

Achieving Energy Efficiency in Russia

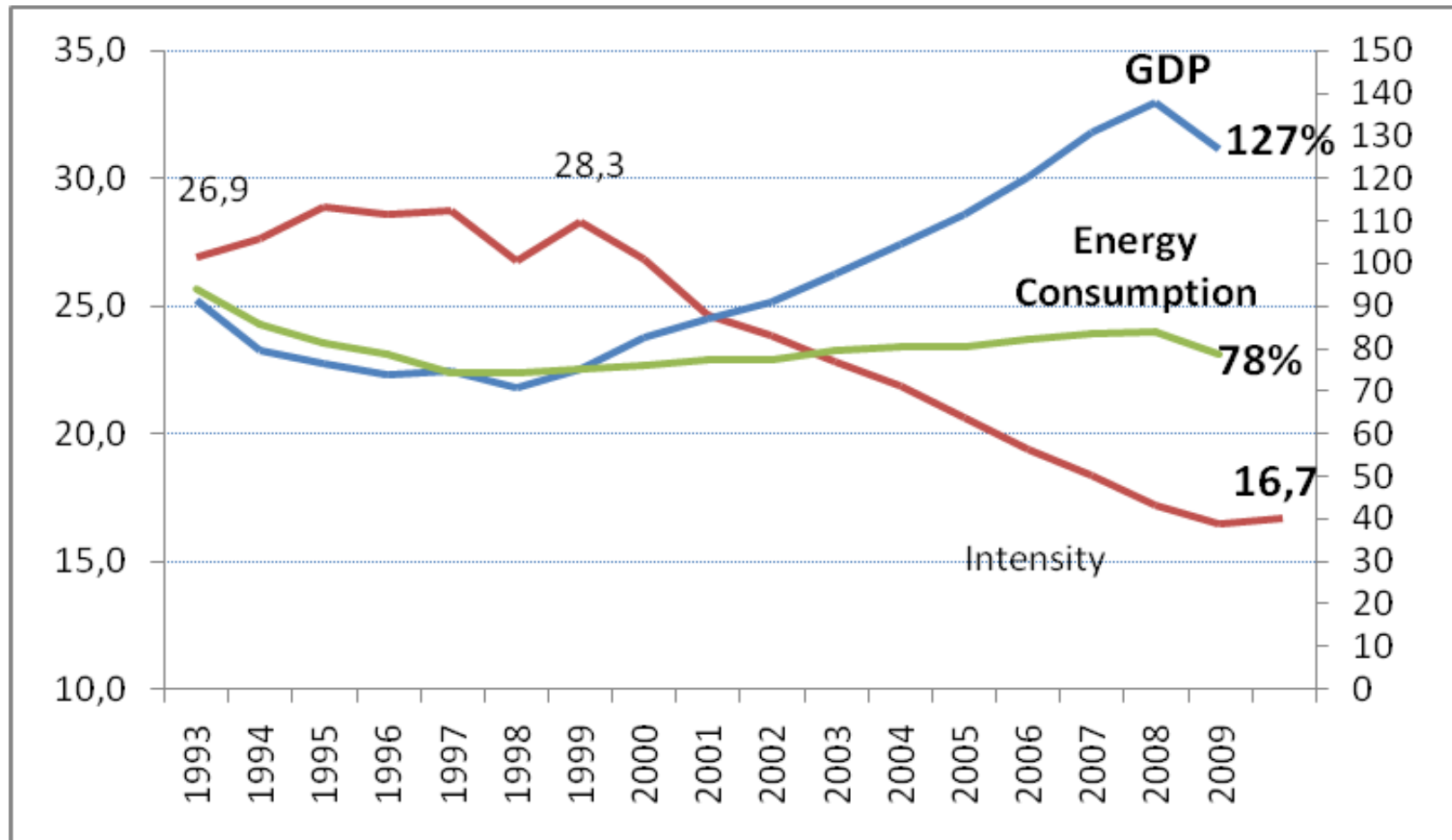
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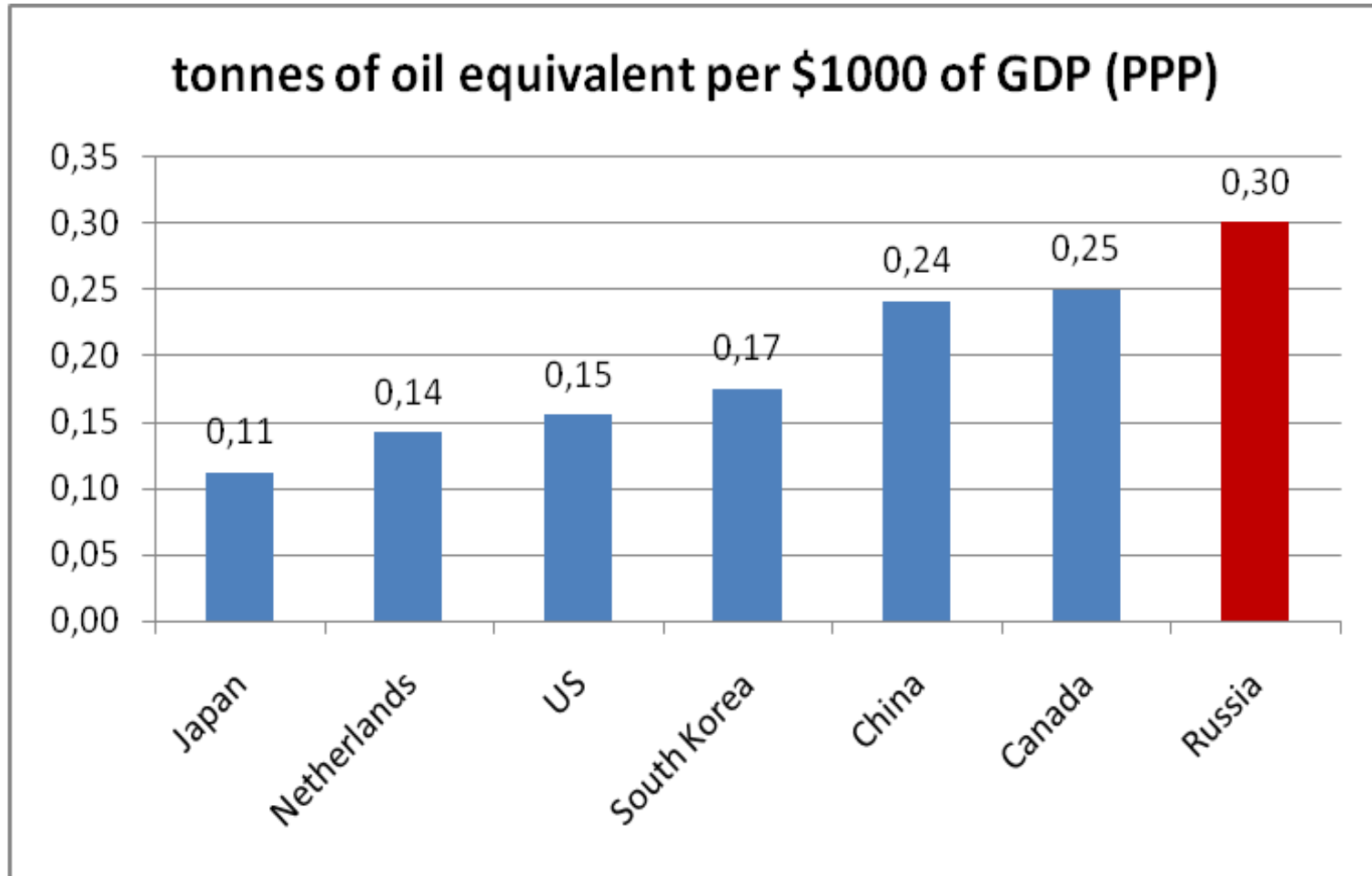
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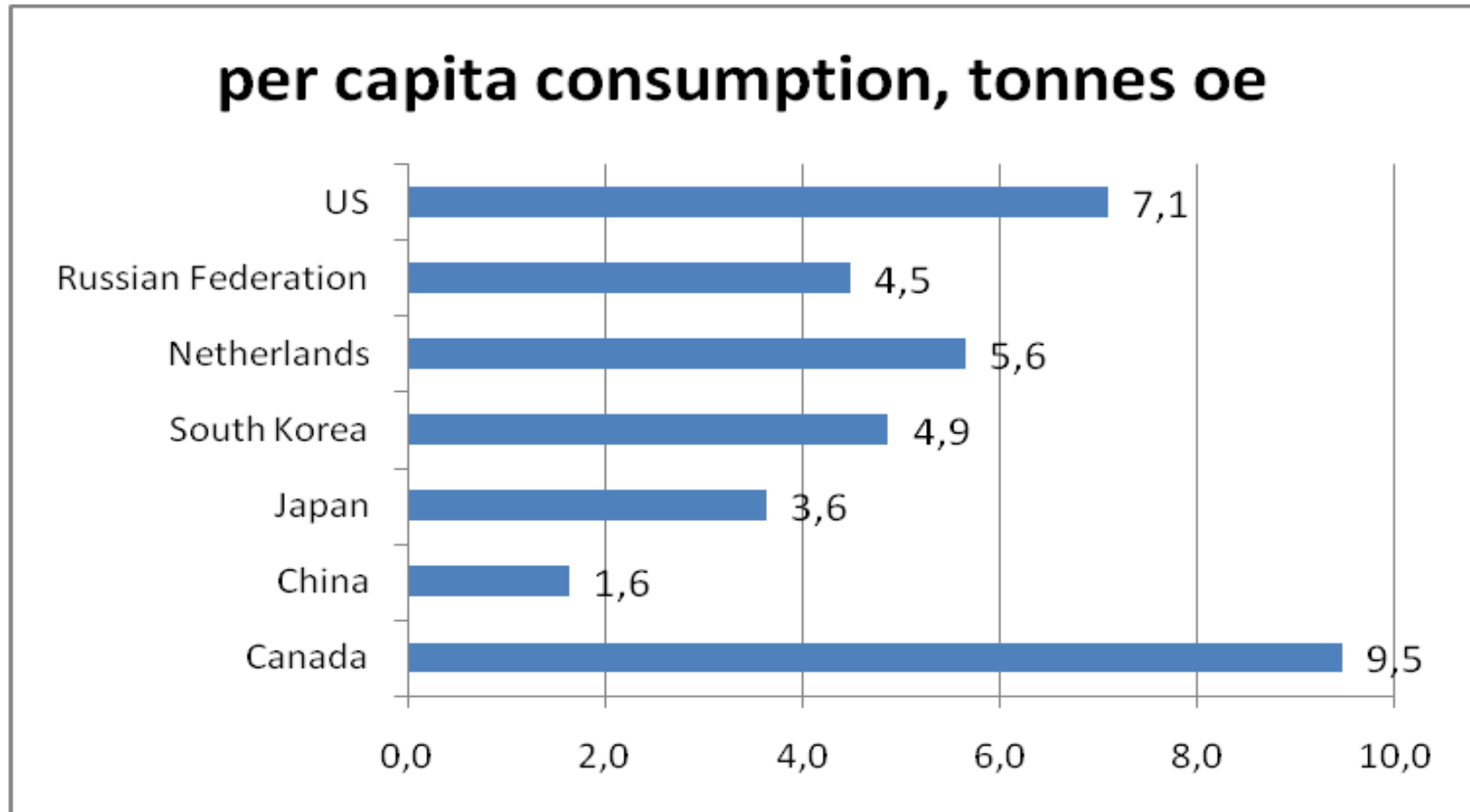
(2) GDP Energy Intensity of Russia in 1993-2009, constant prices, kg oe/1000 rub



(3) GDP Energy Intensity of Russia in 2009



(4) Per Capita Energy Consumption in Russia in 2009



(5) Sectoral structure of energy-saving potential of Russia in 2007

Sector	Energy saving potential		Estimated Additional Costs, mln \$	Resulting Savings in 2007 prices, mln \$
	mln toe	% of total sector		
Residential	53.4	49	25-50	14*
Industry	41.5	38	35	14
Public buildings	15.2	42		3.5-5
Transport	38.3	41	124-130	20
Power supply	44.4	31	106	8
Heat supply system	28.8	19	18-28	7
Gas flaring reduction, bln cubic m/year	20-38	4-5	-	2.3

*per year

(6) Reasons behind Russia's low energy efficiency

- Lack of coordinated and enforced national policy
- Lack of social awareness and actions towards energy saving
- Lack of statistical monitoring and control
- Lack of clear economic stimulus for investing in energy efficiency
- Non-encouraging tariff policies
- High transaction costs
- Lack of market competition and monopolistic structure in the energy supply sector

(7) New Legislative Basis for Energy Efficiency

2008

President Target – “Decrease GDP intensity by 40% in 2007-2020”

2009

- “Energy Strategy of Russia up to 2030”
- Federal Law “On Energy Saving and Improving Energy Efficiency”
- “Action Plan on Energy Saving and Energy Efficiency”

2010

- Federal Program “Energy Saving and Improving Energy Efficiency up to 2020”

(8) Key indicators of the of National Energy Efficiency Program of Russia up to 2020

Indicators	2011 - 2015	2011 - 2020
Total primary energy savings, mln. toe	234	786
Total natural gas savings, bln. cubic m	108	330
Total electricity savings, bln. kWth	218	630
Total heat savings, mln. Gcal	500	1550
Total oil product savings, mln. t	5	17
Yearly reduction of greenhouse gas emissions, mln. t of CO ₂	207	409
Total reduction of greenhouse gas emissions, mln. t of CO ₂	673.5	2436
Yearly energy cost savings, bln. \$	27.2	57.6
Total energy cost savings, bln. \$	81.3	308.5
Total program costs, bln. \$	118	317.7

(9) Energy transformation target indicators of the National Energy Efficiency Program of Russia up to 2020

Indicators	Fact, 2008	Target, 2020
Fuel rate for electricity production, kg oe per 1 MWth	233	210
Electricity distribution losses, %	13	8
Fuel rate for heat production, kg per 1 Gcal	129	117
Heat distribution losses, %	19	11
Share of renewable energy in power generation (including hydro generation), %	32	35

(10) Specifics of Energy Supply and Demand in the Russian Far East

- Relatively small volume of energy consumption (about 35 mln toe), spread over vast territory (the Far East territory takes up 36% of Russia, population is only 5% of total population)
- Higher costs of production and distribution of energy resources
- High degree of isolation between several energy systems
- Lack of developed energy supply infrastructure
- Relatively diversified but mainly coal-based consumption (versus gas-based in the West parts of Russia).

(11) Technological energy saving potential in major sectors of Far East Economy in 2009

- Efficiency of thermal generation can be improved by 30%
- Cut electricity distribution losses from 18 to 10% → save ~1 mln toe
- Renewable energy

Industries	Energy saving potential	
	mln toe	% of total sector consumption
Industry	0.5-1	35
Construction	0.04-0.08	40
Transport	0.3-0.7	41
Agriculture	0.5-0.6	75

(12) Conclusions

- The energy efficiency has become a national policy priority. But are the goals and targets – realistic?
- Energy savings → more exports in the future!
(gas – 330 bln cubic m, oil products - 17 mln t)
- The Far East of Russia is neither energy-deficient nor energy-intensive region if compared with the rest of Russia. The great untapped energy resources - renewable energy (hydro, geothermal, tidal, etc.)
- Energy efficiency → more opportunities for international cooperation with Asia-Pacific region (investment, technology exports, joint R & D).

Thank you!