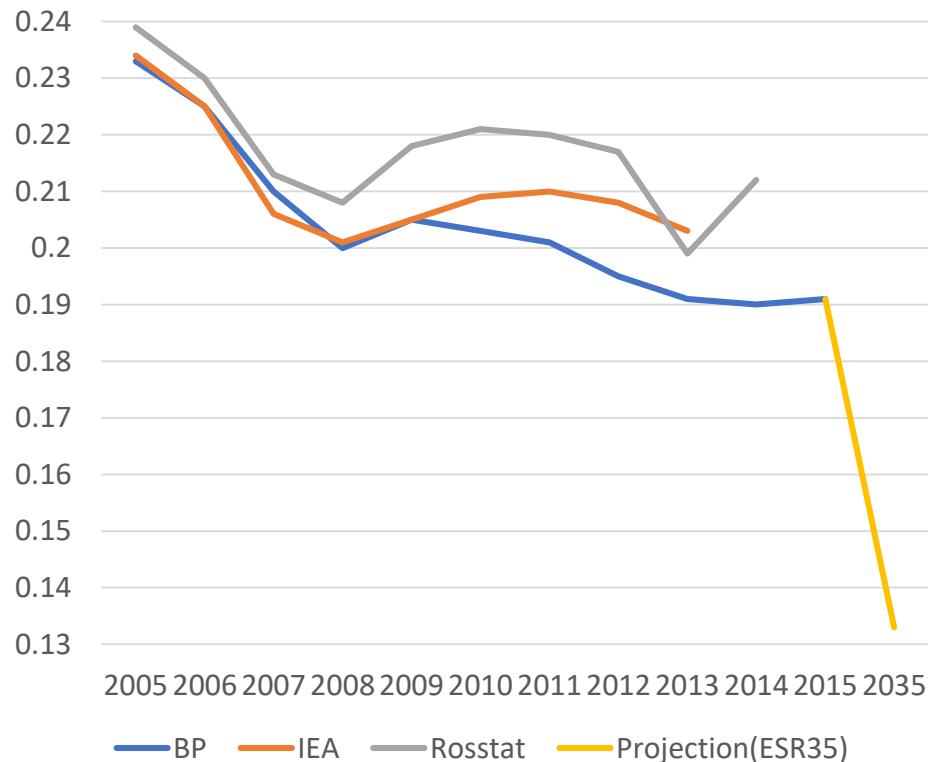
Investments in gas infrastructure



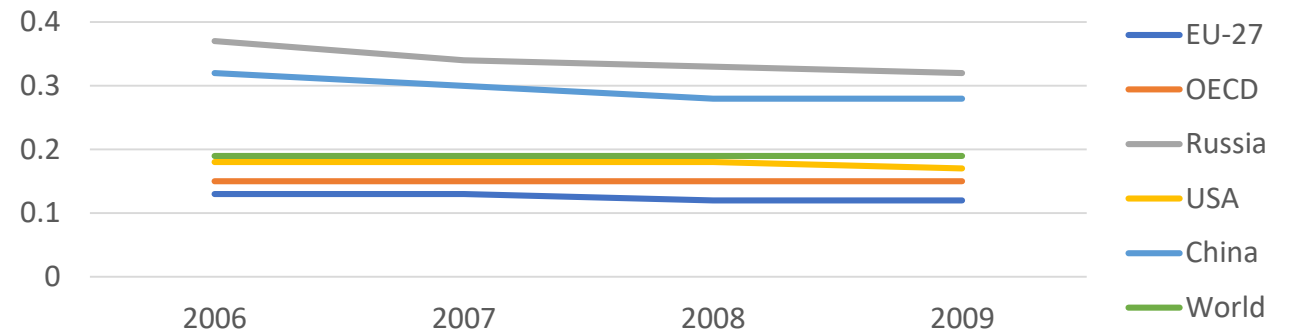
- Access to electricity in Russia is universal, according to stats
- Access to natural gas is not universal at 67,2% as of 2016 (compared to 53.3% in 2005)
- Solutions: Facilitating natural gas access in Eastern Siberia and Far East (Eastern Gas Program) + Gasification Program
- In 2017, already RUB 25,7 bn invested, construction of 3,700 km gas pipelines is in progress

# Energy efficiency improvement

Energy intensity of Russian GDP  
(toe/th.USD-2011(PPP))



World EI of GDP by koe/\$05p  
from 2006 to 2009 (PPP)



- Central planning in Russia contributed to increased levels of energy efficiency
- In 1998-2008, Russia managed to reduce GDP energy intensity by 42%. Reduction was driven by structural shifts and capacity load factor, while technological factor contributed only 1%.
- Since 2009, policies and mechanisms have been introduced such as: energy management standards, EE building codes and standards, improved energy statistics, R&D, incentives
- ERS to 2035 sets ambitious goal of 40% reduction



# Conclusions

- Even though Russia is not making public statements about reaching SDG7, Russian development is in line with them:
  - Access to modern energy services is universal in regards to electricity; while natural gas access is improving
  - Renewables in the energy mix besides hydro have the potential to increase; there are targeted actions by some companies to increase the use of solar and wind power to solve efficiency and improve access
  - Energy efficiency improving trend, as energy intensity of the Russian economy decreases overall
  - Clean energy (technology and cooperation): international cooperation is focused on grid interconnection and supporting additional generation based on renewables
  - Clean energy (investment): there are significant problems with investment climate in Russia, and this is not unique for the clean energy segment.
- Overall characteristic feature for Russia is **central role of the natural gas sector**, since it not only provides noticeable (albeit decreasing) shares in GDP, export volumes and budget revenues, but also provides half of the Russian fuel mix

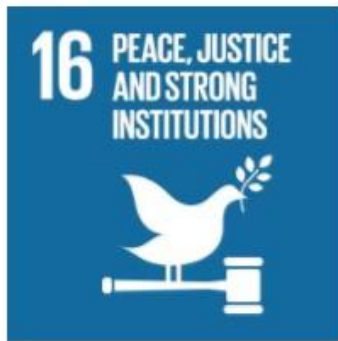


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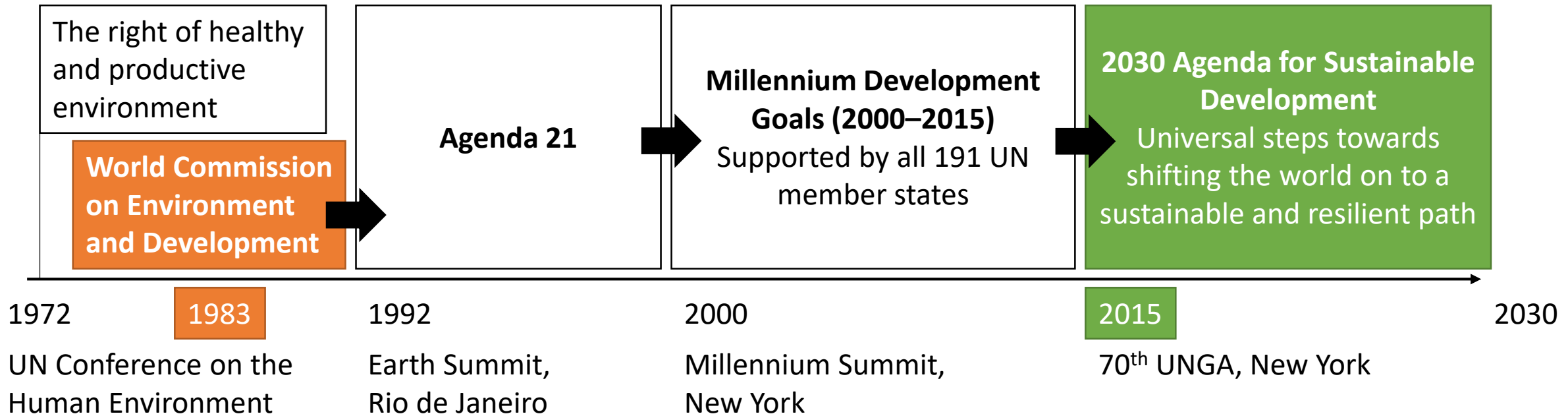
**Thank you!**

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# Introduction on SDGs: when, where, why?



- **The 17 Sustainable Development Goals** were introduced during the 70<sup>th</sup> UNGA held in New York in September 2015. They are the building blocks of the **2030 Agenda for Sustainable Development**
- Main aims:
  - Eradicating poverty in all its forms and dimensions
  - Tackling global economic, social and environmental challenges

# SDG 7: Affordable and Clean Energy



- Targets by 2030:
  - Ensure **universal access** to affordable, reliable and modern energy services
  - Increase substantially the share of **renewable energy** in the global energy mix
  - Double the global rate of improvement in **energy efficiency**
  - Enhance **international cooperation to facilitate access to clean energy research and technology**, including:
    - renewable energy
    - energy efficiency
    - advanced and cleaner fossil-fuel technology
  - Promote **investment** in energy infrastructure and clean energy technology

# Analysis matrix

based on SDG 7 targets

Universal  
access to  
energy services

Renewables  
expansion in  
the energy mix

Energy  
efficiency  
improvement

Clean energy:  
Research and  
technology

Clean energy:  
Investment



# I Universal access to energy services

## Definition

Universal access to energy services means a situation when modern energy services are provided for the entire global population, including:

- Household access to electricity and clean cooking facilities (*IEA*)
- Access to pipelines, electricity and heating networks (*Russian Energy Strategy*)

## Measurement methods

- Percent of population with access to electricity
- Percent of population with access to natural gas for heating and cooking
- Percent of population with primary reliance on clean fuels and technology (*Agenda 2030*)

# II Renewables in the energy mix

## Definition

Renewable energy is energy derived from natural processes, which regularly re-occur. Renewable energy sources include:

- Hydro (excluding pumped storage)
- Traditional renewables: solid biomass
- Modern renewables: wind, solar, geothermal, tidal and wave energy
- Some of other sources: biogasoline, biodiesels, other liquid biofuels, biogases, renewable fraction of municipal waste

## Measurement methods

- Share in total primary energy supply
- Share in total final energy consumption
- Share in electricity generation



# III Energy efficiency improvement

## Definition

**Energy efficiency** improves when a given level of service is provided with reduced amounts of energy inputs or services are enhanced for a given amount of energy input.

**Energy intensity** is measured by the quantity of energy required per unit output or activity, so that using less energy to produce a product reduces the intensity.

## Measurement methods

- Energy intensity / national level assessment:
  - Primary energy consumption per unit of gross domestic product
  - Primary energy consumption per capita
- Energy intensity / sectoral level assessment:
  - Decomposition analysis (IEA)
  - Policy progress index (IEA)

# IV Clean energy: Research and technology + international cooperation

## Definition

Energy itself (mechanical, thermal, kinetic, electric ...) cannot be 'clean' or 'not clean'.

'Cleanliness' of an energy source is a characteristic that assesses the impact of this energy source on the environment as it is being consumed.

## Measurement methods

- Carbon intensity / national level assessment:
  - GHG emissions per unit of GDP
  - GHG emissions per capita
- Ways to decrease carbon intensity:
  - Switching to alternative fuels
  - Energy intensity reduction
  - Carbon Capture and Storage / Carbon Capture and Use

# V Clean energy: Investment

## **Definition**

Investment as such is placing capital with the expectation of future revenue

Clean energy investment is the type of investment that goes in infrastructure expansion and technology upgrade for supplying modern and sustainable energy services

## **Measurement methods and indicators:**

- Mobilized amount of United States dollars per year
- Investments in energy efficiency as a percentage of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services