

# The Future for the World Market of Hydrocarbons and MENA

20 of March 2019

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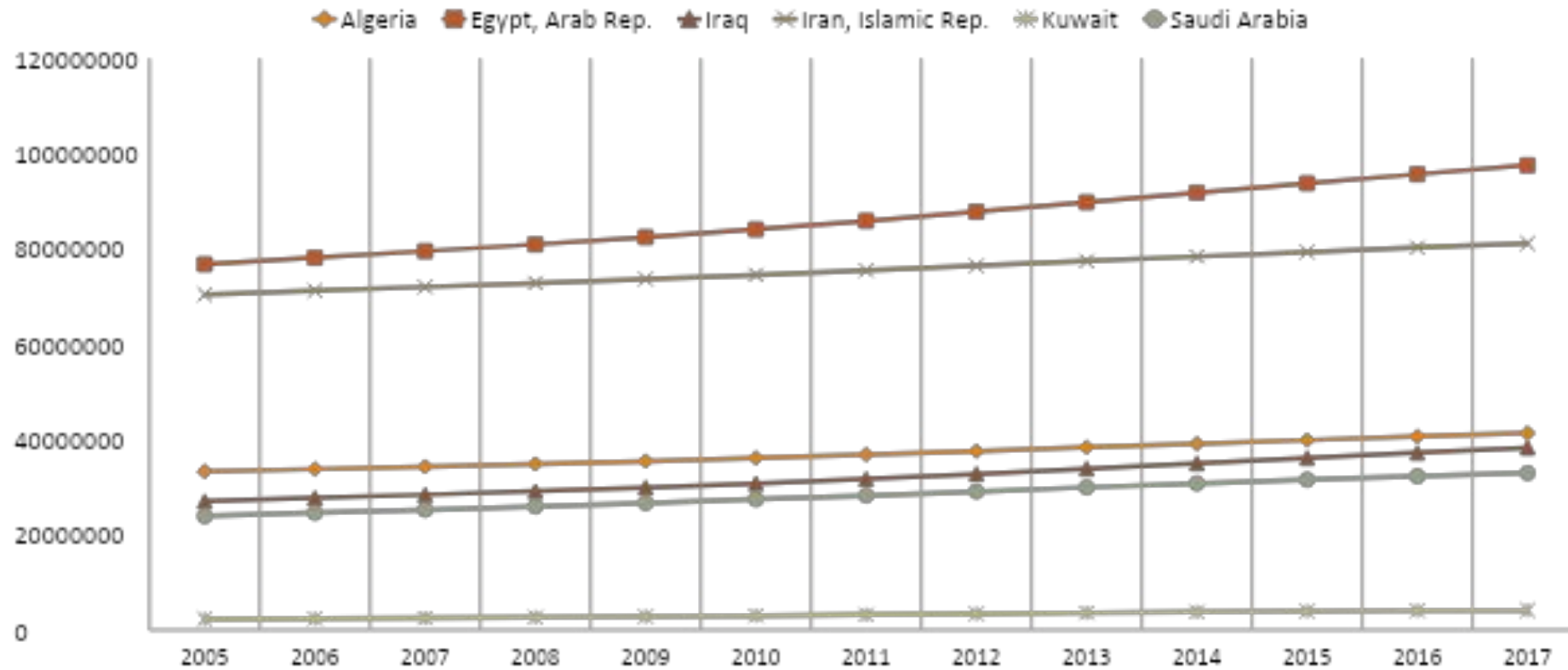
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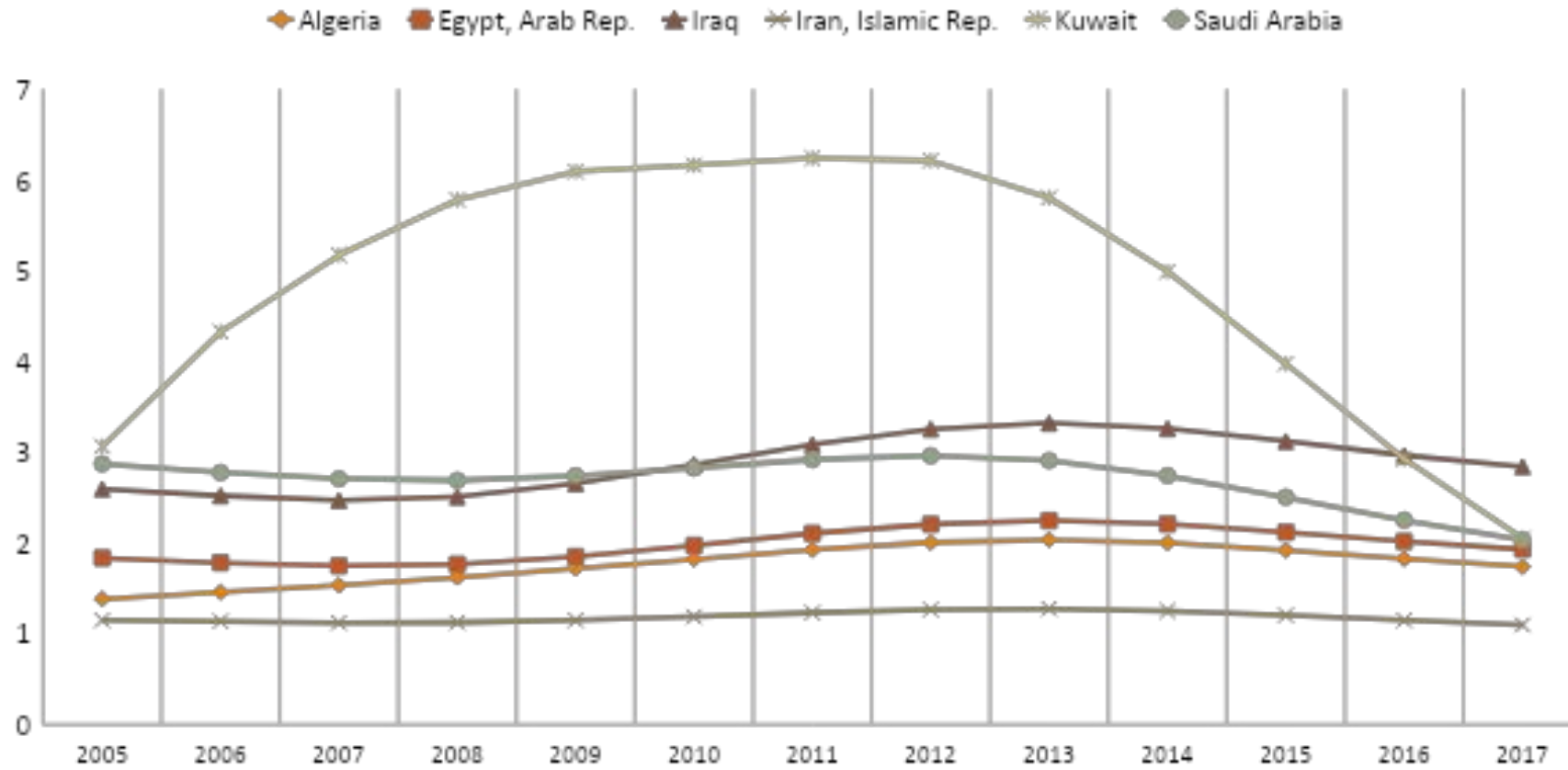
# MENA – key countries

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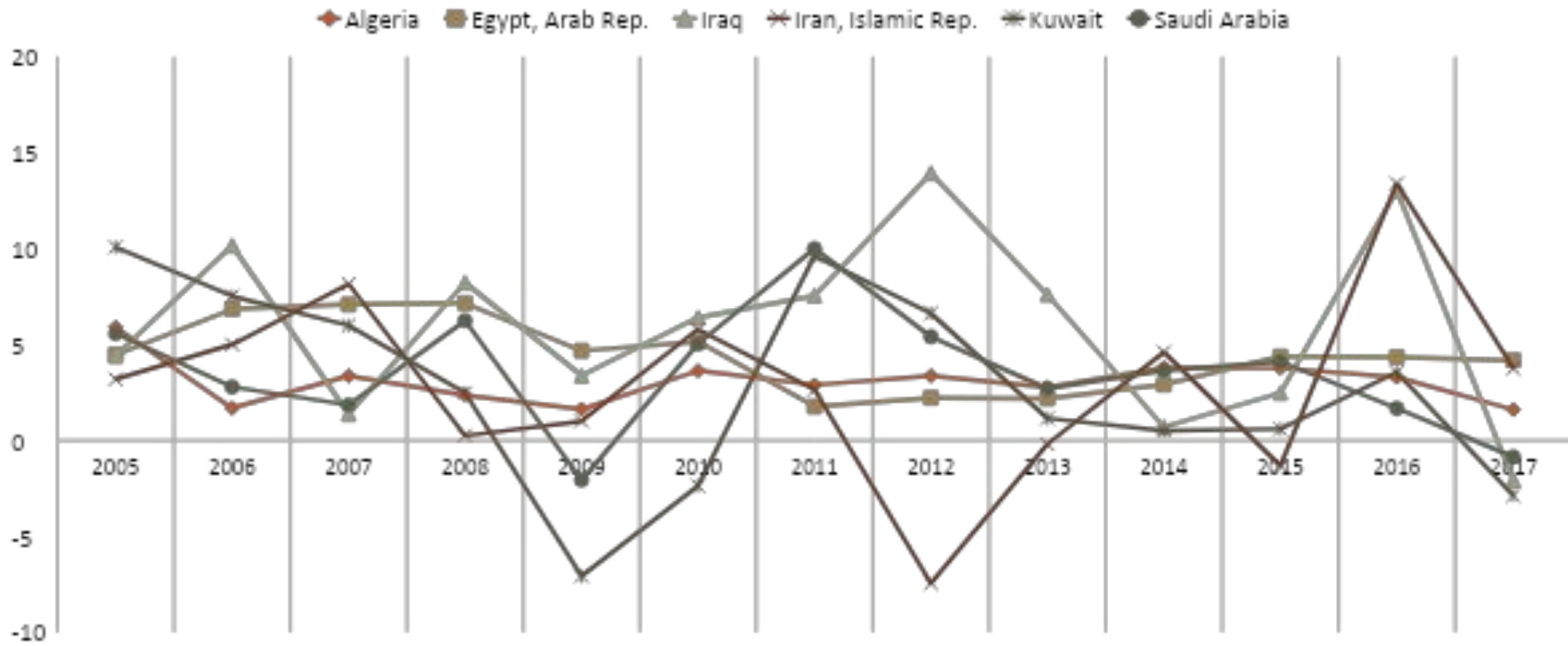
# Population total, 2005-2017



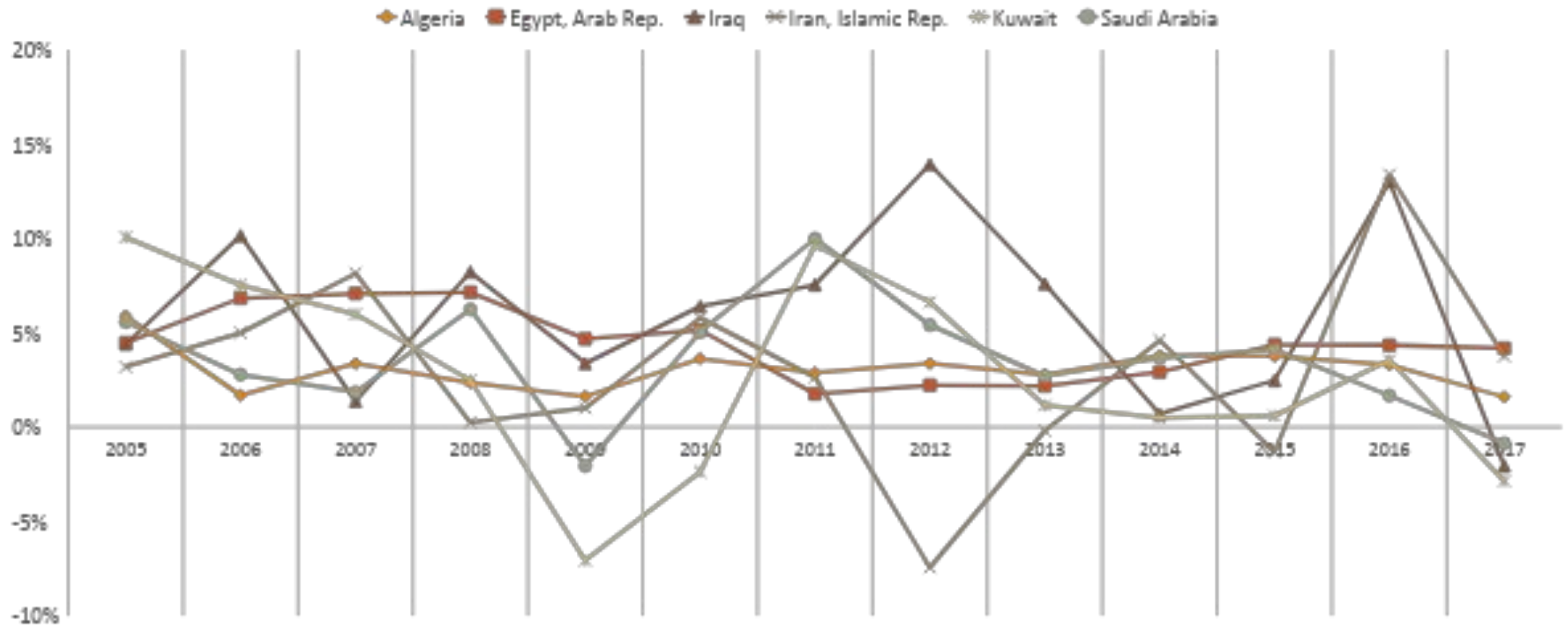
# Population growth, 2005-2017 (annual %)



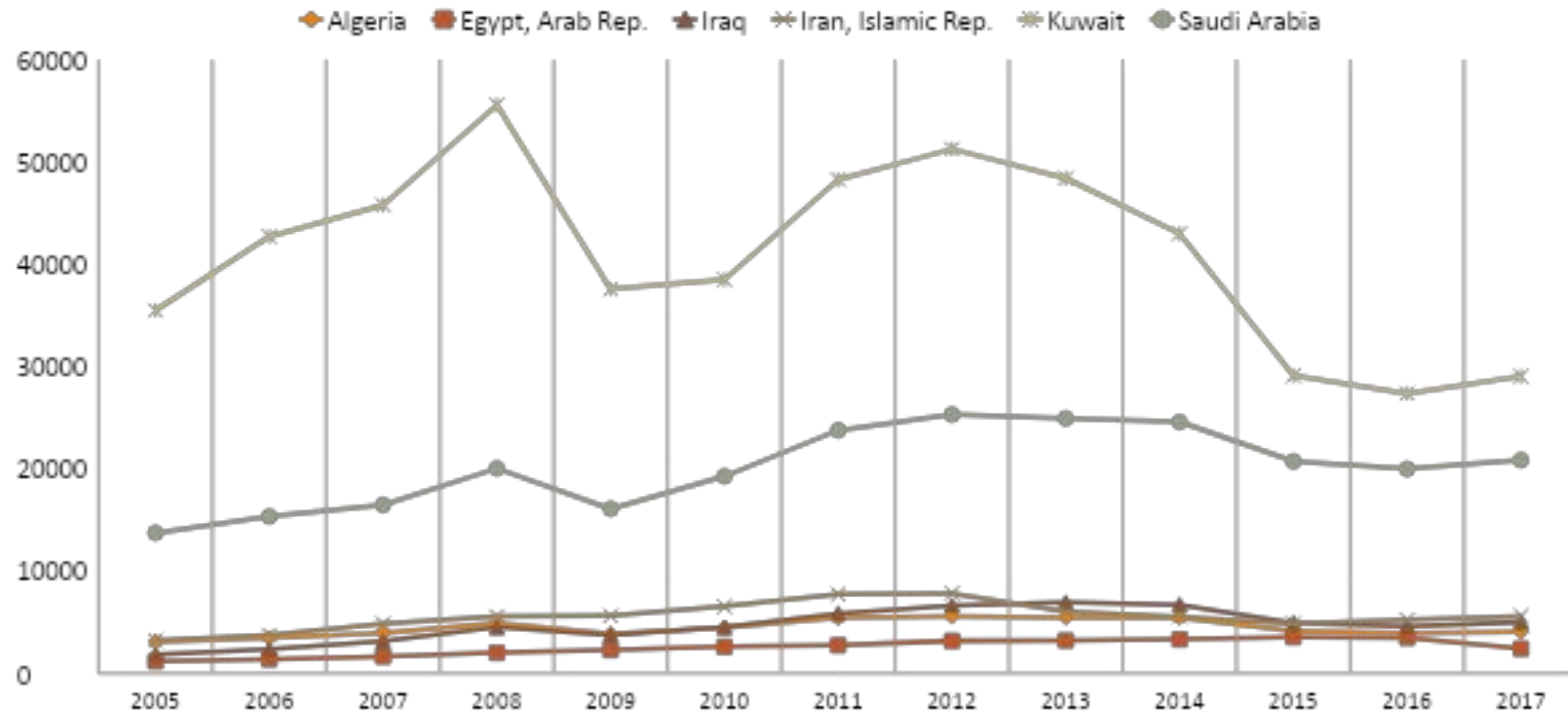
# GDP nominal growth, 2005-2017 (annual %)



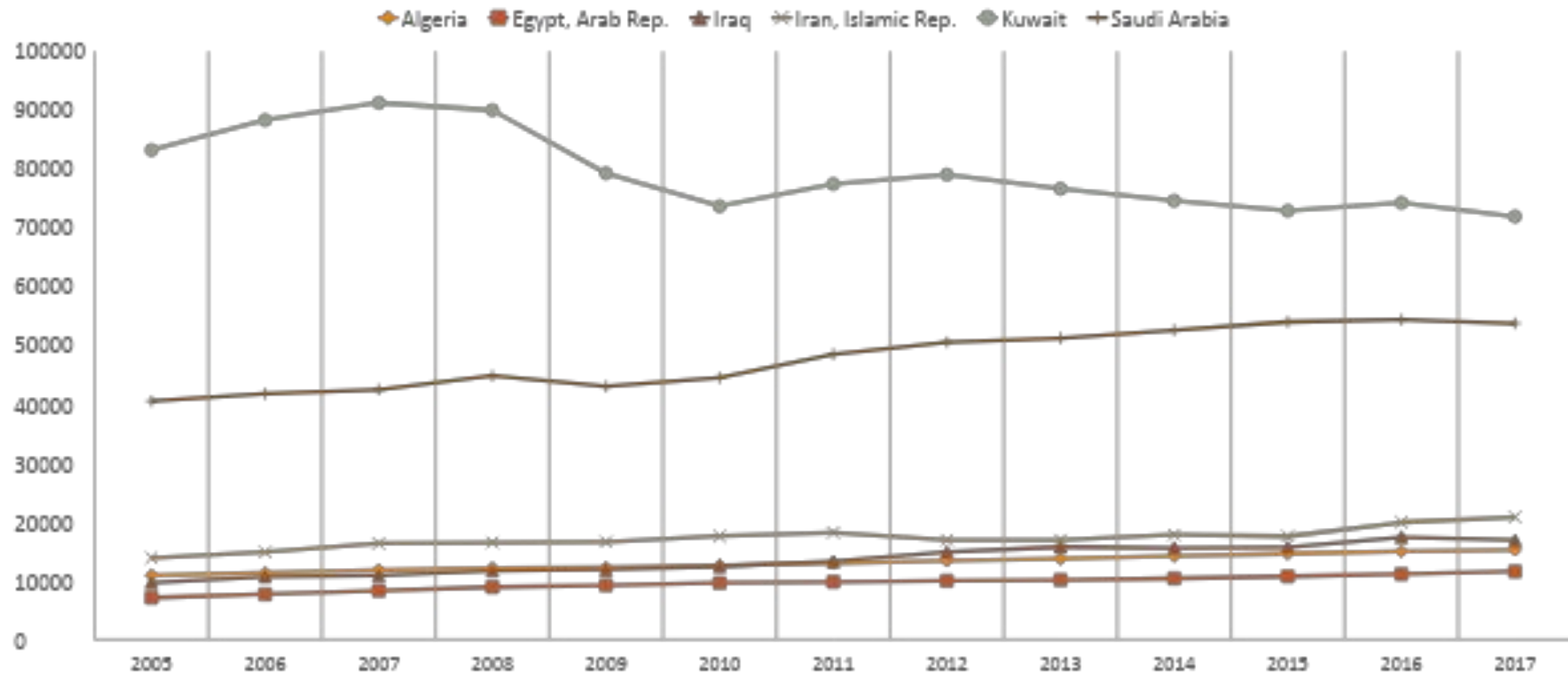
# GDP growth, constant 2010 US\$ (annual %)



# GDP per capita, 2005-2017 (current US\$)

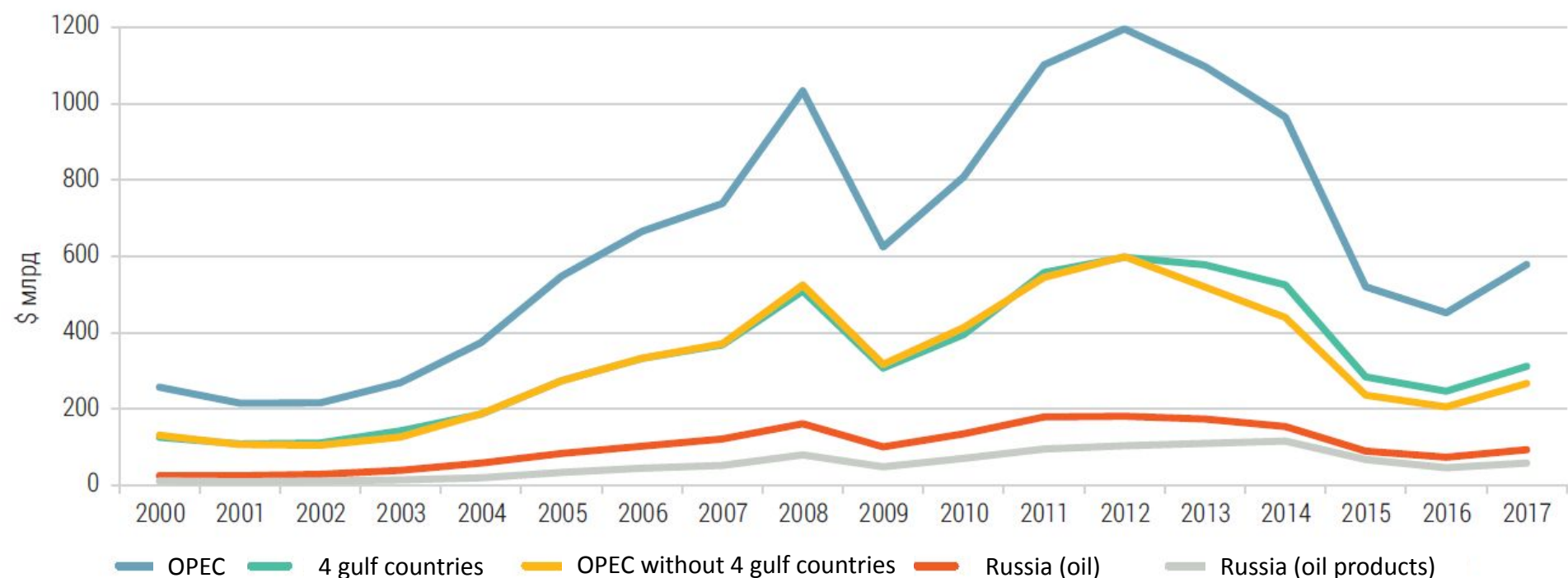


# GDP per capita, PPP (current international \$)





# Export Incomes in OPEC countries and Russia, bln. \$, 2000-2017



Источник: Аналитический центр при Правительстве РФ

# Conclusions

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- Oil prices of \$55 - \$70 helped to Global growth restoration in 2016-2018.
- Global forecast for 2040 is still open page. May be 110 mbd. of oil extraction.
- Incomes are more important than records of output.
- Energy transition is inevitable, but speed and scope are not rigid.
- Investments needs for transition, reducing energy poverty are huge.
- China, India and Africa are still in coal...
- Emission of GHG is still growing, Paris 2015 is to be reviewed soon.
- OPEC+ - to reinvest export incomes into development, beware demography.

# World Energy Transition and Future

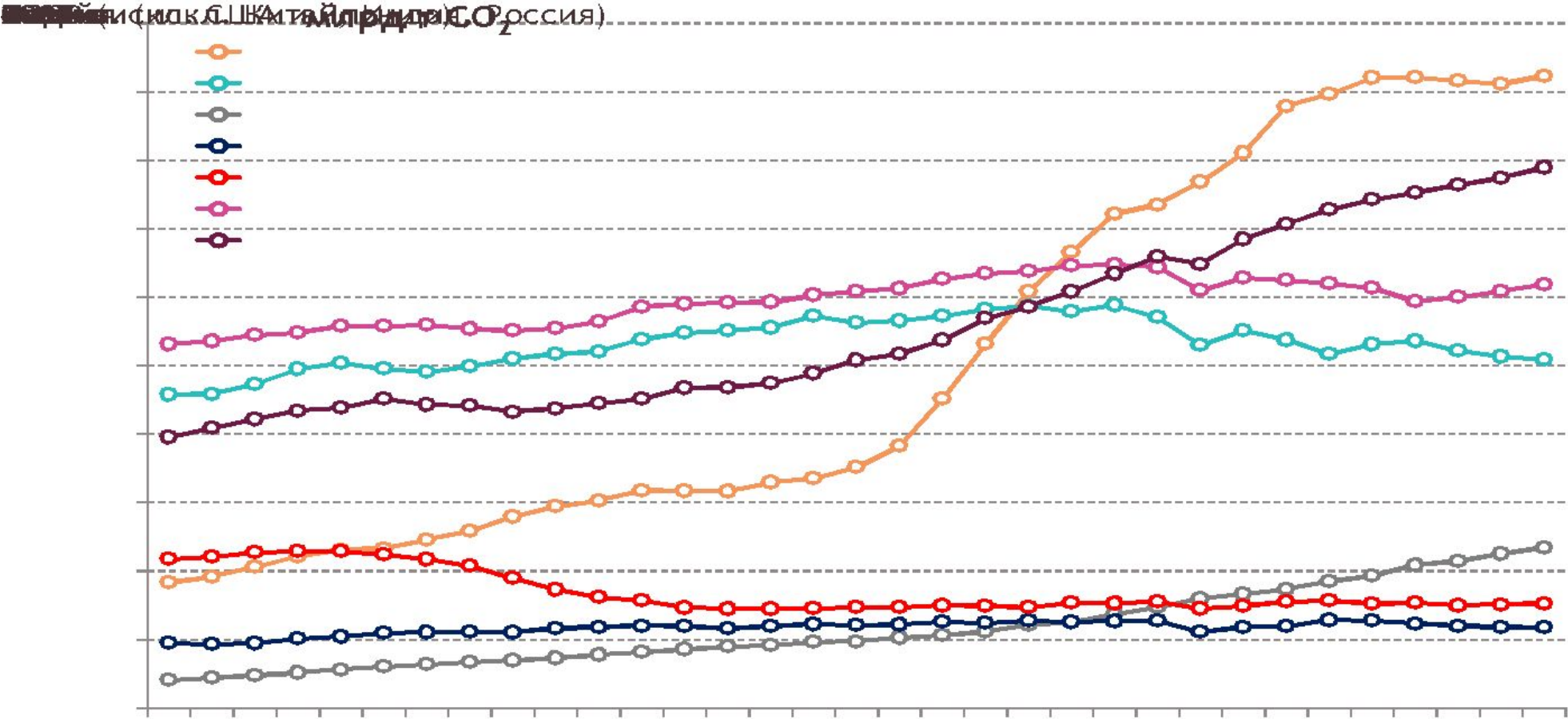
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- World is undergoing Energy transition, but still not that fast as Green people hope.
- Current oil prices are secured the Global Growth in 2016-2018.
- Car are still mostly non-electric in stock and in annual sales.
- Energy sector and any changes in its structure require huge investments.
- One mbd a day per year = looking to 100 mbd in 2019.
- Climate Change prevention V Energy Poverty and Development needs ...
- American oil takes quite a bite from others in 2018.
- Prices are stable due to growing demand and decline of output.
- Sanctions as a factor of pricing – Fall of 2018.
- Stability of pricing corridor depends on coordination – to assure price wars avoidance.

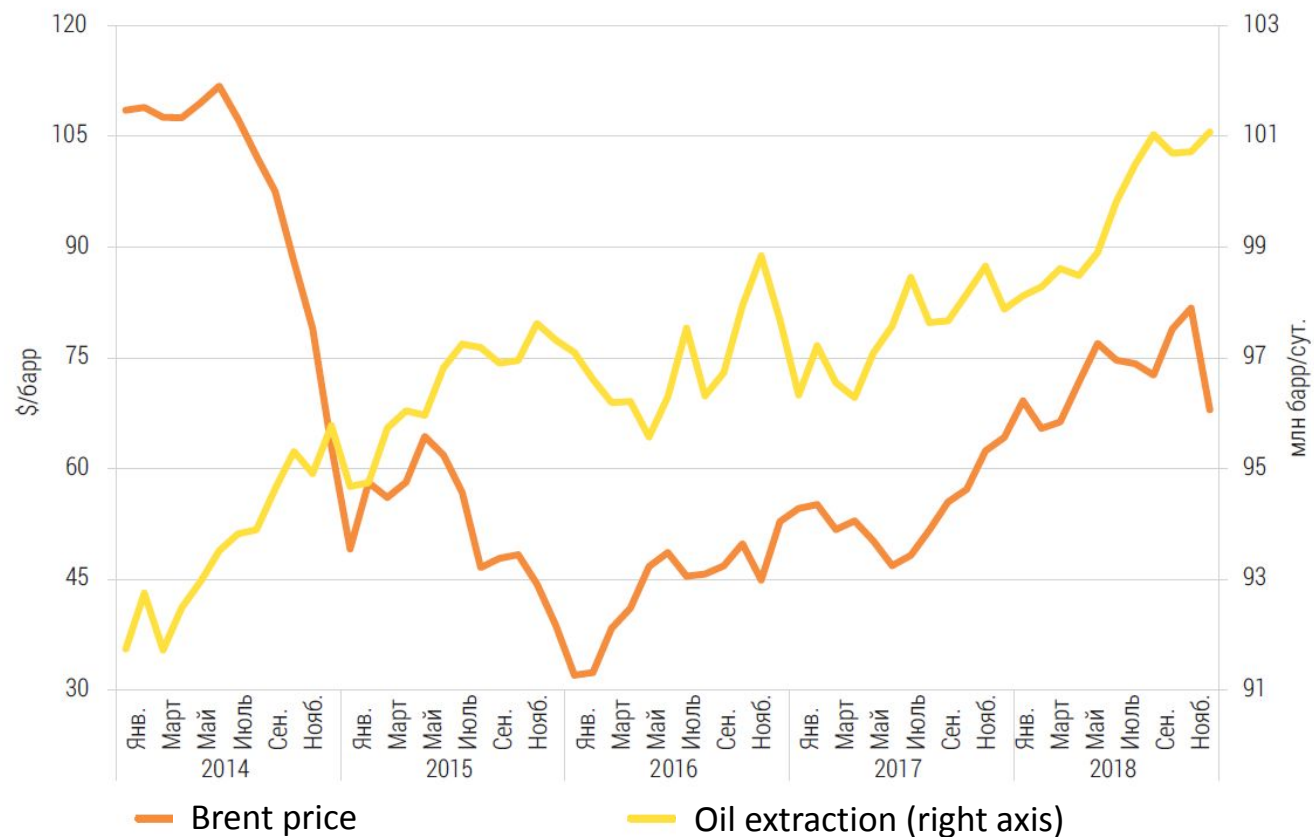
# Current situation

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# Carbon Dioxide Emissions, 1985-2017

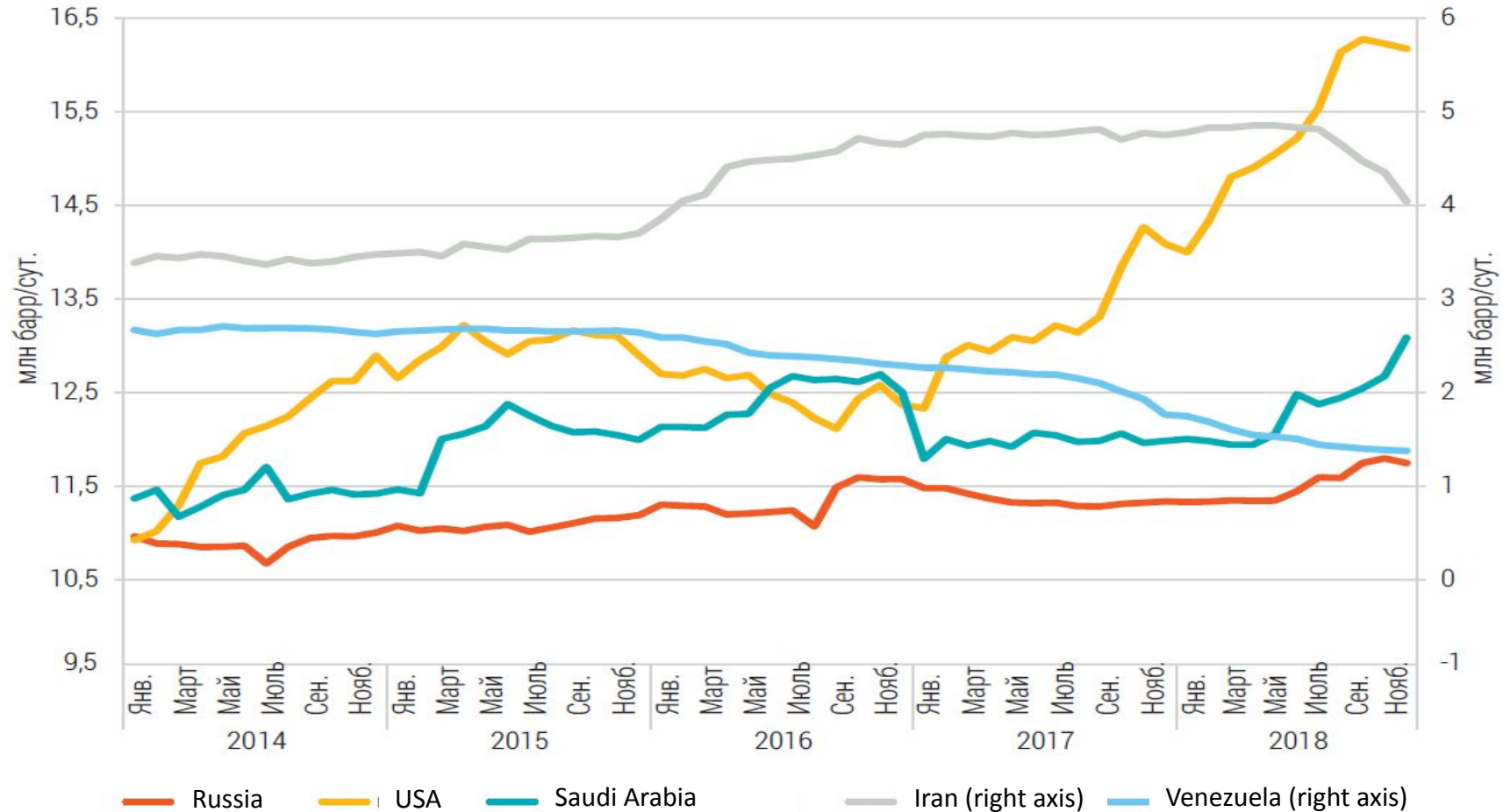


# Oil Prices and World Oil Extraction, 2014-2018



Источник: Аналитический центр при Правительстве РФ

# Oil Extraction by countries, 2014-2018



# Oil Production and Exports by country, 2016

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	Oil production	Exports
USA	11,7%	1,1%
Russia	13,6%	11,5%
Saudi Arabia	13,8%	16,9%
OPEC	44,1%	56,6%

Source: OPEC Annual Statistical Bulletin



# Oil Production and Consumption, 2017, million barrel a day

Consumers	Consumption volumes, mln barrel a day	Producers	Production volumes, mln barrel a day
USA	19,9	USA	13,2
Europe (OECD)	14,4	Saudi Arabia	12
China	12,5	Russia	11,4
India	4,7	Canada	4,8
Japan	3,9	Iran	4,7
Russia	3,6	Iraq	4,6
Saudi Arabia	3,2	China	3,9
Brazil	3,1	United Arab Emirates	3,8
Korea	2,7	EU	3,5
Canada	2,4	OPEC	39,2
World	97,8	World	97,4

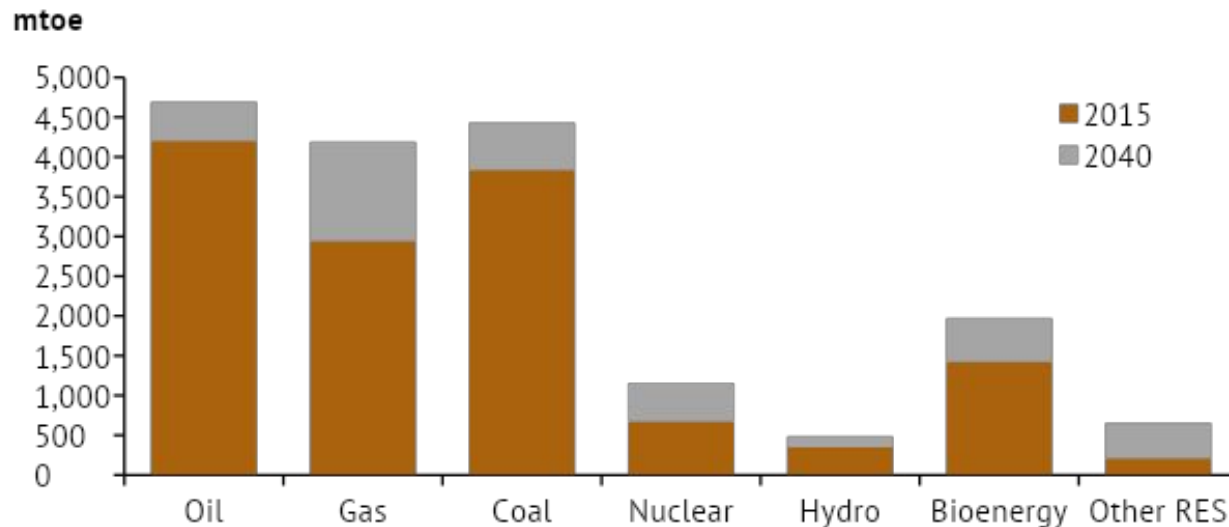
Source: International Energy Agency

# Global Balance and Future

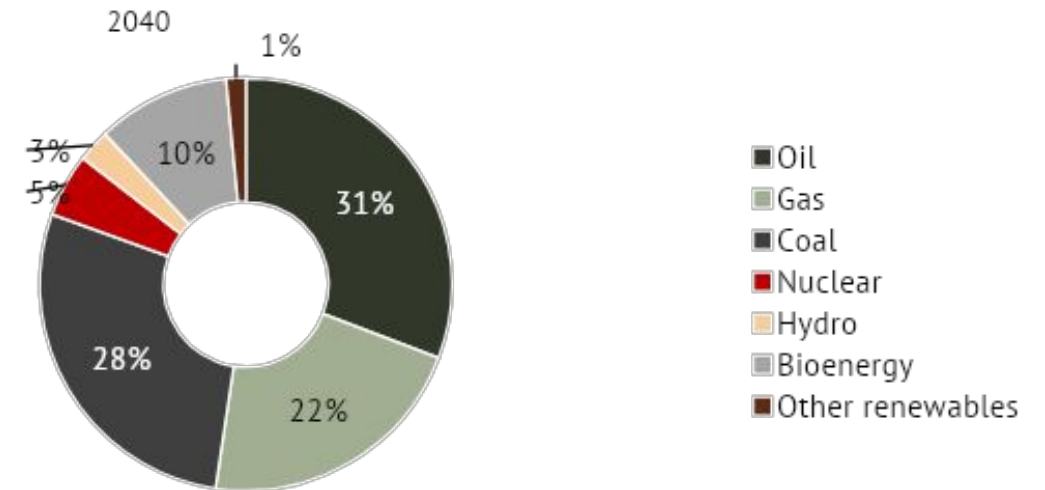
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# Global fuel mix is becoming more diversified, gas and RES are demonstrating the highest growth (2016)

**Primary energy demand by fuel  
(in 2015 and increase by 2040),  
Probable Scenario**

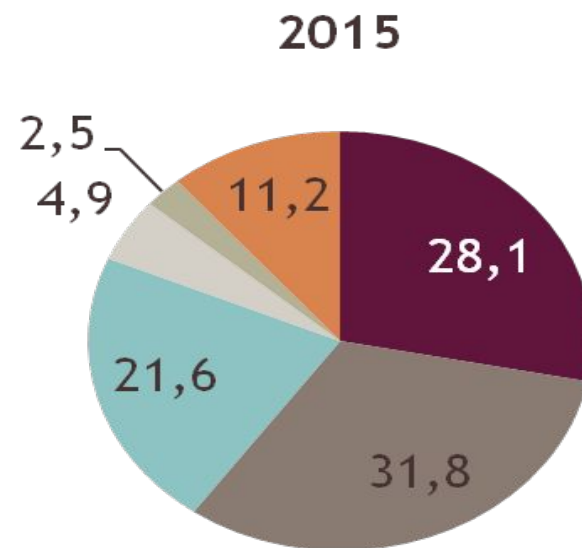
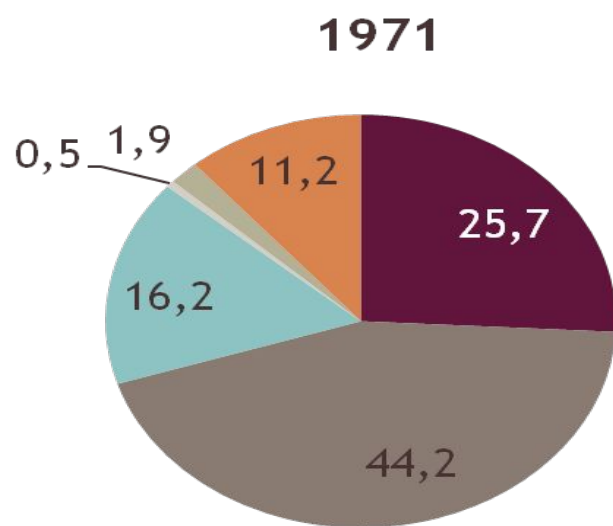


**Structure of primary energy demand by fuel in 2015 and in  
2040, Probable Scenario**



Source: Global and Russian Energy Outlook-2016, ERI RAS-AC

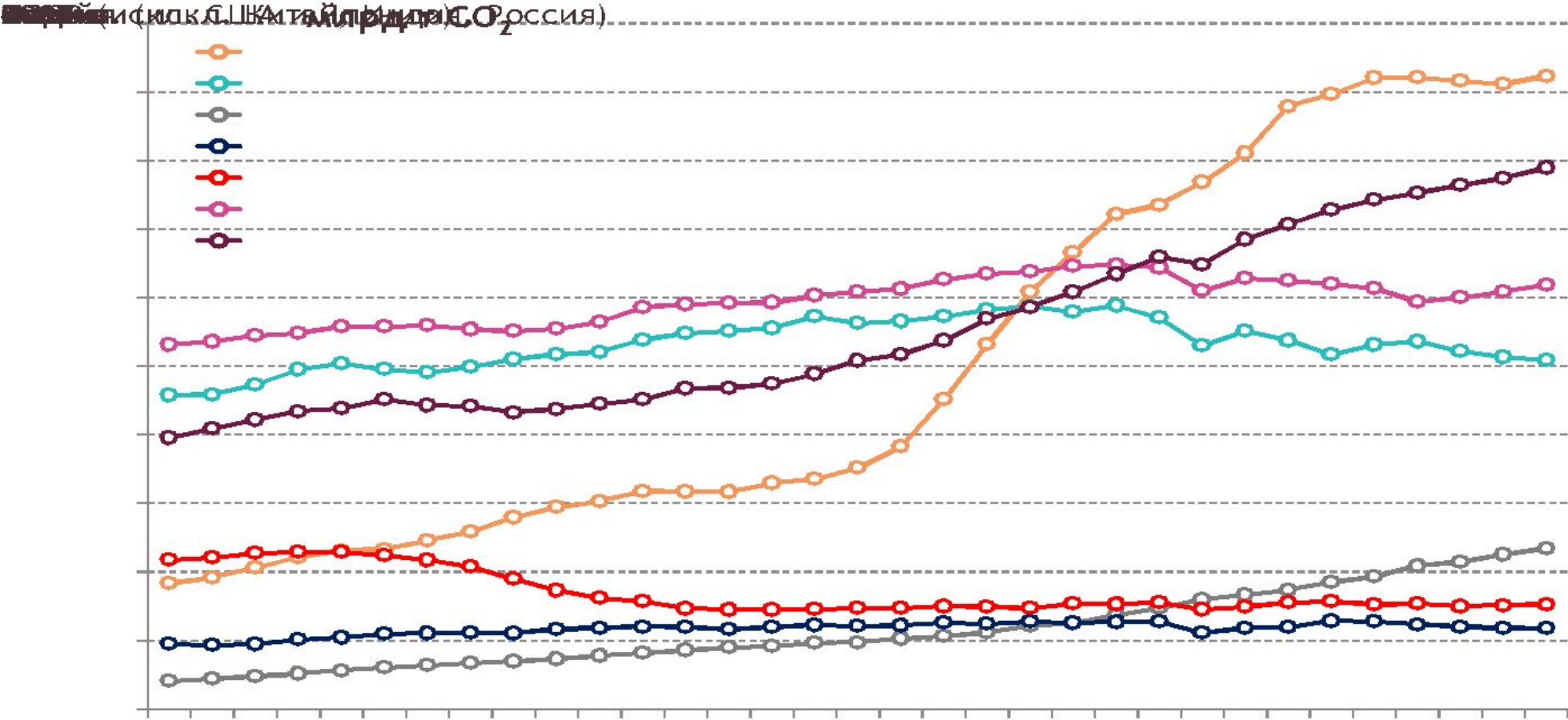
# The Structure of World Energy Consumption, 1971 and 2015, % total consumption



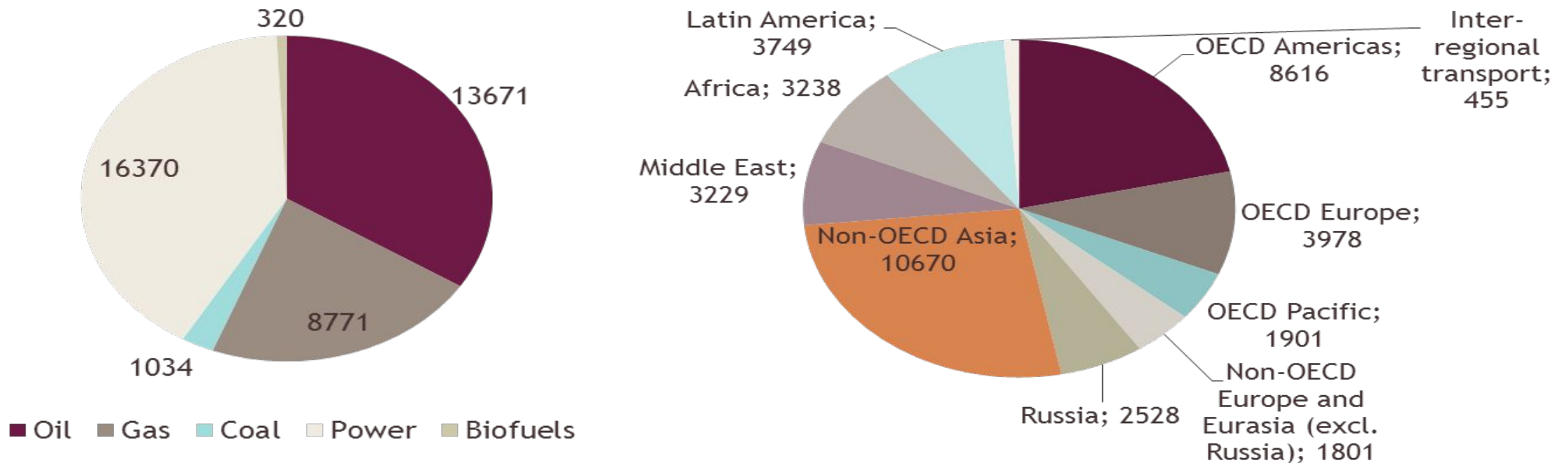
- Coal
- Natural gas
- Hydro

- Oil and oil products
- Nuclear energy
- Renewable energy sources

# Carbon Dioxide Emissions, 1985-2017



# Global Energy Supply Investment in 2014 – 2035, IEA estimate (2014), bln USD-2012, by industry, by region



**Total: 40 165 bln USD (year-2012 prices)**

Source: IEA, World Energy Investment Outlook 2014

# GDP and Primary Energy Consumption, annual growth rates, 1991 - 2017

	GDP (PPP const. 2011, World Bank)				Primary energy consumption			
	1991-2002	2003-2008	2009	2010-2017	1991-2002	2003-2008	2009	2010-2017
<b>World</b>	3,0	4,7	-0,4	3,5	1,6	3,2	-1,6	1,6
<b>OECD</b>	2,7	2,4	-3,5	2,0	1,4	0,5	-4,8	0,1
<b>USA</b>	3,4	2,2	-2,8	2,1	1,4	0,1	-4,8	0,0
<b>EU</b>	2,3	2,5	-4,3	1,5	0,4	0,1	-5,8	-0,7
<b>Japan</b>	0,9	1,2	-5,4	1,1	1,2	0,0	-8,6	-1,4
<b>Non-OECD</b>	3,5	7,6	3,0	4,9	1,8	6,1	1,4	2,7
<b>Brazil</b>	2,6	4,8	-0,1	0,4	3,5	4,4	-0,6	1,6
<b>Russia</b>	-2,2	7,1	-7,8	1,4	-2,8	1,3	-4,7	0,6
<b>India</b>	5,8	8,0	8,5	6,8	4,4	6,6	7,5	4,9
<b>China</b>	10,2	11,6	9,4	7,6	4,5	10,5	4,4	3,3
<b>Energy consumption (p. %) minus GDP (p.%)</b>								
<b>World</b>					-1,4	-1,5	-1,2	-1,9
<b>OECD</b>					-1,3	-1,8	-1,4	-1,9
<b>Non-OECD</b>					-1,7	-1,4	-1,6	-2,1

# Oil and Gas Consumption, annual growth rates, 1991 - 2017

	Oil consumption				Gas consumption			
	1991-2002	2003-2008	2009	2010-2017	1991-2002	2003-2008	2009	2010-2017
<b>World</b>	1,4	1,5	-1,7	1,3	2,1	3,3	-2,8	2,1
<b>OECD</b>	1,2	-0,3	-4,9	0,0	2,6	1,6	-3,2	1,2
<b>USA</b>	1,5	-0,5	-4,6	0,4	1,5	0,9	-1,8	1,9
<b>EU</b>	0,5	-0,1	-5,3	-0,9	2,6	0,9	-6,3	-1,6
<b>Japan</b>	-0,1	-2,2	-10,4	-1,6	3,3	3,3	-6,7	2,4
<b>Non-OECD</b>	1,6	4,0	2,2	2,7	1,5	5,2	-2,4	2,8
<b>Brazil</b>	3,4	4,2	0,2	1,4	14,5	9,6	-19,5	4,6
<b>Russia</b>	-6,1	1,2	-4,1	1,5	-1,1	1,9	-5,5	0,1
<b>India</b>	6,1	4,4	5,1	4,9	6,8	7,1	20,9	-1,3
<b>China</b>	6,7	6,5	3,8	4,2	5,9	19,1	10,1	12,0
<b>Oil / Gas consumption (poins %) minus GDP (points %)</b>								
<b>World</b>	-1,6	-3,1	-1,3	-2,1	-0,9	-1,4	-2,4	-1,4
<b>OECD</b>	-1,5	-2,7	-1,4	-2,0	-0,1	-0,8	0,4	-0,7
<b>Non-OECD</b>	-1,8	-3,4	-0,8	-2,1	-1,9	-2,3	-5,2	-2,0

\*Calculated index

Source: World Bank, BP



# Coal consumption and Electricity generation, annual growth rates, 1991 - 2017

	Coal consumption				Electricity generation			
	1991-2002	2003-2008	2009	2010-2017	1991-2002	2003-2008	2009	2010-2017
<b>World</b>	1,1	5,3	-1,5	0,5	2,7	3,8	-0,8	2,4
<b>OECD</b>	0,4	0,3	-10,5	-2,8	2,2	1,6	-4,0	0,0
<b>USA</b>	1,3	0,1	-12,0	-5,6	2,1	1,2	-4,2	-0,4
<b>EU</b>	-2,7	-1,8	-11,9	-2,5	1,6	0,9	-4,9	-0,3
<b>Japan</b>	2,7	2,4	-15,5	0,6	1,8	1,6	-5,9	-1,8
<b>Non-OECD</b>	1,8	8,4	2,9	1,7	3,5	6,9	2,9	4,6
<b>Brazil</b>	1,1	1,4	-19,3	1,9	3,6	4,9	0,7	2,0
<b>Russia</b>	-4,3	-0,7	-8,5	0,3	-1,6	2,6	-4,5	0,7
<b>India</b>	3,6	7,4	8,3	5,6	6,0	5,4	6,2	6,9
<b>China</b>	3,6	10,7	4,8	1,1	8,5	12,8	6,3	6,4
<b>Coal consumption / Electricity generation (p %) minus GDP (p %)</b>								
<b>World</b>	-1,9	0,5	-1,2	-2,9	-0,4	-0,9	-0,4	-1,1
<b>OECD</b>	-2,3	-2,1	-7,3	-4,7	-0,5	-0,8	-0,5	-1,9
<b>Non-OECD</b>	-1,6	0,7	-0,1	-3,0	0,0	-0,6	-0,1	-0,2

\*Calculated index

Source: World Bank, BP

# Global Energy Balance

## mln tons, 2015

	Production	Import	Export	Stocks (reserves) change	Consumption	The share in consumption%
Coal	3865,0	791,7	820,3	-7,1	3829,2	28,1
Oil and oil products	4416,3	3562,1	3612,7	-31,3	4334,3	31,8
Natural gas	2975,7	868,7	883,4	-17,2	2943,7	21,6
Nuclear energy	670,7	0,0	0,0	0,0	670,7	4,9
Hydropower	334,4	0,0	0,0	0,0	334,4	2,5
Renewable energy sources (except hydro)	1519,6	20,7	16,6	0,3	1524,0	11,2
Total	13790,0	5307,9	5395,5	-55,1	13647,4	100,0

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