GLOBAL ENERGY POLICY

Russia: energy market developments

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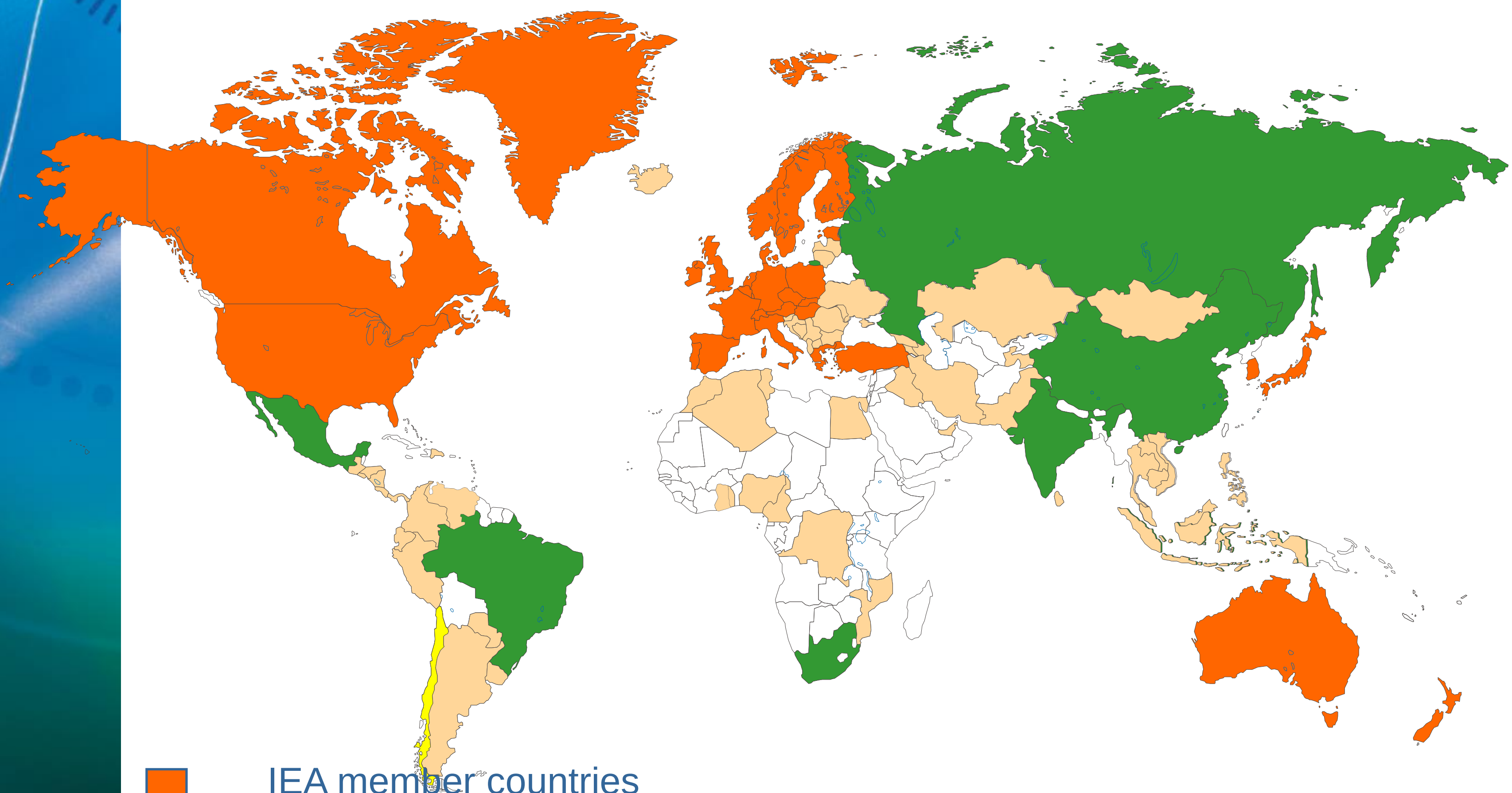
International Energy Agency

IEA: 29 Members, worldwide engagement

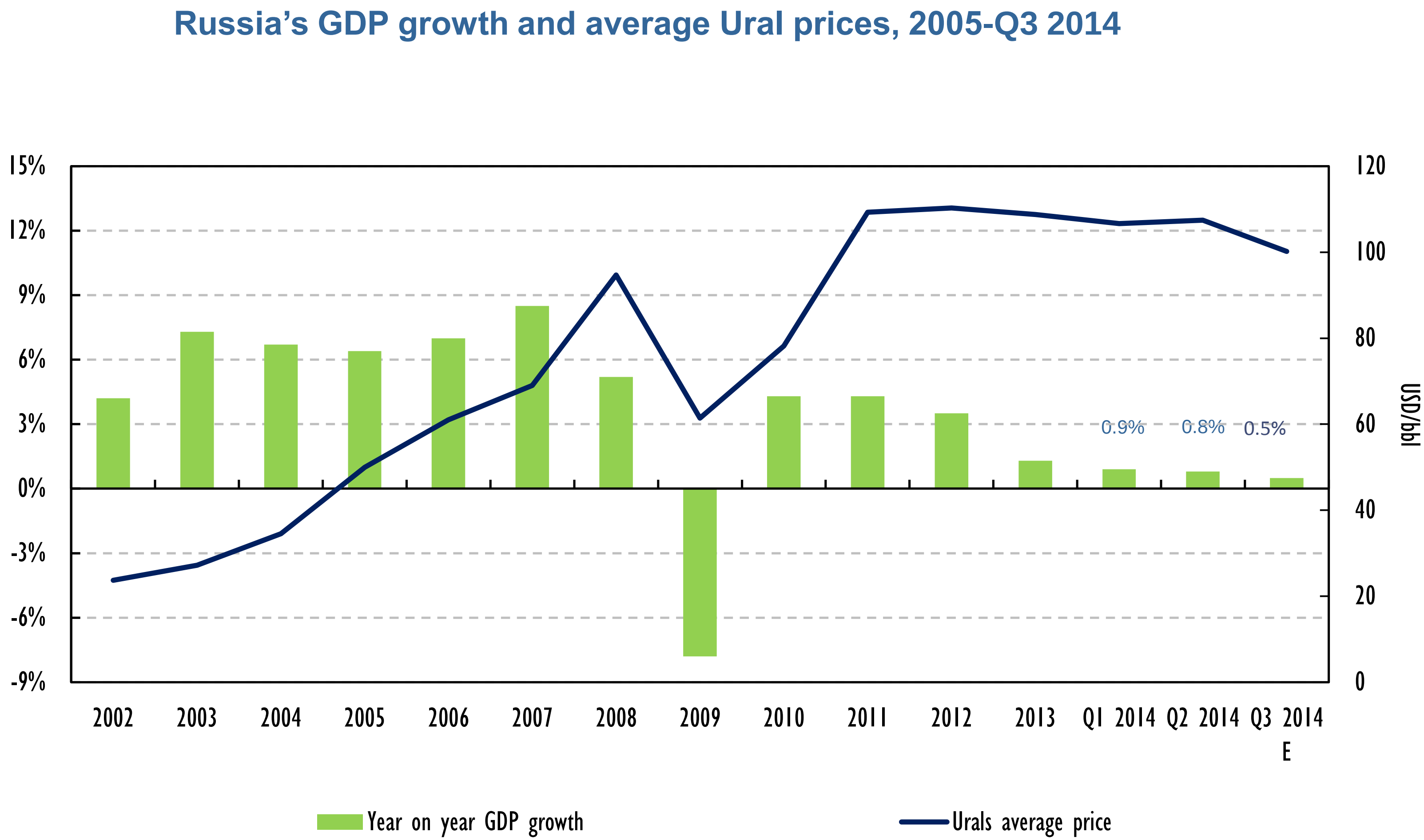


IEA member countries
Accession countries
Key Partner countries
Countries co-operating through IEA programmes

Russia 2014 Energy Policy Review

Available at:
http://www.iea.org/w/bookshop/474-Russia_2014

Macroeconomic and financial snapshot



Note: Q3 2014 GDP growth is estimated based on declarations by the Russian Ministry of Economic Development and IMF

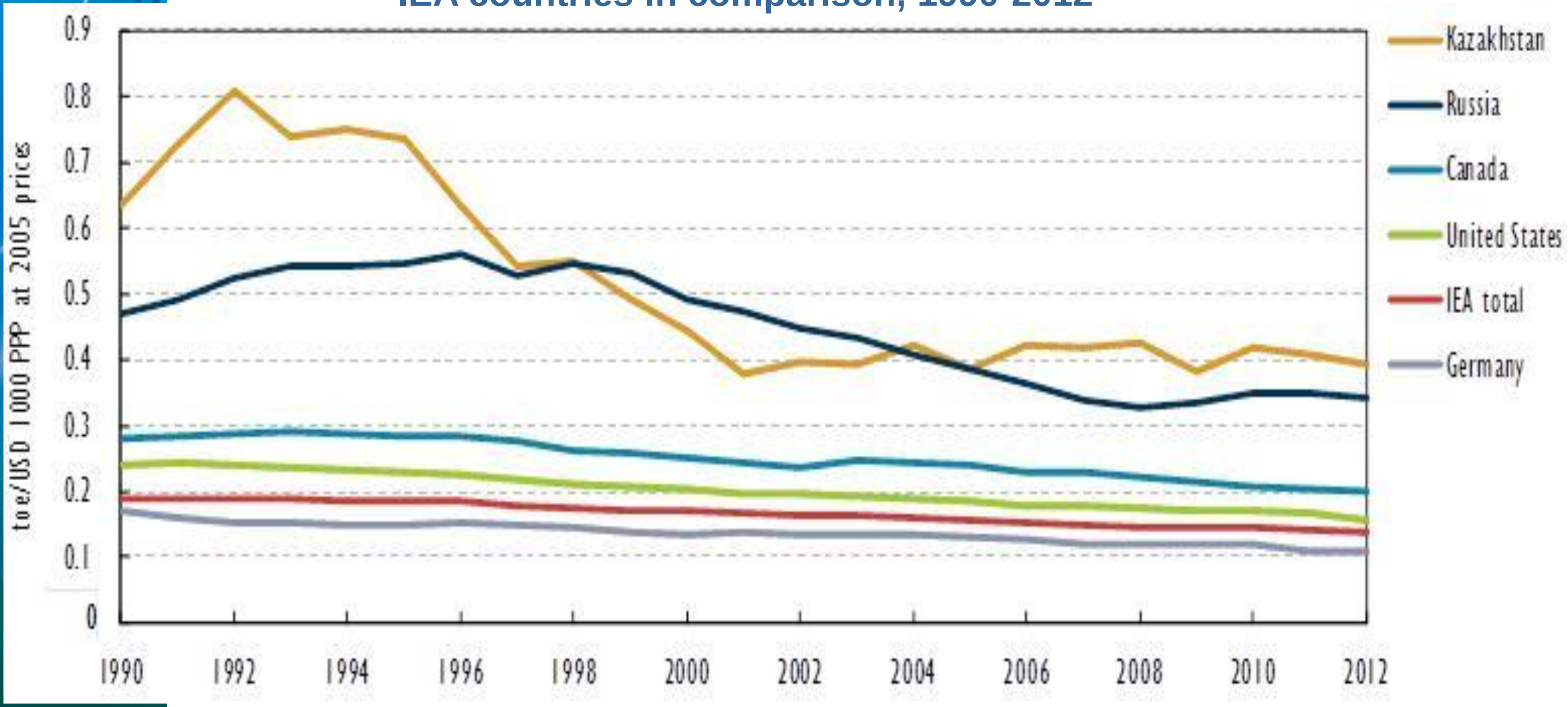
Source: IMF, Argus, Russian Central Bank

Key energy sector achievements

- Oil: record high liquids production, export diversification
- Gas: diversification of production and supplies, LNG export liberalization, pivot to Asia
- Coal: strong increase in production and exports
- Electricity: successful restructuring and liberalization
- Nuclear: large new-built and life-time extension programmes
- Energy efficiency, renewables, climate change: targets, legal&regulatory frameworks

Key challenges and opportunities (2)

TPES/GDP (energy intensity) in Russia, Kazakhstan and selected IEA countries in comparison, 1990-2012

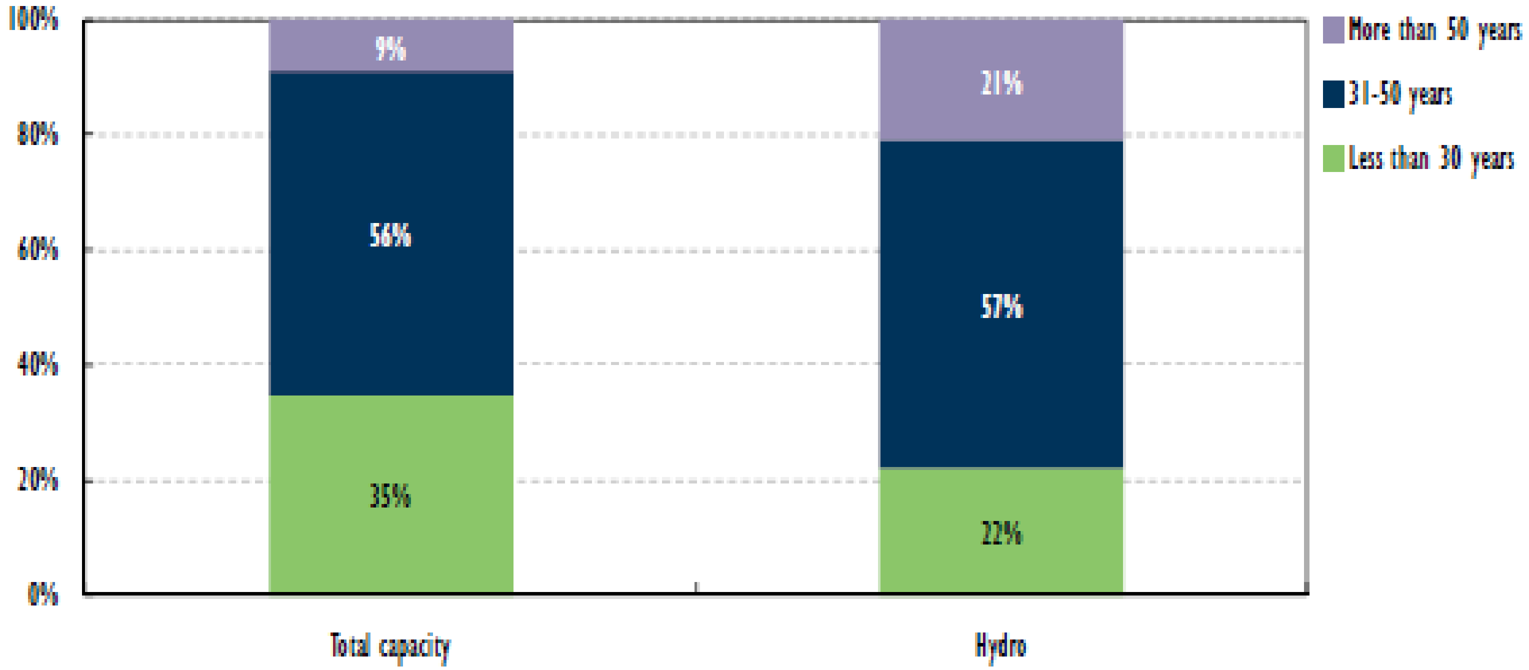


Source: IEA Russia 2014 Energy policy review

Russia's energy intensity is still two times higher than the IEA average and there is no more a sign of improvement

Key challenges and opportunities (3)

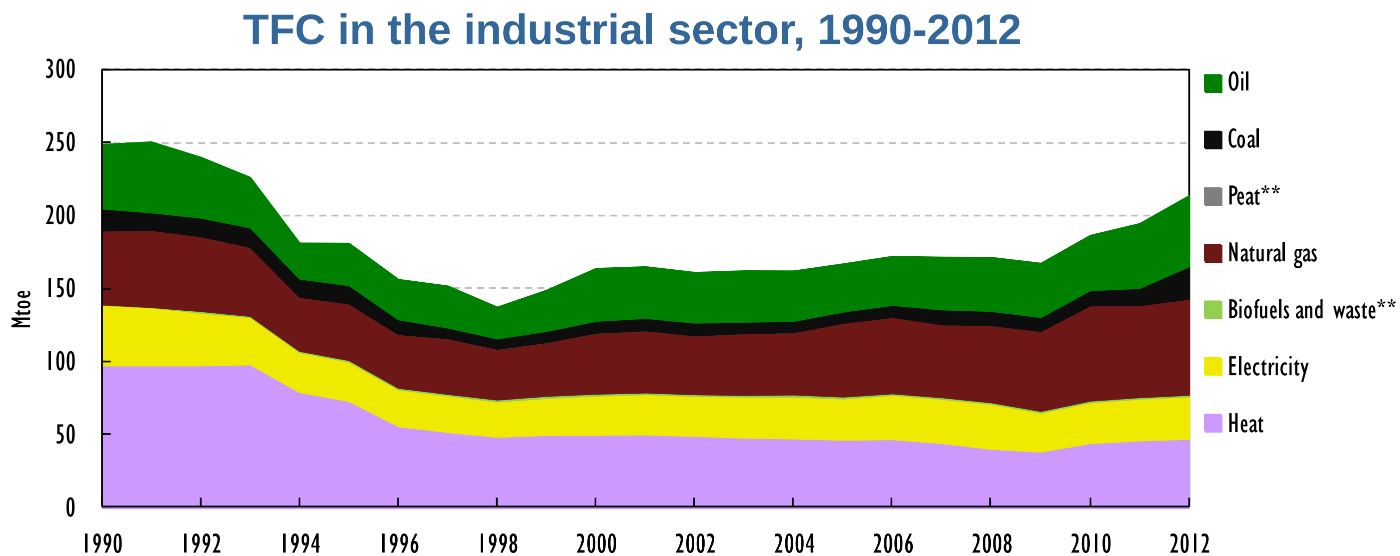
Age of installed thermal generation capacity in Russia in general and for hydropower in particular

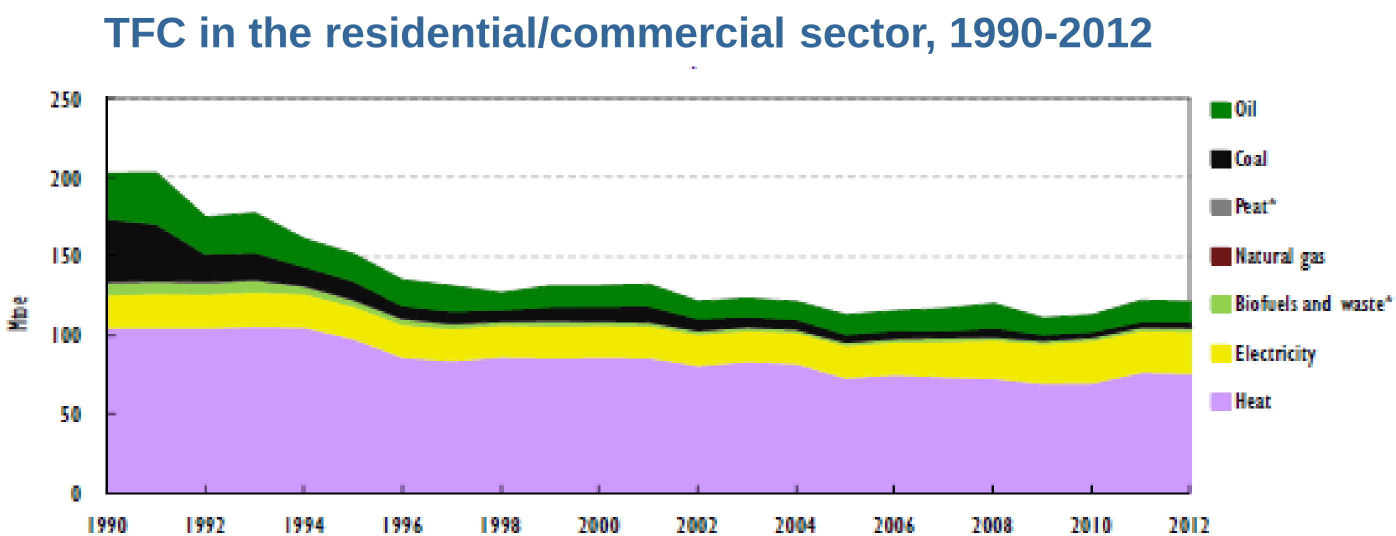


Source: Sberbank Investment Research (2012), *Russia Utilities Atlas*, Moscow.

Russia's electricity generation and transmission infrastructure, alongside district heating infrastructure, are critically ageing and need large private domestic and foreign investments

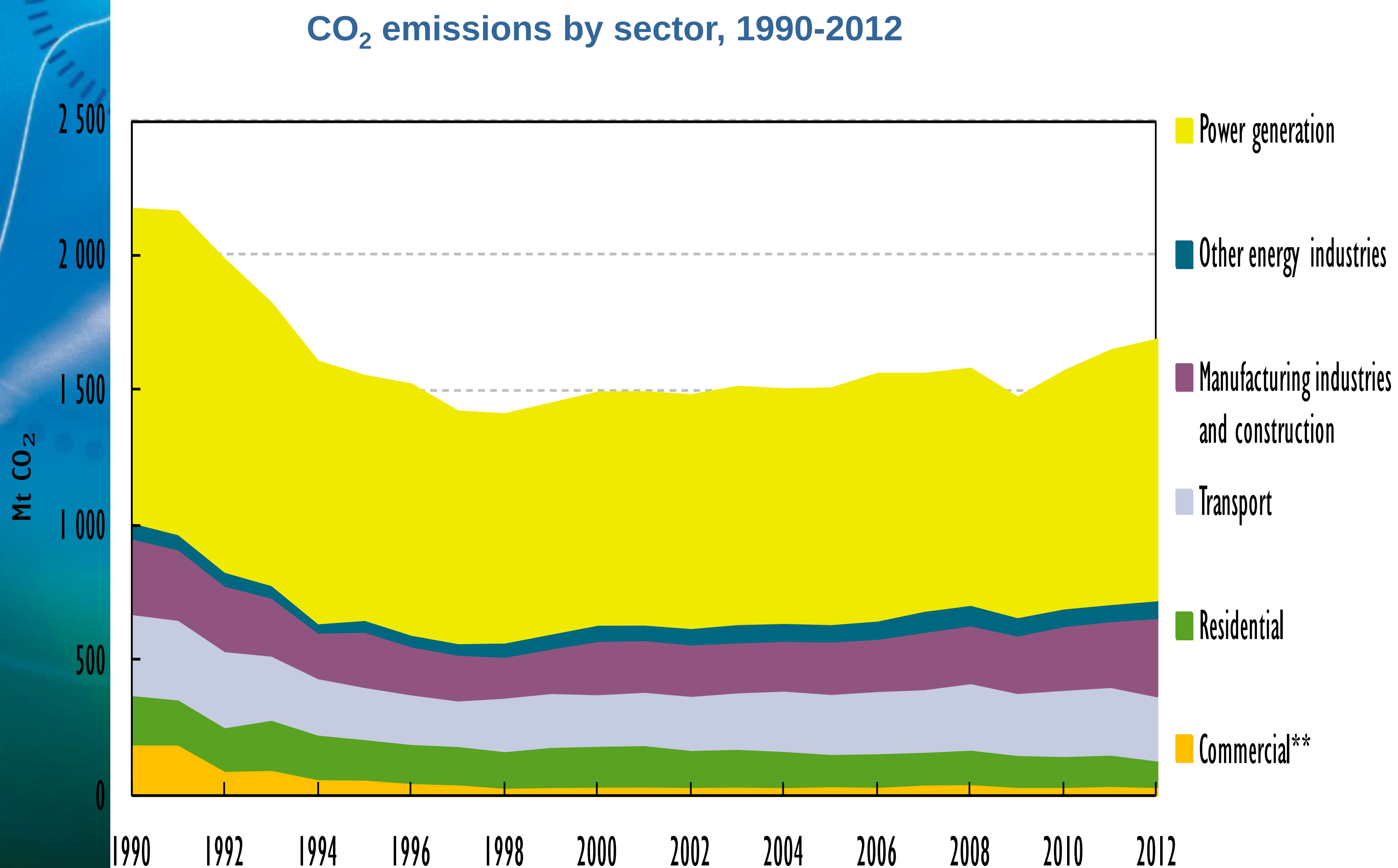
Energy efficiency: unleashing the potential





Source: IEA Russia 2014 Energy policy review

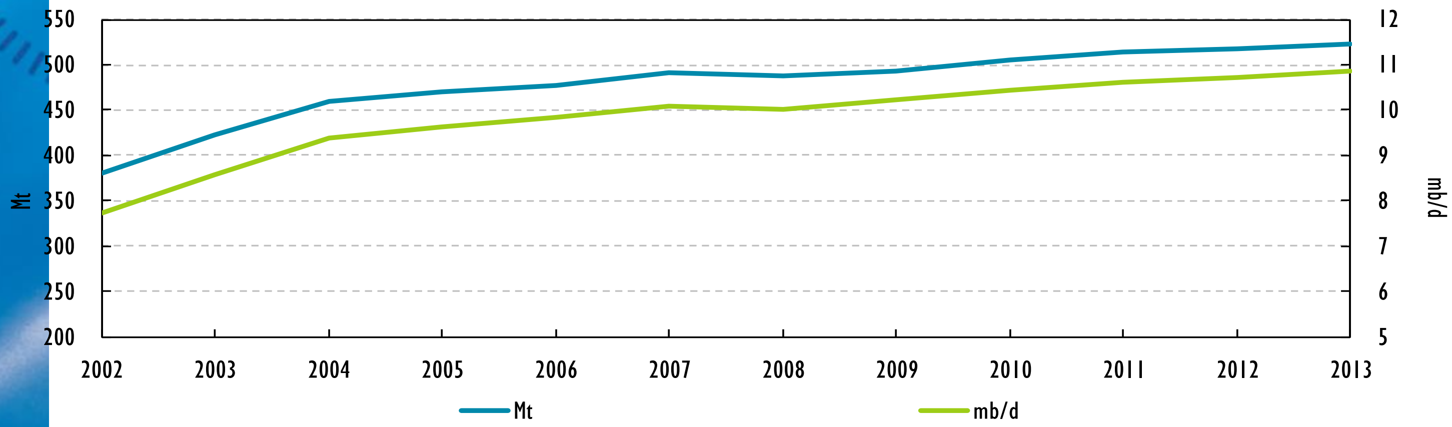
Climate change: limiting CO2 emissions to spur modernization



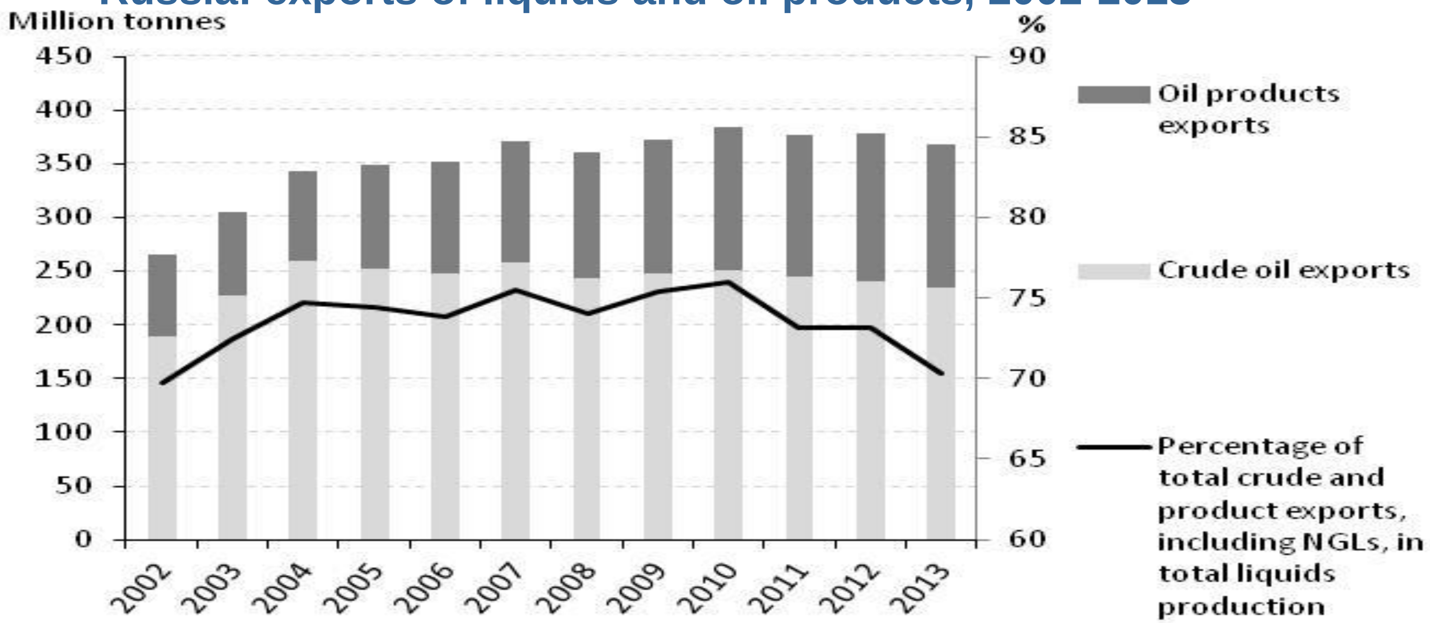
Source: IEA Russia 2014 Energy policy review

Oil: keeping high production and export levels in the long term

Russia’s total liquids production, 2002-13



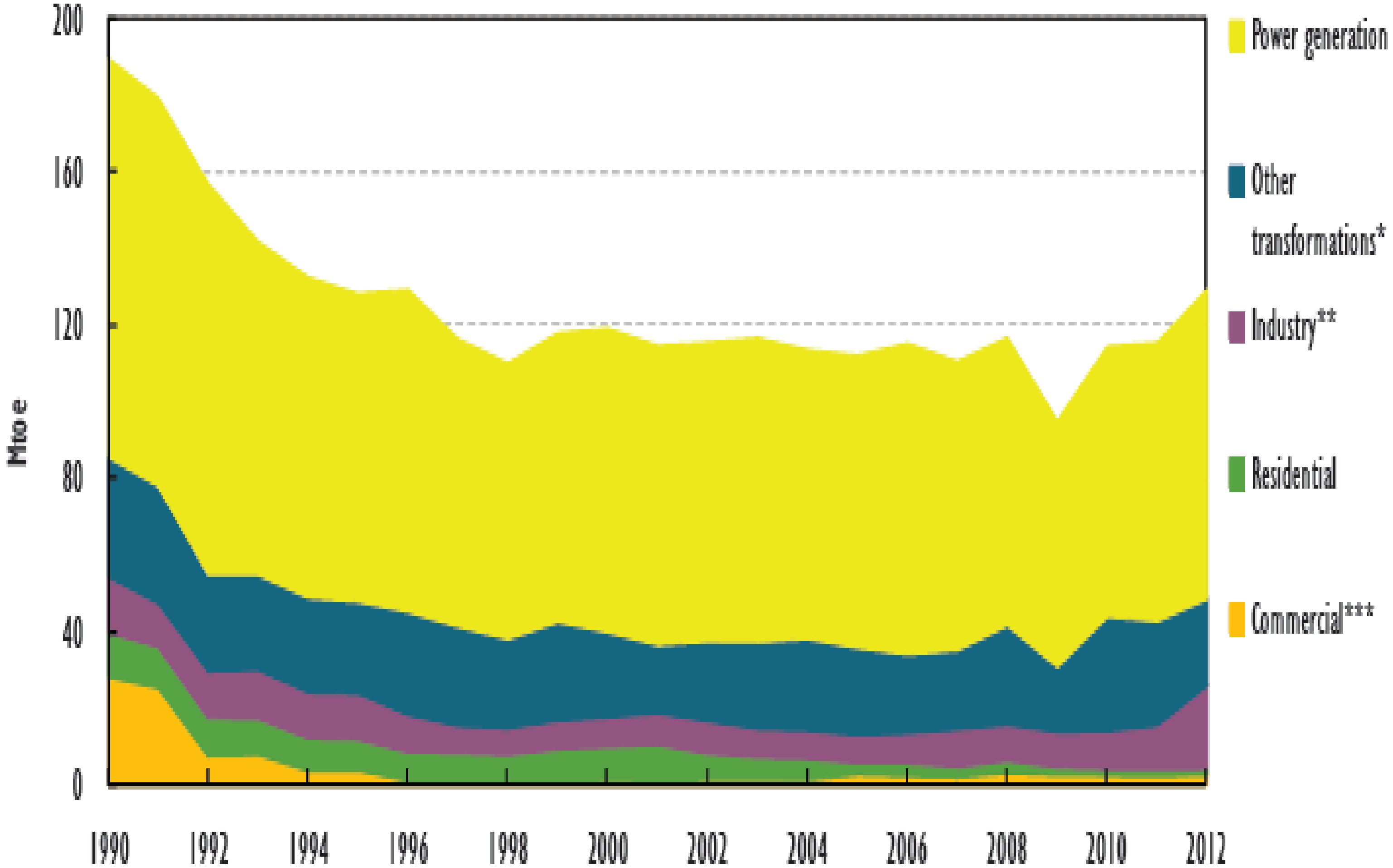
Russia: exports of liquids and oil products, 2002-2013



Source: IEA Russia 2014 Energy policy review

Coal: removing bottlenecks and modernizing production

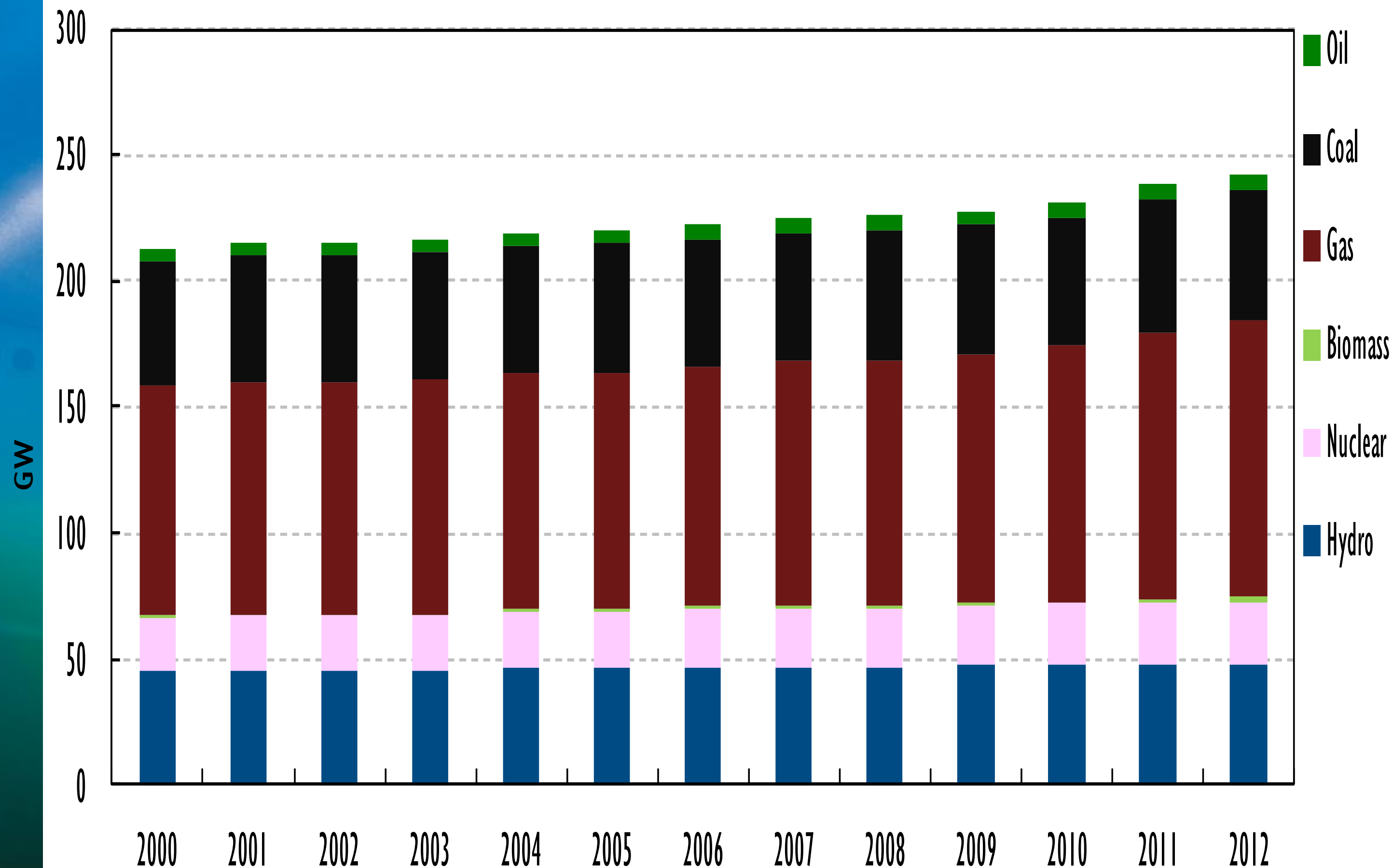
Coal supply by sector, 1990-2012



Source: IEA Russia 2014 Energy policy review

Electricity: completing reforms to attract more investments

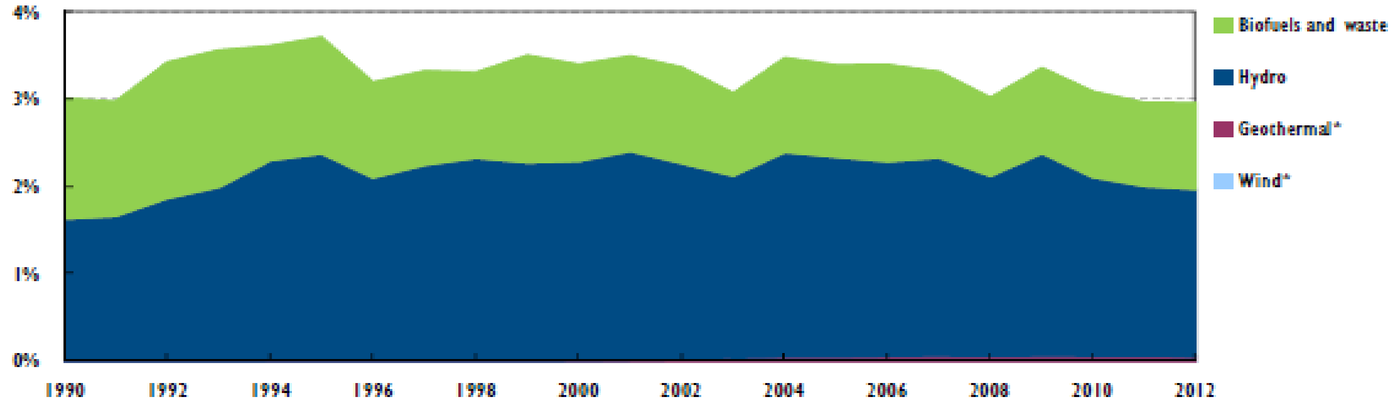
Investment trends: Installed power capacity in Russia, in GW by fuel, 2000-12



Source: IEA Russia 2014 Energy policy review

Renewables: further steps to develop the potential efficiently

Renewable energy as a percentage of TPES, 1990-2012

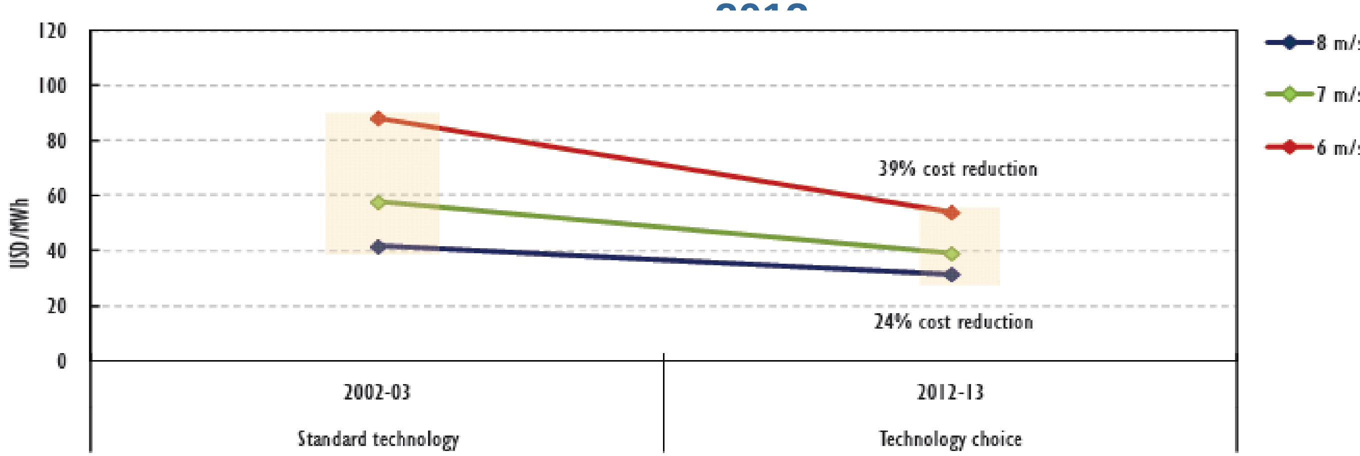


Note: Data for 2012 are provisional.

* Negligible.

Source: IEA (2013), *Energy Statistics of Non-OECD Countries*, OECD/IEA, Paris.

Evolution of power generation costs from land-based wind turbines, 2002



Note: m/s = metres per second.

Source: IEA (2013), *Medium-Term Renewable Energy Market Report*, OECD/IEA, Paris.

Nuclear: ambitious programme needs strong regulatory oversight

Reactors in operation, under construction and planned until 2030 in Russia

Model	VVER-440	VVER-1 000	VVER-1 200	RBMK	EGP-6	KLT40S	BN-600	BN-800	BN-1 200	
In operation	▲	■		▲	◆		▼			33
Under construction		■	●			▼		■		10
Planned			●						◆	24

km 0 500 1 000

This map is without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Source: IEA Russia 2014 Energy policy review

District heating: urgently attracting investments

- Systemic approach
  - Generation, transmission, metering, end-use
  - Centralised or decentralised solutions with stand-alone condensing boilers
- Investor confidence
  - Tariff levels, methodologies and long term periods
  - Regulation and contractual relations
- Consumer confidence
  - Building level metering and consumption based tariffs
  - Quality of service
- Federal and regional level engagement
  - Financial support
  - Best-practice sharing

R&D: greater streamlining of priorities and deliverables

R&D expenditures of key Russian energy companies (billion Roubles/% of revenues)

	2010	2011	2012
Gazprom	7.0/0.19%	7.9/0.16%	7.7/0.15%
Lukoil	0.12/0.11%	0.14/0.10%	0.16/0.11%
Rosneft	3.0/0.16%	8.6/0.32%	9.9/0.32%
Inter RAO UES	n/a	2.0/1.4%	n/a
SUEK	n/a	n/a	n/a

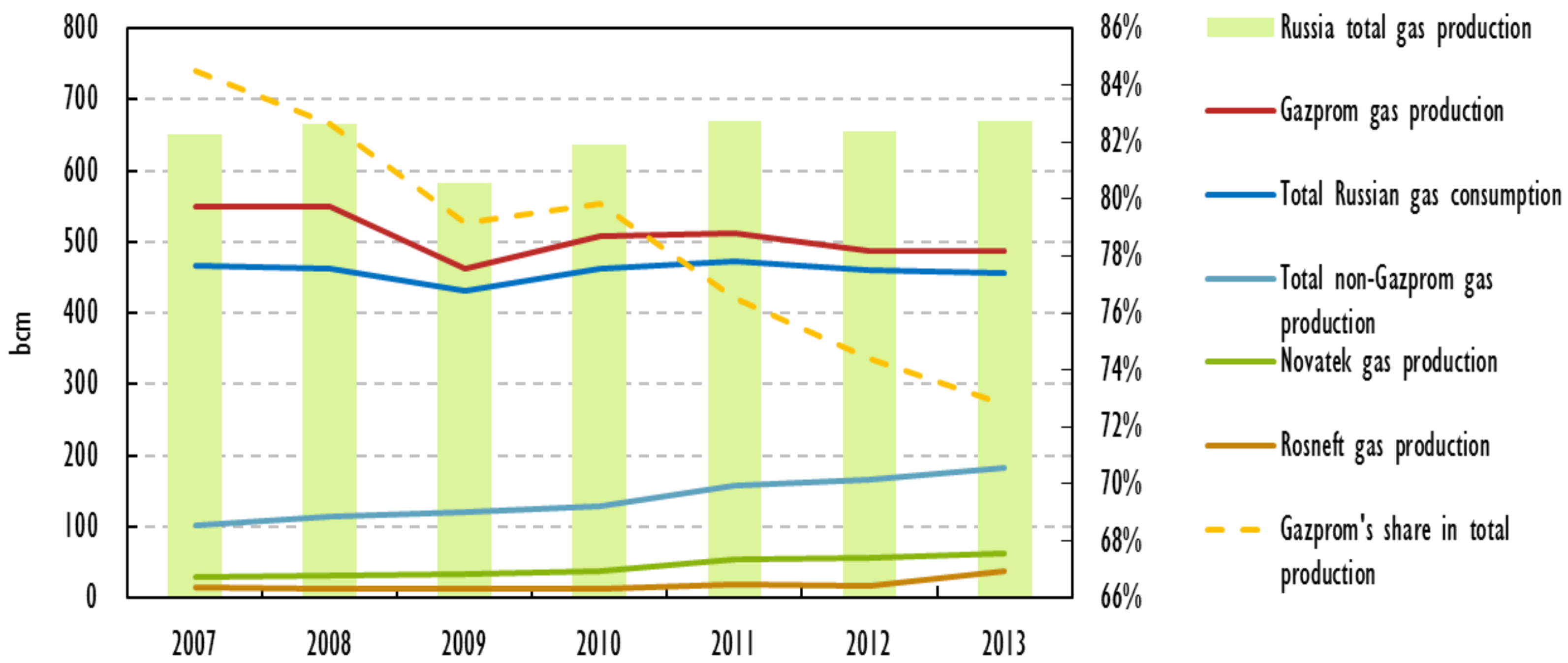
Source: IEA Russia 2014 Energy policy review

Key energy policy recommendations

- **Focus on energy sector modernization**
  - Ensure energy efficiency is implemented as a policy priority
  - Ensure better access to finance & appropriate fiscal incentives
  - Progressively remove subsidies and cross-subsidies
  - Complete the electricity market reforms
  - Foster rapid modernization of district heating systems through regulatory and tariff improvements as well as meters
- **Foster the efficiency of energy markets, in particular the gas, oil and electricity markets**
  - More competition, regulatory oversight
  - More private sector involvement
- **Ensure the development of the most cost-efficient oil and gas resources**

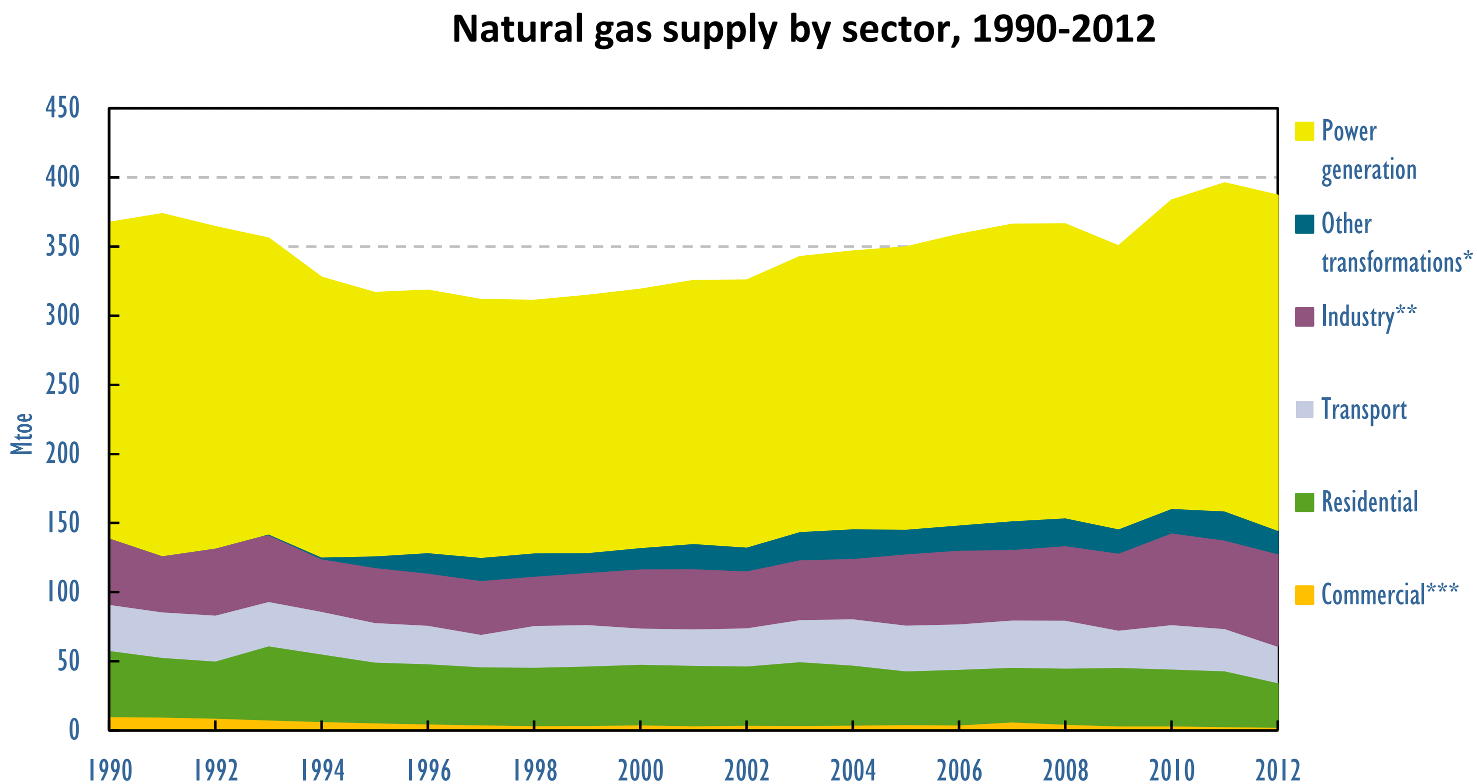
Share of independents growing, reducing Gazprom's market share

Overview of Russian gas market trends, 2007-2013



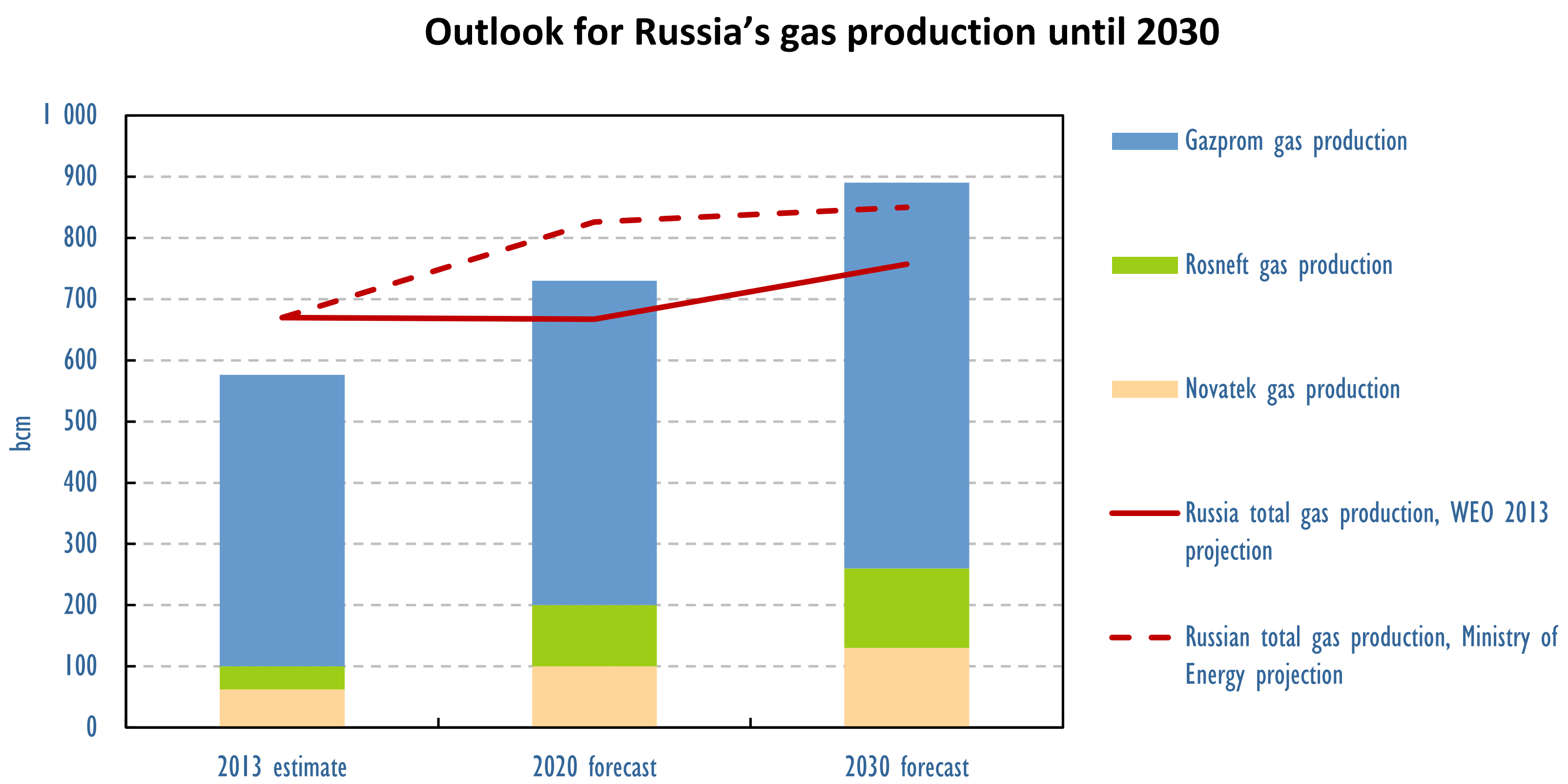
Source: Ministry of Energy, Rosneft, Gazprom, Novatek, IEA calculations

Power generation and consumption, driver and break of gas consumption



Source: IEA

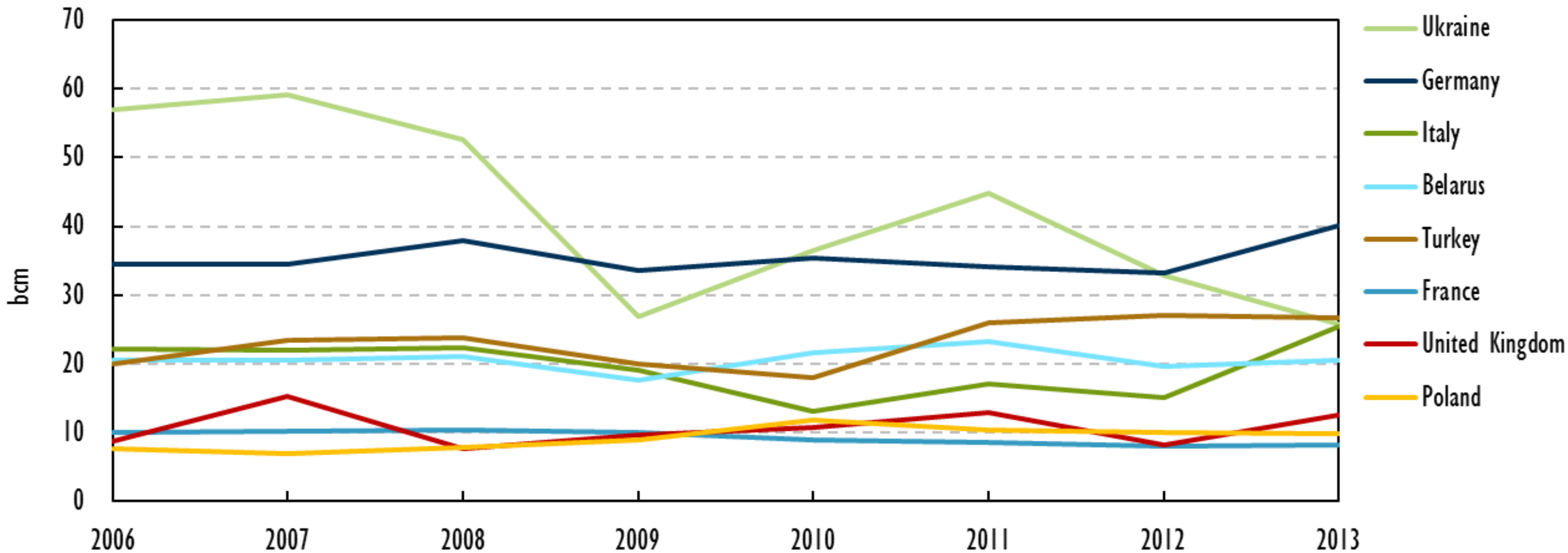
Gas production overcapacity as driver for more competitive markets ?



Source: IEA WEO estimates, Ministry of Energy projections; Gazprom; Novatek; Rosneft

Gazprom's gas exports to Europe robust

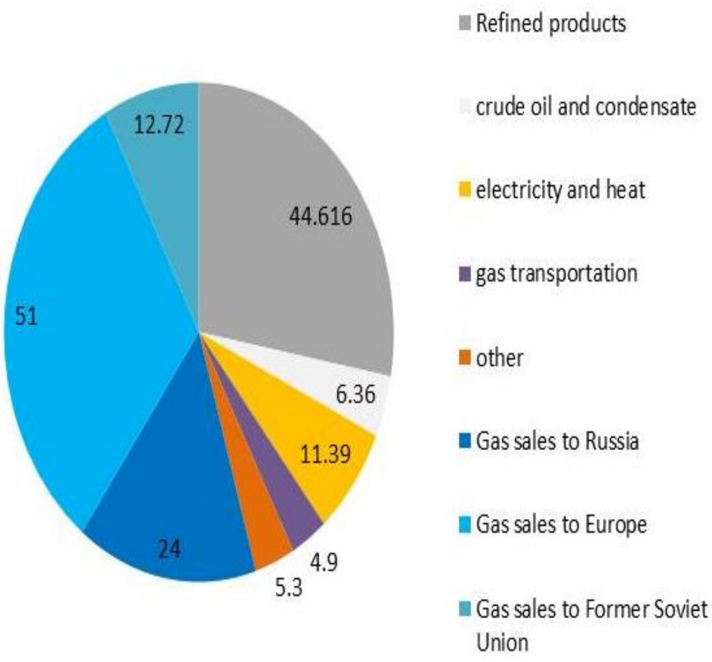
Evolution of Gazprom's exports to its key export markets, 2006-2013



Source: Gazprom

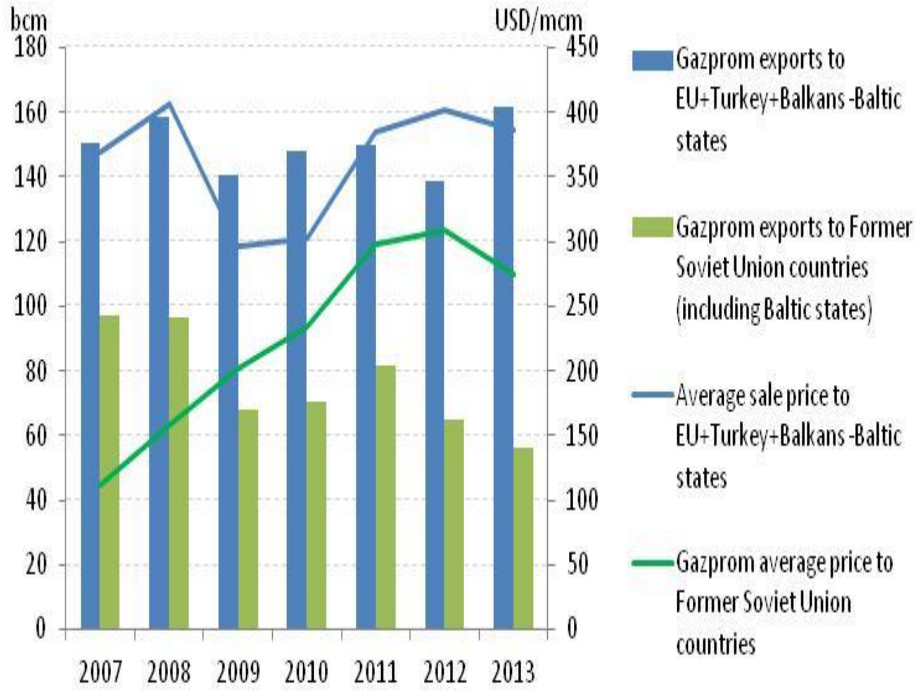
EU/OECD key, former Soviet Union markets' importance down

Split of Gazprom's 2013 revenues (USD billion, total USD ~160 billion)



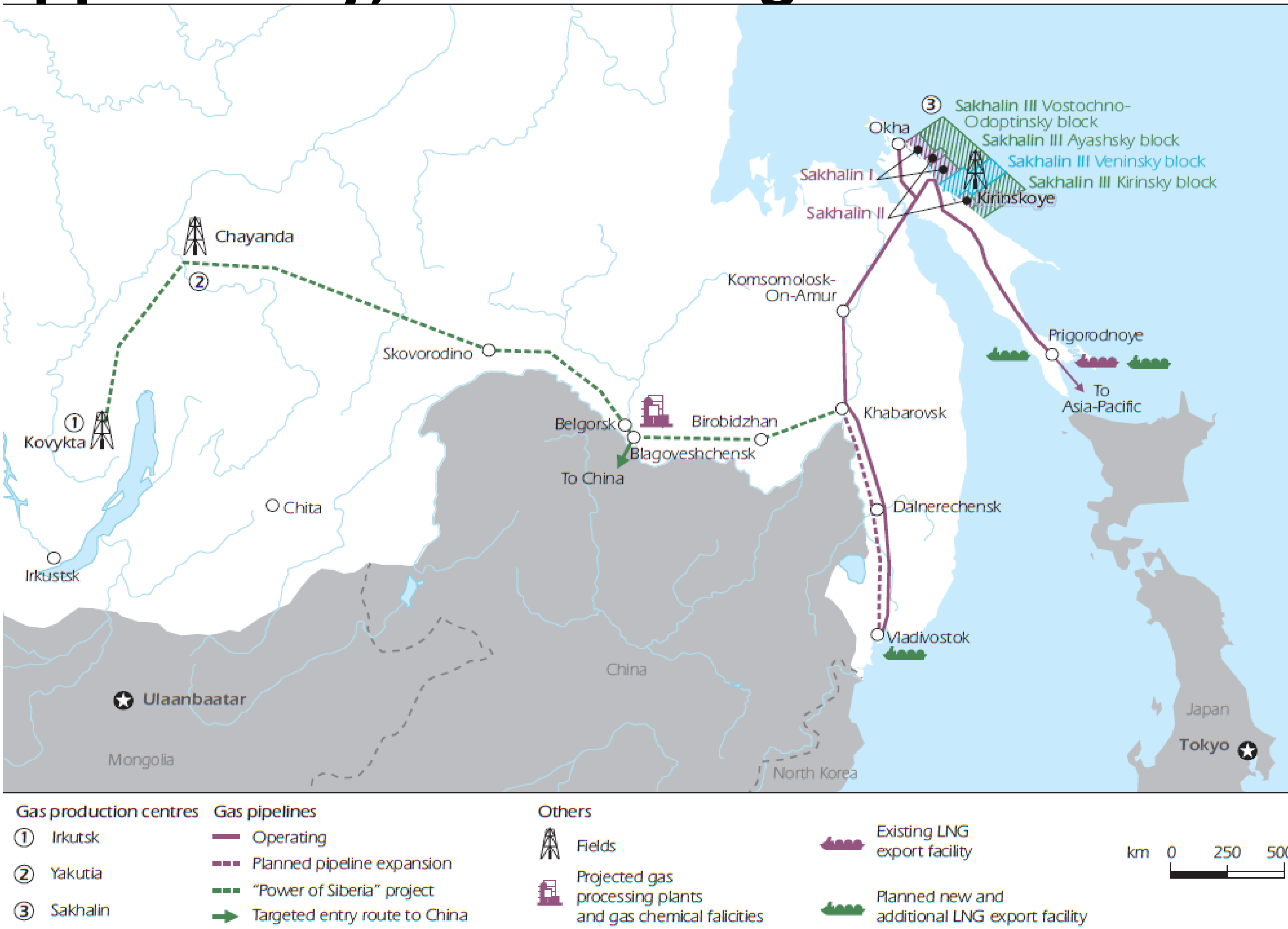
Source: Gazprom 2013 report under IFRS

Evolution of Gazprom's non-LNG export volumes and prices, 2007-2013



Source: Gazprom

Export projects to Asian markets: Golden opportunity, but challenges ahead



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Source: IEA, Gazprom