3rd International Seminar

"Energy & Shipping"

An Overview of Global Oil & Gas Markets

A presentation by Costis Stambolis
Deputy Chairman & Executive Director
Institute of Energy for SE Europe

Eugenides Foundation Conference Centre, April 20, 2016

Institute of Energy for SE Europe

IENE

Presentation Outline

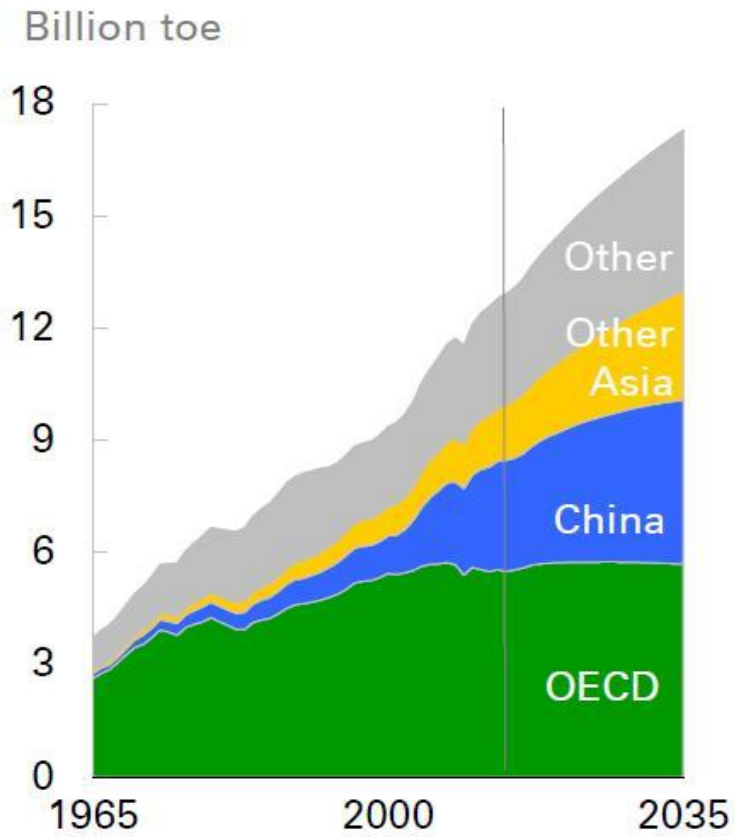
1. World Energy Growth & Energy
2. Fossil Fuel Outlook
3. The Trend Towards Global Electrification
4. Oil and Gas Matters
5. Global Oil Demand & Supply
6. Global Gas Demand & Supply
7. Where Are Oil & Gas Prices Heading
8. Factors Affecting Oil Price Formation
9. The Increasing Importance of LNG
10. Oil Freight
11. Energy Security Considerations and Factoring of Geopolitical Risk
12. Concluding Remarks

World Economy & Energy

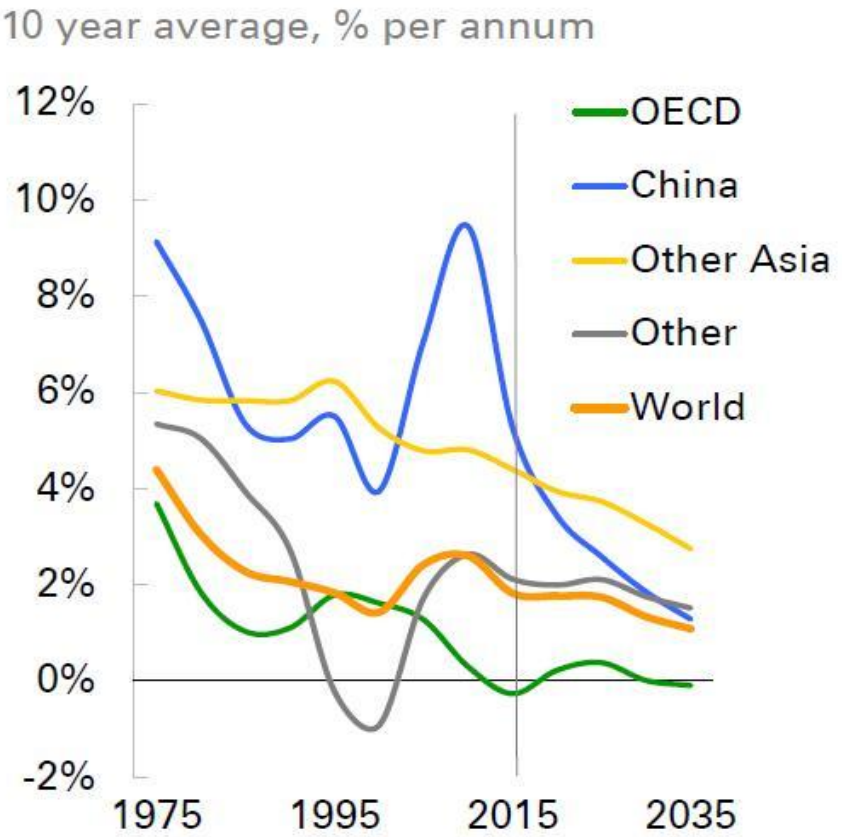
- The growth in the world economy means more energy is required; energy consumption increases by 34% between 2014 and 2035.
- Virtually all of the additional energy is consumed in fast-growing emerging economies; energy demand within the OECD barely grows.
- The growth of energy is slower than in the recent past-1.4% per annum (p.a) versus 2.3% p.a. in 2000-14 – reflecting significantly faster falls in energy intensity (energy used per unit of GDP).
- China's energy demand growth slows as its economy rebalances, towards a more sustainable rate. By the final decade of the Outlook, China contributes less than 30% of global energy growth, compared with nearly 60% over the past decade.
- The sharp slowing in China's energy demand growth is partially offset by a pickup in other developing countries. India accounts for more than a quarter of the growth in global energy demand in the final decade of the Outlook, double its contribution over the past decade.

World Economy & Energy

Consumption by region



Consumption growth by region

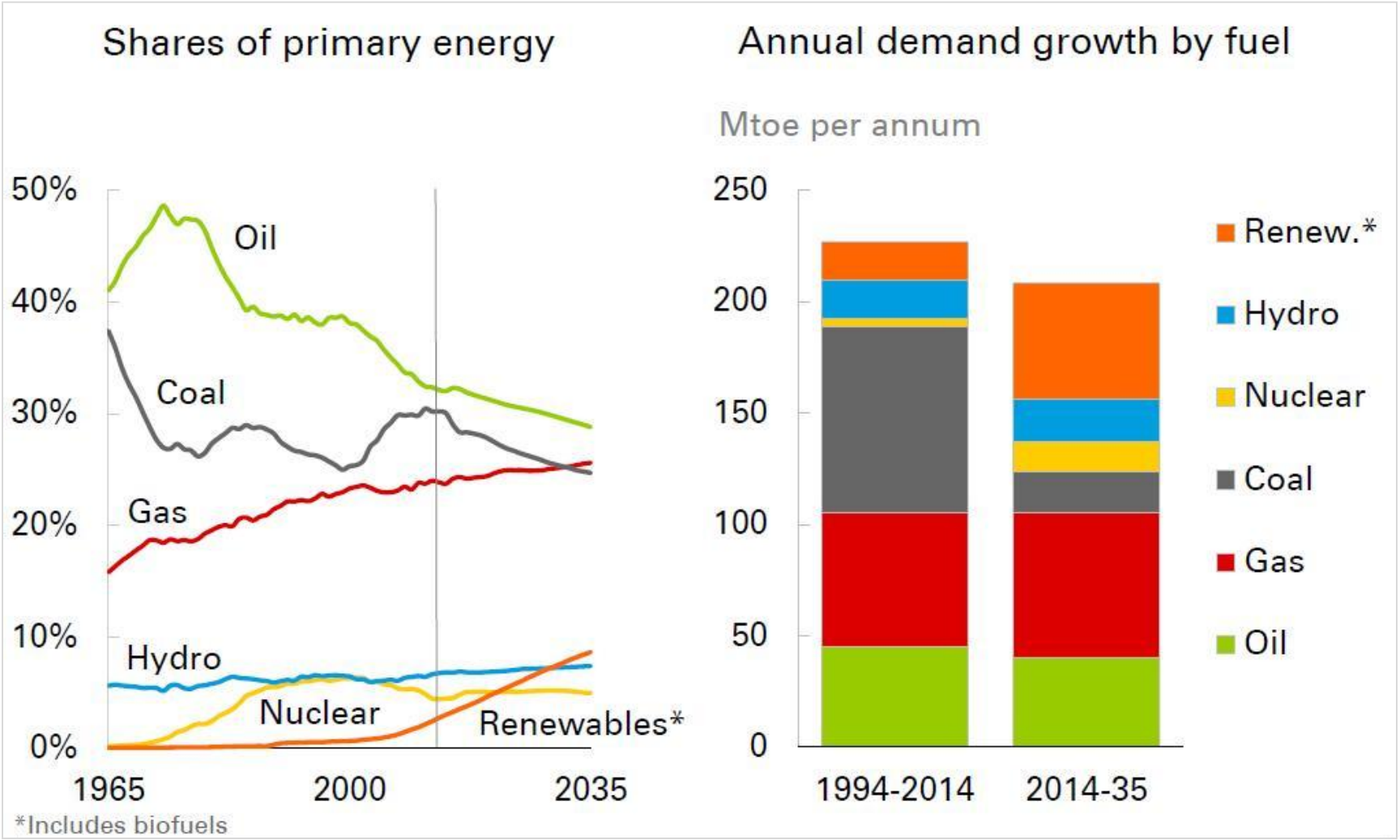


Fossil Fuel Outlook I

- According to most scenarios oil, gas and coal will continue to dominate global energy over the next 20-25 years. However, the fuel mix is set to change significantly although oil and gas remain key sources of energy

- Fossil fuels remain the dominant source of energy powering the global economy, providing around 60% of the growth in energy and accounting for almost 80% of total energy supply in 2035 (down from 86% in 2014).

Fossil Fuel Outlook I

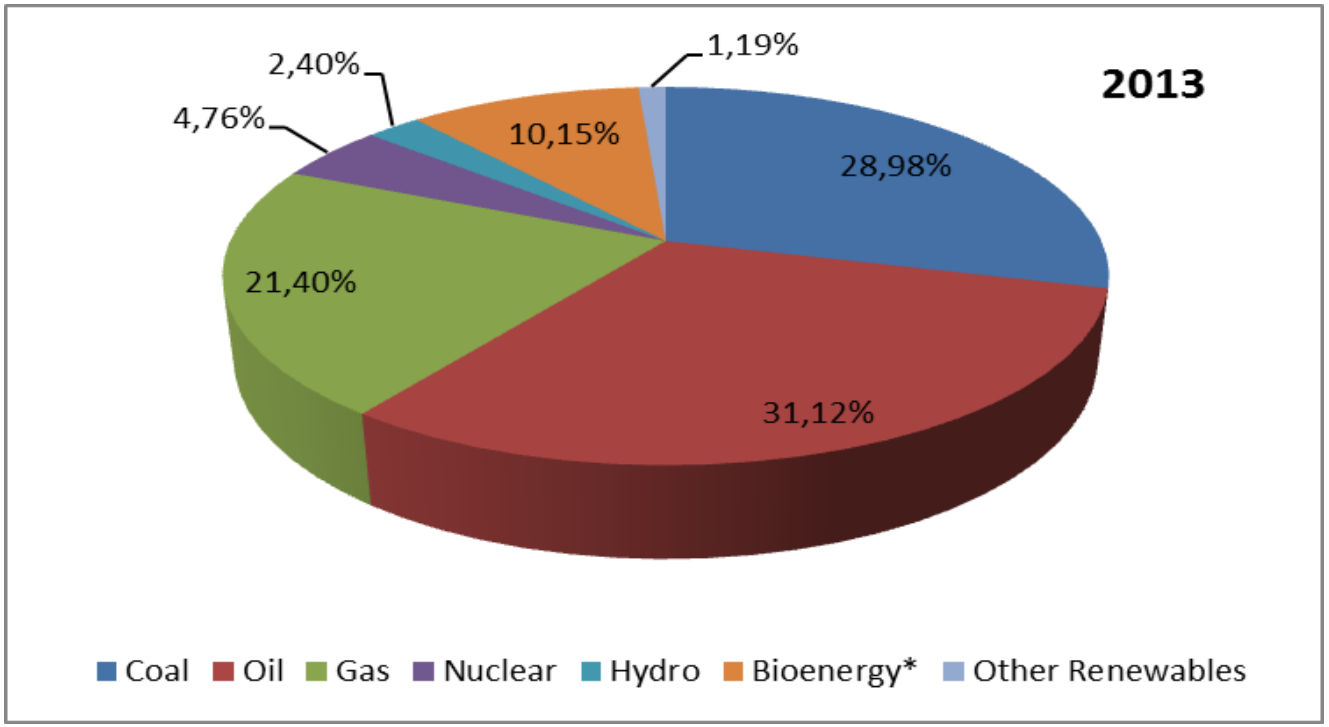


Fossil Fuel Outlook II

- The combined increase of oil and gas over the Outlook is similar to the past 20 years.
- In contrast, coal suffers a sharp reversal in its fortunes. After gaining share since 2000, the growth of coal is projected to slow sharply (0.5% p.a.), such that by 2035 the share of coal in primary energy is at an all-time low, with gas replacing it as the second largest fuel source.
- Among non fossil fuels, renewables (including biofuels) grow rapidly (6.6 p.a.), causing their share in primary energy to rise from around 3% today to 9% by 2035.

World Primary Energy Demand

Share (%) of world primary energy demand by fuel in 2013 (Total: 13559 Mtoe)

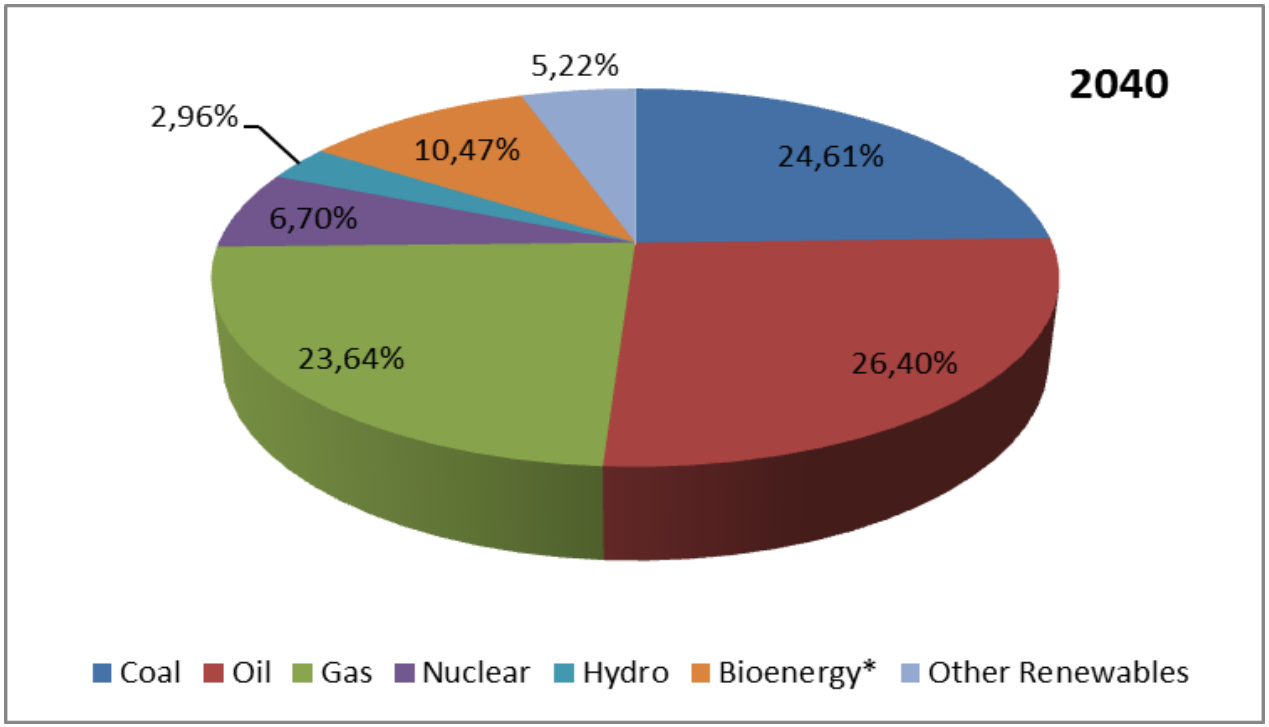


*Includes the traditional use of solid biomass and modern use of bioenergy

Source: IEA World Energy Outlook 2015

World Primary Energy Demand

Share (%) of world primary energy demand by fuel in 2040 (Total: 17934 Mtoe)

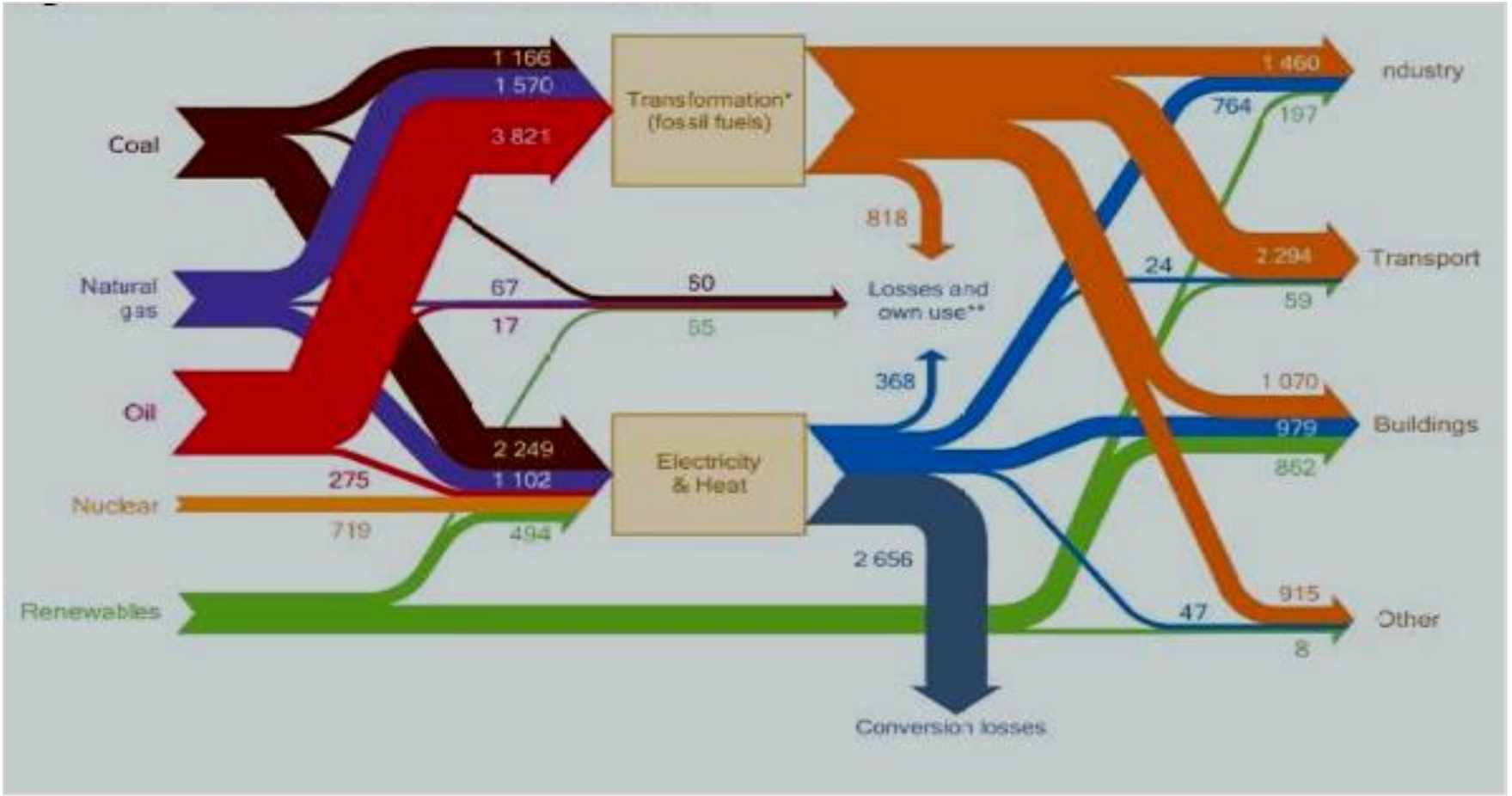


**Includes the traditional use of solid biomass and modern use of bioenergy*

Source: IEA World Energy Outlook 2015

The Global Energy System

The Global Energy System, 2010 (mtoe)



World Energy Demand

World Energy Demand by Fuel and Scenario (Mtoe)

			Current Policies Scenario		New Policies Scenario		450 Scenario	
	2000	2013	2020	2040	2020	2040	2020	2040
Coal	2 343	3 929	4 228	5 618	4 033	4 414	3 752	2 495
Oil	3 669	4 219	4 539	5 348	4 461	4 735	4 356	3 351
Gas	2 067	2 901	3 233	4 610	3 178	4 239	3 112	3 335
Nuclear	676	646	827	1 036	831	1 201	839	1 627
Hydro	225	326	380	507	383	531	384	588
Bioenergy*	1 023	1 376	1 537	1 830	1 541	1 878	1 532	2 331
Other renewables	60	161	296	693	316	937	332	1 470
Total	10 063	13 559	15 041	19 643	14 743	17 934	14 308	15 197
Fossil-fuel share	*80%*	*81%*	*80%*	*79%*	*79%*	*75%*	*78%*	*60%*
*Non-OECD share***	*46%*	*60%*	*63%*	*70%*	*63%*	*70%*	*63%*	*69%*
CO_2 emissions (Gt)	23.2	31.6	34.2	44.1	33.1	36.7	31.5	18.8

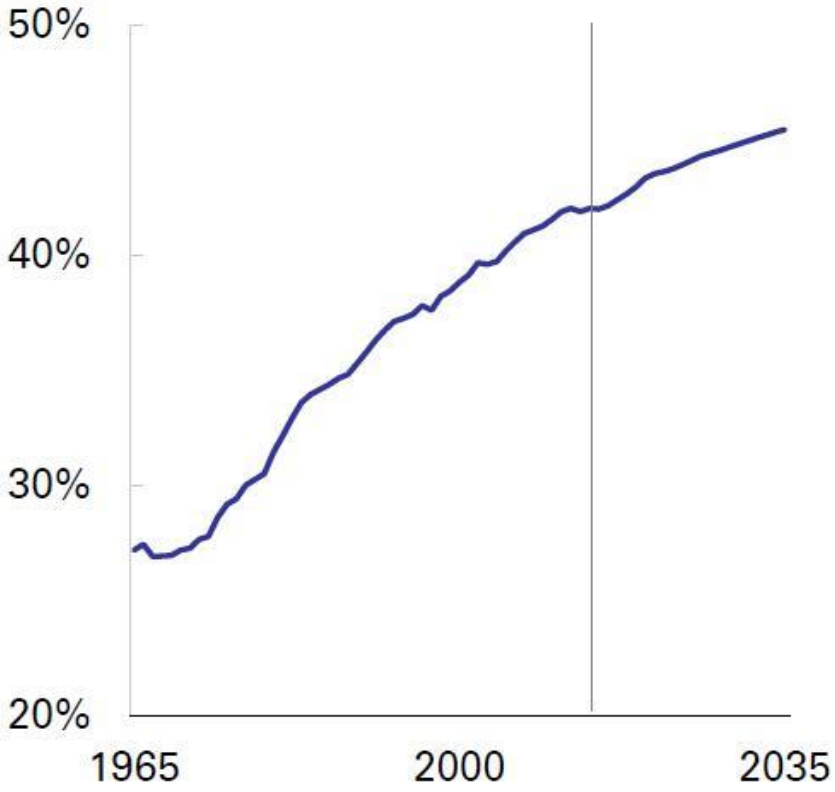
* Includes the traditional use of solid biomass and modern use of bioenergy. ** Excludes international bunkers.

The Trend Towards Global Electrification

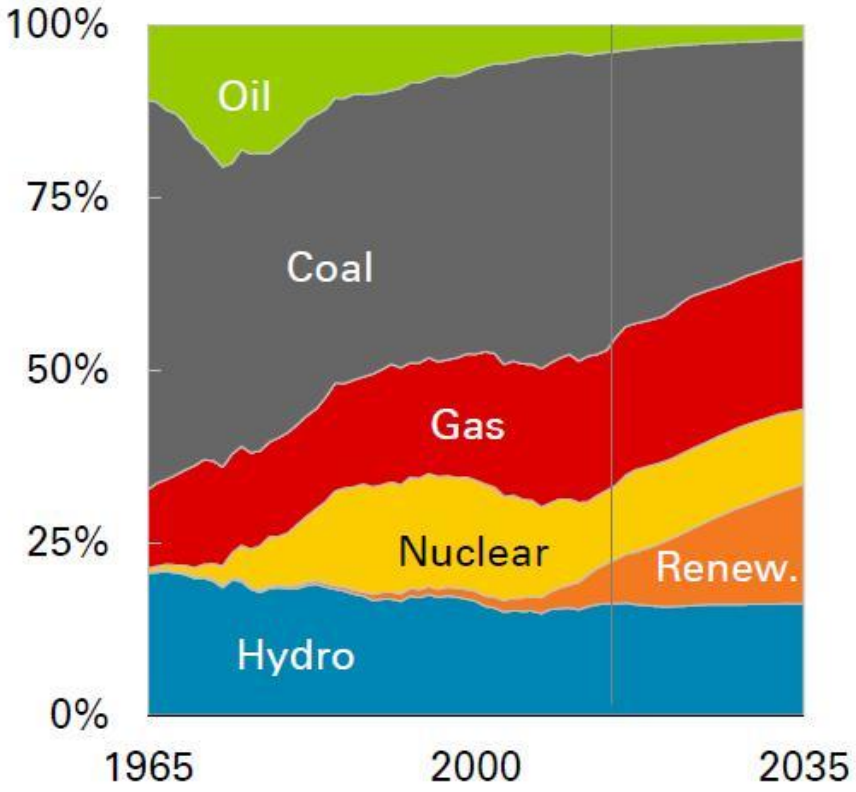
- The trend towards global electrification will continue
- More than half of the increase in global energy consumption is used for power generation as the long-run trend towards global electrification continues: the share of energy used for power generation rises from 42% by 2035.
- More than a third of the growth in power generation takes place in regions where a large part of the population lack adequate access to electricity- India, other developing Asia (excluding China), and Africa.
- Power generation is the main sector where all fuels compete and so it plays a major role in the evolution of the global fuel mix, with renewables and gas gaining share relative to coal.
- The outcome is a more balanced and diversified portfolio of fuels for power generation. The share of coal declines from 43% in 2014 to around a third in 2035. In contrast, the share of non-fossil fuels increases, reaching nearly 45% by 2035.

The Trend Towards Global Electrification

Inputs to power as a share of total primary energy



Primary inputs to power



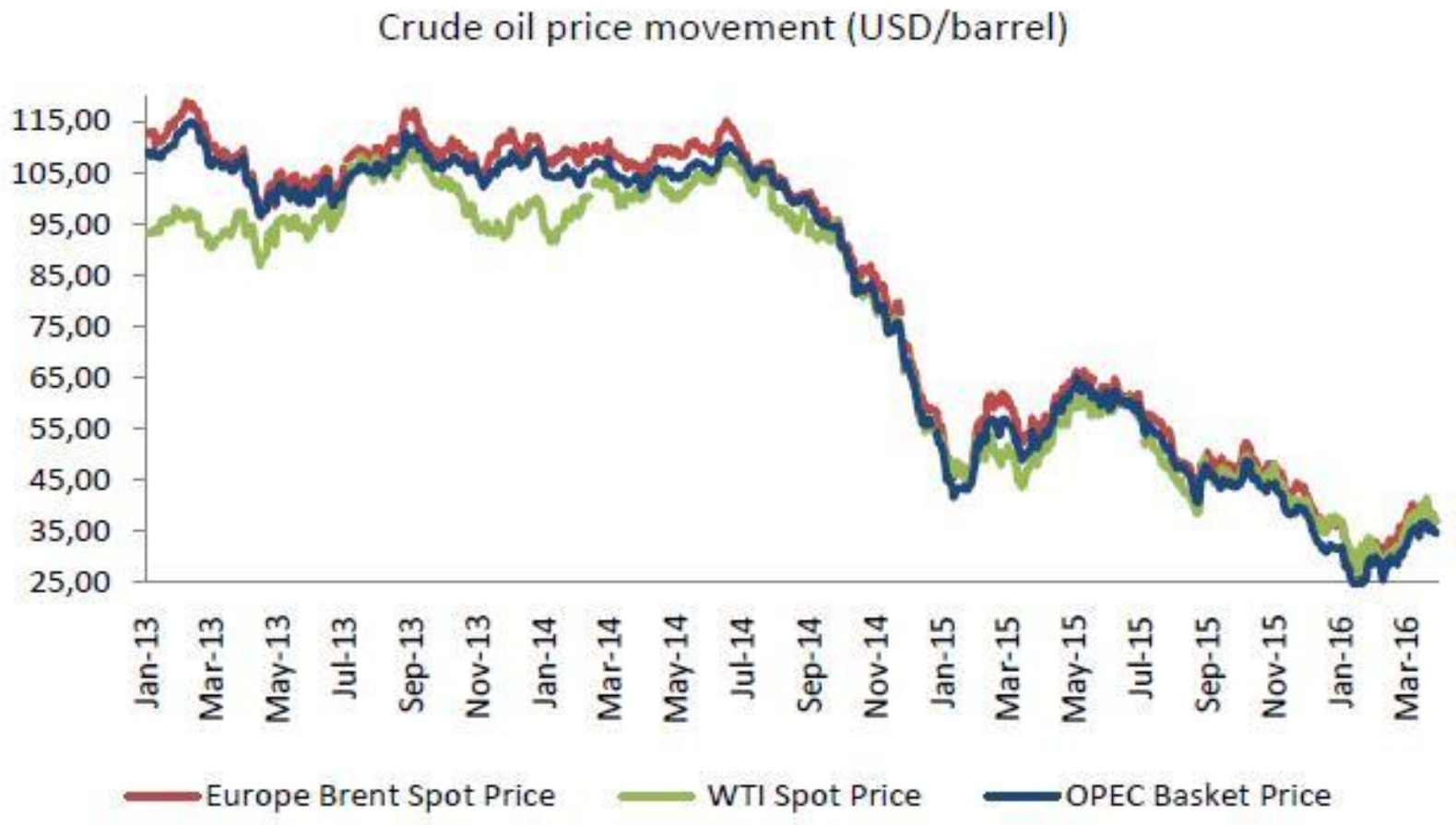
Oil and Gas Matters I

- A new oil order has been established over the last two years as a result of a sharp fall in the price of crude. From $110-$115 per barrel in June 2014 to less than $30 pbb in January 2016.

- International oil prices have been fluctuating between $35 to $45 pbb over the last few weeks for both the Brent, the international benchmark, and WTI, the American standard.

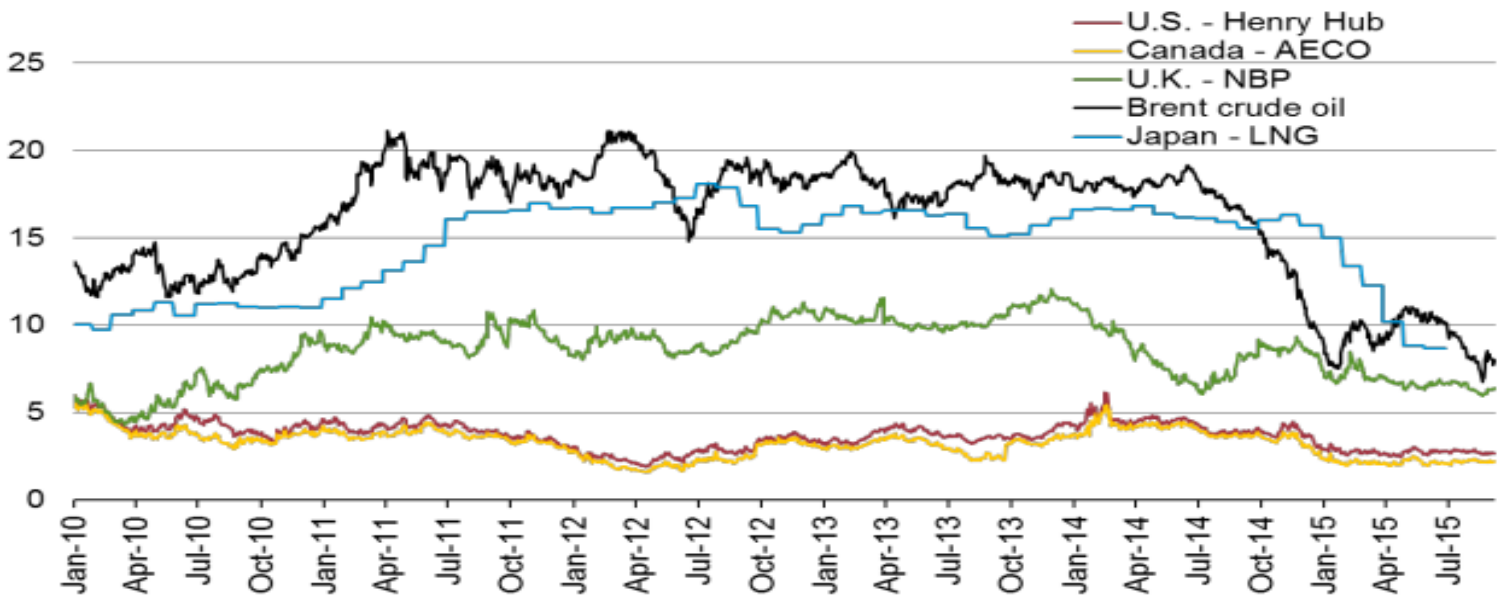
- Gas prices are directly affected by oil prices as most gas contracts by major producers (e.g. Russia, Algeria, Iran, Norway) are oil linked (oil indexation).

Oil and Gas Matters I



Oil and Gas Matters I

Select global natural gas and crude oil prices with average monthly LNG prices in Japan
U.S. dollars per million British thermal unit



Source: U.S. Energy Information Administration based on Bloomberg data

Oil and Gas Matters II

Three key factors are keeping prices down

- Relatively weak global demand for oil, resulting from slowing global economic growth. There is wide variation between various geographic regions (e.g. USA, India, China, Japan, Europe).
- Persistent global oversupply (1.5-2.0 million barrels per day), latest market developments (e.g. Doha meeting), moves of individual producers and global demand projections which between them do not suggest an easy price recovery.
- Global oil demand growth is in line, with global economic growth, but a lot less at 1.4% compared to 3.2% of global GPO growth

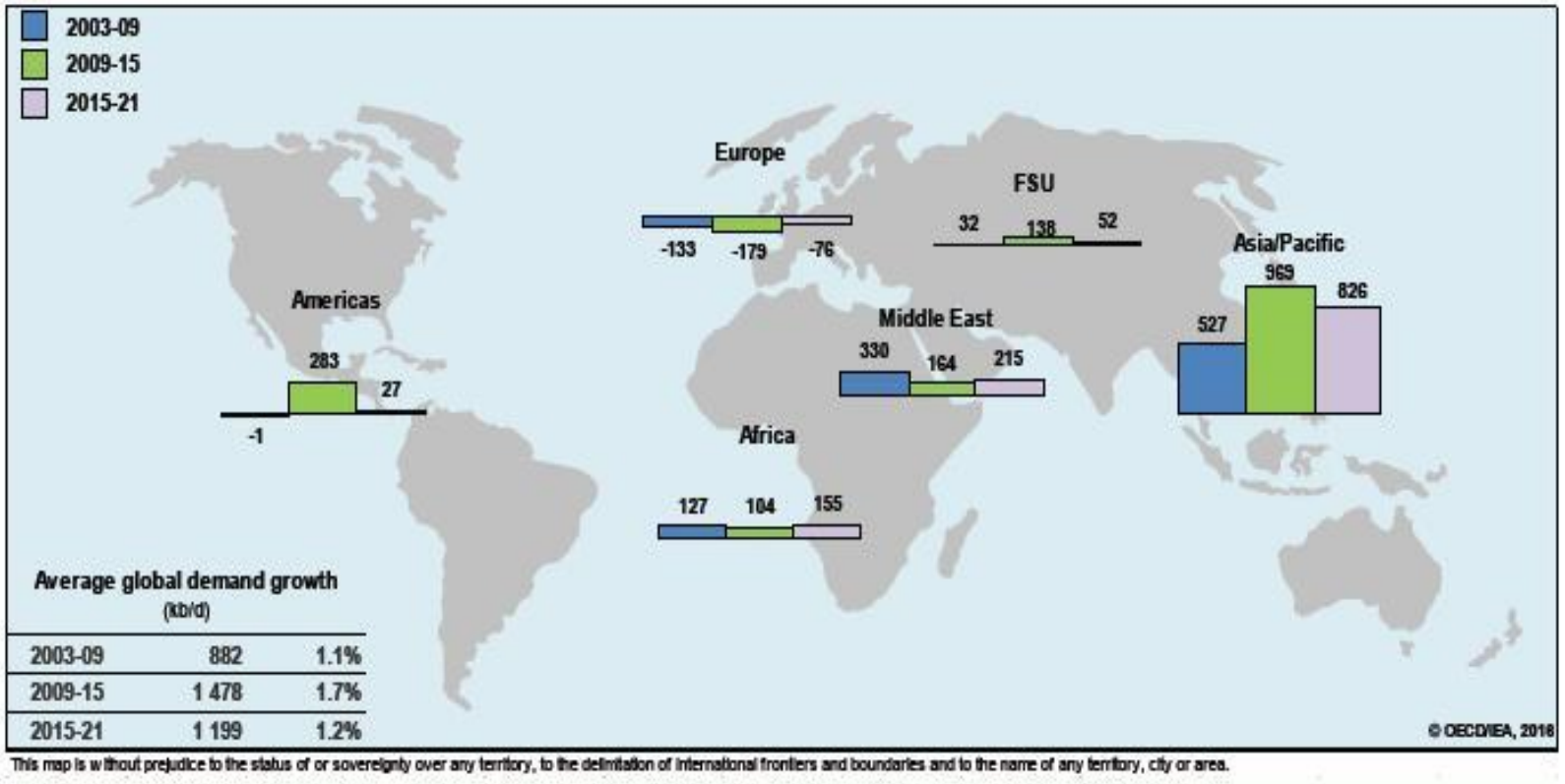
Global Oil Demand & Supply

Global Oil Demand (mb/d), 2015-21

	2015	2016	2017	2018	2019	2020	2021	2015-21
OECD Americas	24.4	24.4	24.5	24.4	24.4	24.3	24.2	-0.1
OECD Asia Oceania	8.1	8.0	8.0	7.9	7.9	7.9	7.8	-0.3
OECD Europe	13.7	13.7	13.6	13.5	13.4	13.3	13.1	-0.5
FSU	4.9	4.9	4.9	5.0	5.0	5.1	5.2	0.3
Other Europe	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.1
China	11.2	11.5	11.9	12.4	12.8	13.2	13.6	2.5
Other Asia	12.5	13.0	13.5	14.0	14.4	14.9	15.3	2.8
Latin America	6.8	6.8	6.8	6.9	6.9	7.0	7.1	0.3
Middle East	8.2	8.3	8.5	8.7	9.0	9.2	9.5	1.3
Africa	4.1	4.2	4.4	4.5	4.7	4.8	5.0	0.9
World	**94.4**	**95.6**	**96.9**	**98.2**	**99.3**	**100.5**	**101.6**	**7.2**

Global Oil Demand & Supply

Global Oil Demand Growth, by Region, 2001-21



Global Oil Demand & Supply

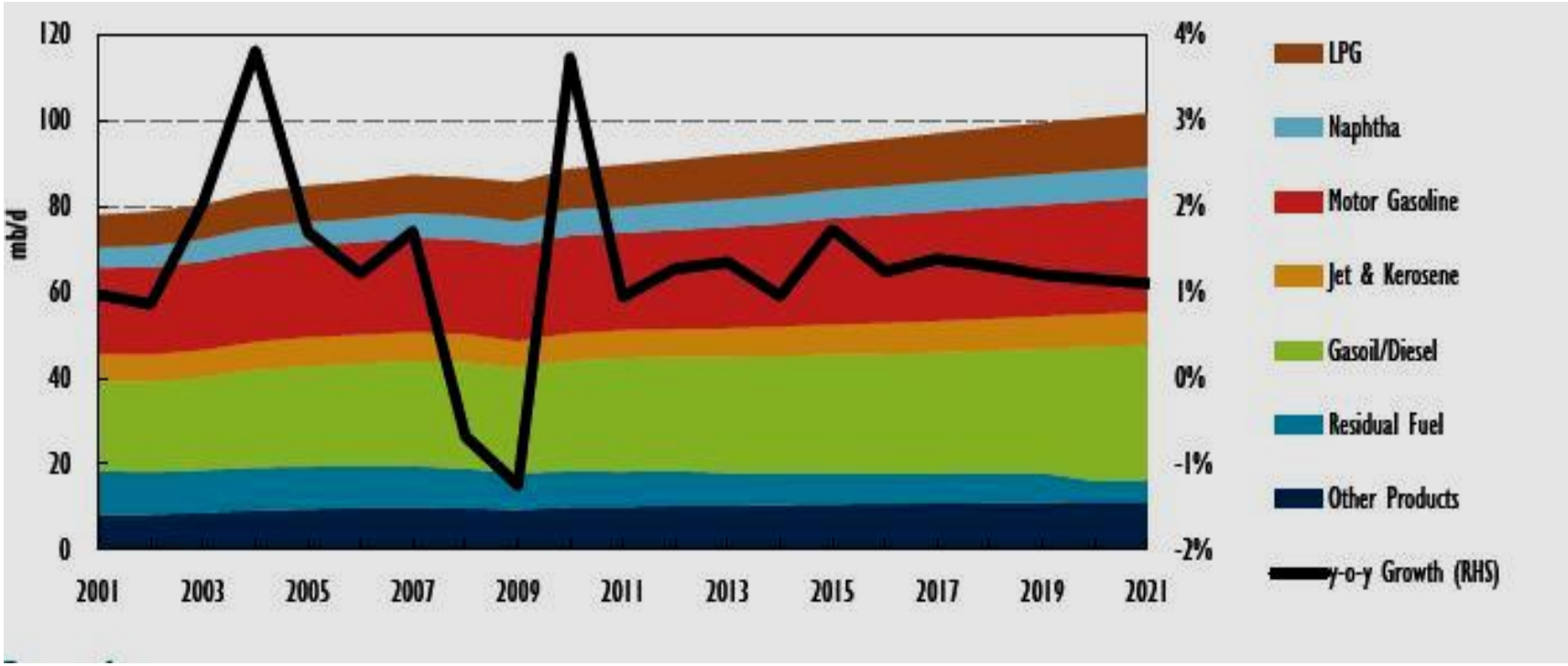
Global GDP Growth Forecast

	MTOMR 2016, based on IMF January 2016	IMF October 2015	*MTOMR* 2015, based on IMF January 2015
2016	3.4%	3.6%	3.7%
2017	3.6%	3.8%	3.7%
2018	3.7%	3.9%	3.7%
2019	3.9%	4.0%	3.8%
2020	4.0%	4.0%	3.8%

Note source: International Monetary Fund, World Economic Outlook.

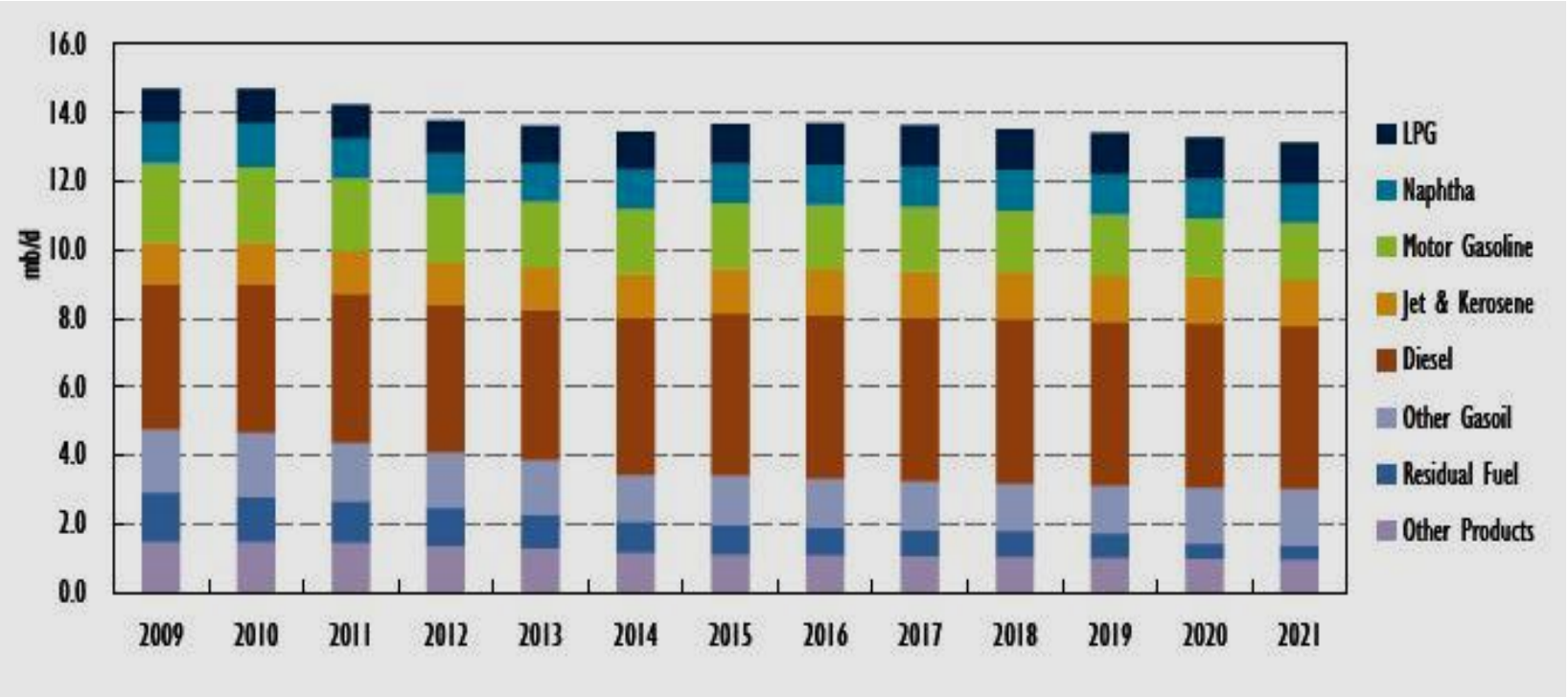
Global Oil Demand & Supply

Global Oil Demand Growth, by Product, 2001-21



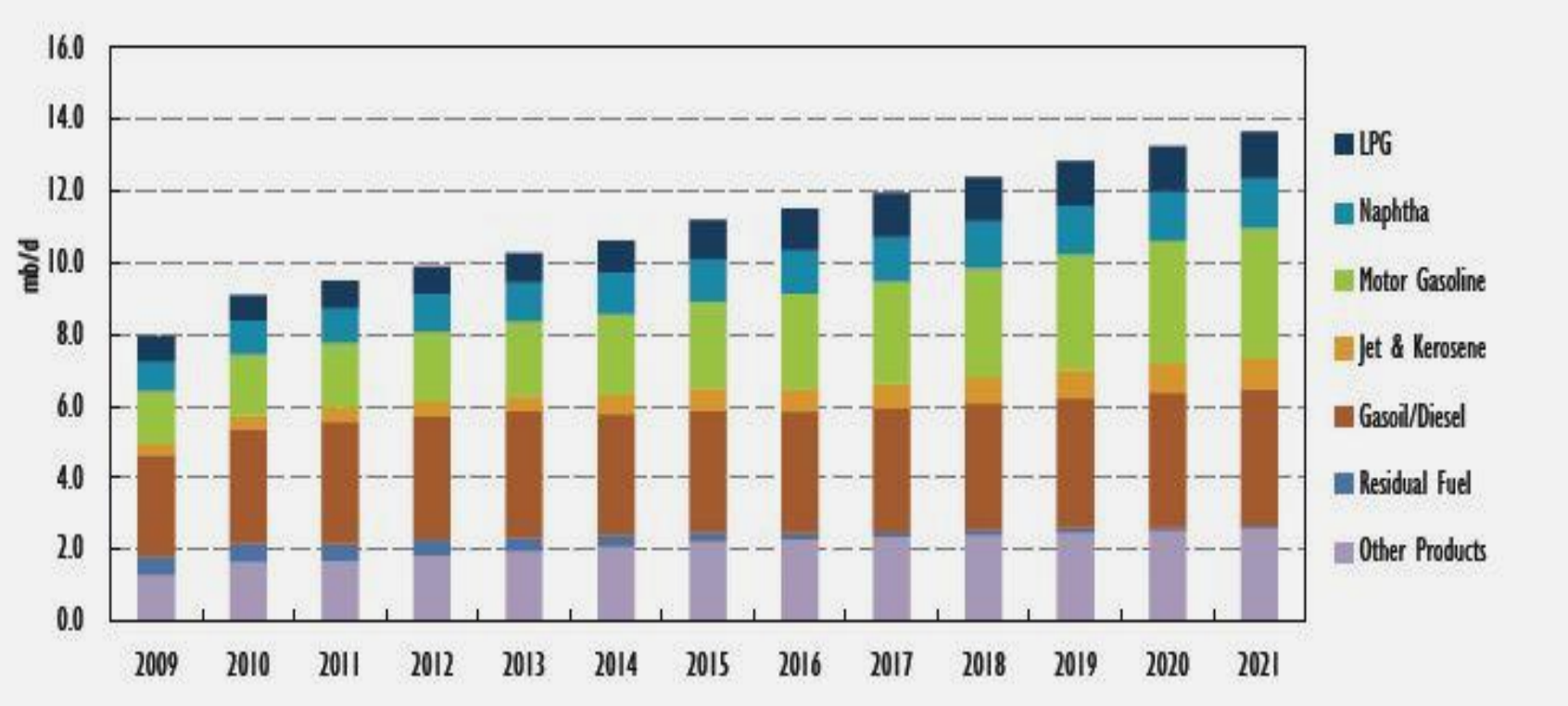
Global Oil Demand & Supply

European Oil Demand, 2009-21



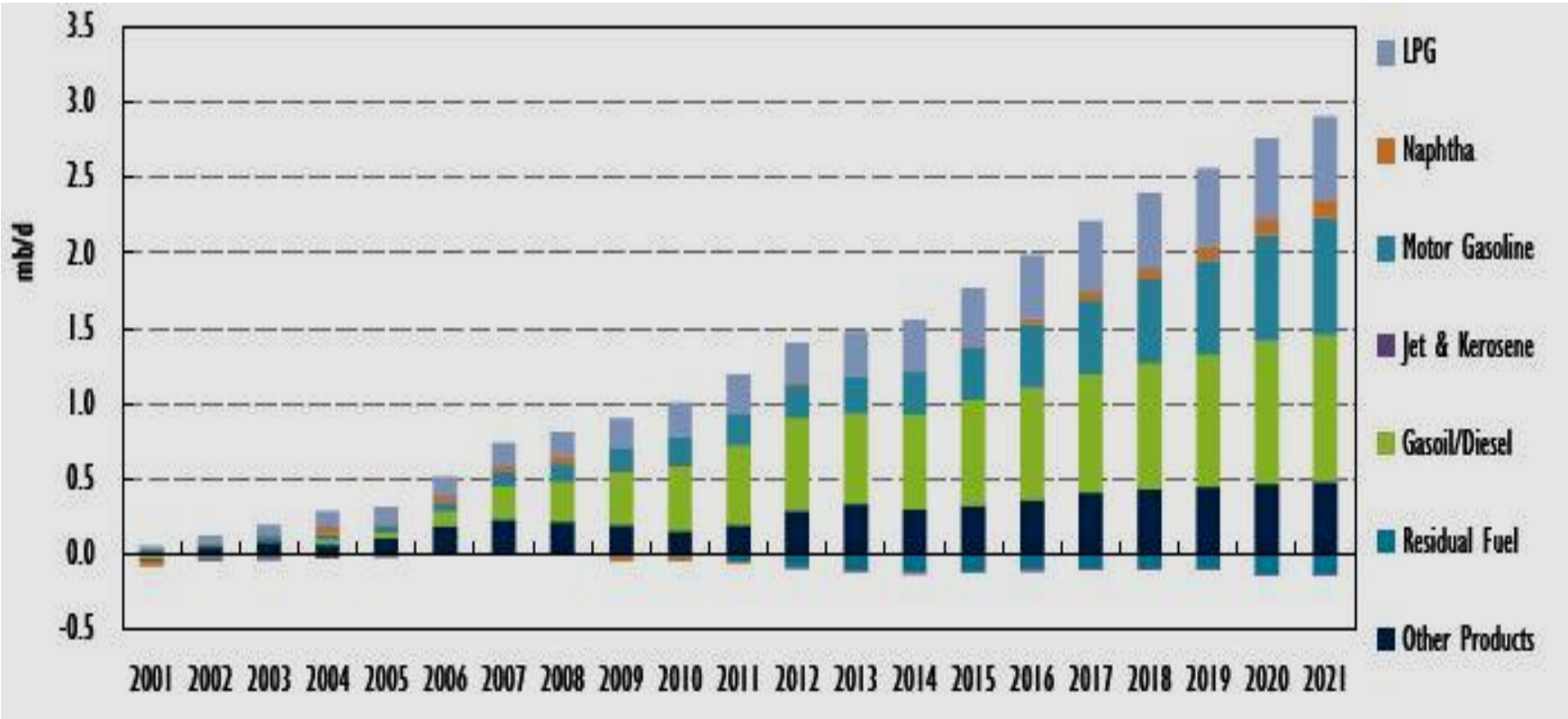
Global Oil Demand & Supply

Chinese Oil Demand, 2009-21



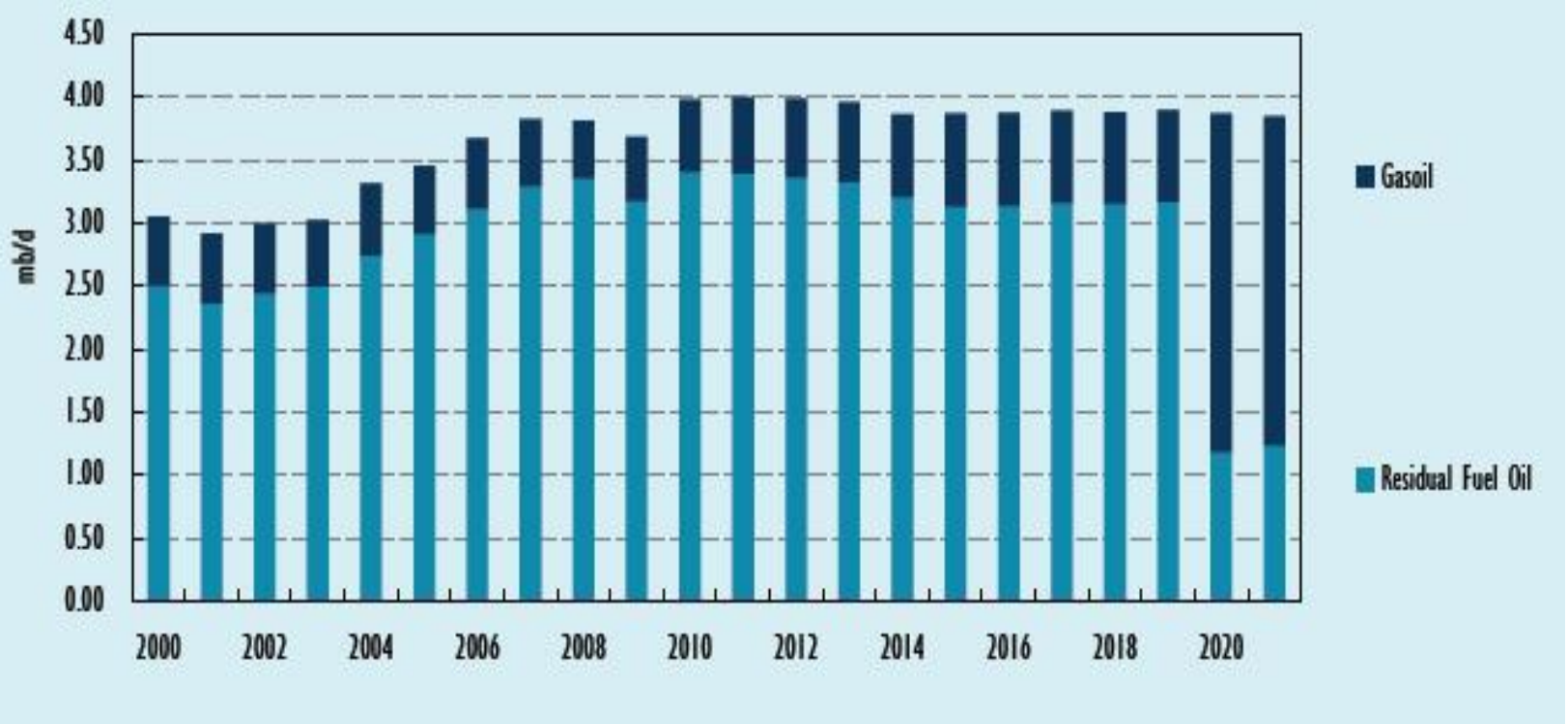
Global Oil Demand & Supply

Cumulative Indian Oil Demand Growth, 2001-21



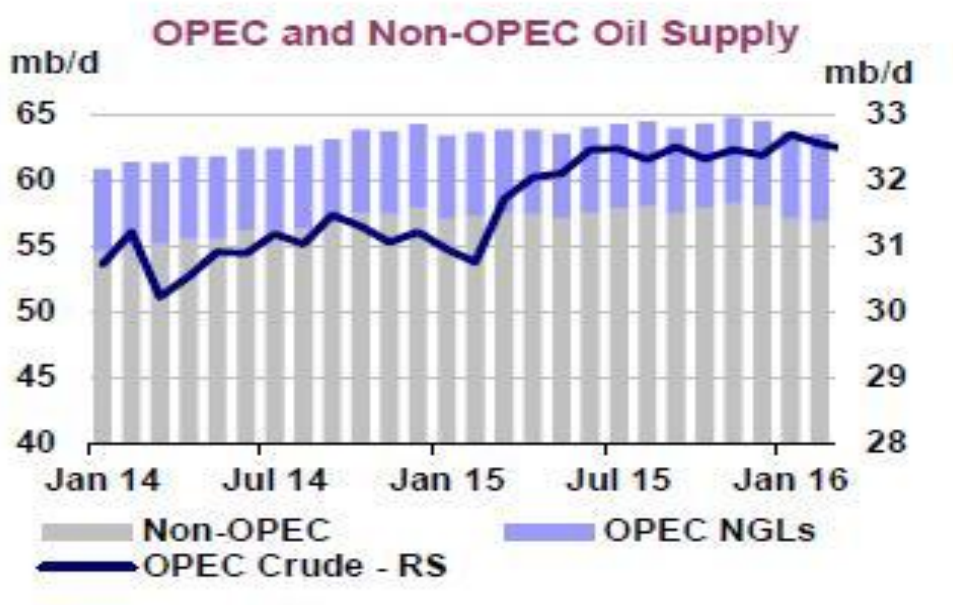
Global Oil Demand & Supply

Oil Based Marine Fuel Consumption in International Navigation



Global Oil Demand & Supply

The relationship between OPEC and non- OPEC Global Oil Supply is key in our understanding of oil price formation



Global Oil Demand & Supply

OPEC Crude Production

(million barrels per day)

	Jan 2016 Supply	Feb 2016 Supply	Mar 2016 Supply	Sustainable Production Capacity[1]	Spare Capacity vs Mar 2016 Supply	1Q16 Crude Supply
Algeria	1.10	1.10	1.11	1.12	0.01	1.10
Angola	1.75	1.76	1.80	1.81	0.01	1.77
Ecuador	0.53	0.55	0.54	0.55	0.01	0.54
Indonesia	0.70	0.71	0.72	0.72	0.00	0.71
Iran	3.00	3.22	3.30	3.60	0.30	3.17
Iraq	4.43	4.22	4.19	4.35	0.16	4.28
Kuwait[2]	2.83	2.83	2.83	2.83	0.00	2.83
Libya	0.38	0.37	0.34	0.40	0.06	0.36
Nigeria	1.85	1.76	1.70	1.90	0.20	1.77
Qatar	0.64	0.67	0.67	0.67	0.00	0.66
Saudi Arabia[2]	10.21	10.22	10.19	12.26	2.07	10.21
UAE	2.93	2.78	2.73	2.93	0.20	2.81
Venezuela[3]	2.35	2.37	2.35	2.46	0.11	2.36
Total OPEC	**32.70**	**32.56**	**32.47**	**35.60**	**3.13**	**32.58**
(excluding Iraq, Nigeria, Libya)					**2.71**	

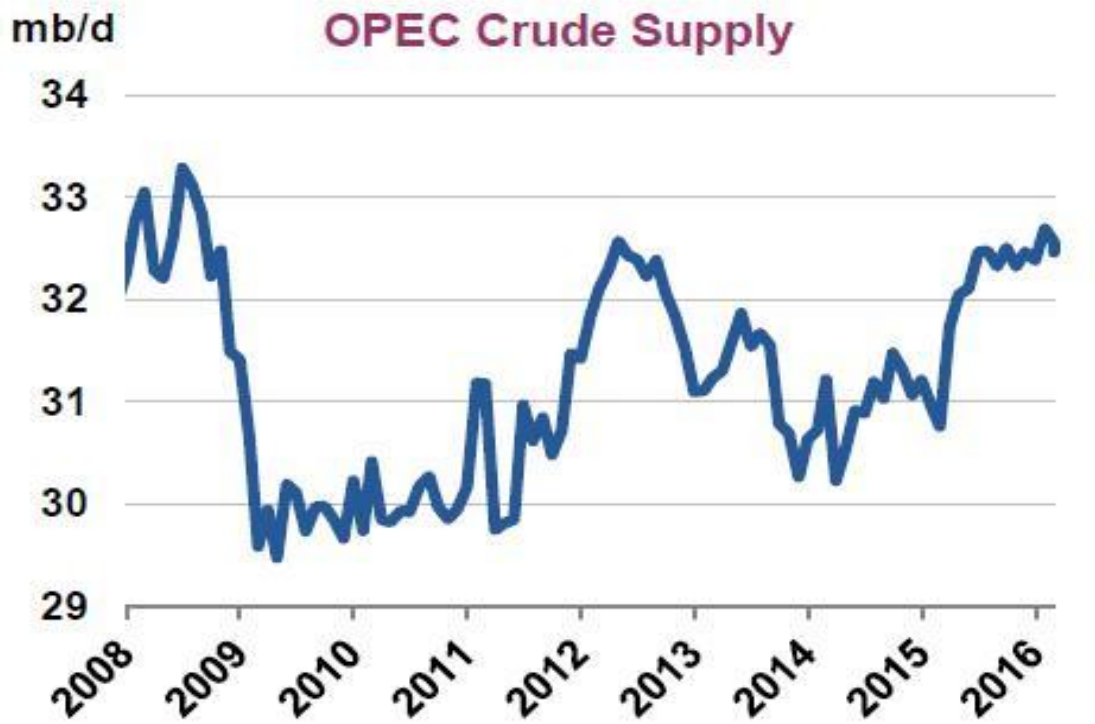
1 Capacity levels can be reached within 90 days and sustained for an extended period.

Global Oil Demand & Supply

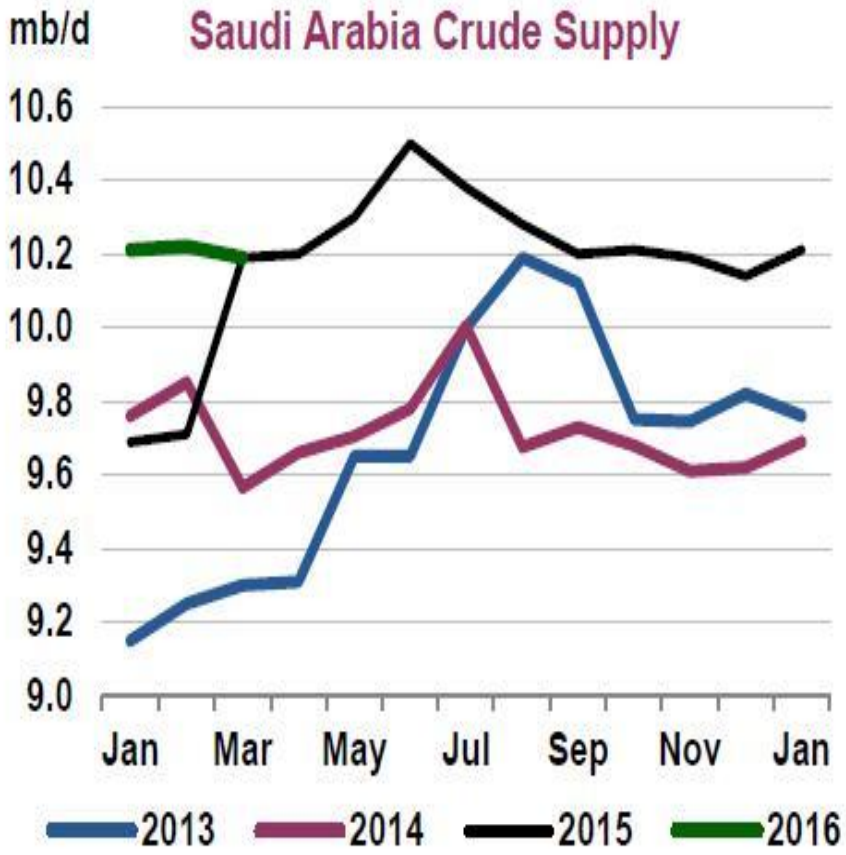
Estimated Sustainable Crude Production Capacity (mb/d)

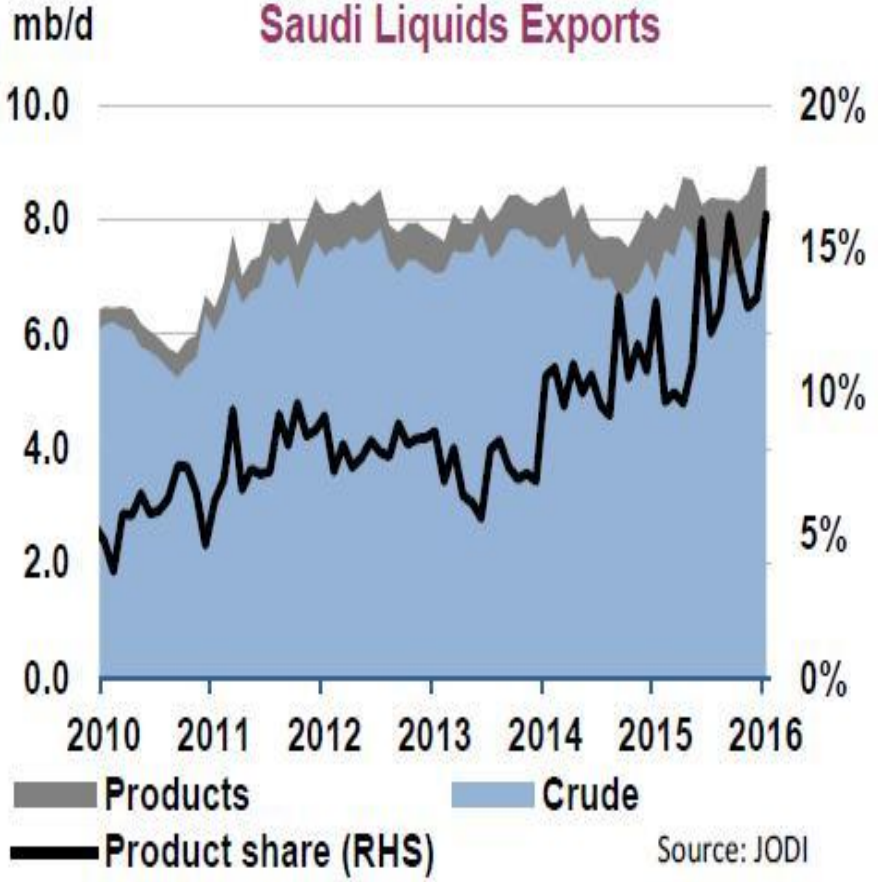
	2015	2016	2017	2018	2019	2020	2021	2015-21
Algeria	1.15	1.12	1.09	1.06	1.04	1.01	0.99	-0.17
Angola	1.81	1.81	1.77	1.81	1.78	1.76	1.8	-0.02
Ecuador	0.56	0.55	0.55	0.55	0.55	0.54	0.53	-0.03
Indonesia	0.69	0.71	0.71	0.69	0.67	0.65	0.63	-0.06
Iran	3.6	3.6	3.7	3.75	3.8	3.9	3.94	0.34
Iraq	4.35	4.35	4.36	4.4	4.45	4.53	4.62	0.27
Kuwait	2.83	2.87	2.91	2.93	2.94	2.9	2.88	0.05
Libya	0.4	0.4	0.43	0.46	0.49	0.53	0.59	0.19
Nigeria	1.91	1.9	1.84	1.75	1.78	1.85	1.85	-0.07
Qatar	0.68	0.67	0.66	0.66	0.66	0.66	0.66	-0.02
Saudi Arabia	12.26	12.31	12.43	12.45	12.44	12.39	12.33	0.07
UAE	2.93	2.97	3.02	3.07	3.12	3.17	3.2	0.27
Venezuela	2.46	2.46	2.44	2.43	2.45	2.44	2.42	-0.04
OPEC	**35.64**	**35.72**	**35.89**	**36.02**	**36.17**	**36.34**	**36.44**	**0.8**

Global Oil Demand & Supply

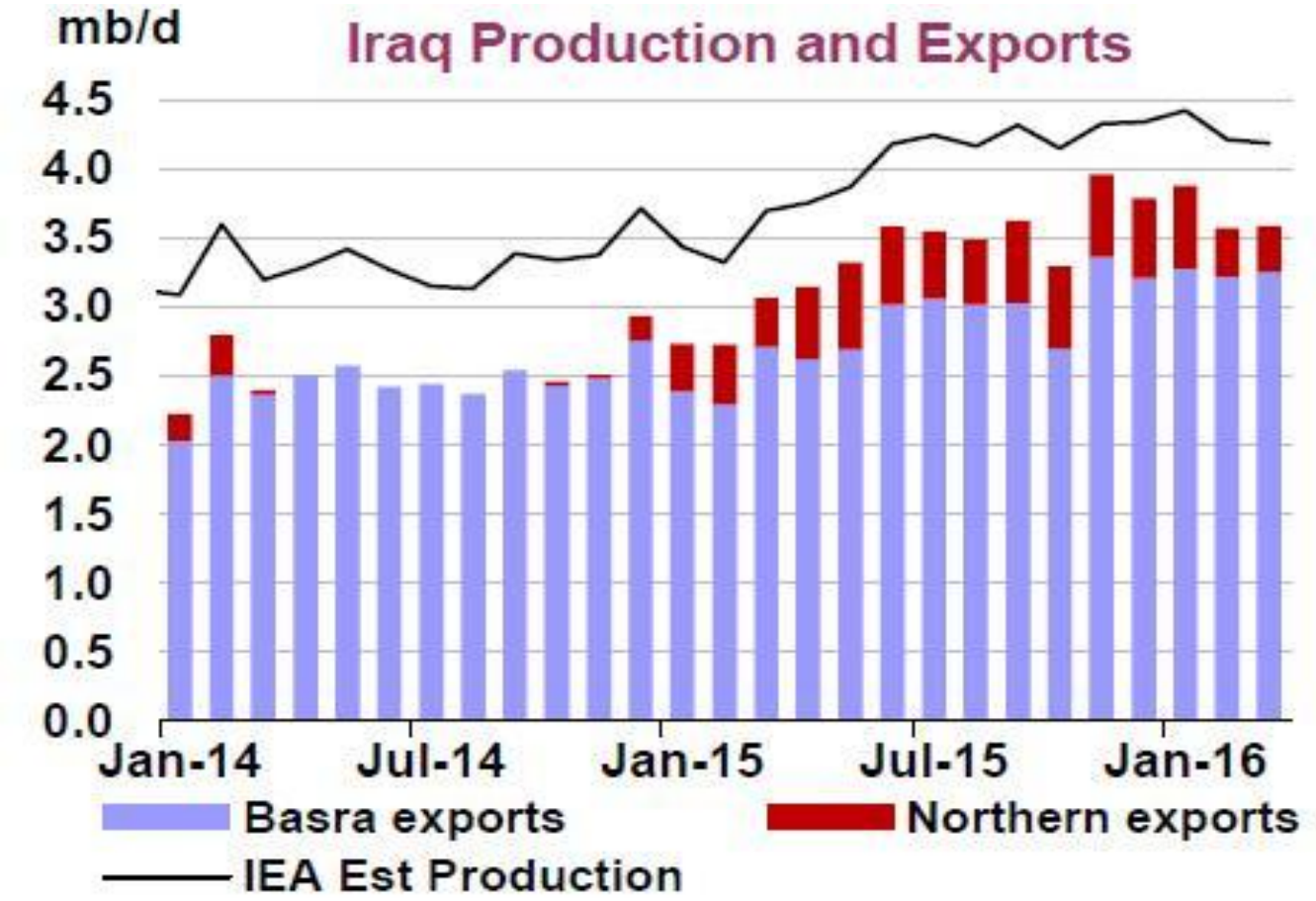


Global Oil Demand & Supply

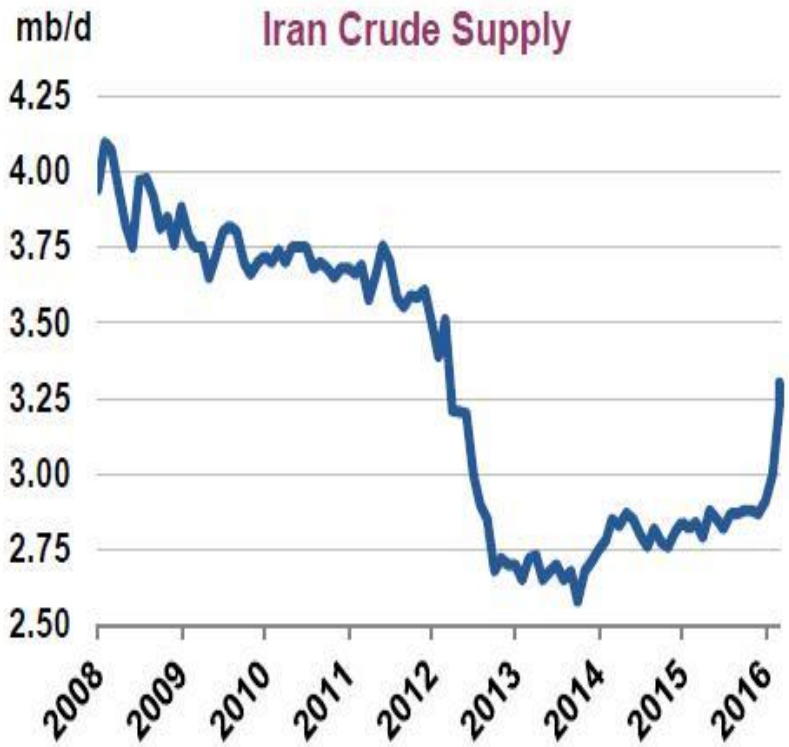


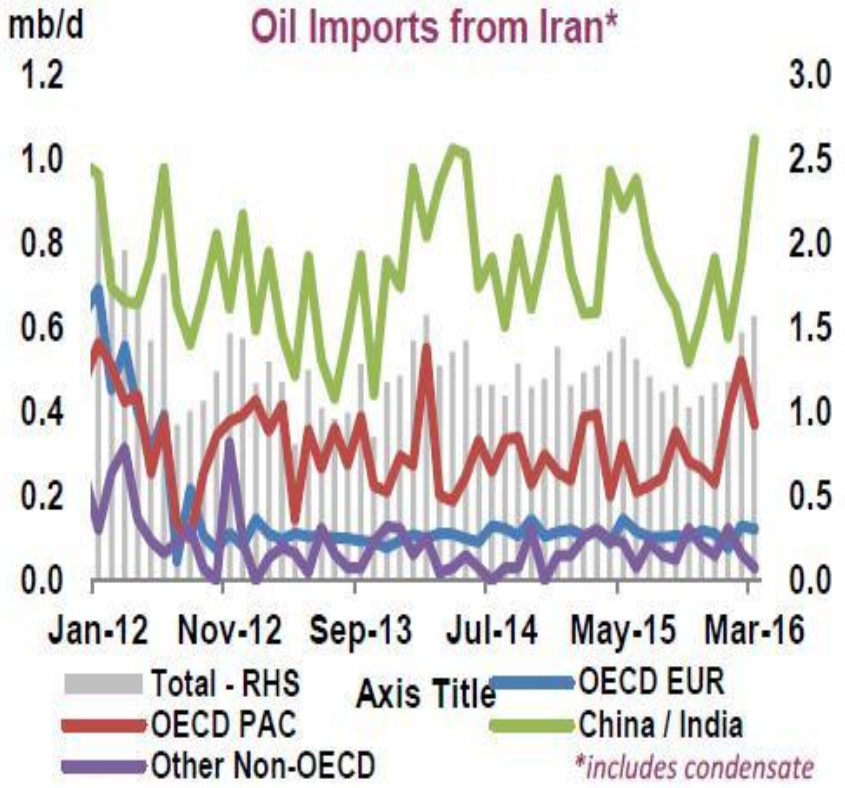


Global Oil Demand & Supply

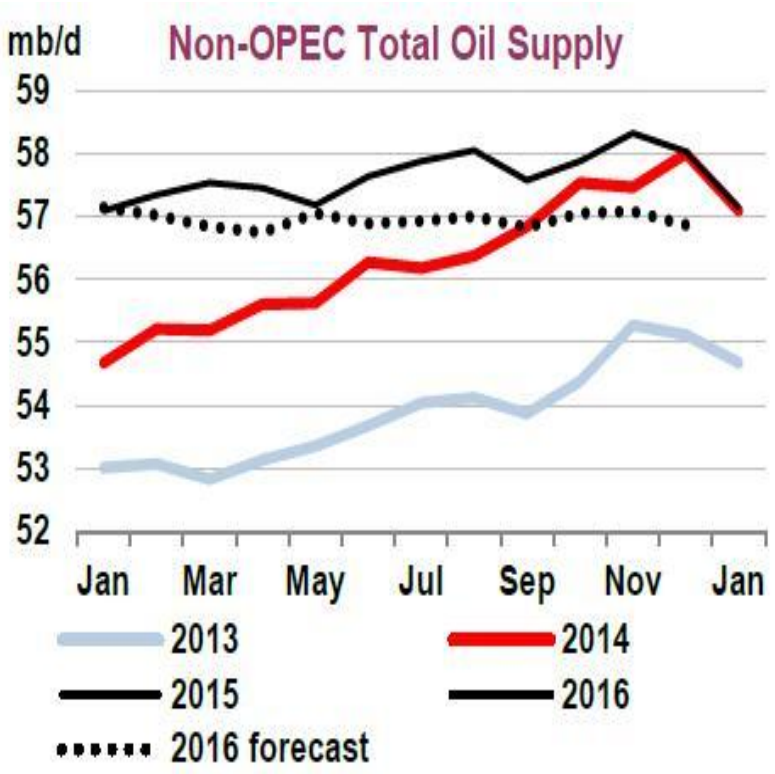


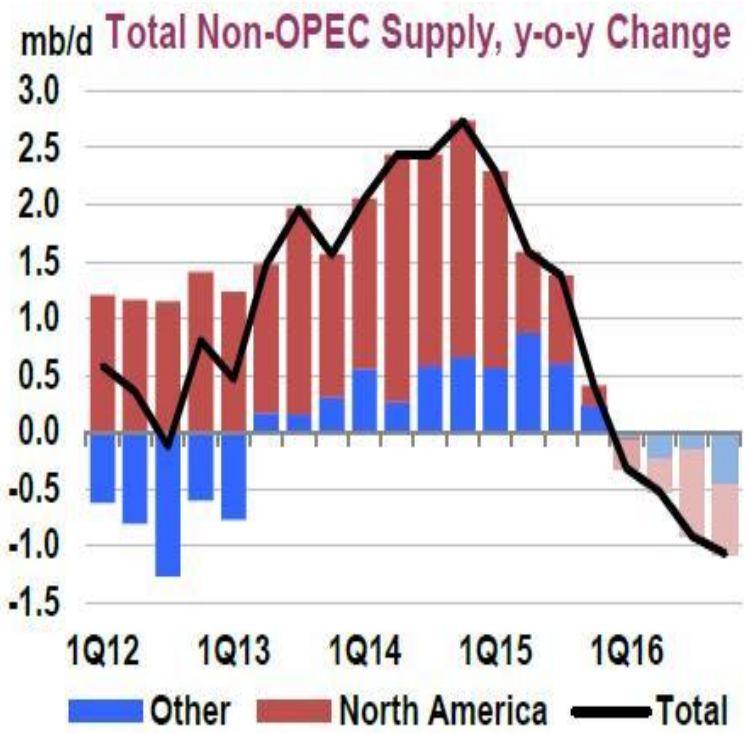
Global Oil Demand & Supply





Global Oil Demand & Supply





Global Oil Demand & Supply

Non-OPEC Supply

(million barrels per day)

	2014	1Q15	2Q15	3Q15	4Q15	2015	1Q16	2Q16	3Q16	4Q16	2016
Americas	19.1	20.0	19.6	20.1	20.1	19.9	19.7	19.3	19.3	19.5	19.5
Europe	3.3	3.4	3.5	3.4	3.6	3.5	3.5	3.4	3.3	3.4	3.4
Asia Oceania	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Total OECD	22.9	23.8	23.5	23.9	24.1	23.9	23.7	23.2	23.0	23.3	23.3
Former USSR	13.9	14.0	14.0	13.9	14.0	14.0	14.2	14.1	13.9	13.9	14.0
Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.2	4.3	4.4	4.3	4.3	4.3	4.2	4.2	4.2	4.2	4.2
Other Asia	2.6	2.8	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.7	2.7
Latin America	4.4	4.6	4.6	4.6	4.6	4.6	4.4	4.5	4.6	4.6	4.5
Middle East	1.3	1.3	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.2	1.2
Africa	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.2
Total Non-OECD	28.9	29.4	29.3	29.1	29.3	29.3	29.1	29.0	28.9	29.0	29.0
Processing Gains	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3
Global Biofuels	2.2	1.8	2.4	2.6	2.4	2.3	1.9	2.4	2.7	2.4	2.4
Total Non-OPEC	56.3	57.3	57.4	57.8	58.1	57.7	57.0	56.9	56.9	57.0	57.0
Annual Chg (mb/d)	2.4	2.3	1.6	1.4	0.4	1.4	-0.3	-0.5	-0.9	-1.1	-0.7
Changes from last OMR (mb/d)	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.1	0.0	0.0	0.0

Global Gas Demand & Supply I

- European gas demand fell sharply in 2014, driven by large weather-induced losses. There was a drop of 45 bcm, 75% of which is estimated to be weather related.
- European gas consumption started improving in 2015 and will show a mild recovery over the next five years, overwhelmingly driven by the power sector in weather-adjusted terms. Total demand, normalised for weather conditions, will increase by 18 bcm between 2014 and 2020, to reach 500 bcm by the end of the forecast period. Despite the gain, this is still 55 bcm below the level of 2008.
- FSU demand is forecast to flat line at the historically low level of 2014, with the balance of risks to the downside. Rising demand in the Caspian region offsets a small projected decline from Russia.
- Demand growth in Latin America, Africa and Middle East is heavily affected by supply availability. In Latin America, production growth will decelerate sharply compared with the recent past and the region will be forced to rely more heavily on imports to support consumption growth. Expansion in the region's import capacity coupled with ample liquefied natural gas (LNG) availability globally should allow Latin America's demand to increase at an average annual rate of 1.7%.

Global Gas Demand & Supply II

- Global gas demand is projected to increase at an average annual rate of 2% between 2014 and 2020
- Cumulative growth stands at 431 bcm, 48% of which comes from the power sector. The transport sector is the fastest growing end-user segment with consumption forecast to grow by 47 bcm
- The outlook for gas in power generation is becoming increasingly uncertain due to the effect of opposite forces. In many OECD countries, electricity growth is sluggish even when economic activity is expanding. The result is slower thermal generation growth while deployment of renewables continues fast.
- Several countries took steps to limit the share of gas usage in their power mix and have prioritised coal capacity expansions over gas. The question remains how Asian demand will respond, considering plunging oil and gas prices

World Gas Demand by Region (bcm)*

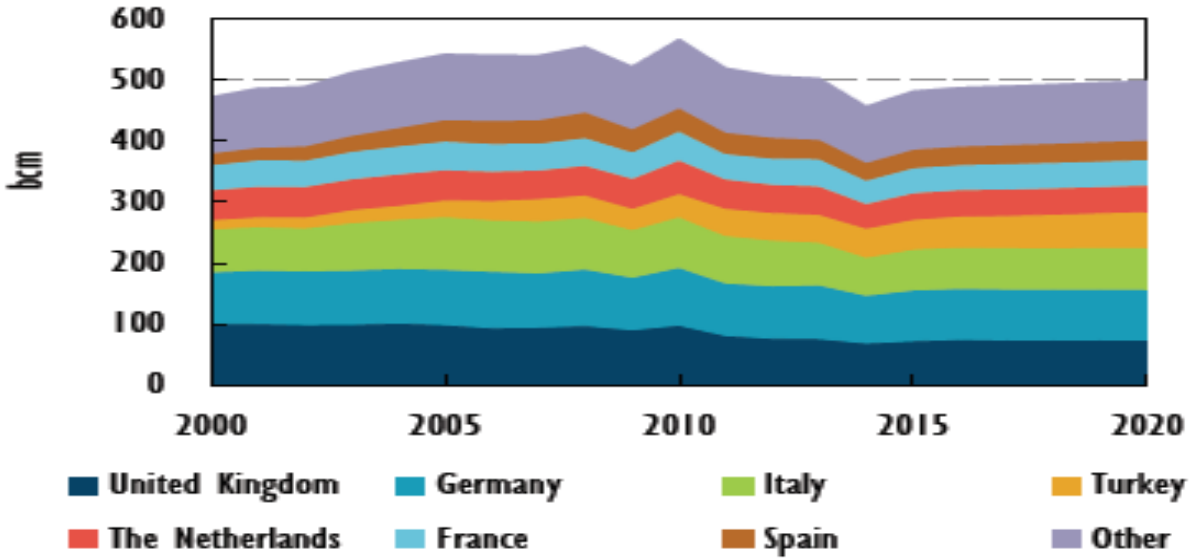
Country	2014	2016	2018	2020	CAAGR
OECD Europe	458	489	493	500	1.5%
OECD Americas	945	968	991	1 006	1.0%
OECD Asia Oceania	237	242	243	245	0.6%
Africa	123	131	139	147	3.0%
Non-OECD Asia (excl. China)	298	315	335	355	2.9%
China	178	219	270	314	10.0%
FSU/non-OECD Europe	674	668	673	679	0.1%
Latin America	168	169	177	186	1.7%
Middle East	414	435	464	493	3.0%
Total	**3 495**	**3 635**	**3 785**	**3 926**	**2.0%**

Notes: FSU = Former Soviet Union. 2014 figures are estimates. bcm = billion cubic metres. The compounded average aggregated growth return (CAAGR) is different for production and demand due to estimated stock changes in 2014. The world total production and demand differ due to estimated stock change and rounding.

*IEA *Medium-Term Gas Market Report 2015*

Global Gas Demand & Supply II

OECD Europe Gas Demand by Country*



*IEA Medium-Term Gas Report, 2015

Gas Supply

- Global gas production is set to increase at an average annual rate of 1.9% between 2014 and 2020, a slowdown compared with the 2.4% rate of the previous ten years.
- OECD's production grows robustly, at an annual average rate of 2.2%, almost 1% stronger than that recorded over the previous ten years. Robust production additions from OECD Americas and OECD Asia Oceania more than offset continued declines in OECD Europe.
- Non-OECD's production increases at an annual average rate of 1.7%, accounting for 57% of the global increase, compared with a share of almost 80% over the previous ten years.
- Africa's gas production will grow at an average annual rate of 1.7% between 2014 and 2020. The increase is a welcome change after seven years of volatile output showing a declining trend.
- The Middle East's production will grow at an average annual rate of 2.2% between 2014 and 2020, significantly less than the 7% recorded over the previous ten years.
- FSU production will grow at an average annual rate of 1.1% between 2014 and 2020, with the Caspian region accounting for 85% of the increase.

World Gas Supply by Region (bcm)

Country	2014	2016	2018	2020	CAAGR
OECD Europe	254	246	238	227	-1.9%
OECD Americas	937	966	1011	1057	2.0%
OECD Asia Oceania	82	126	159	167	12.6%
Africa	203	209	216	225	1.7%
Non-OECD Asia (excl. China)	324	330	339	345	1.0%
China	124	141	156	171	5.5%
FSU/non-OECD Europe	869	874	889	930	1.1%
Latin America	178	180	183	185	0.7%
Middle East	546	566	593	621	2.2%
Total	**3 517**	**3 638**	**3 785**	**3 927**	**1.9%**

Notes: bcm = billion cubic metres. FSU = Former Soviet Union. 2014 figures are estimates. The compounded average annual growth rate (CAAGR) is different for production and demand due to estimated stock changes in 2014. The world total production and demand differ due to estimated stock change and rounding.

The LNG Market

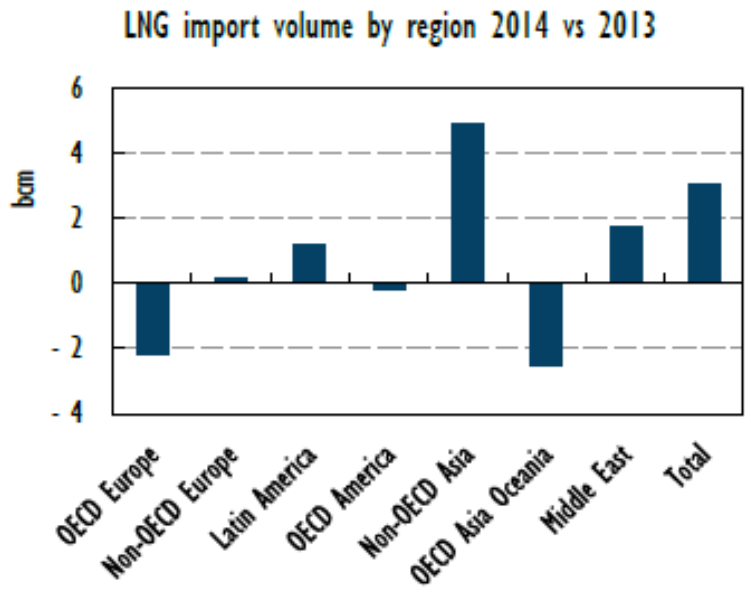
LNG Trade

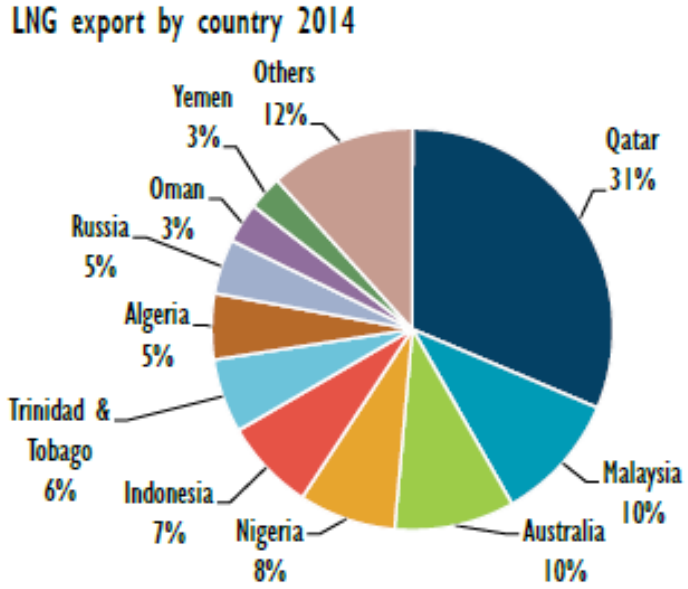
- Global LNG trade increased 3 bcm or 1% in 2014, reaching 325 bcm. It was the first annual increase since 2011. All regions, with the exception of OECD America, OECD Europe and OECD Asia Oceania, recorded gains. OECD Europe saw the fourth, annual, consecutive decline in LNG imports, with all countries, except Turkey and the United Kingdom, shedding volumes.
- OECD Asia Oceania also witnessed lower LNG intakes, driven by falling Korean imports. The latter dropped by 4 bcm, marking the largest annual decline for the country since LNG imports started in 1986. In Japan intakes were stable at around 120 bcm for a third straight year, around 20% higher than pre-Fukushima levels.
- Non-OECD Asia, including China, recorded the largest increase among importing regions, pegged at 5.6 bcm. China and India together accounted for 47% of that, a modest figure, considering the size of their regasification capacity and recent import patterns.
- In 2014 non-OECD Europe entered the club of LNG importers as Lithuania started up Klaipeda FSRU. It received its first commercial cargo from Norway in December under a five-year contract between Lithuania's Litgas and Norway's Statoil.

LNG Trade to Increase

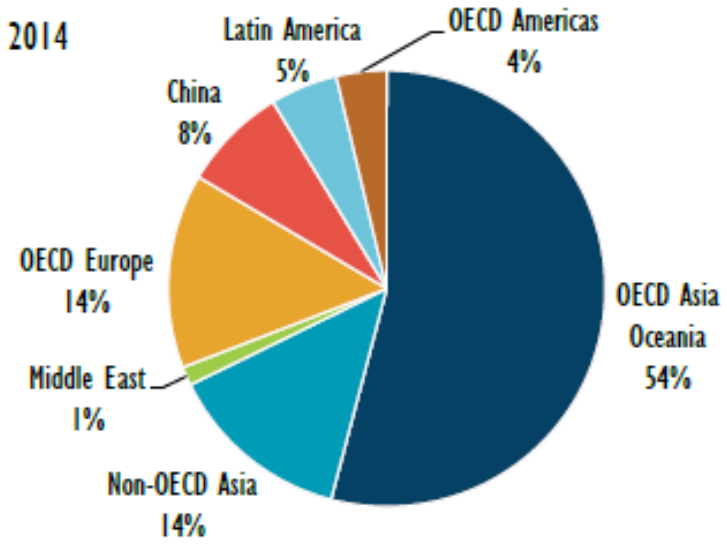
- LNG trade to increase by 45% and reach 473 bcm per year in 2020. The increase in imports will be led by three regions: China, Non-OECD Asia and Europe, which together account for more than 90% of incremental additions. OECD Asia and North America will see their imports decline, driven by lower intakes from Japan and Mexico. Africa will turn to LNG imports for the first time in history with Egypt taking in about 4 bcm of gas by 2020. Latin America and the Middle East will see their imports increase by a combined 11 bcm as both regions struggle to meet incremental demand.
- In non-OECD Asia, imports will become increasingly widespread across countries. Pakistan, Bangladesh, Philippines and Viet Nam will all join the club of LNG importers by 2020. Malaysia and Indonesia will start to use new import terminals, although often by rerouting their own domestic LNG production. India will take almost 12 bcm of additional gas compared with current levels.
- China LNG imports are forecast to increase by 38 bcm, with the bulk of the additions occurring in the 2016-18 period, when incremental LNG supplies are also set to peak. Growing pipeline import capacity from Central Asia and Russia will result in slower LNG import growth in 2019/20.
- Europe will once again emerge as a residual market, importing what other regions do not take, due to its capability to arbitrage between pipeline and LNG flows. The region's imports will double approximately, reaching 91 bcm by 2020. As for China, incremental intakes in 2016/17 look particularly large, mirroring the surge in LNG supplies over those two years

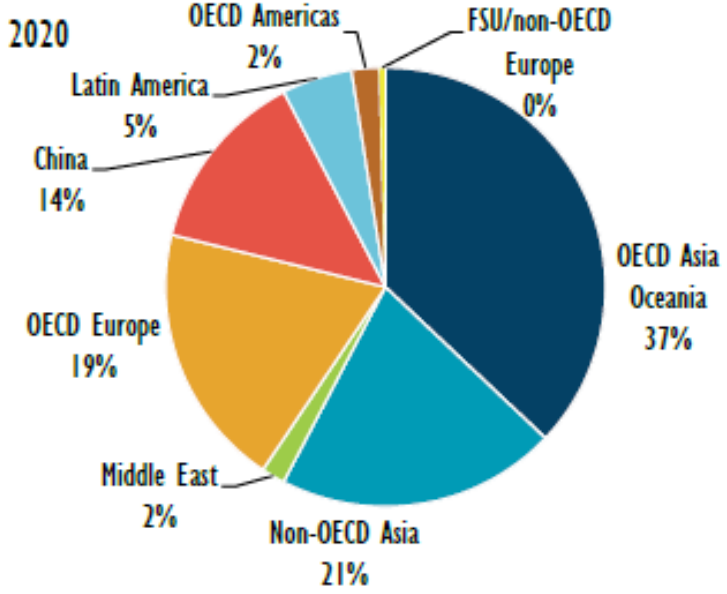
Comparison of LNG Import Volumes by Regions, 2014 Vs 2013





LNG Imports by Region, 2014-2020

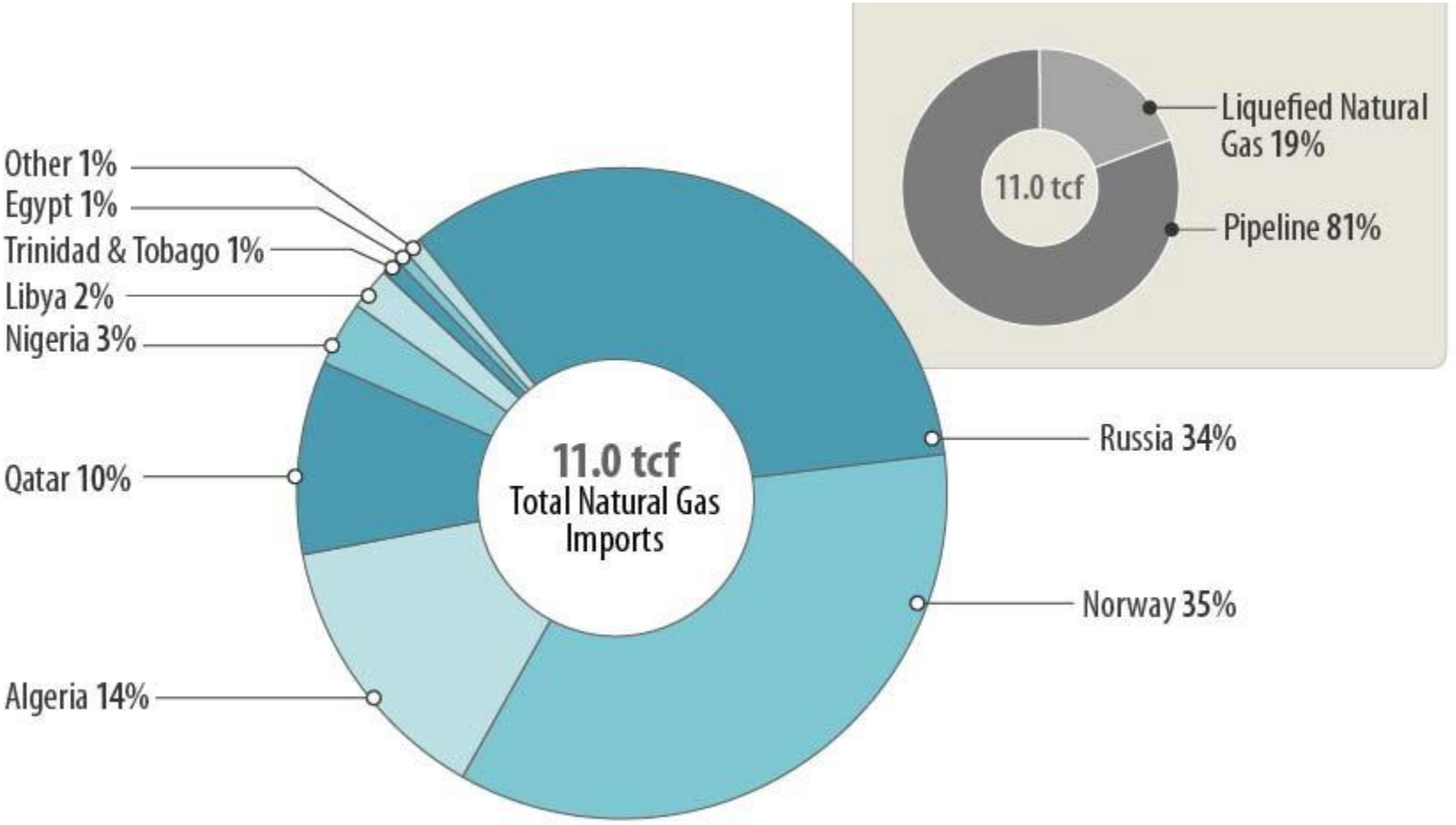




LNG Imports

- LNG import capacity in OECD Europe reached 203 bcm in 2014, marking an increase of 12% since 2010. Adding to existing capacity, with what is currently under construction and due on line this year, capacity will reach 221 bcm.
- In late 2014, Lithuania started the first LNG terminal in the Baltic Sea (Independence, 4 bcm), which will be followed by the Polish Świnoujście LNG terminal (5 bcm). Both terminals are important steps towards supply diversification in this region.
- In OECD Asia LNG imports fell in 2014 for the first time since 2009, while they remained subdued in the People's Republic of China ("China") and India. In Europe, re-exports ground to a halt in early 2015, while imports increased in the first quarter of 2015.

Natural Gas Imports in Europe (2014)

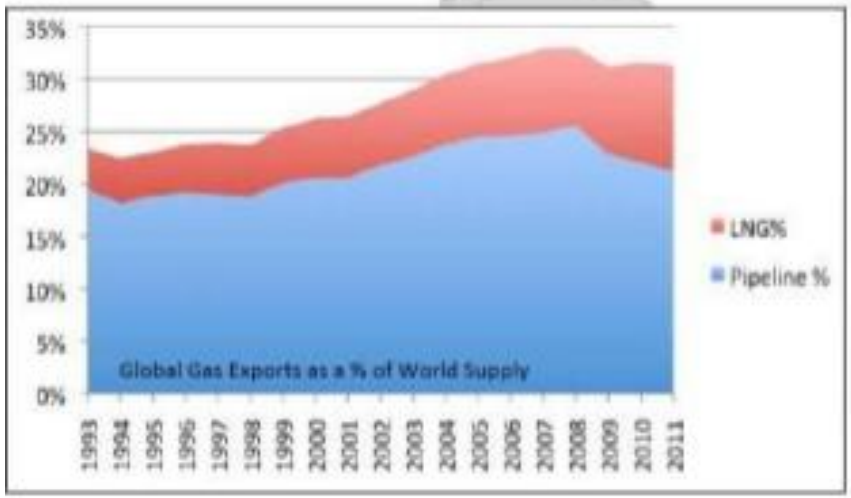


EU LNG Import Capacity (2014)

	Number of Facilities	Capacity (bcf)
Belgium	1	9.0
France	3	23.8
Greece	1	5.3
Italy	2	11.0
Netherlands	1	12.0
Portugal	1	7.9
Spain	6	60.1
Sweden	1	0.5
United Kingdom	4	51.1
	20	180.7

Demand Will Drive LNG Growth

Regional LNG Import Outlook (mtpa)



From 303 mtpa (~40 Bcf/d) in 2015 to 511 mtpa (~68 Bcf/d) in 2030 – 3.5% CAGR
~ 14 mtpa average growth (~three 4.5 mtpa trains)

Source: Facts Global Energy

LNG Projects Under Construction

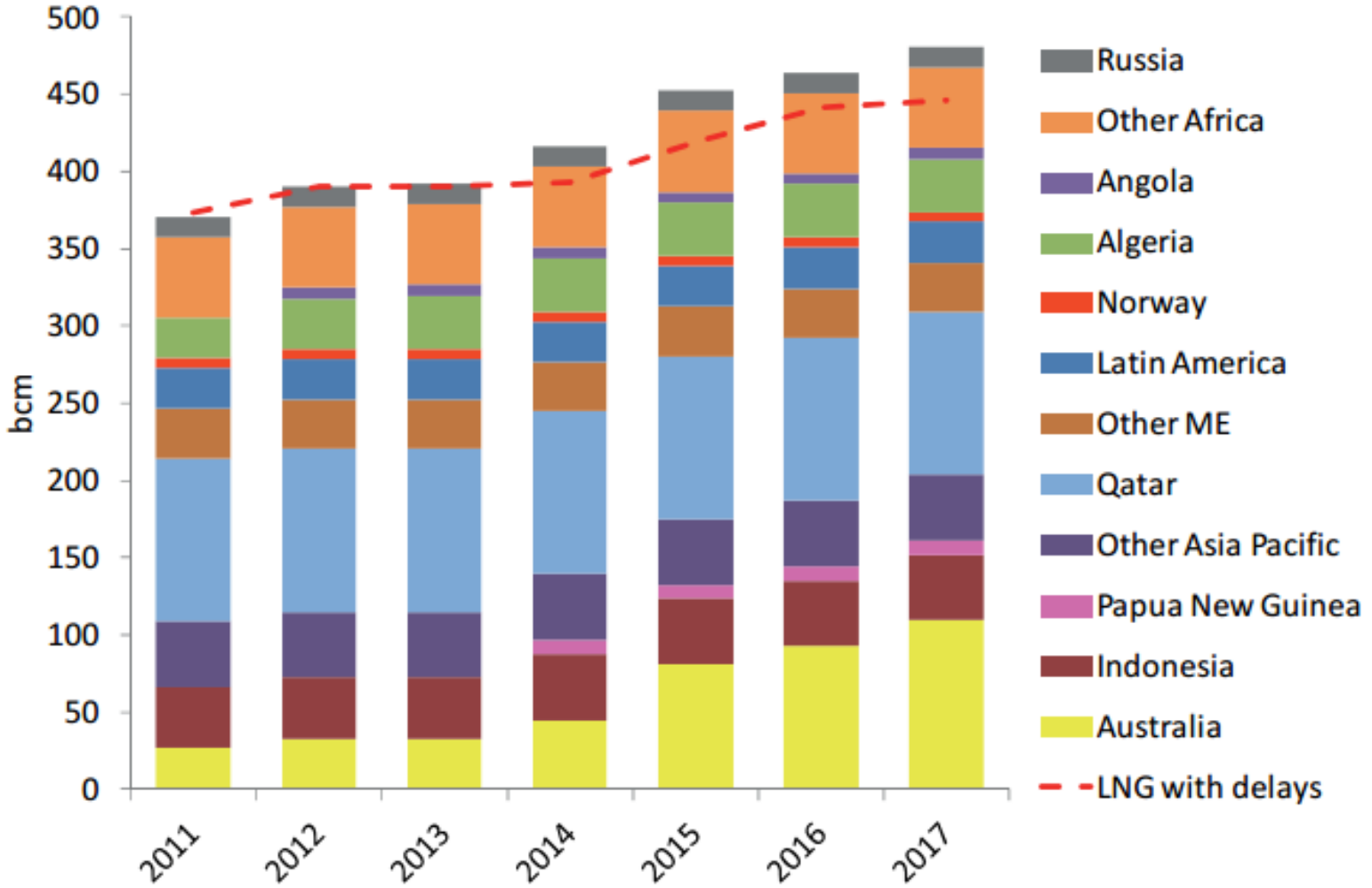
Country	Project	Capacity (bcm/yr)	Major stakeholders	Target online
Indonesia	Donggi Senoro LNG	2.7	Mitsubishi, Pertamina, Kogas, Medco	2015
Indonesia	Sengkang	2.7	Energy World Corporation	2015
Colombia	Caribbean FLNG	0.7	Pacific Rubiales, Exmar	2015
Malaysia	MLNG Train 9	4.9	Petronas	2015
Australia	Gorgon LNG	20.4	Chevron, Shell, Exxon Mobil	2015
Australia	Gladstone LNG	10.6	Santos, Petronas, Total, Kogas	2015
Australia	Australia Pacific LNG (APLNG)	12.2	ConocoPhillips, Origin, Sinopec	2015
Malaysia	PFLNG 1	1.6	Petronas, MISC	2016
United States	Sabine Pass LNG	24.5	Cheniere Energy	2016
Australia	Wheatstone	12.1	Chevron, Apache, KUFPEC	2016-17
Australia	Prelude FLNG	4.9	Shell, Inpex, Kogas	2017-17
Australia	Ichthys	11.4	Inpex, Total	2017-18
Russia	Yamal LNG*	22.4	Novatek, Total	2018+
Malaysia	PFLNG 2	2.1	Petronas, Murphy Oil Corporation	2018
United States	Cove Point LNG	7.1	Dominion	2018
United States	Cameron LNG	16.3	Sempra Energy	2018-19
United States	Freeport LNG	18.0	Freeport, Macquarie	2018-19
Total		**174.6**		

Note: FLNG = floating LNG. Although Yamal LNG is under construction, it is not assumed to be online by 2020.

Source: IEA compilation based on information from companies' website.

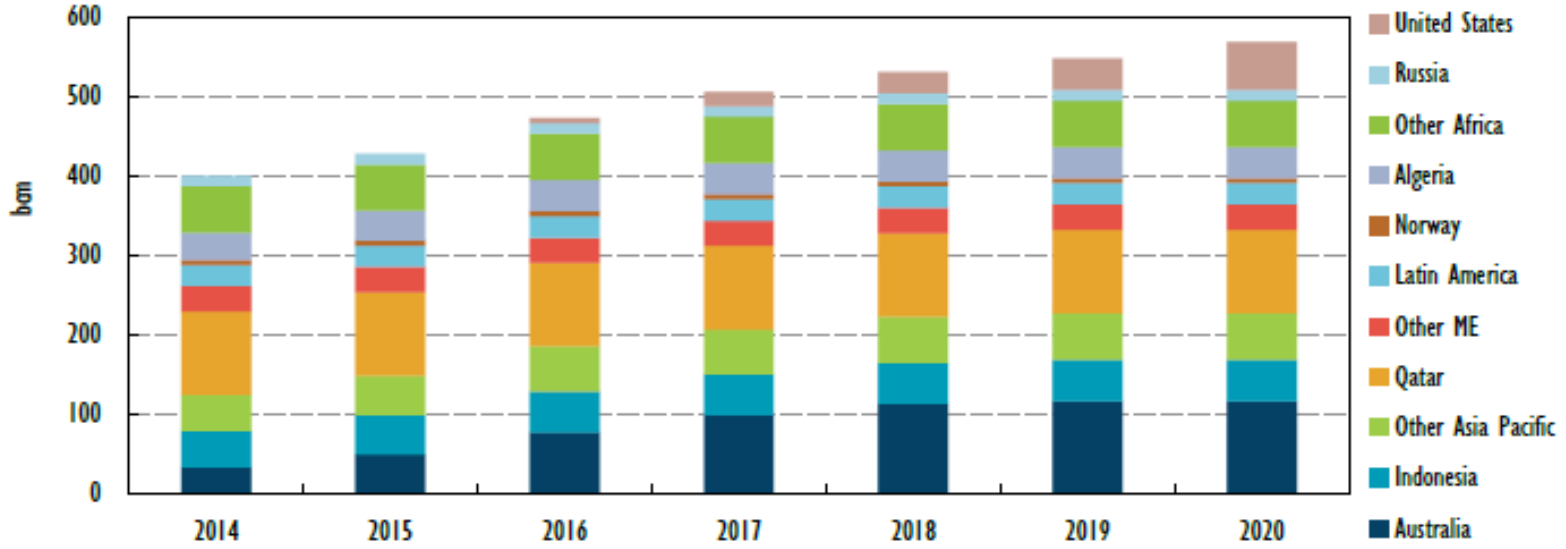
LNG projects under construction

(as of May 2012)



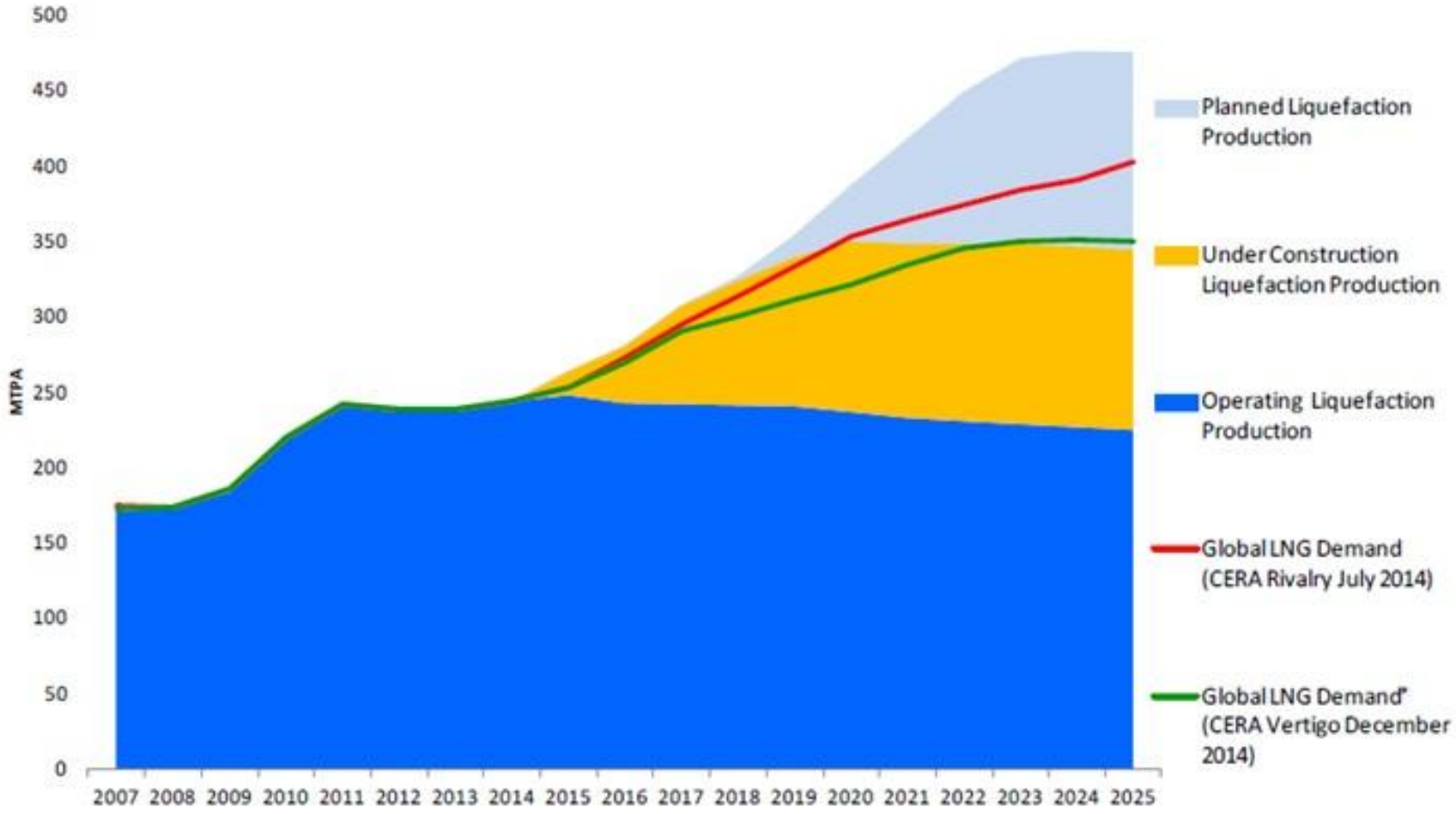
Notes: This figure represents LNG export capacity, not LNG trade. The starting dates reflect companies' data, but not the IEA's views.

LNG Export Capacity, 2014-2020



Note: Ramp-up periods for new capacity are included.

A 5 year period of LNG oversupply predicted



EXISTING

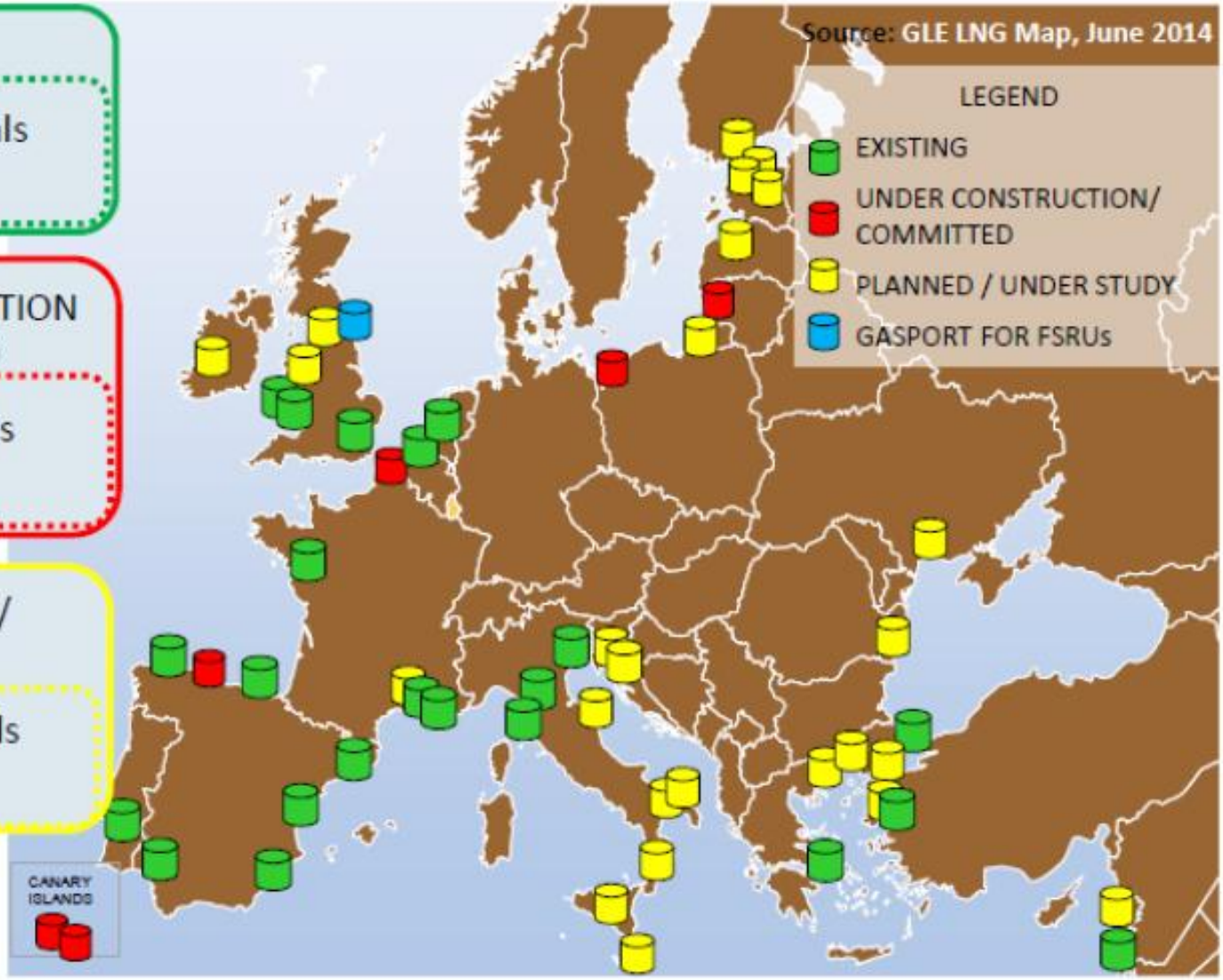
22 LNG Terminals
(197 bcm/a)

UNDER CONSTRUCTION / COMMITTED

6 LNG Terminals
(32 bcm/a)

UNDER STUDY / PLANNED

24 LNG Terminals
(> 146 bcm/a)

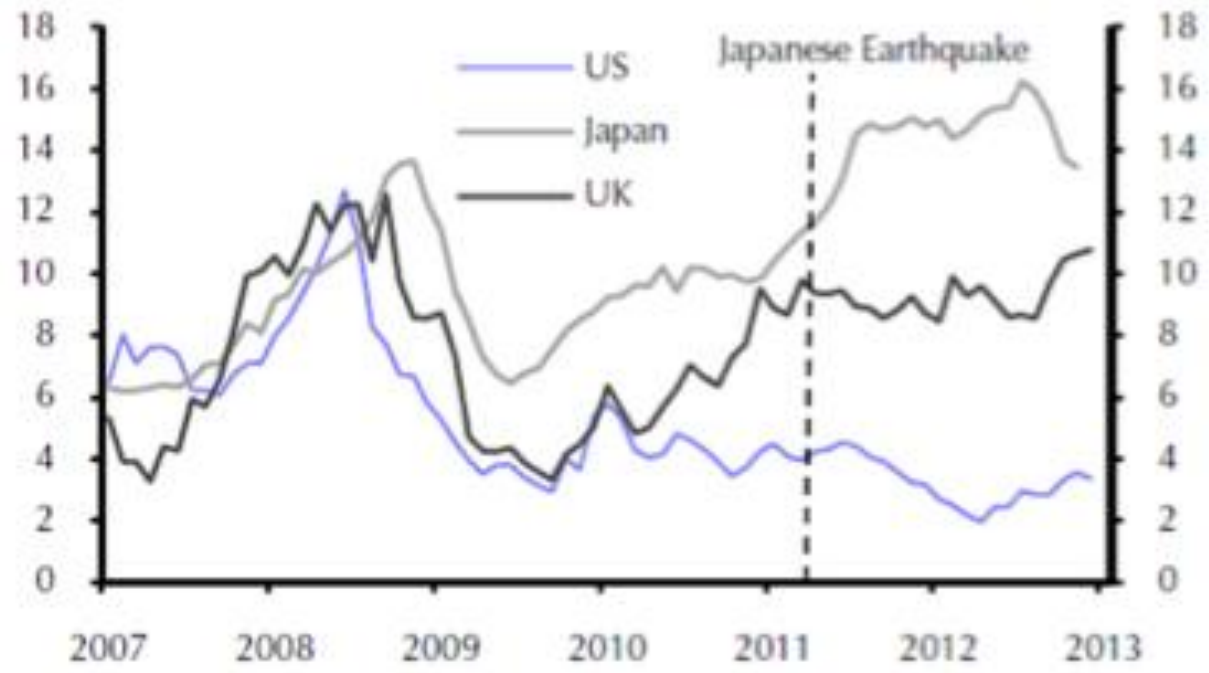


LNG Challenges

The top 5 challenges affecting the sector are considered to be:

1. A number of new LNG buyers and sellers are entering the market establishing new parameters
2. Asia to drive LNG demand growth is causing plenty of competition worldwide
3. LNG Trading and LNG spot Price Assessments
4. New type of contract negotiations will be necessary as a lot of long-term contracts in operation have commenced mid-term and they no longer reflect prevailing hub prices
5. Anticipated oversupply of LNG as new producers are entering the market over the next 3 years
6. Capital investments in the infrastructure required for the production, transportation and re-gasification of LNG

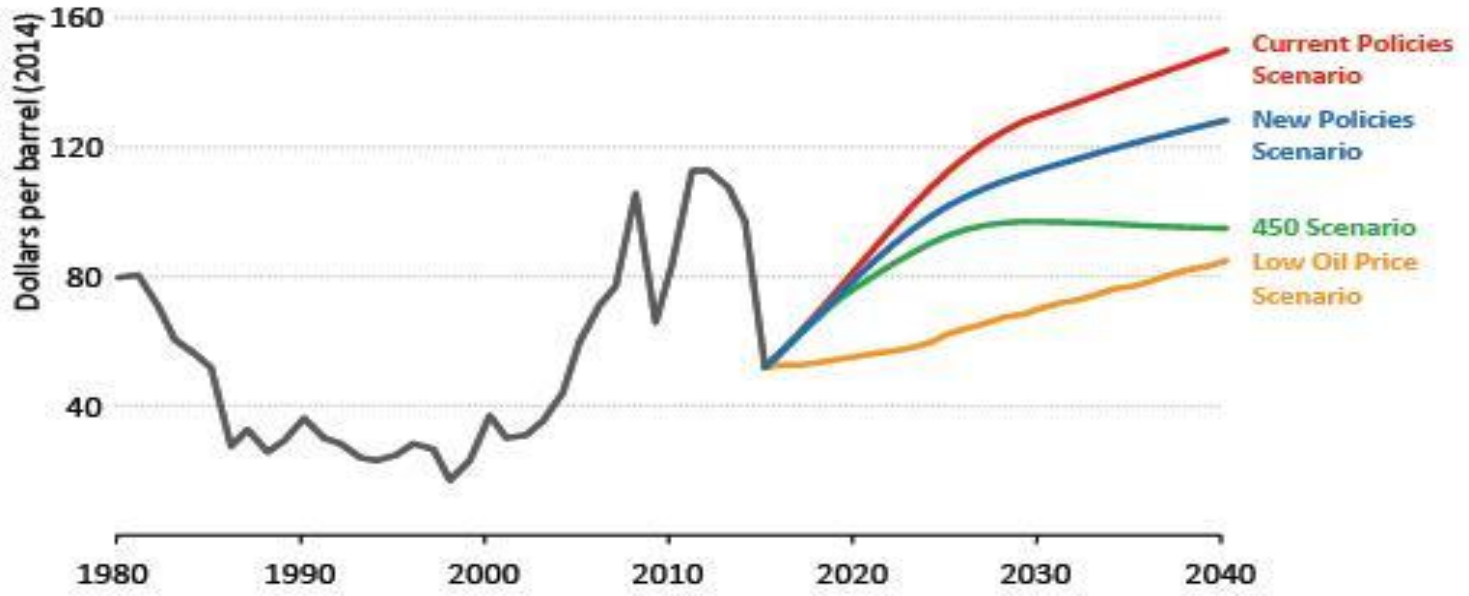
Natural Gas Prices (US$ per MMBtu)



Source: I-Net Bridge

Where Are Oil & Gas Prices Heading

Average IEA Crude Oil Import Price by Scenario



Factors Affecting Oil Price Formation I

Upward Pressures

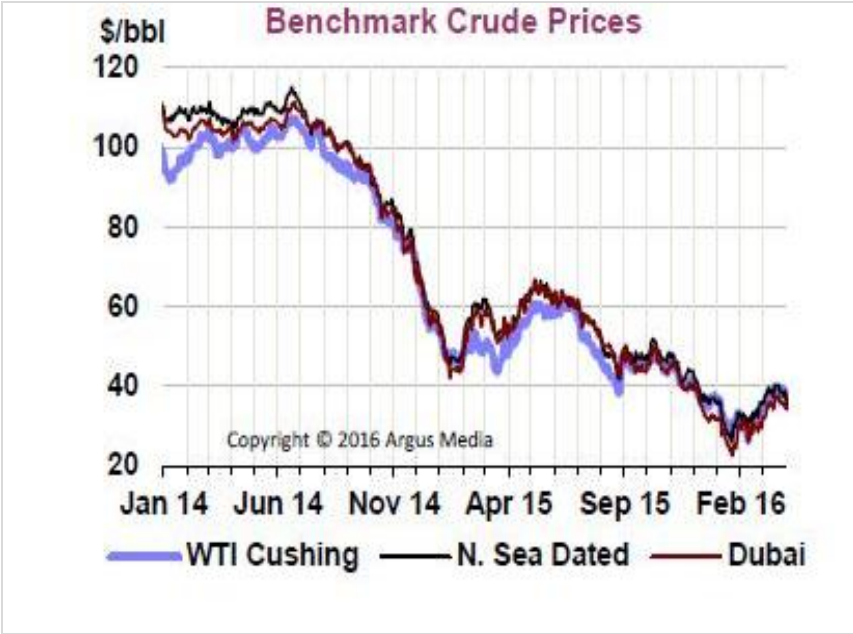
- OPEC total production (decline)
- Production of particular OPEC members i.e. S. Arabia, Iran, Iraq
- Production of particular non-OPEC members e.g. Russia, Mexico, Norway, Brazil, China
- Weakening of US Dollar against Euro
- Adverse weather patterns in Northern hemisphere
- Disruption of oil supplies e.g. Libya, Kuwait
- Russian gas exports to Europe
- Fears of Gulf oil and gas production
- Terrorist attacks against oil and gas installations
- Widening of Syria conflict

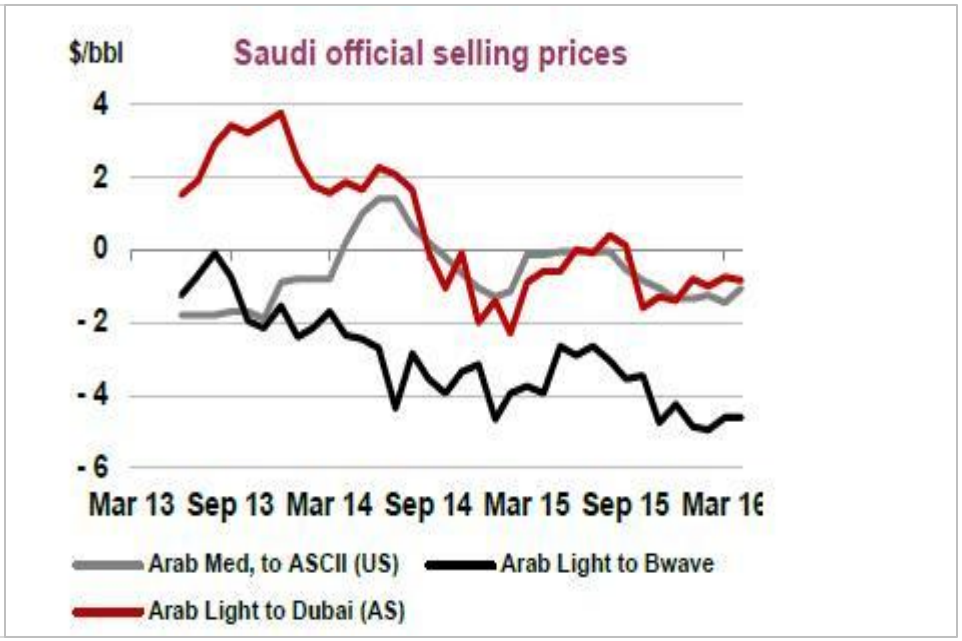
Factors Affecting Oil Price Formation II

Downward Pressures

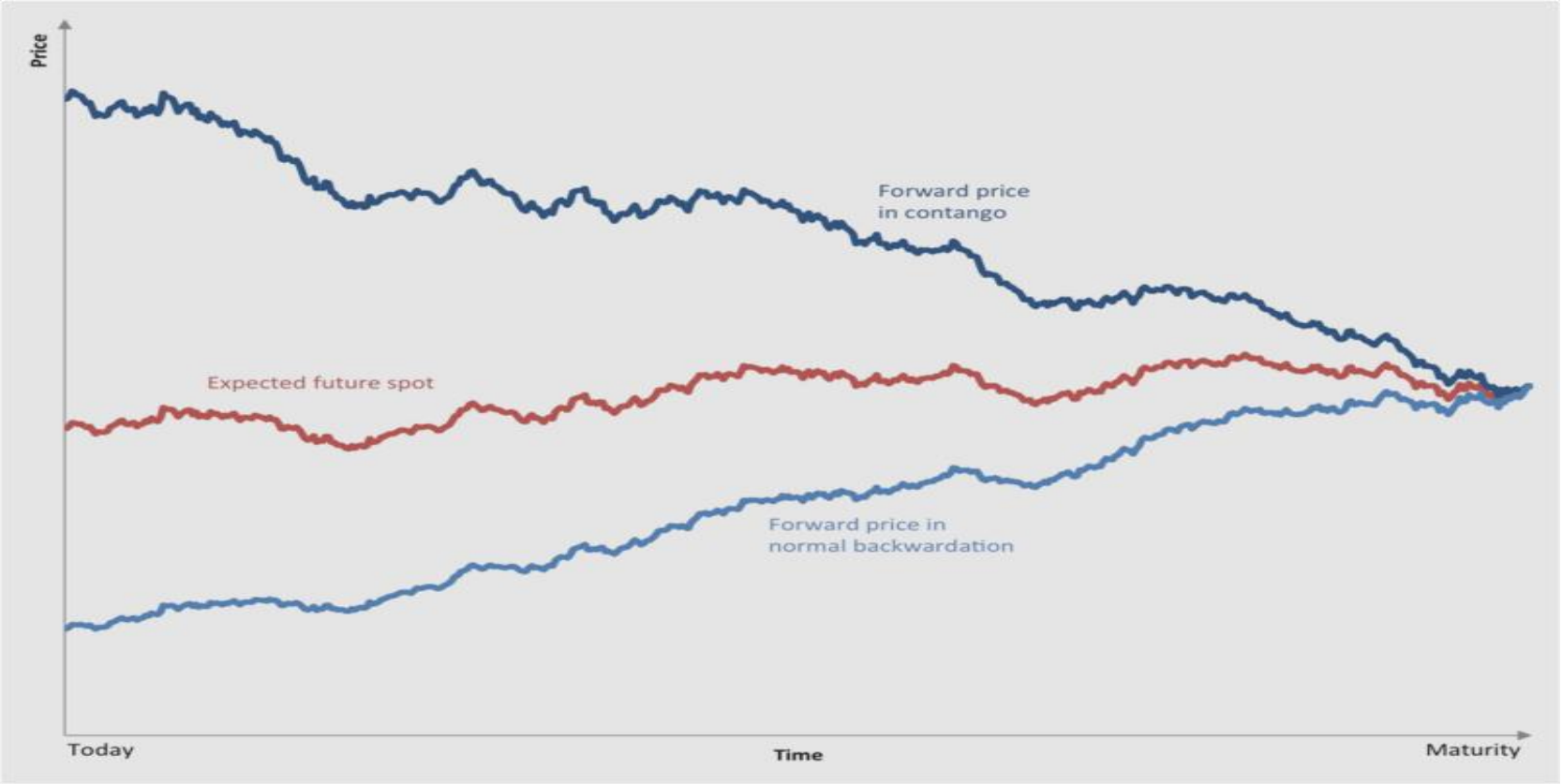
- Eurozone crisis and continuing decline of EU economies
- Disappointing German manufacturing output
- Strengthening of Euro relative to US dollar
- Revised estimates for global economic growth
- Increased USA oil and gas production and possible new legislation by US congress allowing oil and gas exports
- Warm winter in northern hemisphere
- Peace accords for Syria and Libya
- Normalisation of EU-Russia economic relationship

Factors Affecting Oil Price Formation II

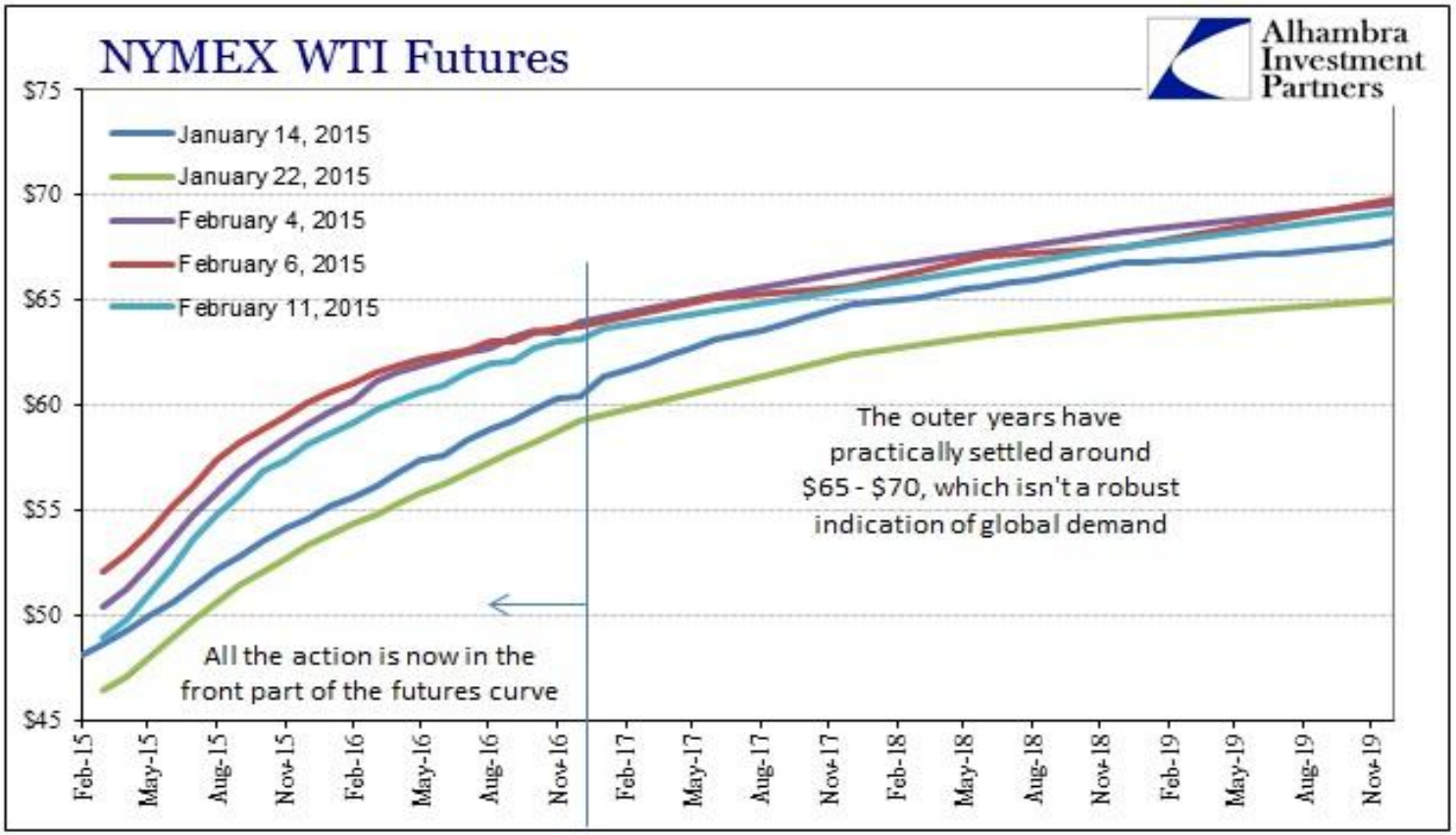




Factors Affecting Oil Price Formation II



Factors Affecting Oil Price Formation II

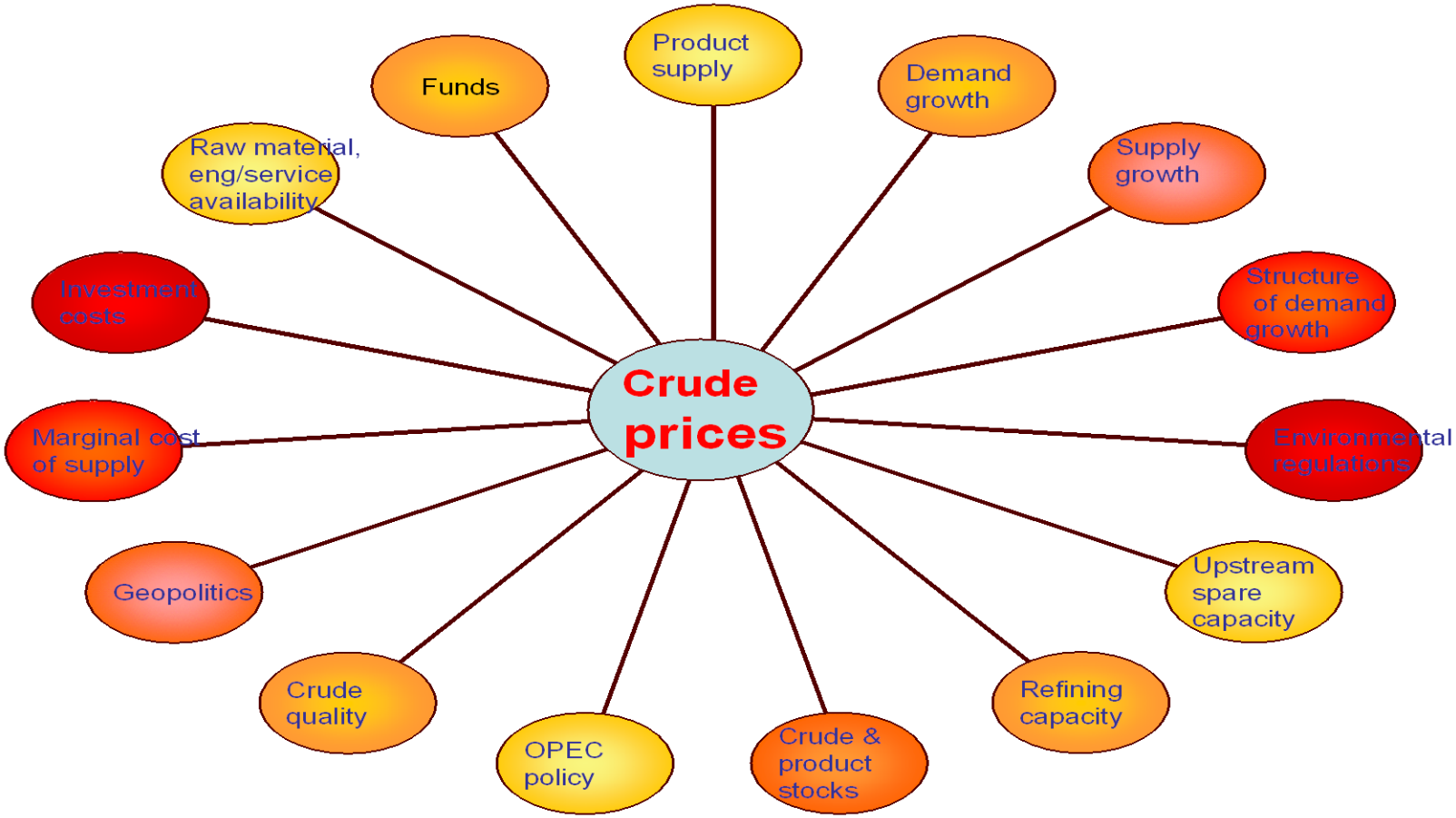


Factors Affecting Oil Price Formation II

MEDIUM TERM

Oil Market Report

Price formation: no single driver



Forces at Play Which Affect Global Energy Markets

Weak and Accommodating Forces

- The signing of the implementation agreement by Iran and the P5+1 country group in Vienna on January 16, over Tehran's nuclear programme, signalled Iran's return to the global oil markets with an announcement for immediate resumption of oil exports to Europe and an increase of production. Resumed Iranian oil exports will be added to an already glutted world market.
- The observed global oil glut following production oversupply, mainly by OPEC, and reflected by the steep rise of global oil inventories and oil storage in VLCC's, is exerting strong downward pressures on oil prices. Furthermore, it leads to a widening consolidation in the sector as evidenced by latest wave of mergers and acquisitions.
- Global equity markets were badly shaken on January 7 and 8 after attempts by Chinese authorities to support share prices and the currency raised fresh questions of their ability to manage a slowdown in the world's second- largest economy. Chinese equities turmoil affected most markets worldwide and exerted strong downward pressure on oil prices among others.

Forces at Play Which Affect Global Energy Markets

Weak and Accommodating Forces

- The slowing pace of economic activity is expected to restrict global economic growth in 2016 to 3.4 percent according to IMF rather than 3.6 as predicted in October 2015. This weakness reflects longer term forces at play which affect productivity growth and public and private debt levels.
- The climate change accord achieved in COP 21 talks in Paris on December 12, with commitments from almost all countries for much reduced CO2 emissions, will impact long term oil and gas production and will accelerate the switch to a decarbonised economy.
- Following the much publicised rift between Saudi Arabia and Iran the last semblance of OPEC unity, has collapsed disabling the organisation from taking any effective action to stabilise world oil markets and halt tumbling oil prices.
- Latest information from Brussels suggests that the European Commission and Gazprom are near to reaching an amicable agreement over EC's antitrust case against Gazprom, launched two years ago together with the blocking of the South Stream gas pipeline. Normalisation of relations between EC and Gazprom is of vital importance for the further development of European energy market.

Forces at Play Which Affect Global Energy Markets

Strong and Destabilising Forces

- The execution of Shia cleric Nimr al-Nimr by Saudi Arabia, on anti government activity charges, led to widespread protests in Iran and a breakdown of relations between the two countries with an uncomfortable rise of tensions in the region.
- Continuing unrest in Libya, in spite of the signing of a UN brokered agreement, and reported terrorist attacks against oil installations is preventing an increase of oil production in several fields and the resumption of steady exports.
- North Korea's latest nuclear test on January 6, supposedly of a miniaturised hydrogen bomb, has intensified regional tensions and has send shudders to both China and USA.
- Testing of Iran's latest tactical medium range missile on October 20 lead to a new round of US sanctions imposed only a day after the signing of the nuclear programme implementation agreement, on January 17.

Forces at Play Which Affect Global Energy Markets

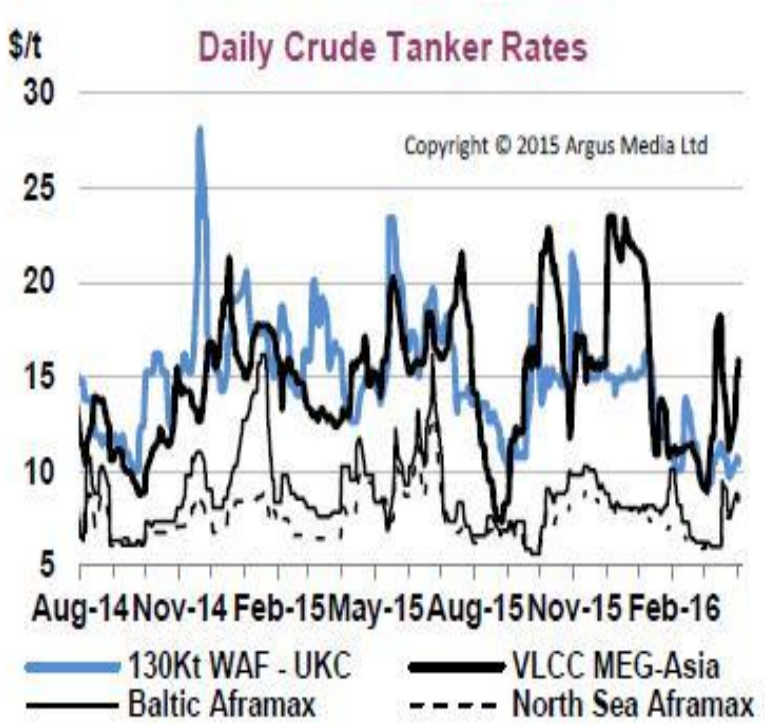
Strong and Destabilising Forces

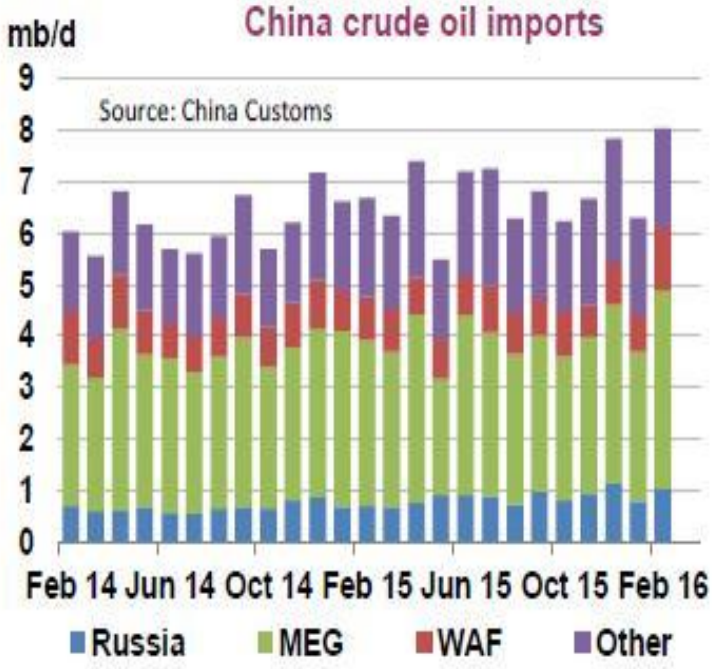
- Increased tension between the government of South Sudan and rebels will most likely impact oil production and exports in the near future.
- Irrespective of the grand East-West coalition now being formed to fight Isis, Russia's military intervention in Syria with the start of aerial bombardments three months ago still poses a serious challenge to NATO' East Mediterranean strategy.
-
- Rising tensions between USA and China over territorial sea boundary issues in South China sea, following latest USA navy manoeuvres and island building by Beijing, is threatening once again closer economic and diplomatic co-operation between the two global powers.
- As low oil prices continue to impact company investment plans in the upstream sector, with more than $380 of cancelled or differed investments, future oil and gas production is likely to suffer leading to supply shortfalls from 2018 onwards which will most likely lead to sharp oil price increases.

Oil Freight

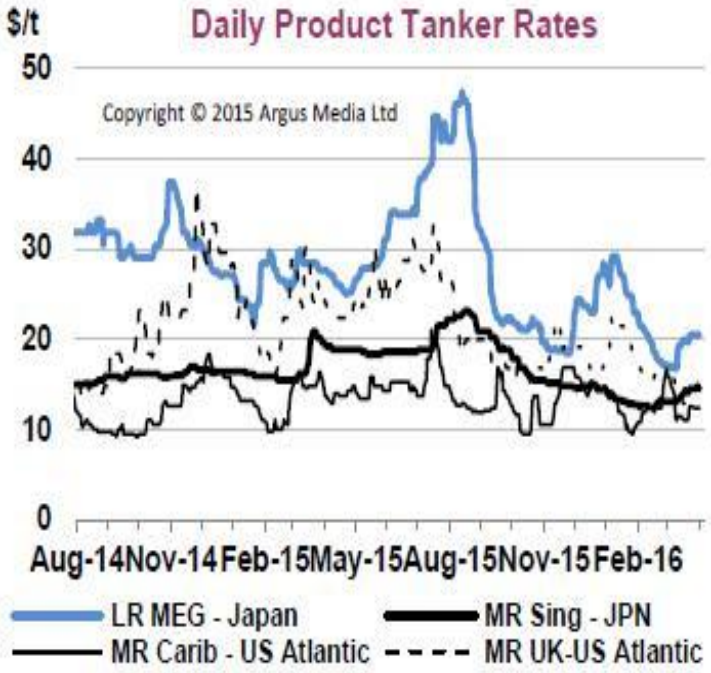
- Daily crude tanker rates are directly related to oil market behaviour
- Current global oil oversupply is sustaining current rates above $15/t
- Product demand is another key driver in determining tanker rates
- Sailing from Gulf, currently at record high at 16.8 mb/d, and Chinese crude imports (at 8.9 mb/day) are strong indications of market dynamics

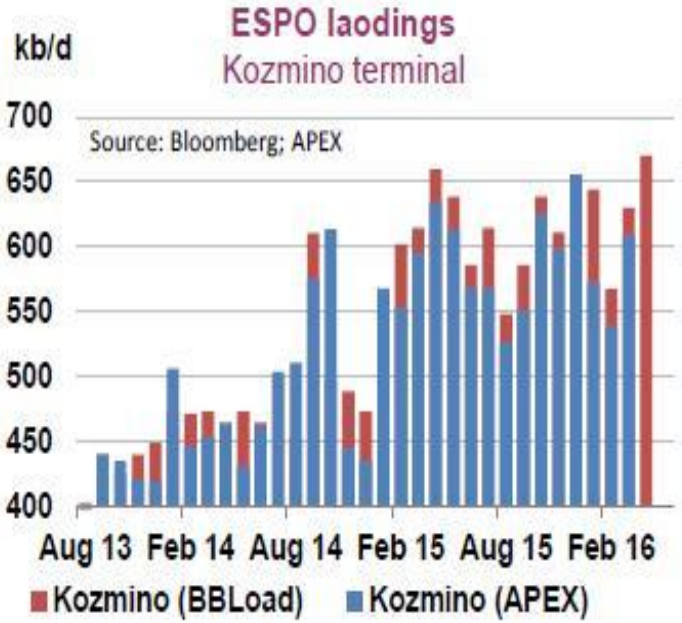
Oil Freight


$/t
Daily Crude Tanker Rates
Copyright © 2015 Argus Media Ltd
30
25
20
15
10
5
Aug-14 Nov-14 Feb-15 May-15 Aug-15 Nov-15 Feb-16
130Kt WAF - UKC
VLCC MEG-Asia
Baltic Aframax
North Sea Aframax


mb/d
China crude oil imports
Source: China Customs
9
8
7
6
5
4
3
2
1
0
Feb 14 Jun 14 Oct 14 Feb 15 Jun 15 Oct 15 Feb 16
Russia
MEG
WAF
Other

Oil Freight


$/t
Daily Product Tanker Rates
Copyright © 2015 Argus Media Ltd
50
40
30
20
10
0
Aug-14 Nov-14 Feb-15 May-15 Aug-15 Nov-15 Feb-16
LR MEG - Japan
MR Sing - JPN
MR Carib - US Atlantic
MR UK-US Atlantic


kb/d
ESPO laodings
Kozmino terminal
Source: Bloomberg; APEX
700
650
600
550
500
450
400
Aug 13 Feb 14 Aug 14 Feb 15 Aug 15 Feb 16
Kozmino (BBLoad)
Kozmino (APEX)

Energy Security Considerations

- Increased geopolitical risk from military tension in the Gulf and renewed terrorist activity in MENA countries
- Eurozone crisis persists
- EU economy contraction continues
- Irregular weather patterns
- Natural disasters

Concluding Remarks

1. Since 2nd half of 2014 global oil market dynamics are shaped by standard demand and supply conditions. A new normal has emerged.
2. Persistent global oil oversupply headed by increased USA shale oil and gas production and record high Saudi and Russian output, has been main market determinant over last 18 months.
3. A new oil price order has been established characterized by relatively low prices ($35-$45), at levels 60%-65% less than those during 2011-2014, resulting in huge losses for companies operating in the upstream sector and impacting $380 billion worth of projects.
4. Geopolitical risk factors are already largely discounted in today's prices and no longer influence oil price formation as they used to – although there is ground for abrupt rises should an unstable situation arise (e.g. natural disaster, terrorist attack, military conflict)
5. There is a growing trend to diversify natural gas supply with continuing strong inroads by LNG
6. Natural gas will continue to substitute oil for several applications but without affecting much global oil consumption, which will continue to rise for the foreseeable future, mostly due to strong demand by emerging economies

Thank you for your attention

cstambolis@iene.gr

www.iene.gr