



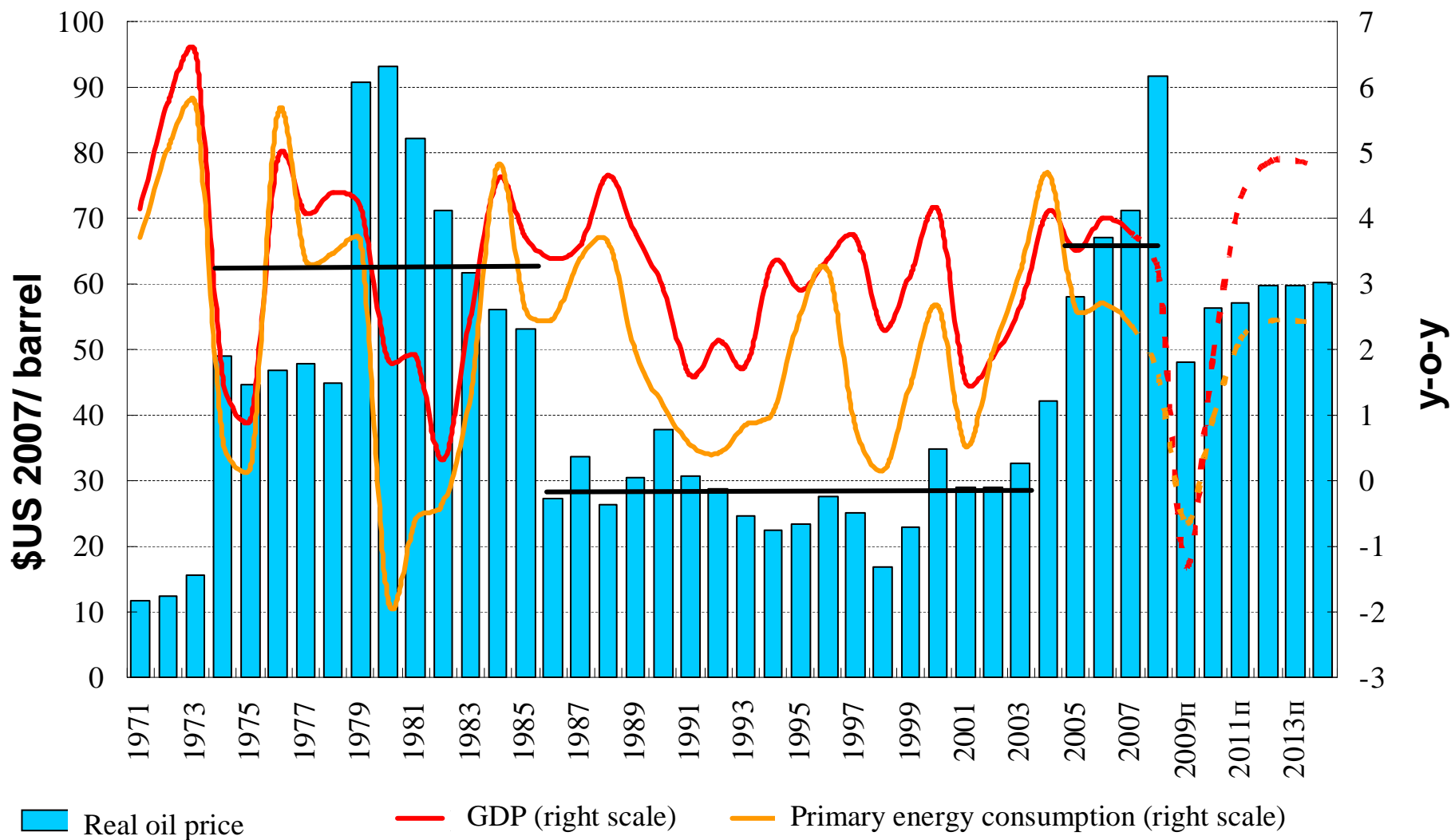
# Energy security in Europe and other regions

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President, Institute for Energy And Finance (Russia)

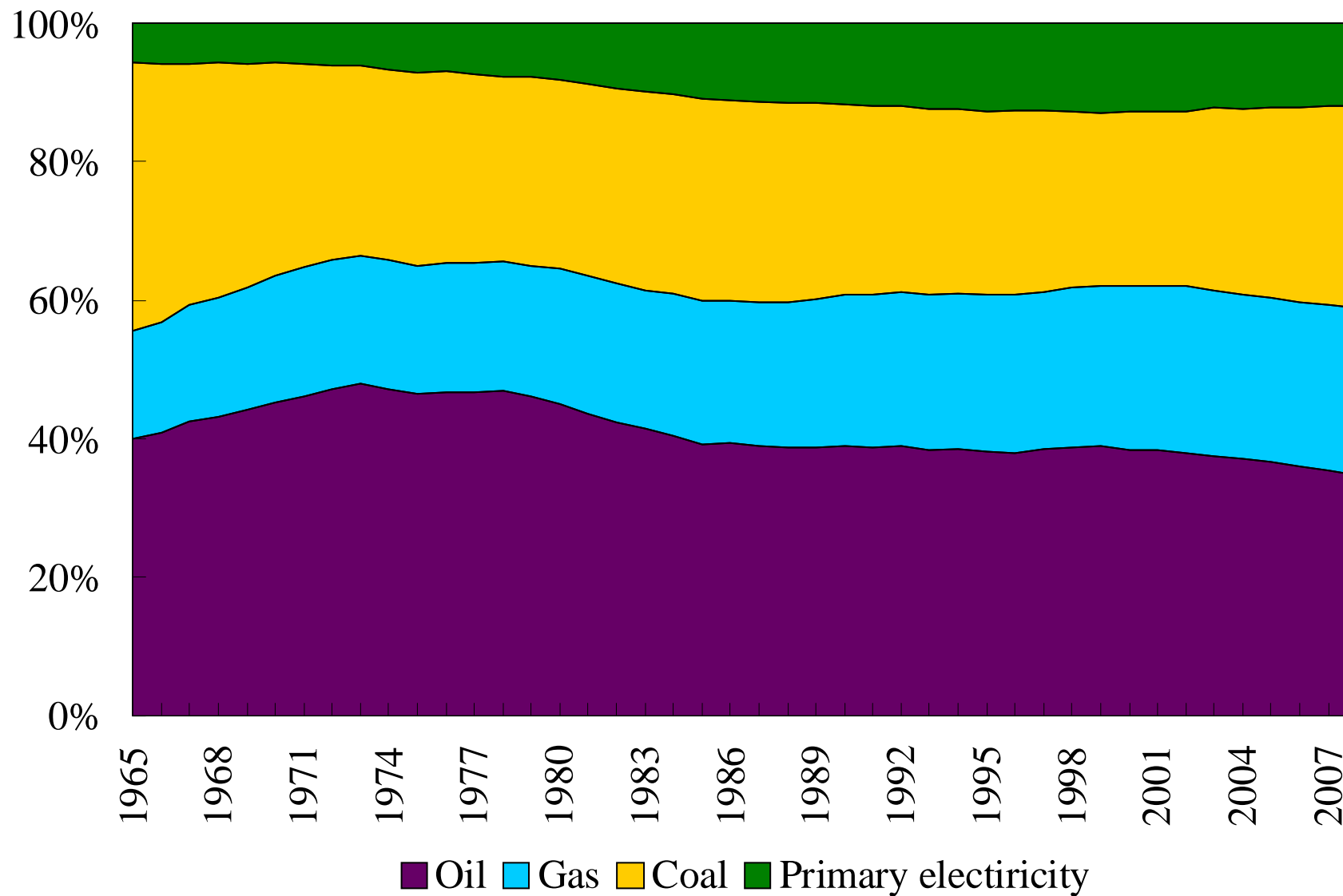
# **I. Current economic crisis and its impact on energy security**

# Dynamics of Energy Consumption and GDP, annual rates, 1986 - 2008

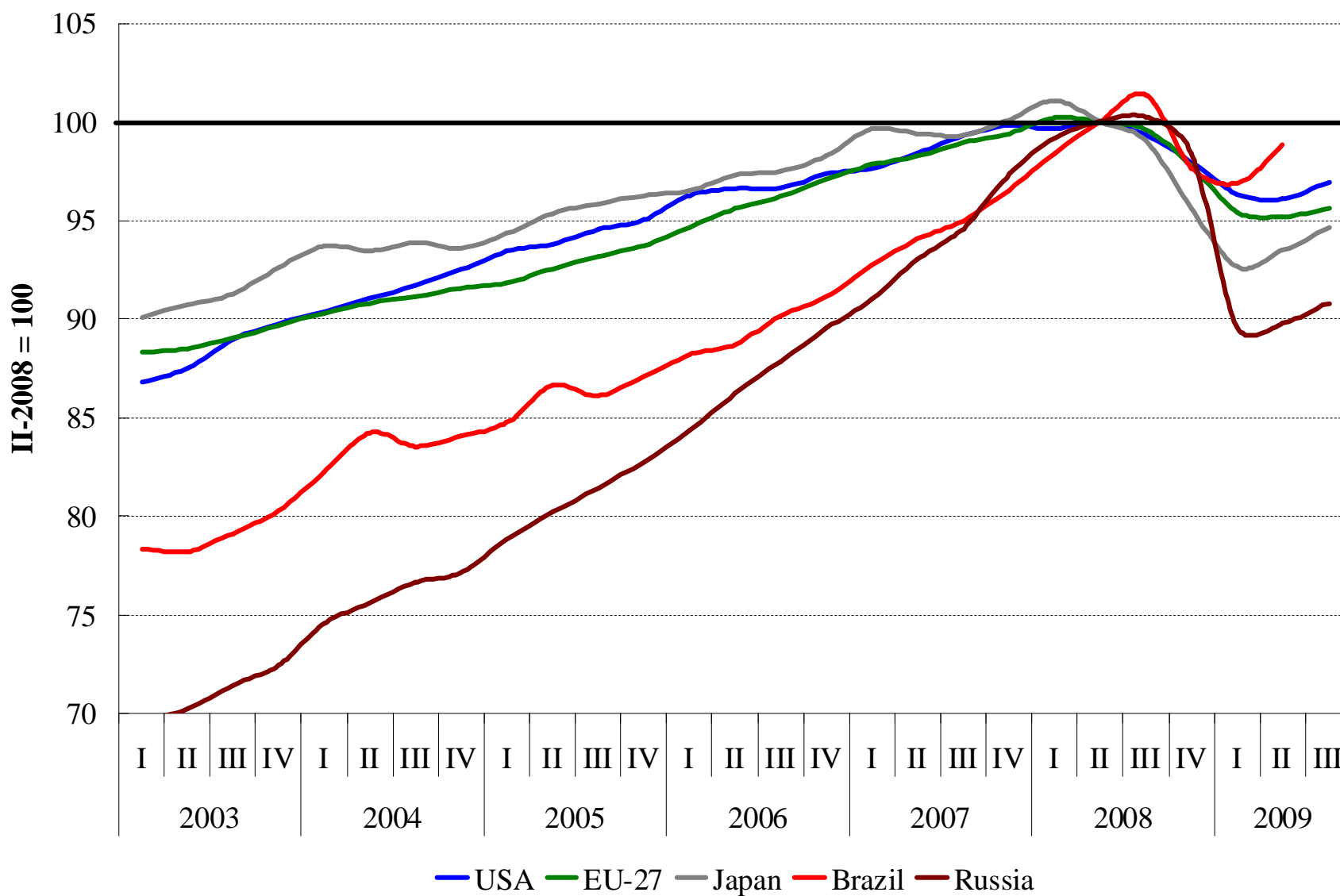
	GDP		Primary Energy Consumption		Oil Consumption	
	1986-2002	2003-2008	1986-2002	2003-2008	1986-2002	2003-2008
<i>World</i>	2,9	3,5	1,7	2,9	1,6	1,4
<i>OECD</i>	2,7	2,2	1,5	0,5	1,5	-0,1
USA	3,0	2,5	1,5	0,1	1,4	-0,3
EU-27	2,4	2,3	0,4	0,1	0,7	0,0
Japan	2,2	1,7	1,9	0,1	1,1	-1,6
<i>Developing Countries</i>	3,8	6,7	1,9	5,7	1,8	3,6
Brazil	2,3	4,0	3,1	3,7	2,9	2,5
Russia (GDP since 1990)	-2,5	7,0	-1,4	1,3	-3,8	1,2
India	5,5	8,7	5,1	5,9	5,9	3,3
China	9,5	10,7	4,1	11,2	6,5	7,1
Average oil price in \$2008 per barrel	28,7	63,2				



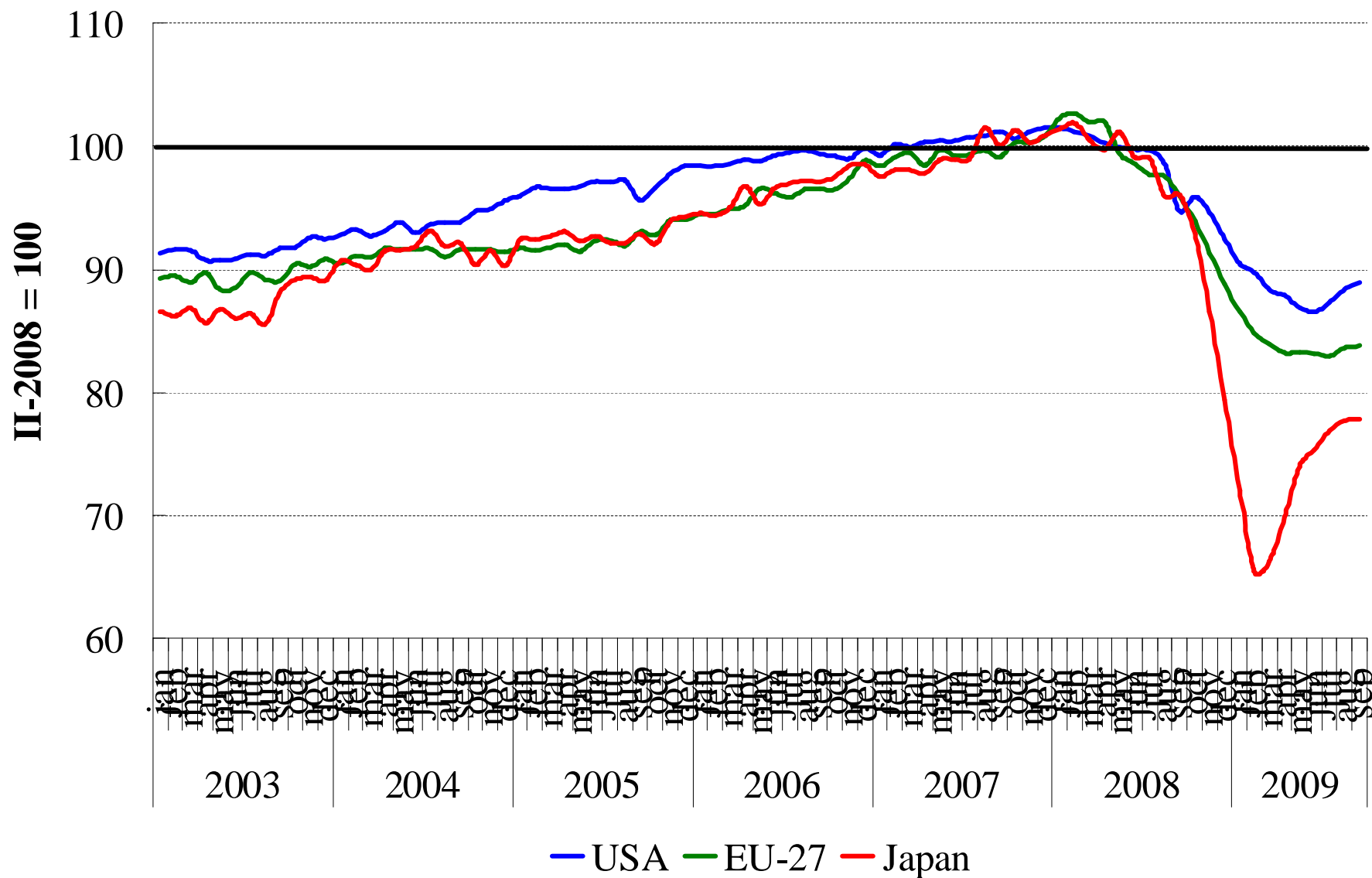
# World: Energy supply structure, mtoe, 1965-2008



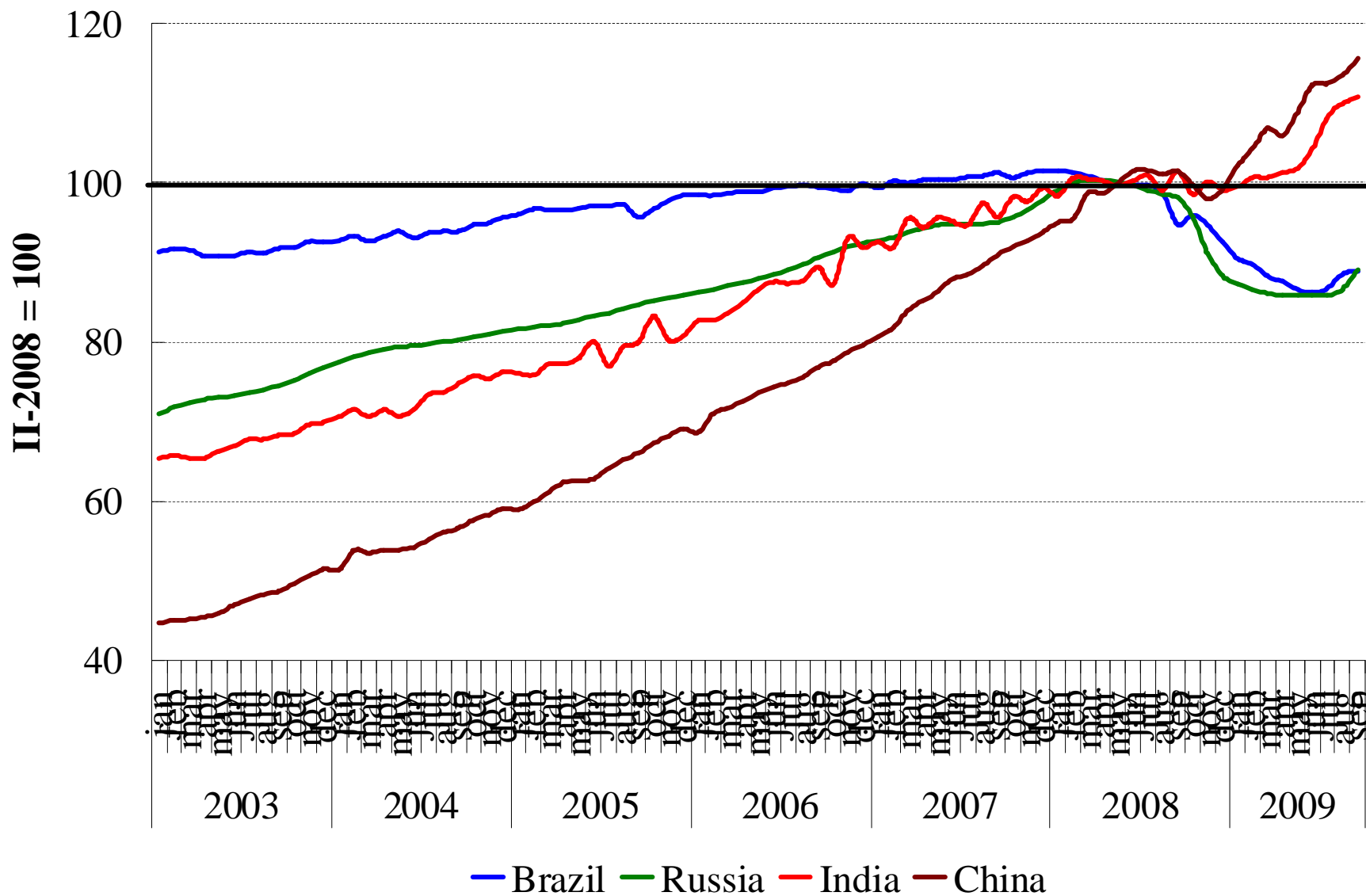
# GDP dynamics, Q2-2008 = 100, 2003-2009



# Industrial production, developed countries, Q2-2008=100, 2003-2009

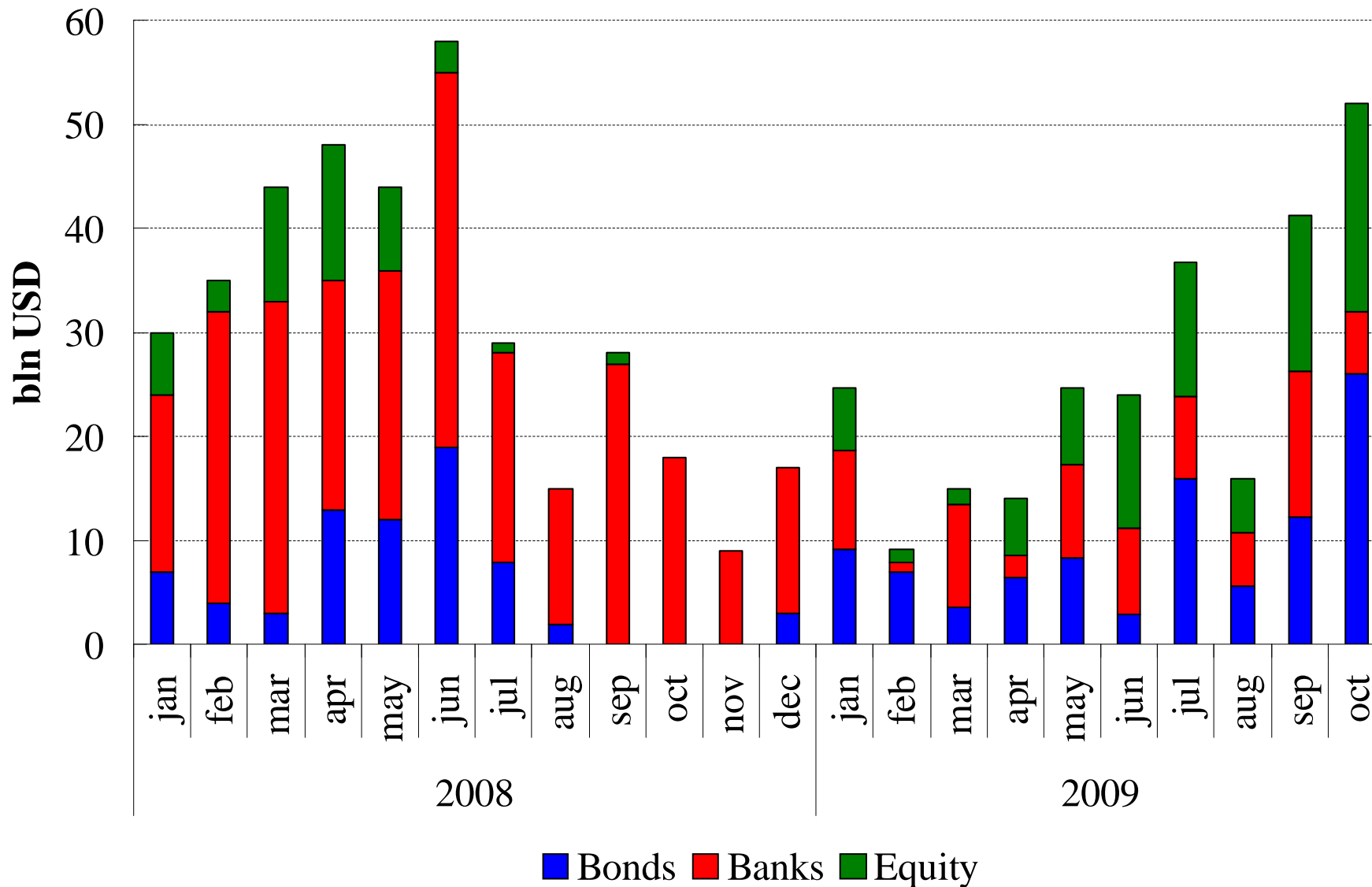


# Industrial production, BRICs, Q2-2008=100, 2003-2009

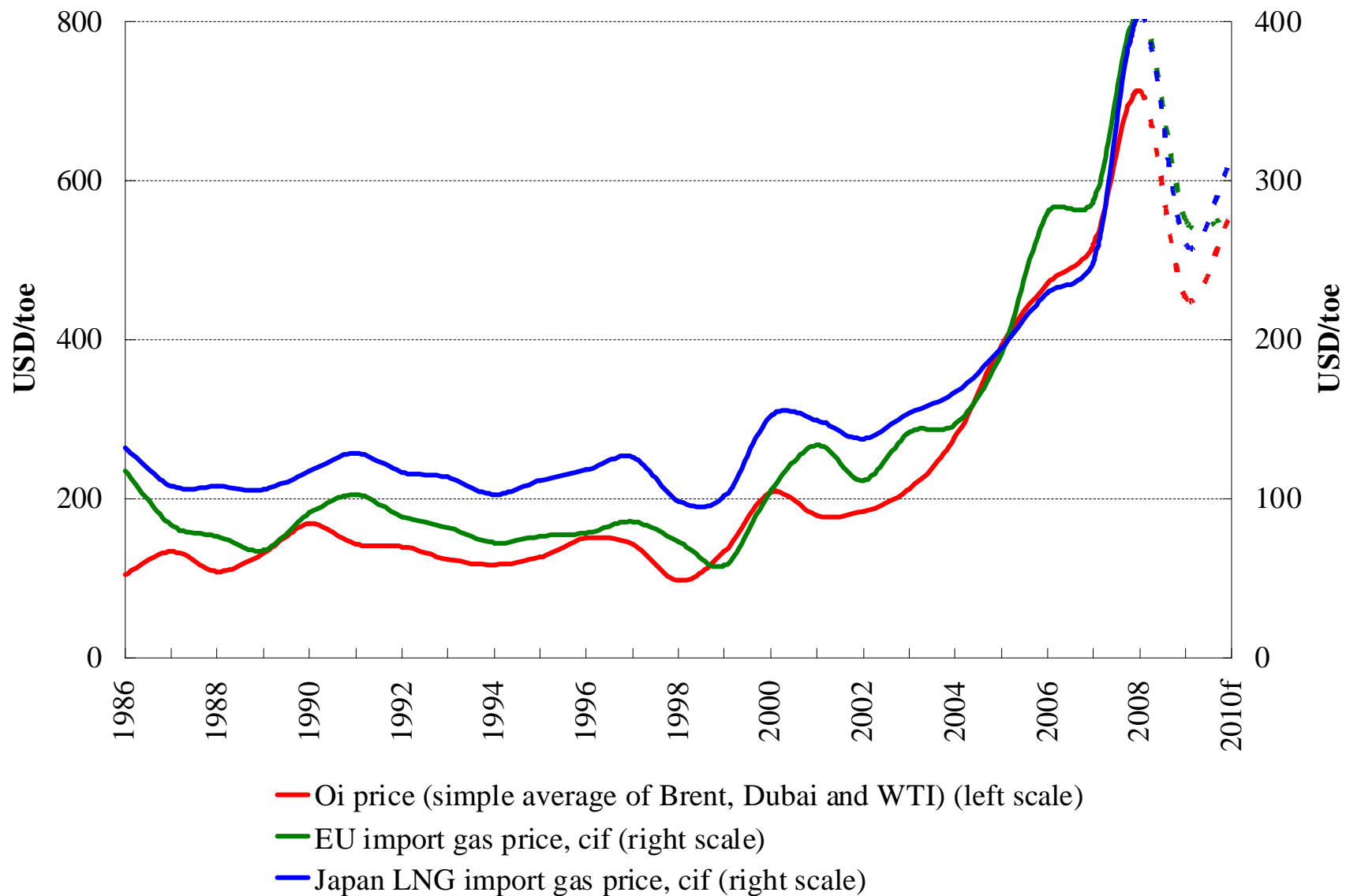


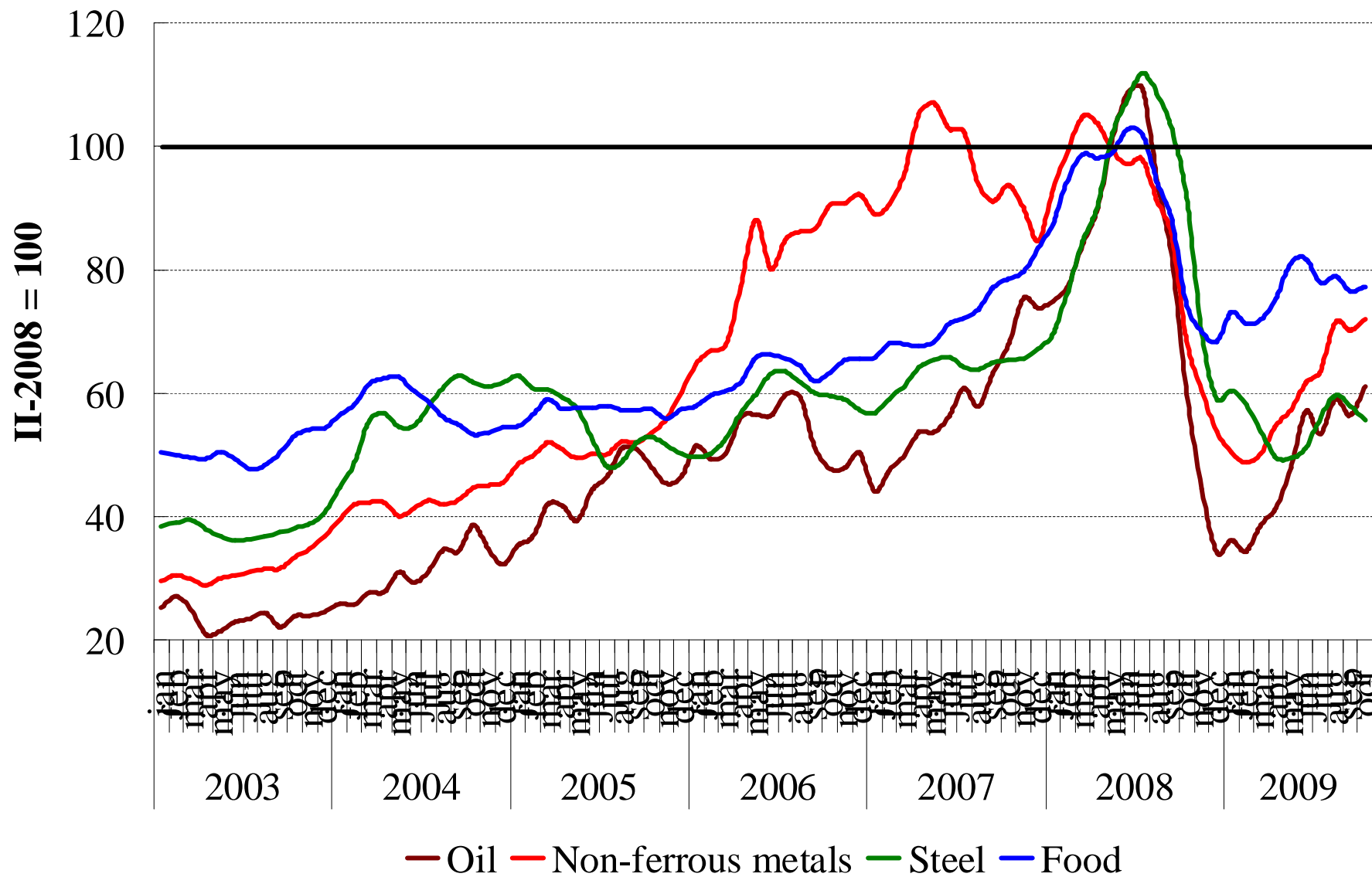


# Gross capital flows to emerging markets, 2008-2009, bln USD

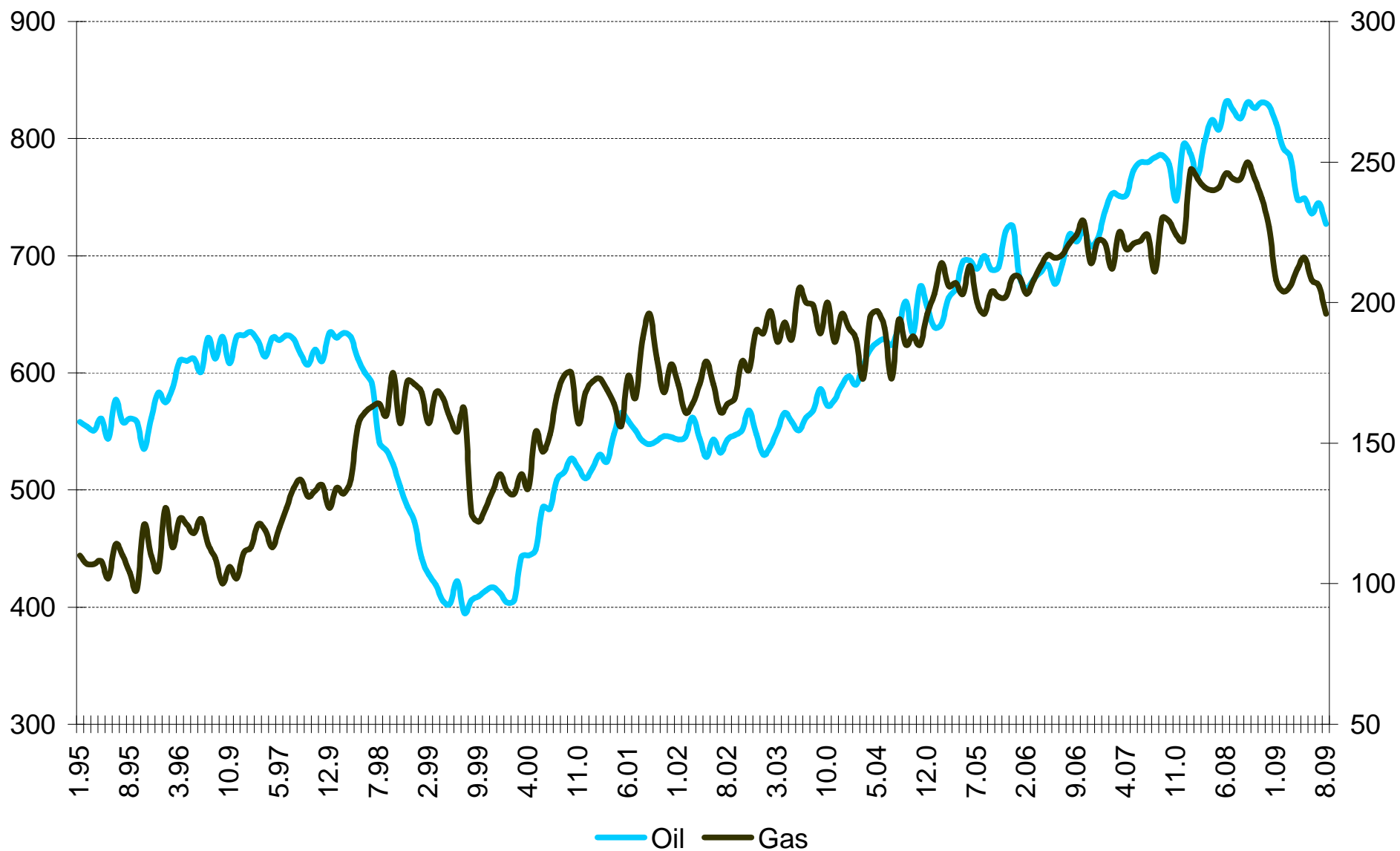


# World oil and gas prices, 1985-2009





# International rig counts (oil – left, gas- right), Jan 1995- Aug 2009



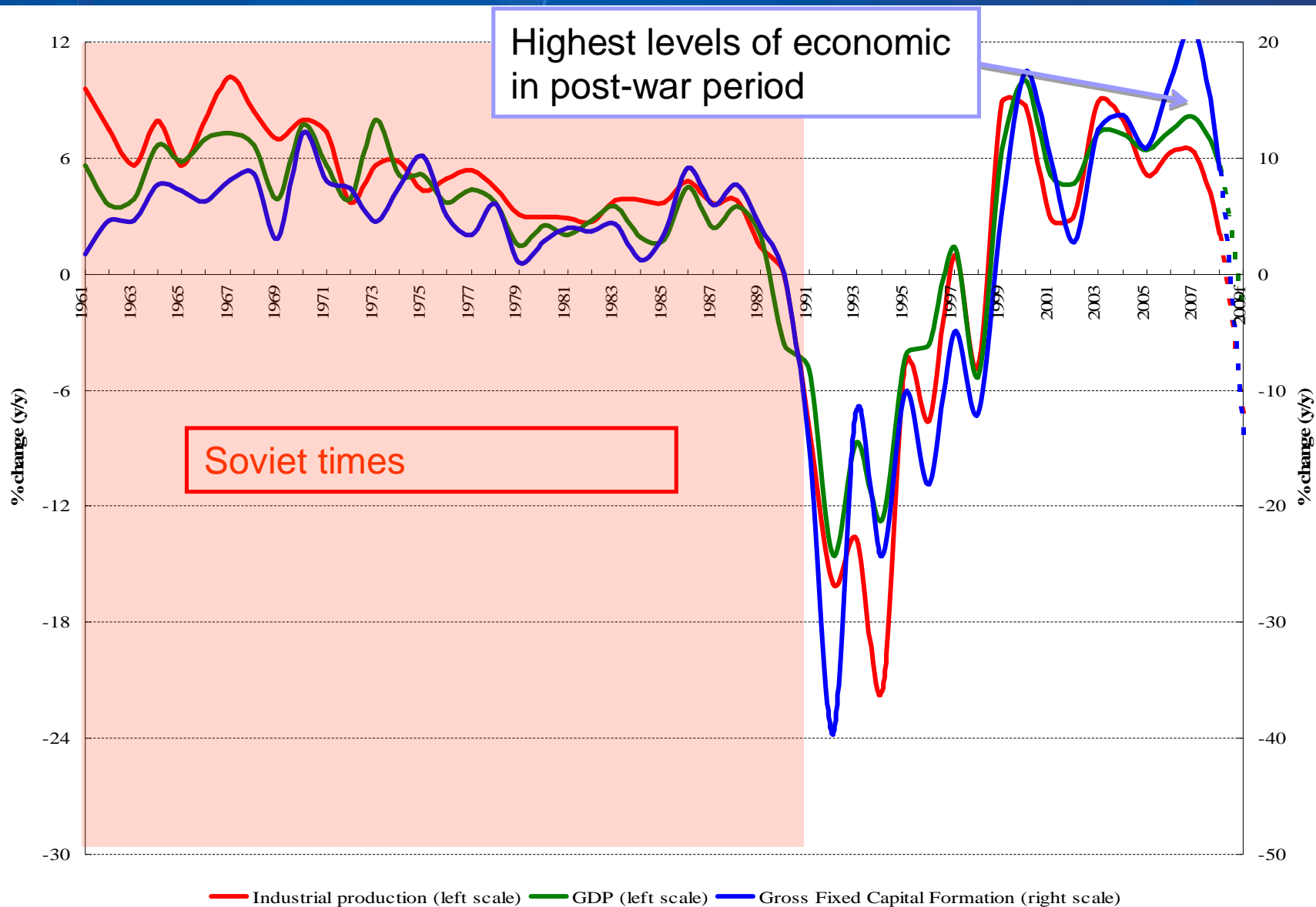
## **II. Russian economy and energy**

- Russia with 2.3% of World population and GDP produces roughly 11.5% of Global Primary Energy.
- Export: 2/3 of Oil, 1/3 of Coal, 1/3 of Gas + Export of Aluminum, Fertilizers. Equal to two annual Germany volumes of consumptions.
- Russia invests about 4.5% of GDP in Energy Sector.
- 45% potential saving of Energy goes with a price tag of \$320-340 billion.
- Russia is the global supplier with domestic agenda – Modernization in both energy and non-energy sectors
- Russia: 2007 Emission level = minus 34% from 1990; expected stabilization on the level minus 25% of 1990

# Russia: main indicators, 1996-2009 est.

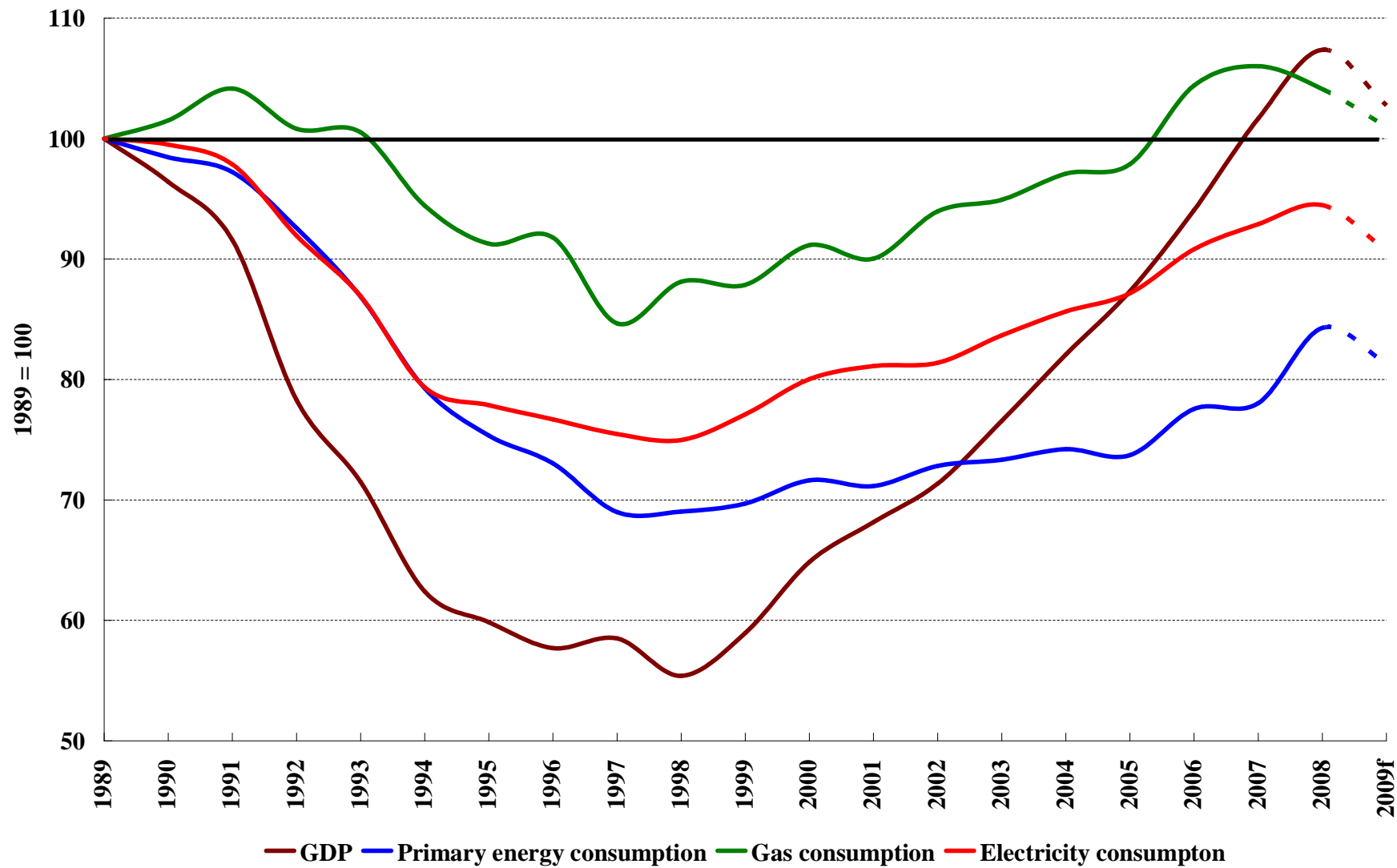
	1996-1999 (avg)	2000-2004 (avg)	2005	2006	2007	2008	2009 forecast
GDP in current prices, bln \$	316	395	764	988	1 292	1 673	<b>1 192</b>
GDP per capita, \$	2,1	2,7	5,3	6,9	9,1	11,8	<b>8,4</b>
GDP growth, %	-0,3	6,9	6,4	6,7	8,1	5,6	<b>-8,5</b>
Investment rate, % GDP	17,2	18,1	16,7	17,6	20,1	21,6	<b>17,0</b>
Export of oil and oil products, % GDP	6,7	12,3	15,3	14,9	15,0	16,1	<b>14,0</b>
Trade balance, % GDP	8,4	16,2	15,7	14,1	10,1	9,5	<b>4,0</b>
Current account, % GDP	3,9	11,2	10,9	11,4	6,0	4,8	<b>1,5</b>
CPI, %	38,5	15,5	10,9	9,0	11,9	13,2	<b>11,0</b>
Industrial production, %	0,8	6,5	4,0	6,3	6,3	3,0	<b>-11,5</b>
Real personal income, %	-5,3	11,4	9,3	10,0	10,7	7,0	<b>-6,0</b>

# Long term trends, 1961-2009f, % change (y/y)



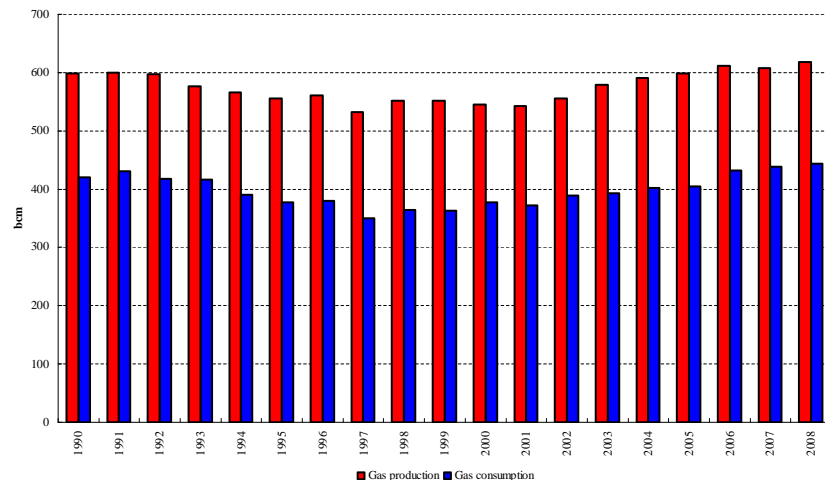


# Russia: GDP and Energy consumption, 1989-2009f, 1989 = 100

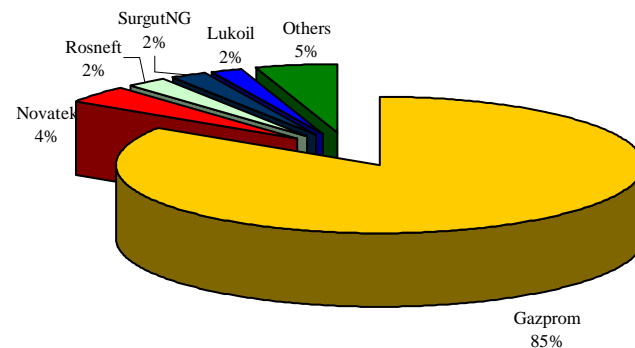


	Primary energy	Oil	Natural gas	Coal	Hydro- and nuclear
<i>mtoe</i>					
Reserves	125 669	10 881	40 188	74 600	-
Production	1 263	491	547	148	77
Import	25	6	7	12	-
Export	599	370	171	58	-
Consumption	692	126	395	95	77
<i>% world energy consumption</i>					
Reserves	17,3	6,6	25,2	18,6	-
Production	11,5	12,6	20,6	4,7	5,8
Import	0,2	0,2	0,3	0,3	-
Export	5,4	9,5	6,2	1,9	-
Consumption	6,4	3,2	14,7	3,0	5,8

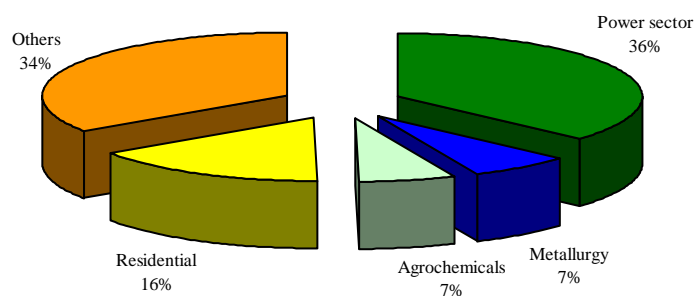
## Production and consumption, bcm, 1990-2008



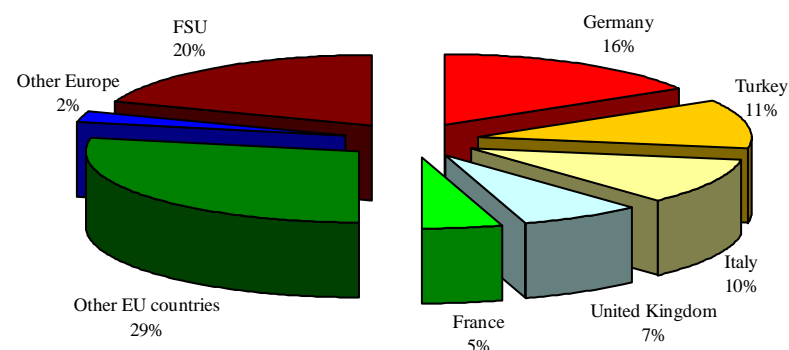
## Russian gas production, %, 2007



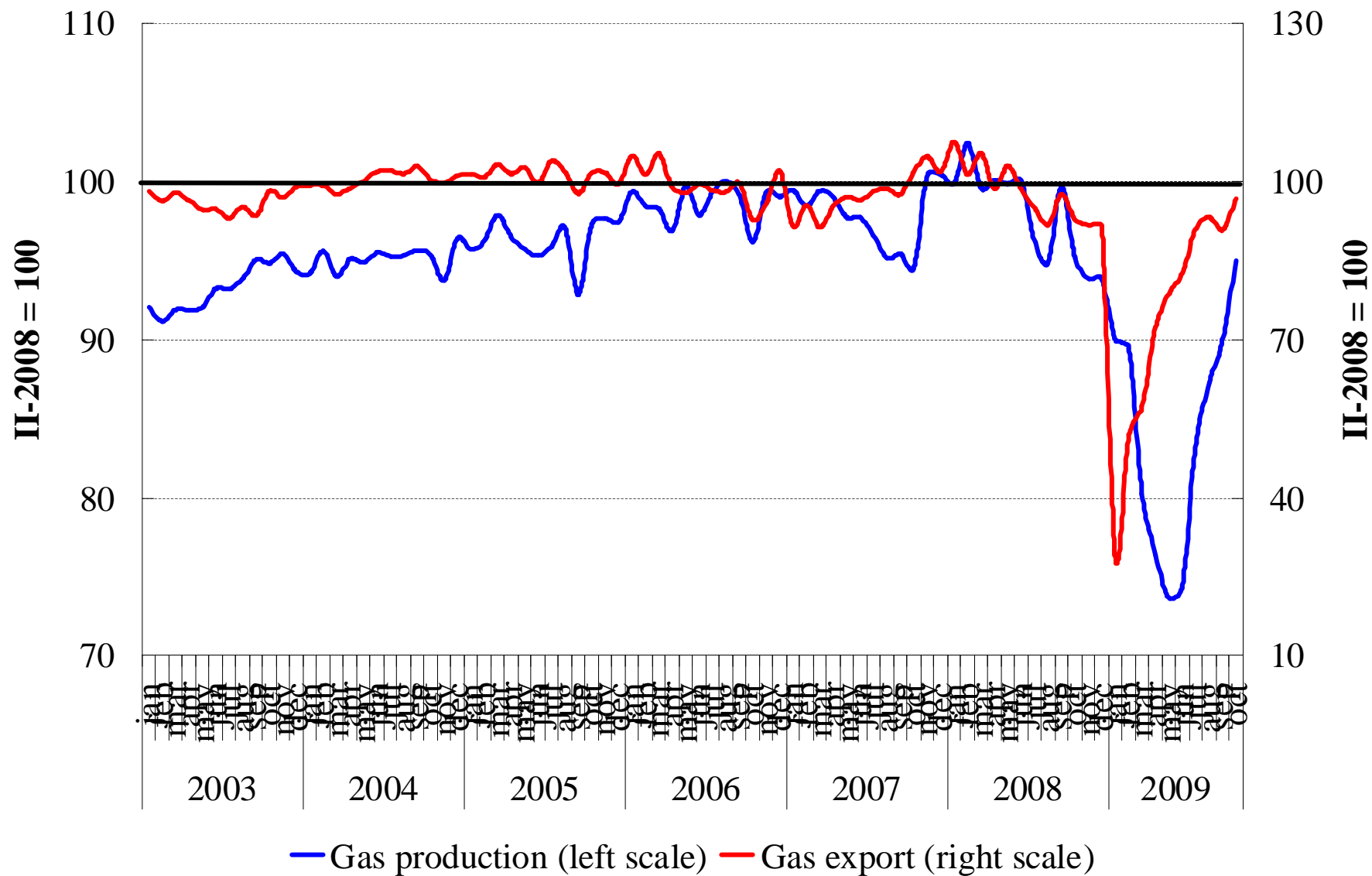
## Domestic consumption, %, 2007

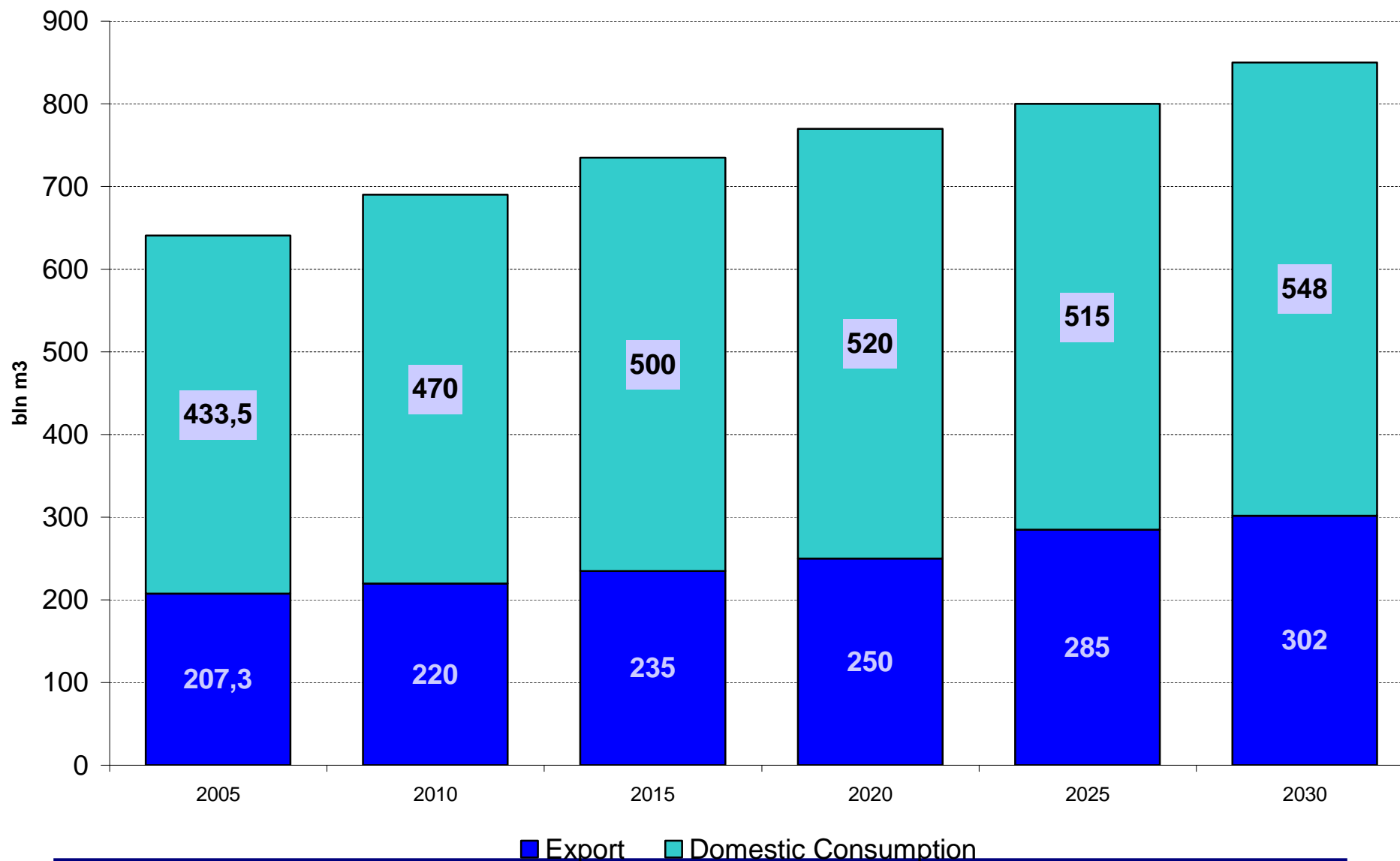


## Russian gas export, %, 2007

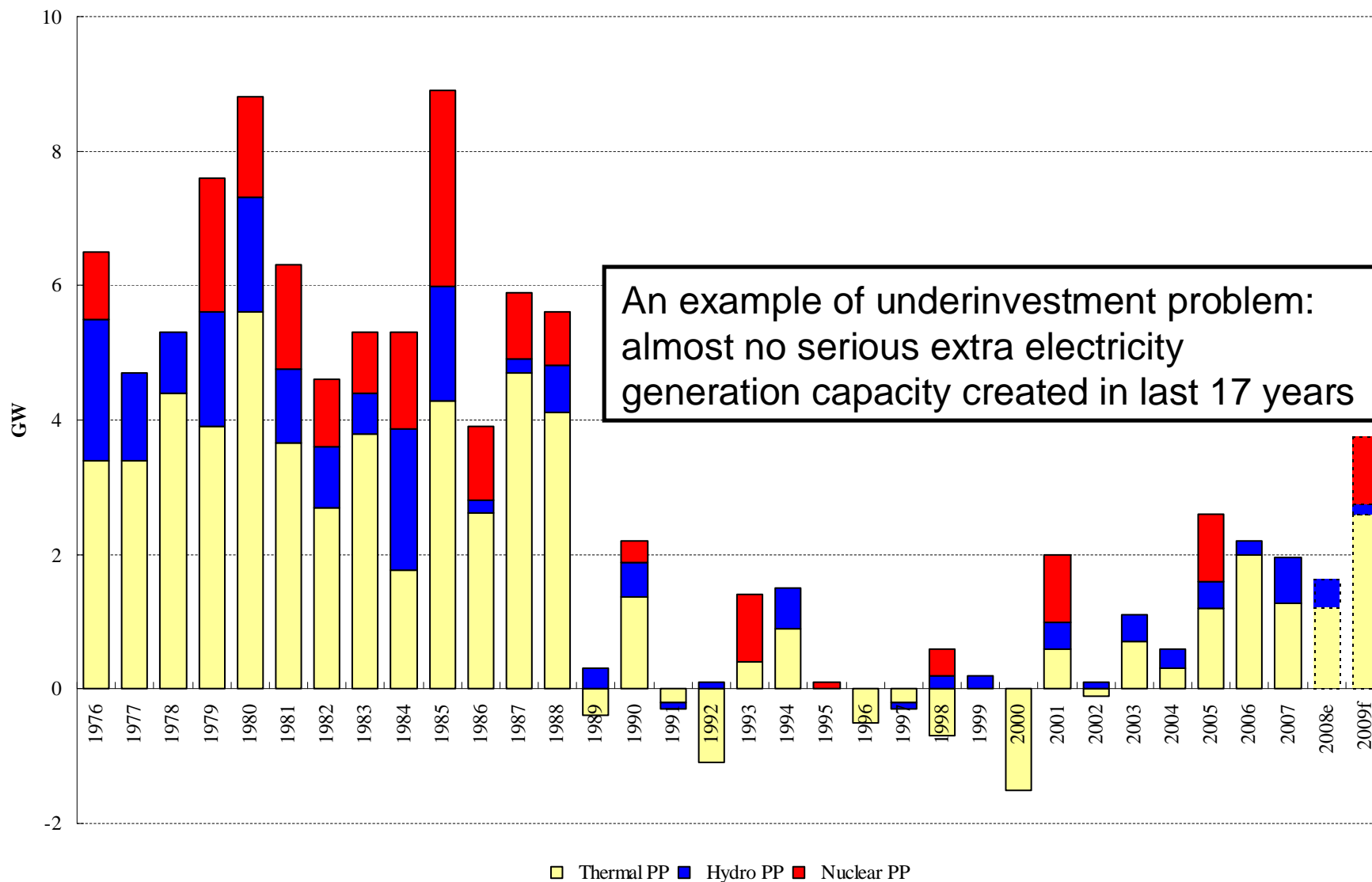


# Russia: gas production and gas export, II-2008 = 100, 2003-2009





# Power industry – net input of generating capacity, GW, 1981-2009



## **II. Energy security and new forecasts**

# Introduction

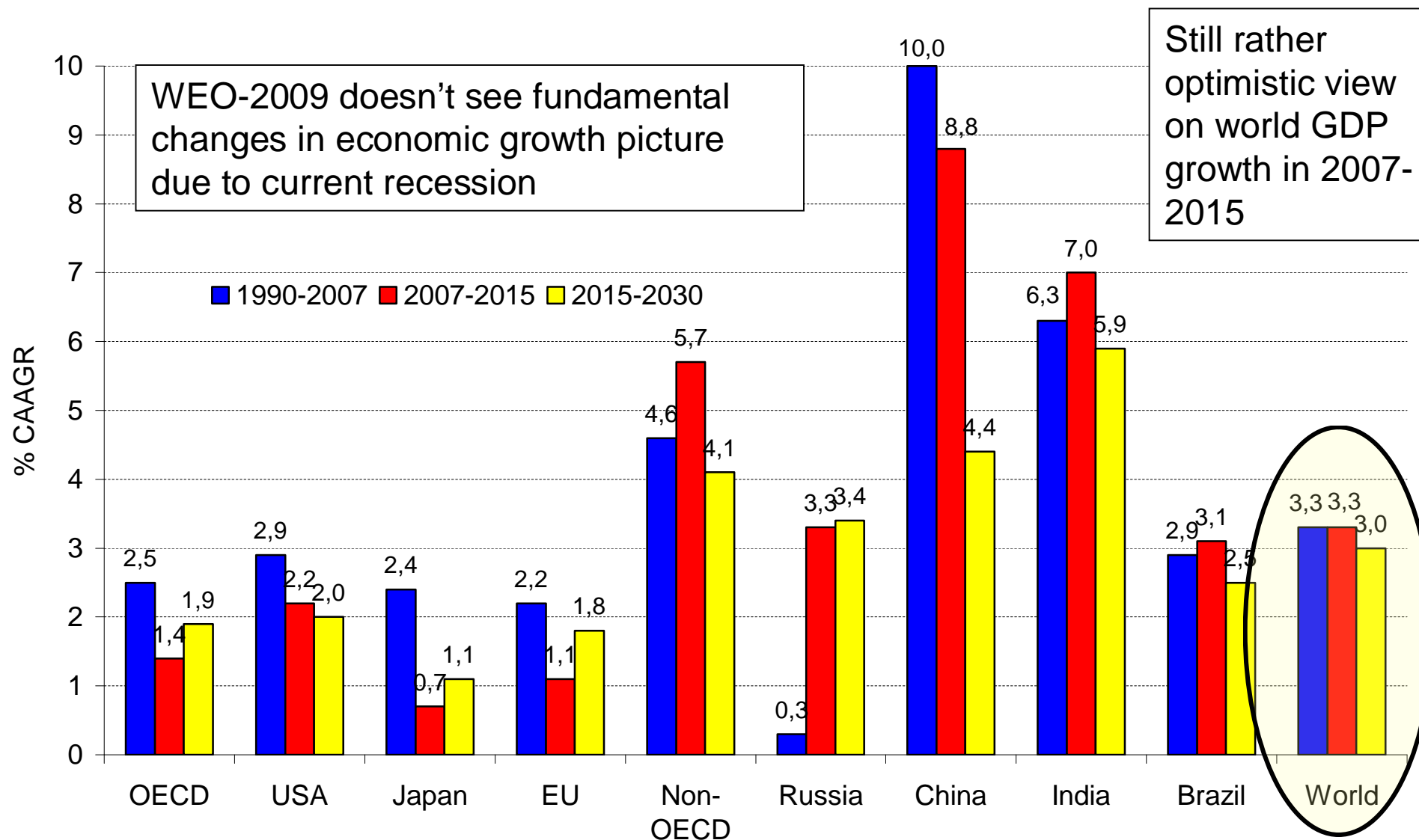
- WEO forecasts are important not because of their accuracy but because these forecasts by their existence form and influence expectations of energy markets and political decision making
- WEO forecasts and models are one of the best in the world but too often general conclusions and overall view is hidden behind technical and specific matters.
- Media tend to focus on some little parts of the report just dragging few “hot” phases. You need to look more than just Executive Summary.
- WEOs as regular products form overall view of IEA on energy markets. But WEO-2009 is rather different from previous years’ reports.



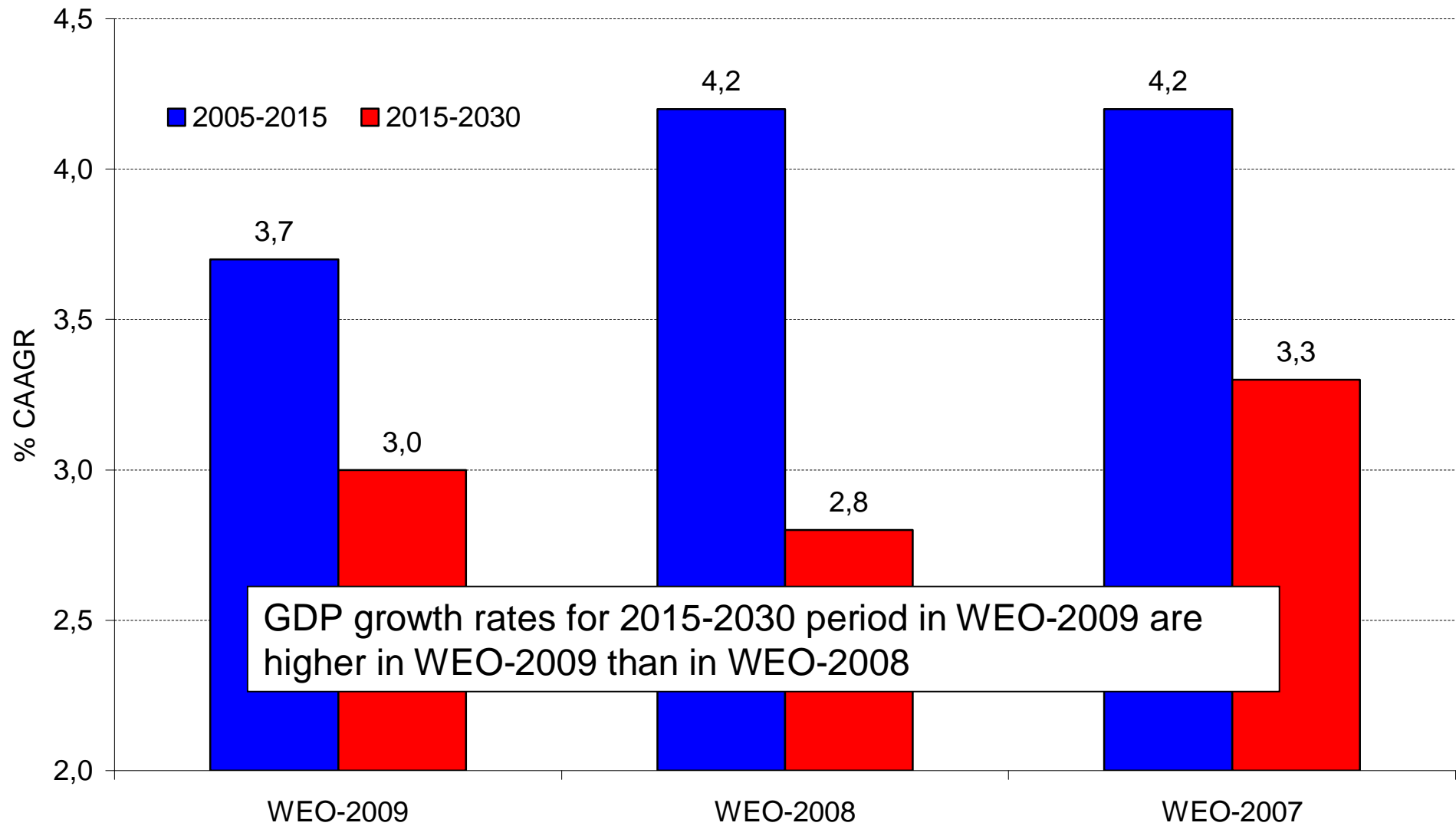
## Base forecasts analysis framework

1. Macroeconomic assumptions are often not paid much attention but in general all specific conclusions do have high sensitivity on GDP growth rates. WEO-2009 has special part on sensitivity analysis
2. Energy price assumption. Energy prices are exogenous factor in WEO models.
3. Energy mix and results and specific sectors and fuel type
4. Scenario analysis
5. Economic policy conclusions analysis

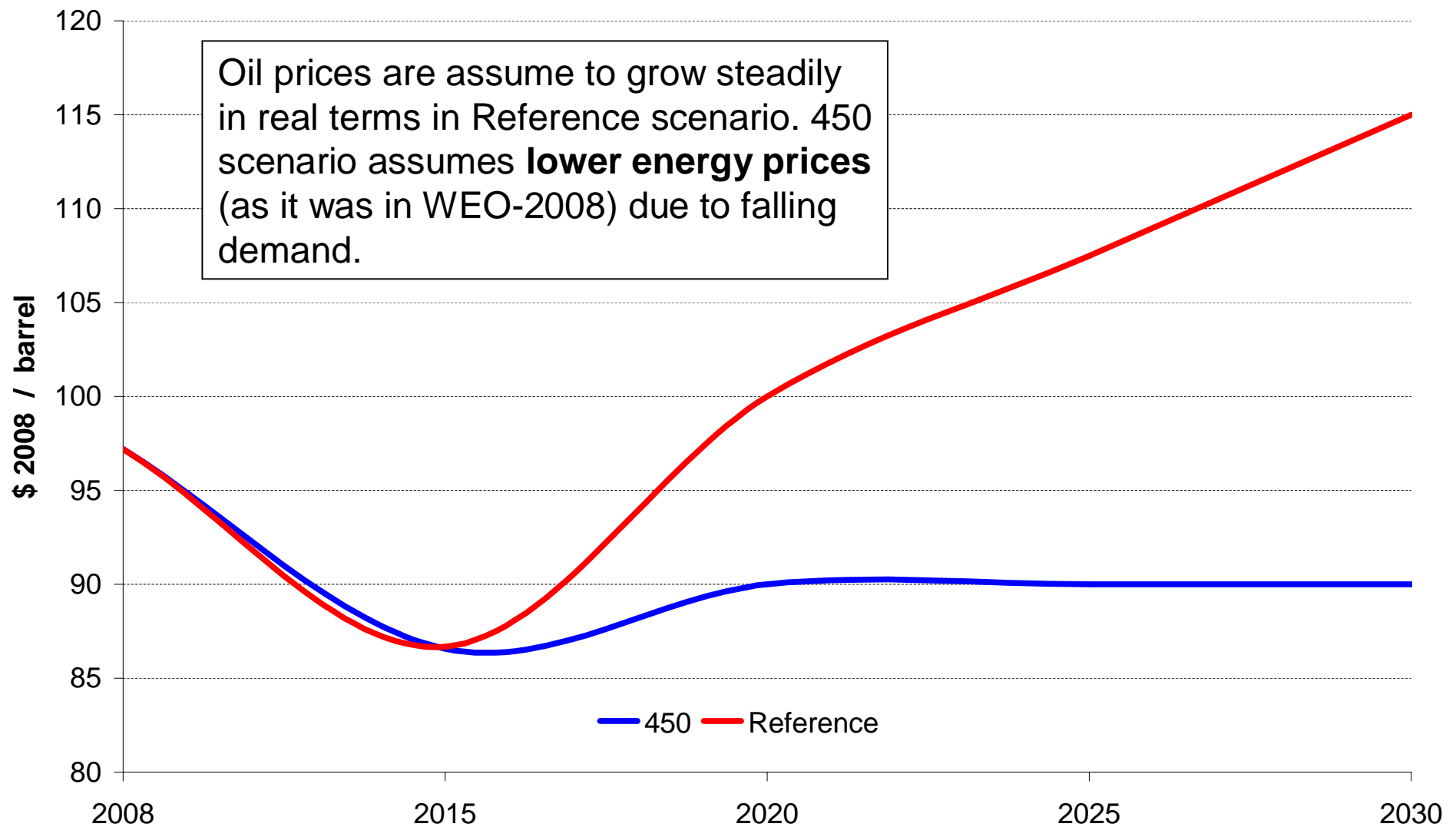
# Economic growth assumptions in WEO-2009 (ref)



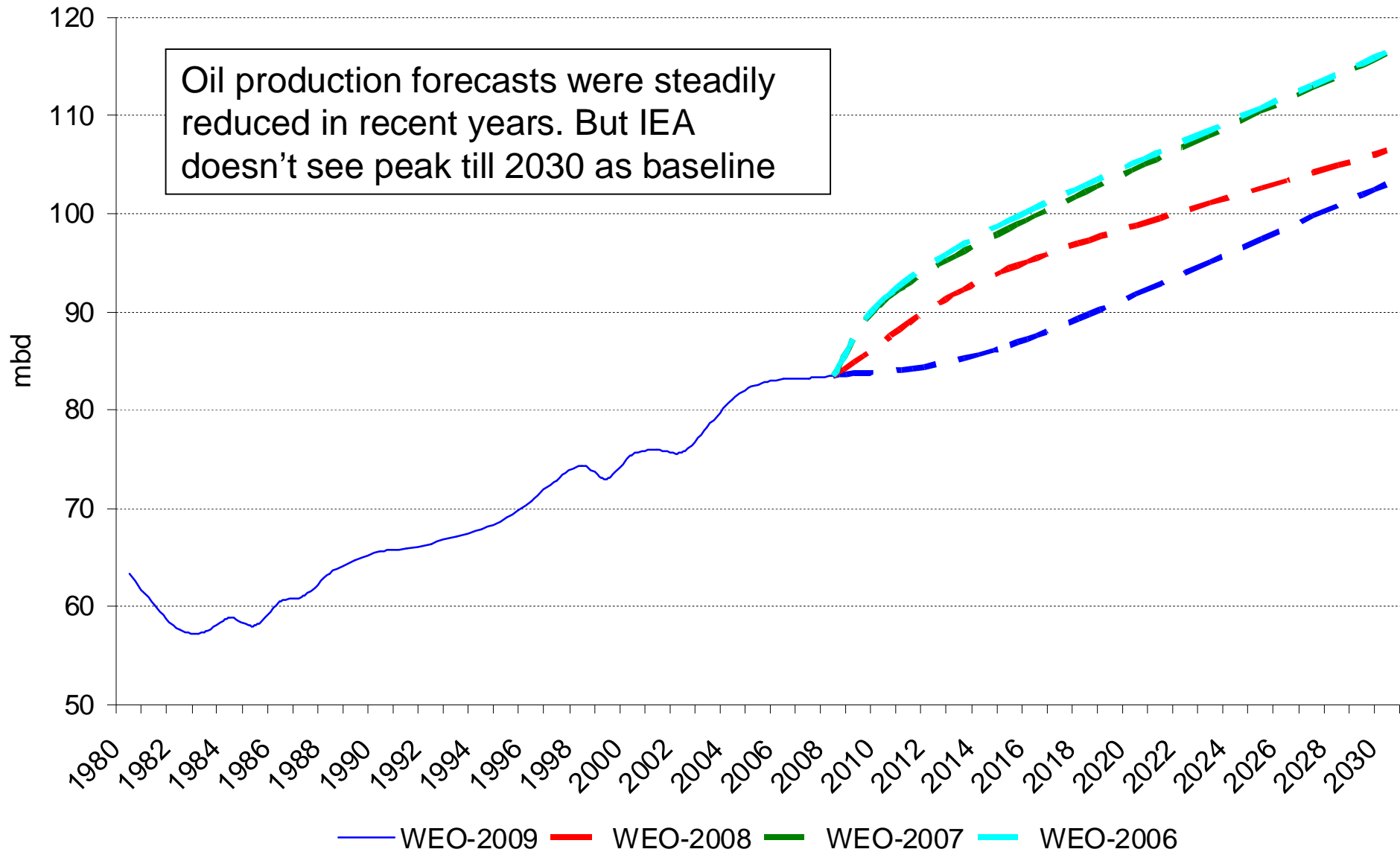
# Global GDP growth assumption in 3 last WEOs



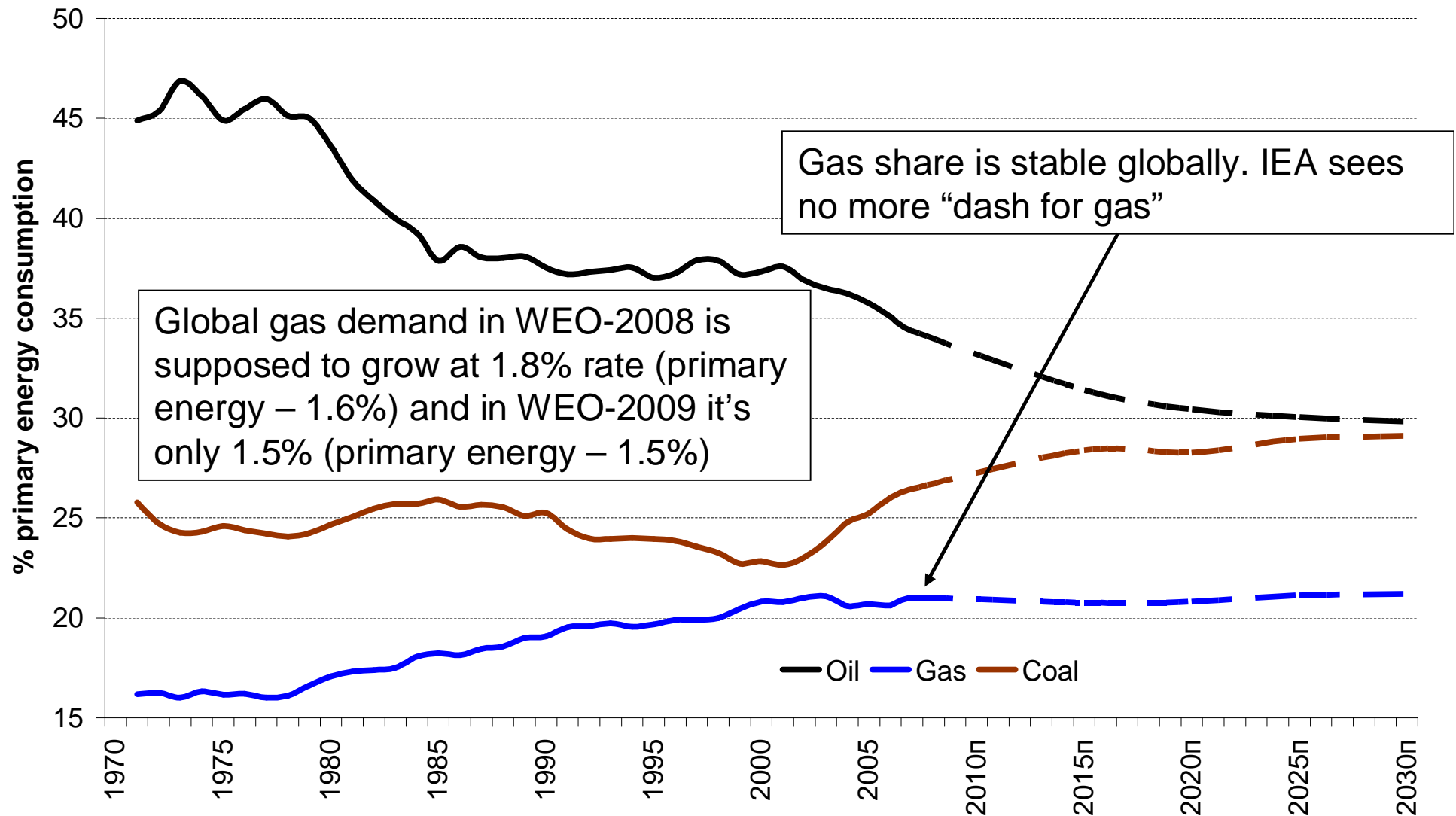
# Oil price assumptions: WEO-2009 by scenarios



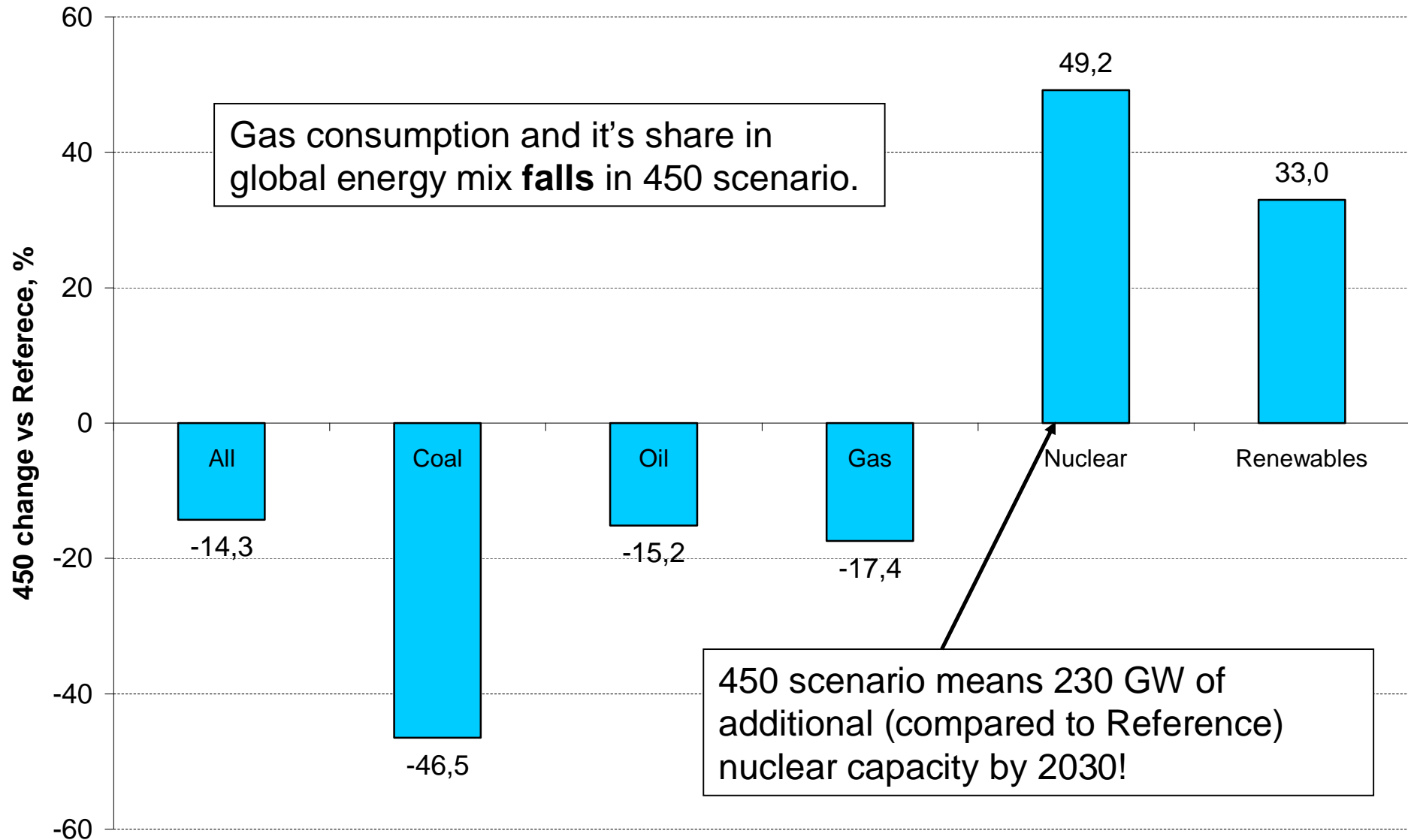
# Oil production and reserves controversy



# Global energy mix by fuel type, 1970-2030f



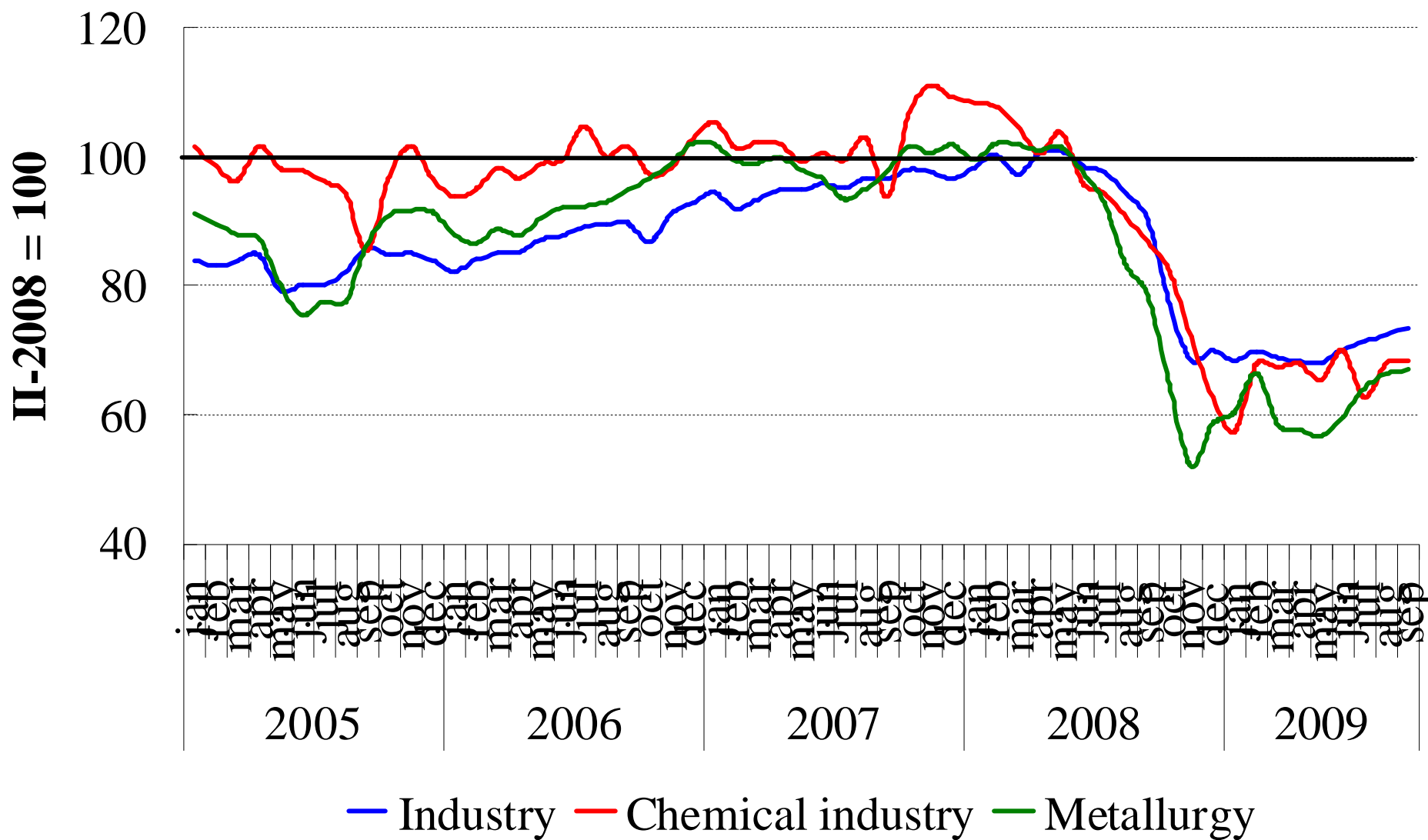
# Global energy consumption: 450 vs Reference



## **IV. Russian-Ukrainian transit**



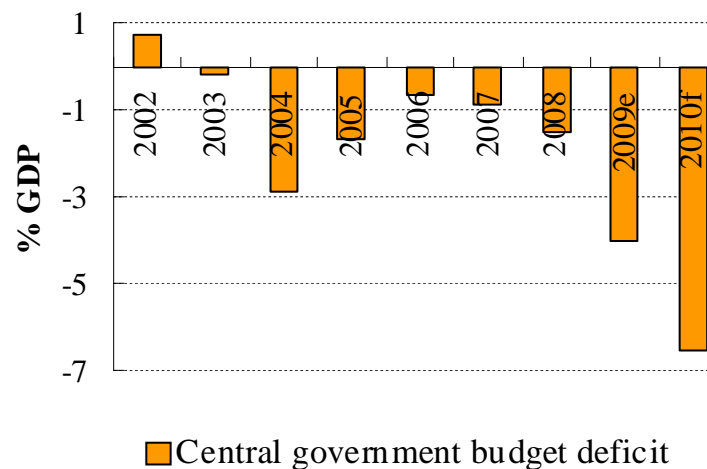
# Ukraine: Industrial production, Q2-2008=100, 2005-2009



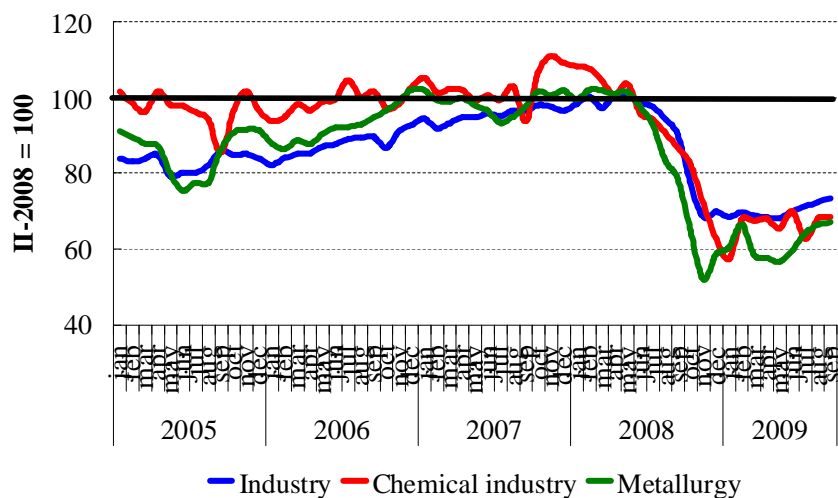
## Main economic indicators, 2000-2010

	2000	2007	2008	2009e	2010f
GDP, bln USD	31,3	143,2	179,6	115,7	119,7
GDP per capita, thou USD	0,6	3,1	3,9	2,5	2,6
<b>% change (y/y)</b>					
GDP	5,9	7,9	2,1	-14,0	2,7
Industrial production	12,4	10,2	-3,1	-23,0	4,5
CPI	28,2	12,8	25,2	16,9	13,5
<b>% GDP</b>					
Budget surplus/deficit	-0,6	-0,9	-1,5	-4,0	-6,5
Current account	4,7	-4,2	-7,2	-0,1	0,4
Trade balance	4,5	-5,6	-8,1	-0,7	-0,2

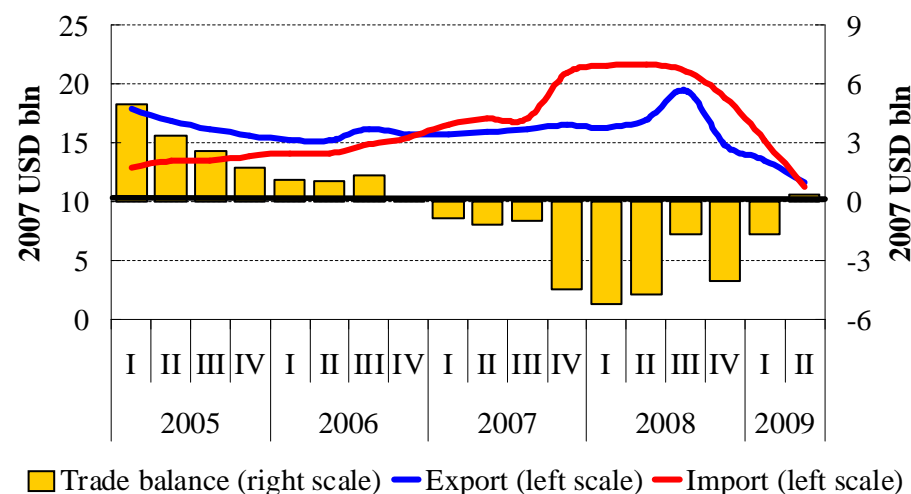
## Central government deficit, % GDP, 2000-2010



## Industrial production, Q2-2008 = 100, 2005-2009



## Foreign trade volume, 2007 USD bln, 2005-2009



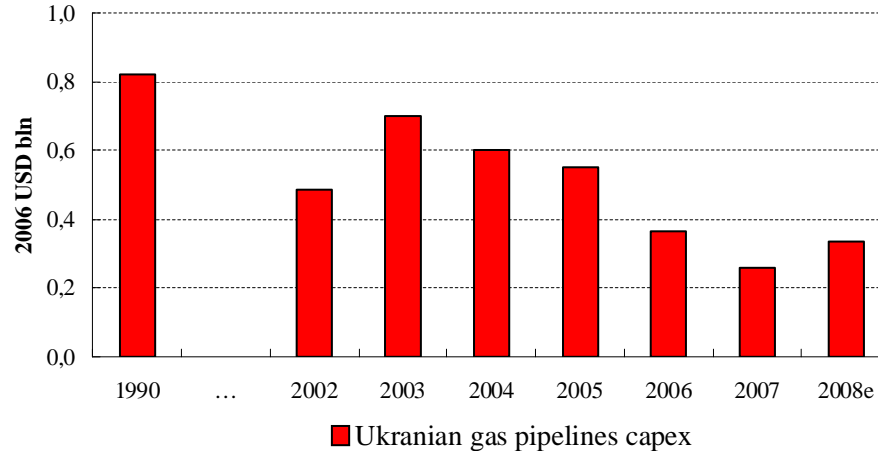
# Ukrainian Gas Pipelines, 1985-2015



Gas export capacity, 2008-2015

	Capacity, bcm/y		Utilization, %	
	2008	2015	2008	2015
<b>Total</b>	<b>228</b>	<b>372</b>	<b>83</b>	<b>61</b>
<b>Ukraine</b>	<b>143</b>	<b>200</b>	<b>84</b>	<b>40</b>
<b>Belarus</b>	<b>53</b>	<b>53</b>	<b>97</b>	<b>94</b>
Beltransgaz	20	20	93	90
Yamal-Europe	33	33	99	97
<b>Blue stream</b>	<b>16</b>	<b>16</b>	<b>63</b>	<b>91</b>
<b>Finland</b>	<b>6</b>	<b>6</b>	<b>80</b>	<b>92</b>
<b>Baltic states</b>	<b>11</b>	<b>11</b>	<b>39</b>	<b>52</b>
<b>New routes</b>	<b>0</b>	<b>86</b>	<b>-</b>	<b>85</b>
North stream	0	55	-	87
South stream	0	31	-	81

Capex on Gas transport system, 2006 USD bln, 1990-2008



Gas transit through Ukraine, bcm/y, 1985-2015

