

# Institute of International Relations (IIR)

Department of International and European Studies,  
Panteion University of Social and Political Science

“The International Oil Market, Geopolitics and the Role of the  
East Med Hydrocarbon Resources”

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FOR SOUTH EAST EUROPE



# Presentation Outline

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1. Oil and gas matters
2. Global oil demand and supply
3. The rise of LNG
4. The Arab Spring and Oil Market Implications
5. Oil and gas prices in perspective
6. Factors affecting oil price formation
7. Energy security considerations and factoring in geopolitical risk
8. Concluding remarks



## Introductory Remarks – The Global Environment

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- We have been witnessing historic high oil prices over the last two years with the average price for Brent in 2012 at \$111.67 and \$111.26 in 2011
- High oil prices have direct impact on gas prices
- High oil prices, i.e. above \$100 per barrel are likely to be sustained over the next 12 months
- Natural gas continues to take slice of oil markets worldwide with LNG trade developing much faster than piped gas
- There is a strong tendency for the decoupling of gas prices from oil indexation with USA gas prices already following an independent trajectory
- Oil and gas production boom in USA and Canada will have implications on global oil and gas trade
- RES will continue to make strong inroads in European energy mix
- Nuclear electricity will expand in MENA countries and Asia

# Global Oil Demand (2009 – 2013)

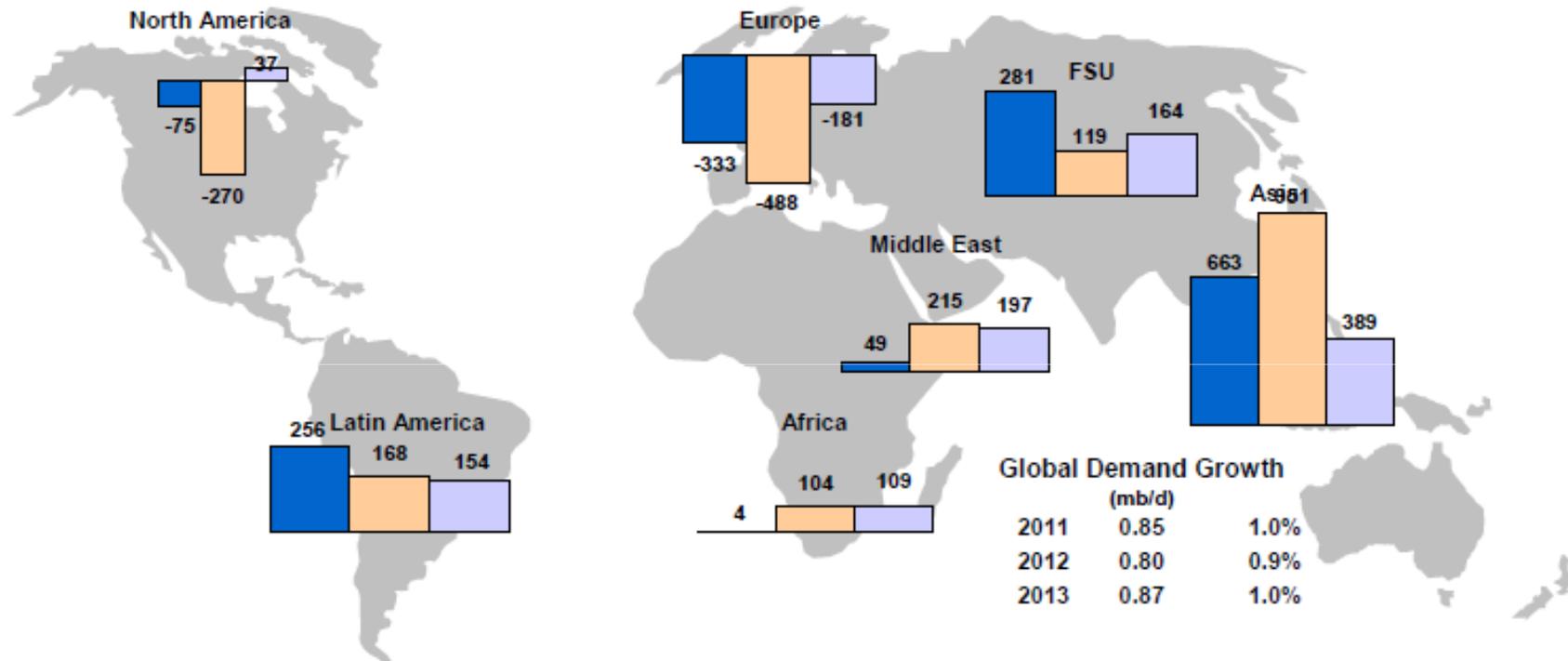
*(million barrels per day)*



|                              | 2009        | 2010        | 2011        | 2012        | 2013        |
|------------------------------|-------------|-------------|-------------|-------------|-------------|
| Africa                       | 3.3         | 3.4         | 3.3         | 3.4         | 3.5         |
| Americas                     | 29.5        | 30.1        | 30.3        | 30.3        | 30.4        |
| Asia/ Pacific                | 27.5        | 27.3        | 28.4        | 29.5        | 29.9        |
| Europe                       | 15.0        | 15.3        | 15.0        | 14.5        | 14.2        |
| FSU                          | 4.4         | 4.5         | 4.4         | 4.6         | 4.7         |
| Middle East                  | 7.4         | 7.8         | 7.4         | 7.6         | 7.8         |
| <b>World</b>                 | <b>86.8</b> | <b>88.3</b> | <b>88.8</b> | <b>89.8</b> | <b>90.7</b> |
| Annual Chg (%)               | 2.6         | 3.2         | 0.9         | 1.1         | 0.9         |
| Annual Chg (mb/d)            | 2.2         | 2.7         | 0.8         | 1.0         | 0.8         |
| Changes from last OMR (mb/d) | 0.01        | 0.01        | -0.04       | 0.00        | -0.09       |

Source: IEA

### Global Oil Demand Growth 2011/2012/2013 thousand barrels per day



Source: IEA



## Top-10 Oil Consumers (thousand barrels per day)

|                 | Demand |        |        | Annual Chg (kb/d) |      |      | Annual Chg (%) |      |      |
|-----------------|--------|--------|--------|-------------------|------|------|----------------|------|------|
|                 | Nov-12 | 2012   | 2013   | Nov-12            | 2012 | 2013 | Nov-12         | 2012 | 2013 |
| US50            | 18,625 | 18,651 | 18,651 | -455              | -299 | 0    | -2.4           | -1.6 | 0.0  |
| China           | 10,270 | 9,600  | 9,984  | 836               | 367  | 385  | 8.9            | 4.0  | 4.0  |
| Japan           | 4,641  | 4,723  | 4,550  | 39                | 259  | -173 | 0.8            | 5.8  | -3.7 |
| India           | 3,765  | 3,652  | 3,750  | 48                | 137  | 98   | 1.3            | 3.9  | 2.7  |
| Russia          | 3,530  | 3,366  | 3,516  | 71                | 114  | 150  | 2.1            | 3.5  | 4.4  |
| Brazil          | 3,171  | 3,016  | 3,093  | 203               | 123  | 77   | 6.8            | 4.2  | 2.6  |
| Saudi Arabia    | 2,808  | 3,009  | 3,128  | -122              | 135  | 119  | -4.2           | 4.7  | 3.9  |
| Germany         | 2,496  | 2,351  | 2,324  | 49                | -49  | -27  | 2.0            | -2.0 | -1.2 |
| Korea           | 2,423  | 2,268  | 2,268  | 171               | 38   | 0    | 7.6            | 1.7  | 0.0  |
| Canada          | 2,345  | 2,311  | 2,308  | 69                | 22   | -3   | 3.0            | 0.9  | -0.1 |
| % global demand | 60%    | 59%    | 59%    |                   |      |      |                |      |      |



## China: Demand by Product (thousand barrels per day)

|                       | Demand       |              |              | Annual Chg (kb/d) |            | Annual Chg (%) |            |
|-----------------------|--------------|--------------|--------------|-------------------|------------|----------------|------------|
|                       | 2011         | 2012         | 2013         | 2012              | 2013       | 2012           | 2013       |
| LPG & Ethane          | 720          | 733          | 747          | 14                | 14         | 1.9            | 1.9        |
| Naphtha               | 1,113        | 1,123        | 1,197        | 10                | 74         | 0.9            | 6.6        |
| Motor Gasoline        | 1,767        | 1,918        | 2,016        | 152               | 97         | 8.6            | 5.1        |
| Jet Fuel & Kerosene   | 422          | 442          | 463          | 20                | 21         | 4.8            | 4.7        |
| Gas/Diesel Oil        | 3,166        | 3,224        | 3,320        | 58                | 96         | 1.8            | 3.0        |
| Residual Fuel Oil     | 507          | 522          | 538          | 14                | 17         | 2.8            | 3.2        |
| Other Products        | 1,538        | 1,638        | 1,702        | 99                | 65         | 6.5            | 4.0        |
| <b>Total Products</b> | <b>9,232</b> | <b>9,600</b> | <b>9,984</b> | <b>367</b>        | <b>385</b> | <b>4.0</b>     | <b>4.0</b> |



mb/d

## China: Apparent Oil Demand

10.5

9.5

8.5

Jun 10 Dec 10 Jun 11 Dec 11 Jun 12 Dec 12

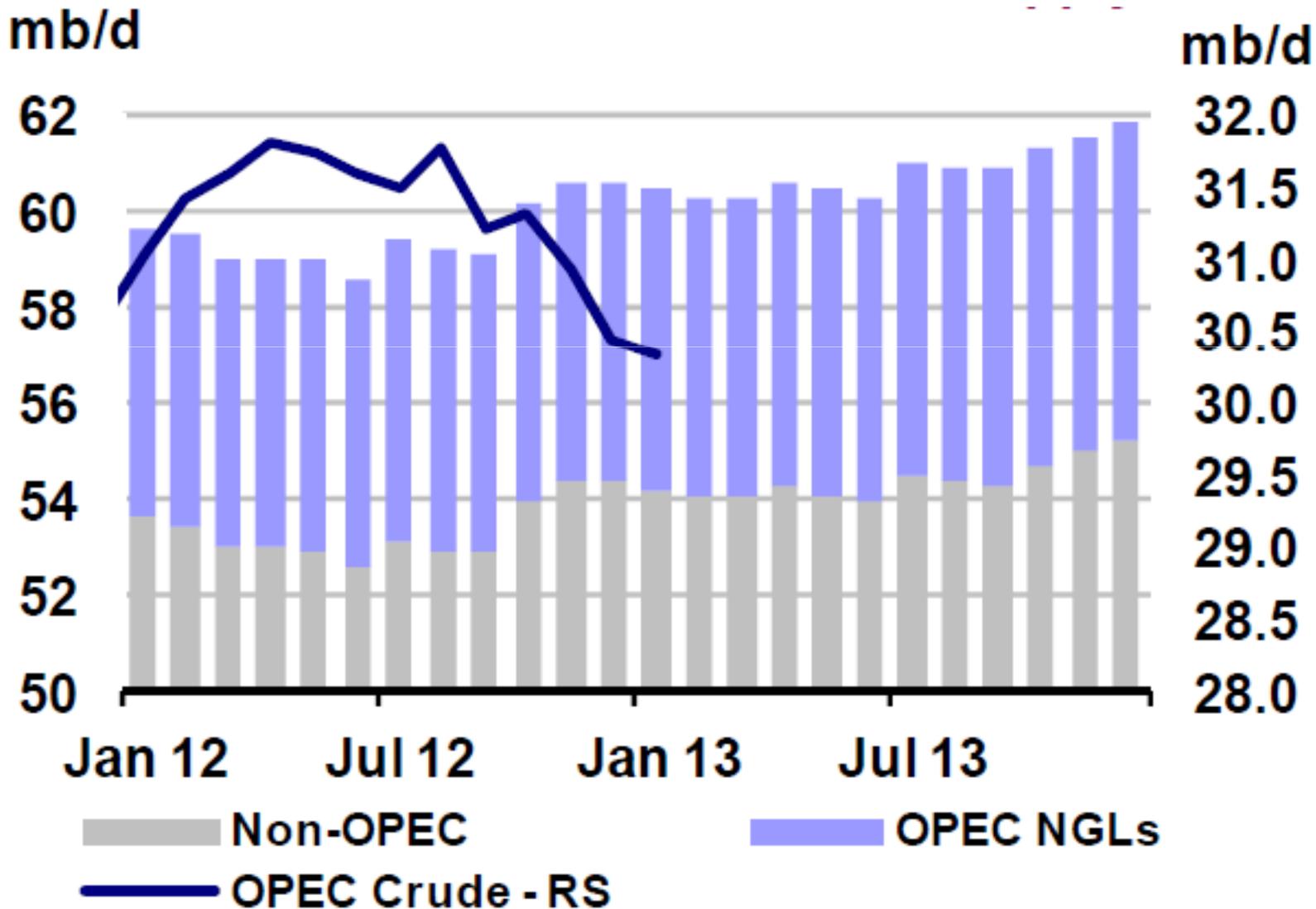
— New Method, Adjusted for Product Stocks

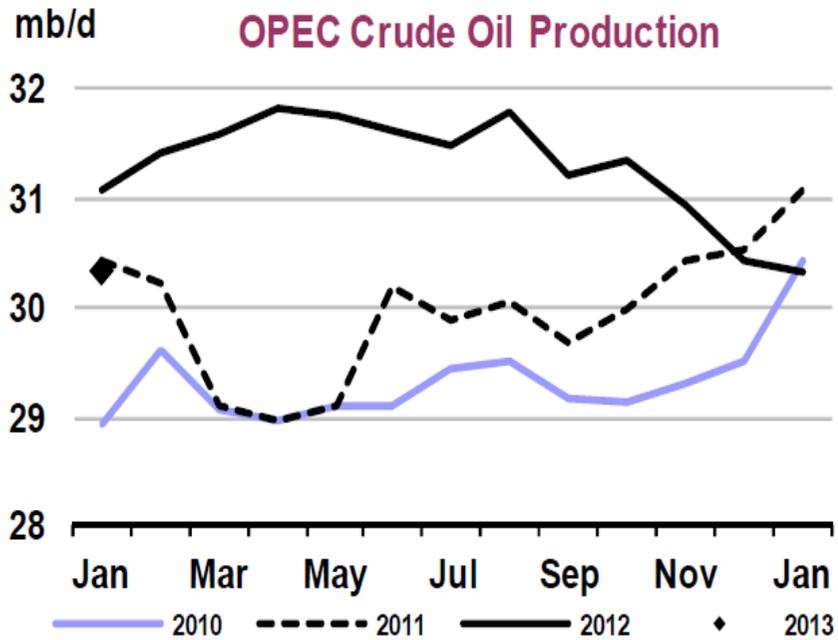
— Old Method





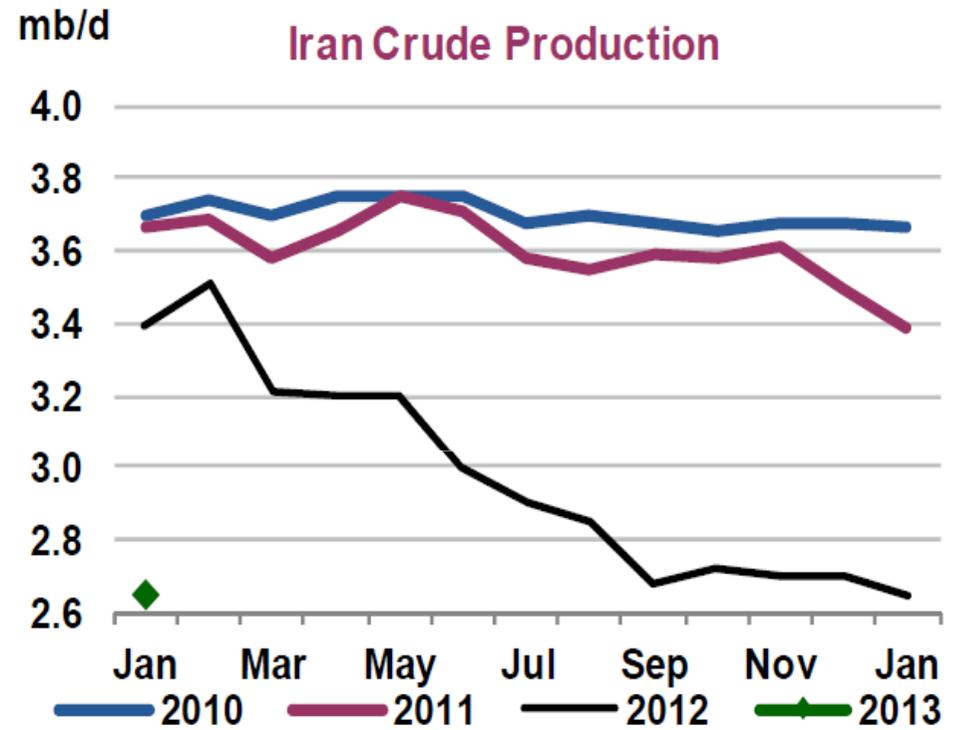
## OPEC and Non-OPEC Oil Supply

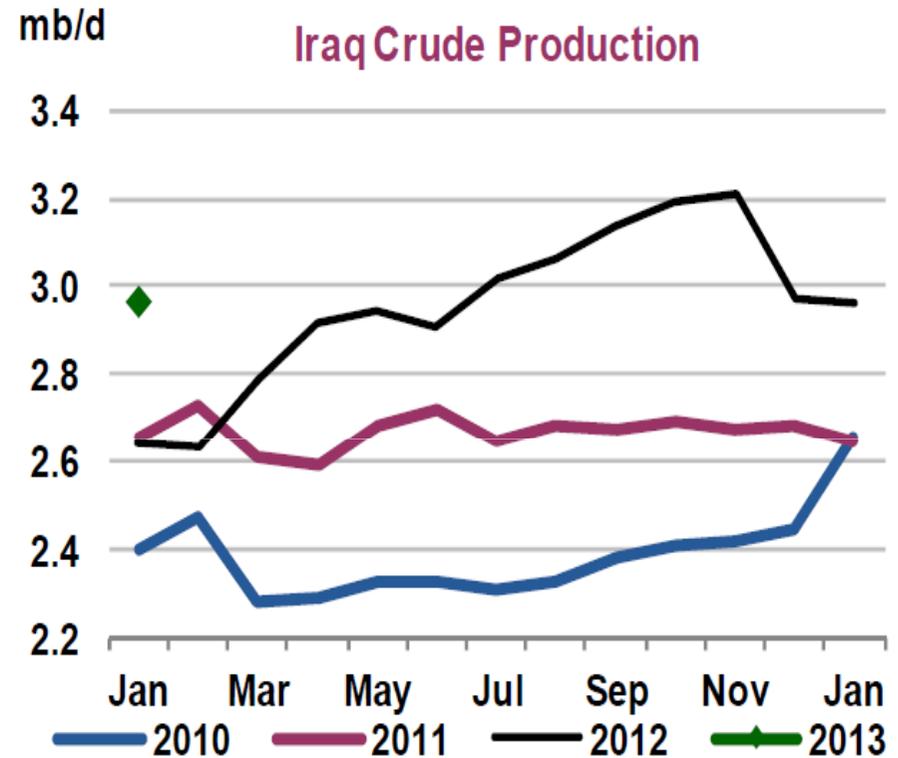
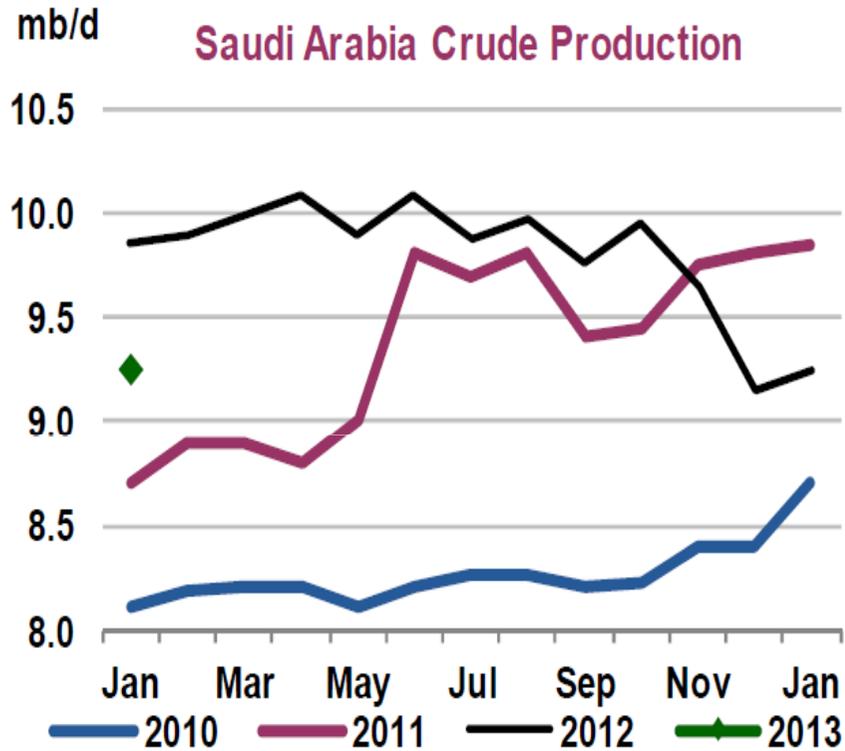




Entire series based on OPEC Composition as of January 2009 onwards (including Angola & Ecuador & excluding Indonesia)

Source: IEA





Source: IEA



## OPEC Crude Production (million barrels per day)

|                           | Nov 2012<br>Supply | Dec 2012<br>Supply | Jan 2013<br>Supply | Sustainable<br>Production<br>Capacity <sup>1</sup> | Spare Capacity<br>vs Jan 2013<br>Supply | 2012 Annual<br>Production<br>Average | Volume Chg<br>2012 vs 2011 |
|---------------------------|--------------------|--------------------|--------------------|--|---|--------------------------------------|----------------------------|
| Algeria                   | 1.18               | 1.18               | 1.18               | 1.19   | 0.01                                    | 1.17                                 | -0.02                      |
| Angola                    | 1.80               | 1.78               | 1.77               | 1.82   | 0.05                                    | 1.78                                 | 0.19                       |
| Ecuador                   | 0.50               | 0.50               | 0.50               | 0.51   | 0.01                                    | 0.50                                 | 0.00                       |
| Iran                      | 2.70               | 2.70               | 2.65               | 3.01   | 0.36                                    | 3.00                                 | -0.08                      |
| Iraq                      | 3.21               | 2.97               | 2.97               | 3.28   | 0.31                                    | 2.95                                 | 0.29                       |
| Kuwait <sup>2</sup>       | 2.74               | 2.78               | 2.82               | 2.86   | 0.04                                    | 2.74                                 | 0.16                       |
| Libya                     | 1.45               | 1.40               | 1.38               | 1.58   | 0.20                                    | 1.39                                 | 0.01                       |
| Nigeria <sup>3</sup>      | 1.88               | 2.10               | 2.00               | 2.49   | 0.49                                    | 2.10                                 | -0.18                      |
| Qatar                     | 0.73               | 0.70               | 0.72               | 0.75   | 0.03                                    | 0.74                                 | 0.05                       |
| Saudi Arabia <sup>2</sup> | 9.65               | 9.15               | 9.25               | 11.90  | 2.65                                    | 9.85                                 | 0.43                       |
| UAE                       | 2.65               | 2.68               | 2.60               | 3.01   | 0.41                                    | 2.65                                 | 0.06                       |
| Venezuela <sup>4</sup>    | 2.47               | 2.50               | 2.50               | 2.63   | 0.13                                    | 2.50                                 | 0.04                       |
| <b>Total OPEC</b>         | <b>30.95</b>       | <b>30.44</b>       | <b>30.34</b>       | <b>35.01</b>                                       | <b>4.67</b>                             | <b>31.37</b>                         | <b>0.94</b>                |
|                           |                    |                    |                    |  | <b>3.63)</b>                            |                                      |                            |

*(excluding Iraq, Nigeria, Libya and Iran)*

1 Capacity levels can be reached within 30 days and sustained for 90 days.

2 Includes half of Neutral Zone production.

3 Nigeria's current capacity estimate excludes some 200 kb/d of shut-in capacity.

4 Includes upgraded Orinoco extra-heavy oil assumed at 390 kb/d in January.



## World Gas Demand Reaches New Highs

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- Global gas demand is projected to grow relatively fast over 2011 – 2017, at 2.7% per year
- Gas demand in 2017 is 3.937 bcm, 576 bcm higher than 2011 levels
- Non – OECD countries will represent 69% of the incremental growth
- The fastest growing country is by far China, where natural gas consumption doubles over 2011 – 2017

## World Gas Demand Reaches New Highs

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- Africa is the second fastest growing region, with an annual growth rate of 5% per year
- Natural gas consumption in the former Soviet Union and non-OECD Europe region grows very slowly at 0.7% per year, given the maturity of the market
- Europe is also underperforming, with an average annual growth of 1.3% per year, due to the combination of high gas prices, low economic growth and significant growth of renewable energy sources



## Gas Demand by OECD Country, 2011 and 2010 (bcm)

|                       | 2010  | 2011* |                       | 2010   | 2011*  |
|-----------------------|-------|-------|-----------------------|--------|--------|
| Europe                | 570.4 | 519.5 | <i>Slovakia</i>       | 6.1    | 6.2    |
| <i>Austria</i>        | 9.5   | 9.0   | <i>Slovenia</i>       | 1.1    | 0.9    |
| <i>Belgium</i>        | 19.8  | 16.9  | <i>Spain</i>          | 35.8   | 33.6   |
| <i>Czech Republic</i> | 9.3   | 8.9   | <i>Sweden</i>         | 1.5    | 1.2    |
| <i>Denmark</i>        | 5.0   | 4.2   | <i>Switzerland</i>    | 3.7    | 3.2    |
| <i>Estonia</i>        | 0.7   | 0.6   | <i>Turkey</i>         | 38.1   | 44.7   |
| <i>Finland</i>        | 4.7   | 4.0   | <i>United Kingdom</i> | 98.9   | 82.7   |
| <i>France</i>         | 49.1  | 42.1  | Asia Oceania          | 195.4  | 211.9  |
| <i>Germany**</i>      | 97.9  | 85.3  | <i>Australia</i>      | 33.4   | 34.8   |
| <i>Greece</i>         | 3.9   | 4.8   | <i>Israel***</i>      | 5.3    | 5.0    |
| <i>Hungary</i>        | 12.1  | 11.3  | <i>Japan</i>          | 109.0  | 121.3  |
| <i>Iceland</i>        | 0.0   | 0.0   | <i>Korea</i>          | 43.2   | 46.4   |
| <i>Ireland</i>        | 5.5   | 4.9   | <i>New Zealand</i>    | 4.5    | 4.2    |
| <i>Italy</i>          | 83.1  | 77.9  | Americas              | 839.9  | 861.6  |
| <i>Luxembourg</i>     | 1.4   | 1.2   | <i>Canada</i>         | 96.8   | 104.0  |
| <i>Netherlands</i>    | 54.8  | 47.9  | <i>Chile</i>          | 5.3    | 6.2    |
| <i>Norway</i>         | 6.1   | 5.8   | <i>Mexico</i>         | 64.7   | 61.4   |
| <i>Poland</i>         | 17.2  | 17.2  | <i>United States</i>  | 673.1  | 690.0  |
| <i>Portugal</i>       | 5.1   | 5.2   | OECD                  | 1605.7 | 1593.0 |

\* 2011 data are estimates as of April 2012.

\*\* Due to revisions by the German government, Germany's data for 2010 and 2011 are estimated based on historical data.

\*\*\* The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law



## Gas Demand 2000-17 (bcm)

|                      | 2000         | 2010         | 2011         | 2013         | 2015         | 2017         |
|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Europe               | 474          | 570          | 520          | 529          | 547          | 561          |
| <i>G4*</i>           | 300          | 329          | 288          | 296          | 302          | 303          |
| Americas             | 794          | 840          | 862          | 909          | 941          | 969          |
| <i>United States</i> | 661          | 673          | 690          | 728          | 754          | 779          |
| Asia Oceania         | 131          | 195          | 212          | 211          | 227          | 241          |
| <i>Japan</i>         | 83           | 109          | 121          | 121          | 126          | 129          |
| Latin America        | 95           | 136          | 139          | 152          | 163          | 179          |
| Africa               | 59           | 103          | 111          | 125          | 139          | 149          |
| Middle East          | 179          | 369          | 389          | 427          | 444          | 468          |
| FSU/Non-OECD Europe  | 597          | 690          | 705          | 722          | 731          | 735          |
| <i>Russia</i>        | 391          | 473          | 483          | 493          | 499          | 501          |
| Asia                 | 180          | 399          | 424          | 489          | 564          | 634          |
| <i>China**</i>       | 28           | 110          | 132          | 176          | 226          | 276          |
| OECD                 | 1 400        | 1 606        | 1 593        | 1 649        | 1 715        | 1 771        |
| Non OECD             | 1 111        | 1 698        | 1 768        | 1 915        | 2 041        | 2 166        |
| EU-27                | 477          | 545          | 489          | 497          | 508          | 515          |
| <b>Total</b>         | <b>2 510</b> | <b>3 303</b> | <b>3 361</b> | <b>3 564</b> | <b>3 757</b> | <b>3 937</b> |

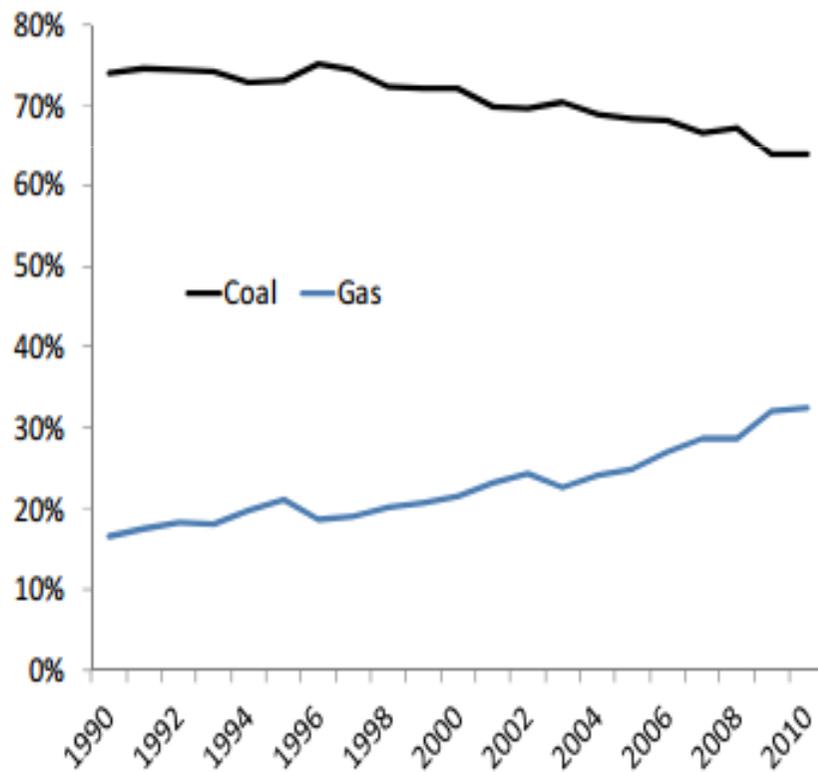
Note: detailed demand by country and by sector are available in Table 28 and 29 in the chapter "The Essentials" at the end of this publication.

\* G4: France, Germany, Italy and the United Kingdom.

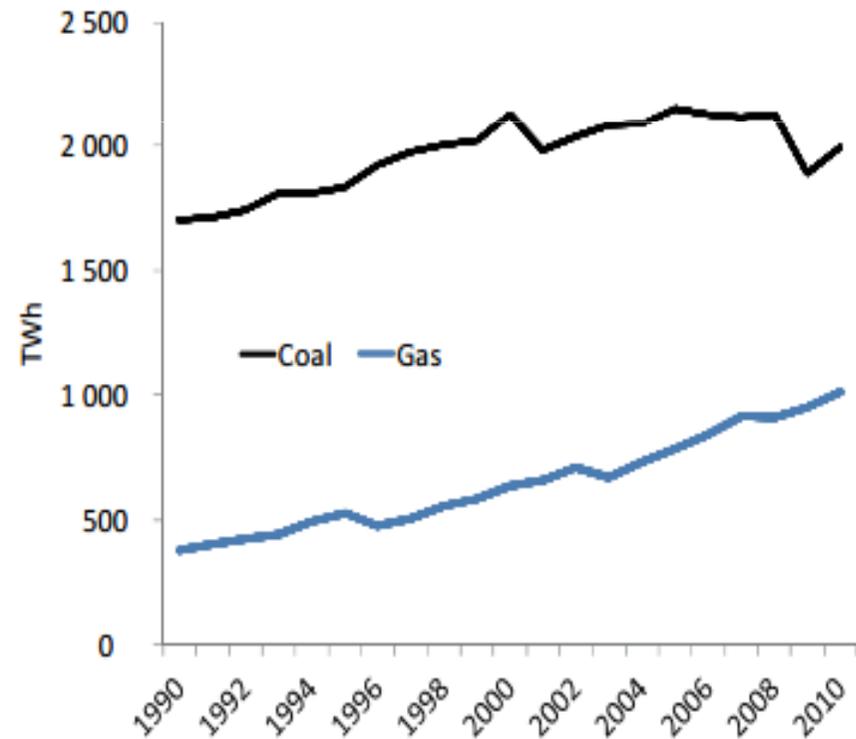
\*\* China includes Hong Kong.



Coal & gas shares in thermal generation



US coal and gas generation





## Regional production, 2010 and 2011\* (bcm)

|                            | 2010  | 2011* | Growth rate (%) |
|----------------------------|-------|-------|-----------------|
| OECD**                     | 1 178 | 1 197 | 1.6             |
| <i>Americas</i>            | 816   | 863   | 5.7             |
| <i>Europe</i>              | 301   | 273   | -9.3            |
| <i>Asia Oceania</i>        | 61    | 61    | 0.3             |
| Non OECD***                | 2 103 | 2 178 | 3.6             |
| <i>Africa</i>              | 209   | 204   | -2.4            |
| <i>Asia</i>                | 432   | 431   | -0.1            |
| <i>FSU/Non-OECD Europe</i> | 826   | 863   | 4.5             |
| <i>Latin America</i>       | 161   | 164   | 1.8             |
| <i>Middle East</i>         | 475   | 516   | 8.7             |
| World                      | 3 281 | 3 375 | 2.9             |

\* 2011 data are estimates.

\*\* 2010 data for OECD countries are based on revisions provided by OECD countries early 2012.

\*\*\* 2010 data for non-OECD countries are based on IEA *Natural Gas Information 2011*, with the exception of Iraq which has been revised.



## The Rise of LNG

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The global LNG industry is facing numerous challenges as LNG is rapidly growing and evolving representing a huge competitive arena for all major players.

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

1. Capital investments in the infrastructure required for the production, transportation and re-gasification of LNG



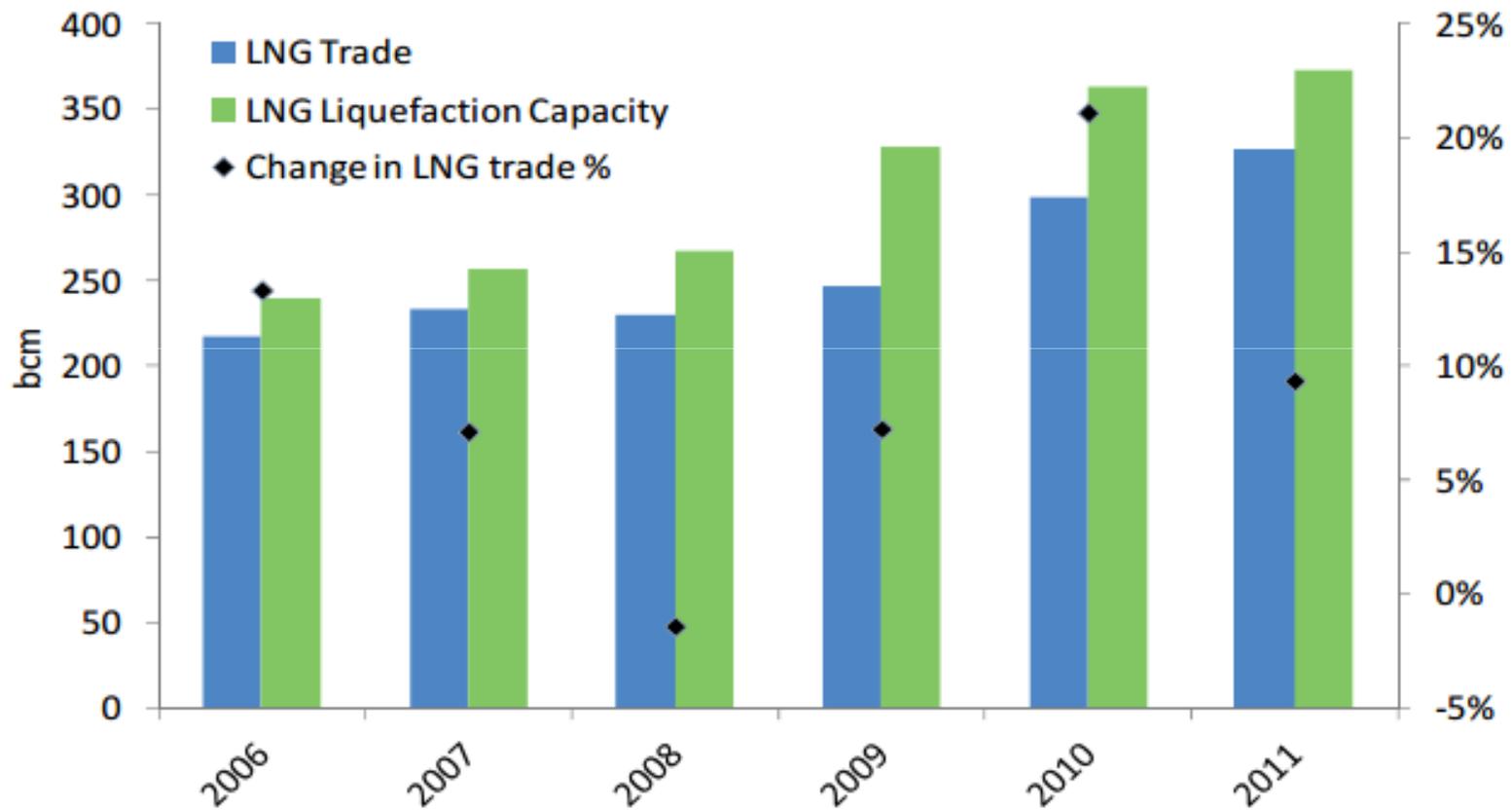
## The Rise of LNG

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2. Number of new LNG buyers and sellers and which side is now driving the market
3. Asia to drive LNG demand growth causing plenty of competition worldwide
4. LNG Trading and LNG spot Price Assessments
5. Contract Negotiation as a lot of long-term contracts in operation have commenced mid-term as they no longer reflect the true hub price



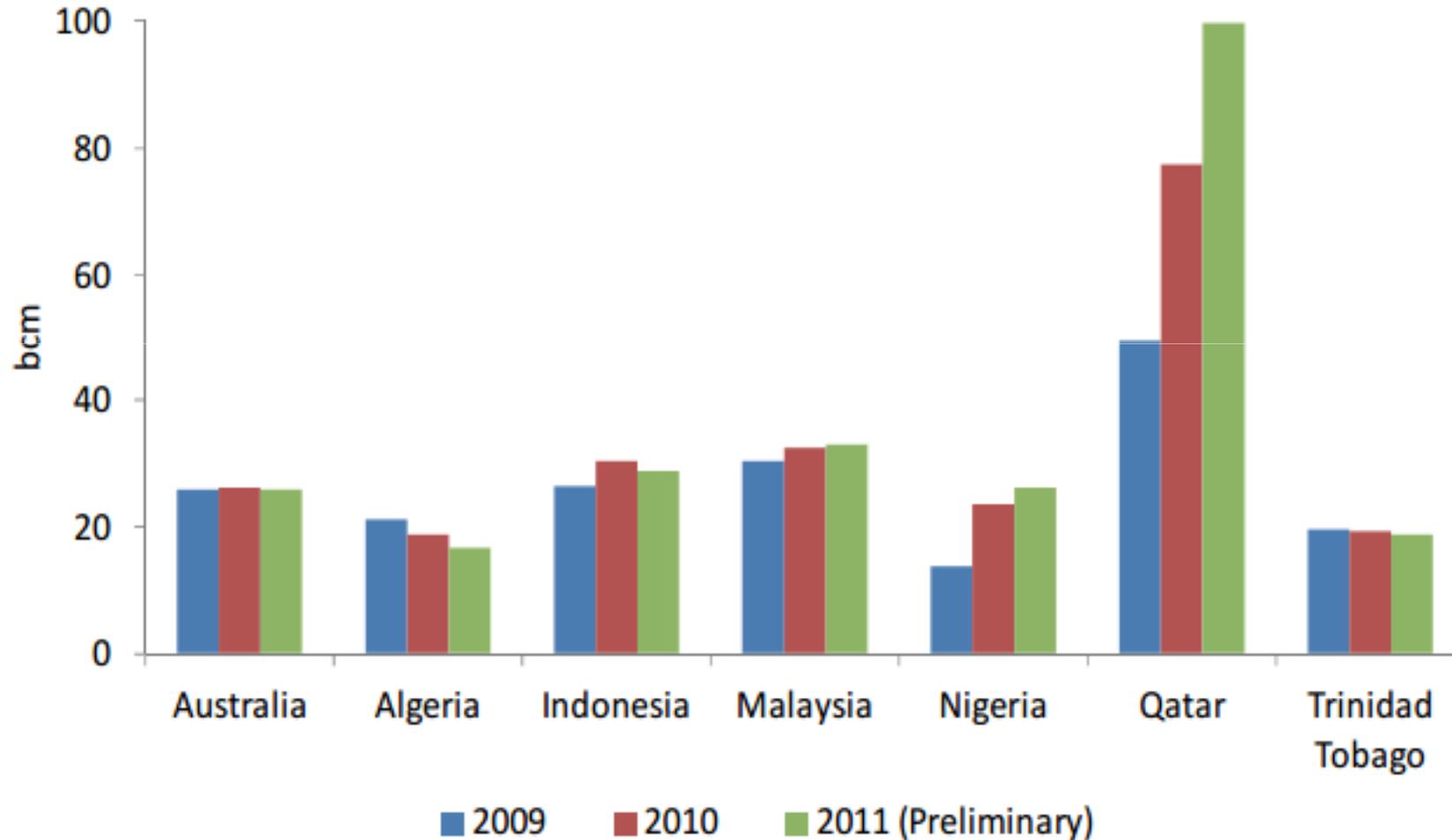
## LNG trade growth, 2006-11



Note: LNG liquefaction capacity at the end of the year.

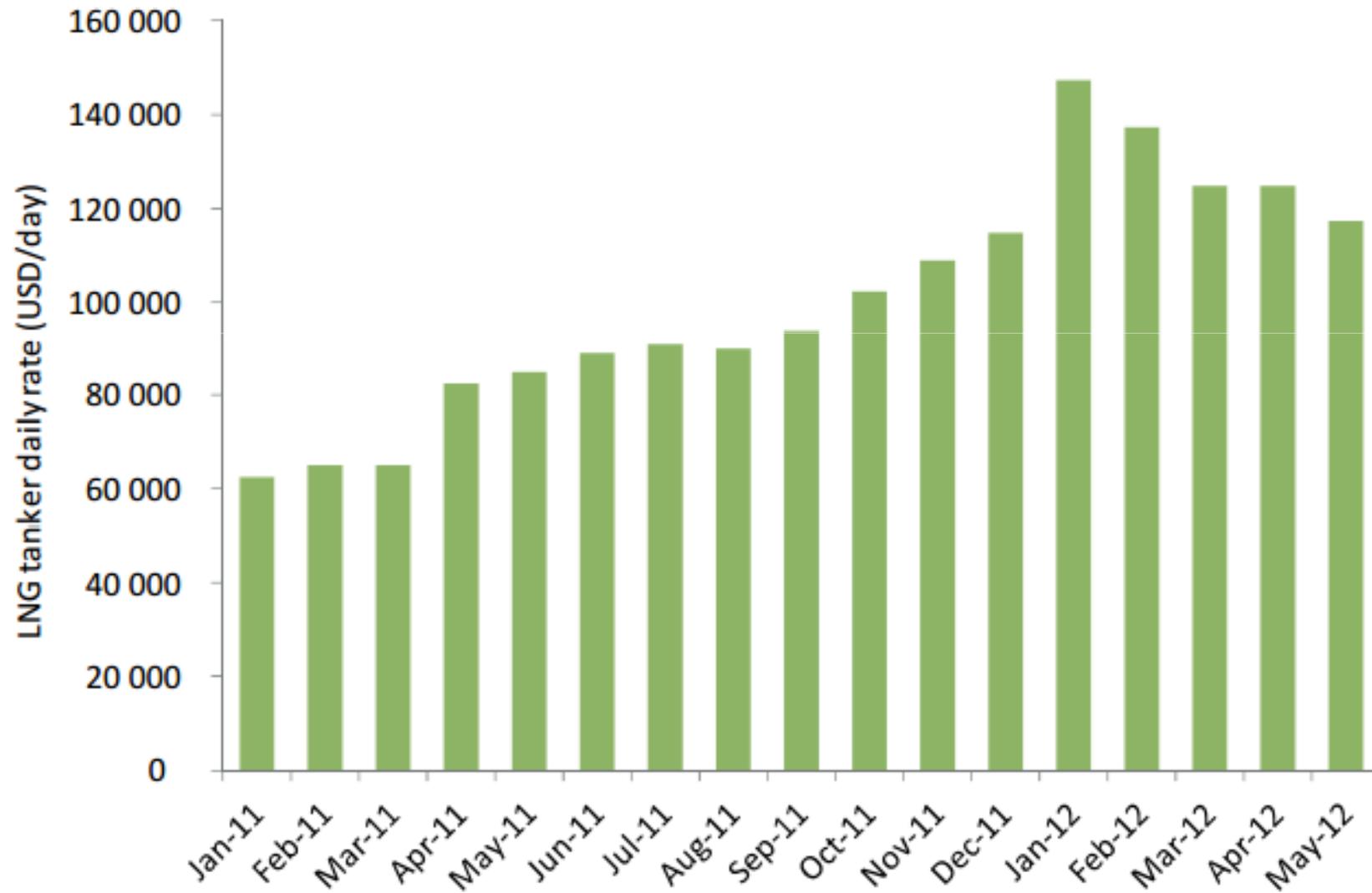


## LNG exports of the top seven LNG producers from, 2009 to 2011



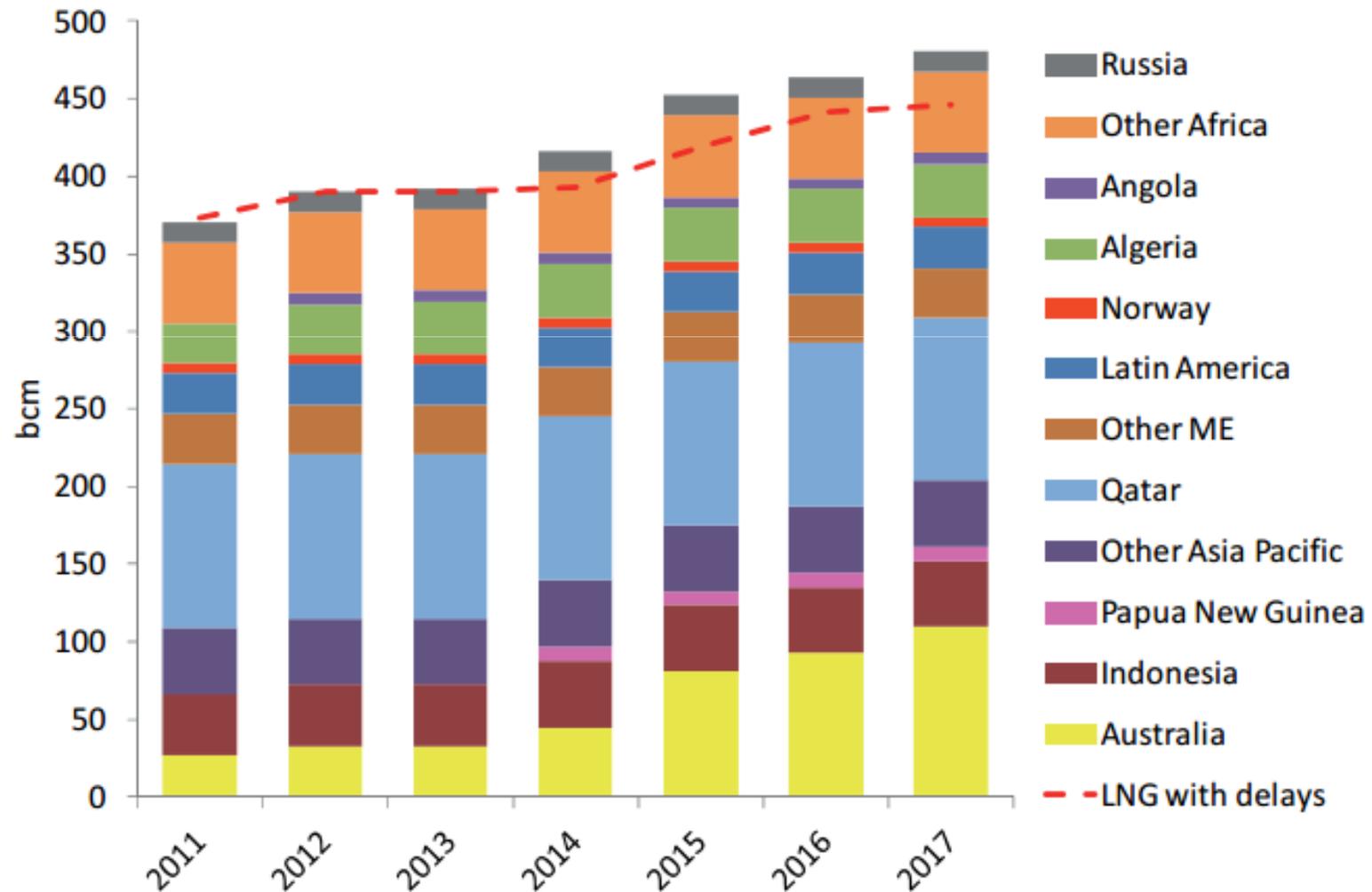


## LNG tanker daily rate January, 2011 – May 2012





# 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.



## Introduction – Arab Spring

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- ❑ Oil and gas production and transiting constitute a vital economic component of MENA countries
- ❑ Economic and social development depends largely on oil and gas production and exports.
- ❑ All countries involved in the Arab Spring uprising (and ensuing Islamist winter) are to a larger or smaller extent oil and gas producers.
- ❑ In 2010 Tunisia, Egypt, Libya, Bahrain, Yemen and Syria between them produced some 3.2 million barrels of oil per day and 102.0 BCMA of gas. In 2011 oil and gas production dropped to 1.85 mbpd and to 96.0 BCMA respectively.

## North Africa and the Arab Peninsula





## Introduction – Arab Spring (II)

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- ❑ Oil production from above six countries corresponds to 3.8% of global oil production which stood at 82.4 million barrels per day in 2010. In the same year, global gas production was 3,178 BCM.
- ❑ If we add Algeria, which is no part of Arab Spring, and produces some 1.7 million barrels a day and 78 BCMA, the total oil production from those MENA countries correspond to 6.0% of daily oil production and 180 BCMA or 5.6% of global production
- ❑ In 2011 oil production was badly affected in Libya and Syria while in 2012 oil production in Libya resumed at pro-Quaddafi levels but deteriorated further in Syria.
- ❑ The shortfall was met by increased production from Saudi Arabia and other OPEC and non OPEC countries. However, this disruption in supplies to Western consuming countries affected prices which increased on average by 20% (first half of 2011).



## “Arab Spring” Countries and Global Oil Production (2008-2012) in thousands barrels daily

|             | 2008   | 2009   | 2010   | 2011   | 2011/2010 |
|-------------|--------|--------|--------|--------|-----------|
| Syria       | 398    | 401    | 385    | 332    | -53       |
| Yemen       | 315    | 306    | 301    | 228    | -73       |
| Egypt       | 723    | 736    | 730    | 735    | +5        |
| Libya       | 1.820  | 1.658  | 1.659  | 479    | -1.180    |
| Tunisia     | 89     | 83     | 80     | 78     | -2        |
| FSU         | 12.776 | 13.174 | 13.448 | 13.487 | +39       |
| EU          | 2.219  | 2.086  | 1.950  | 1.692  | -258      |
| OPEC        | 36.203 | 33.897 | 34.753 | 35.830 | +1.077    |
| Non-OPEC    | 33.555 | 33.661 | 34.280 | 34.258 | -22       |
| Total World | 82.335 | 80.732 | 82.480 | 83.756 | +1.276    |



## Implications for the Oil Market

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- ❑ The Arab Spring had a clear and profound impact on the global and regional oil markets and to a much lesser extent affected gas markets.
- ❑ The impact affected oil exports through reduced production (i.e. Libya and Syria) and disruption in transiting (i.e. Suez Canal and oil pipelines through Syria) and is reflected by geopolitical risk in prices.
- ❑ Repercussions are still evident in the Mediterranean oil market mainly as a result of the crisis in Syria.
- ❑ Although the quantities of oil and gas produced are small by international standards the disruption of oil supplies and oil and gas transiting is having multiple effects.
- ❑ Because of reduced oil and gas exports and disruptions in supply the economies of the countries involved were negatively affected and is reflected in GDP change.
- ❑ The real impact of Arab Spring in the energy markets will be felt and understood in the years to come.



## Arab Spring Latest

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- ❑ Widespread public unrest in Egypt, with 50 people reported dead in riots in various part of the country, over last 6 days shows that Arab Spring uprising which lead to overthrow of Mubarak regime, elections and the new Morsi lead government is still evolving
- ❑ Latest terrorist attacks in Algeria show that there is a potential for unrest spill over driven by Islamist fundamentalists
- ❑ Killing of US Ambassador in Benghazi on 11, September 2012 and ensuing riots shows unrest in Libya is not yet over
- ❑ Continuing armed conflict in Syria with many thousands dead citizens and combatants shows that a well funded destabilization process (under the veil of Arab Spring) is continuing threatening fragile regional stability
- ❑ Common denominator of Arab Spring unrest is the overthrow of the Old Order, the rise of Islamist Fundamentalists and the loosening of government control. All of them detrimental factors to economic development and investment
- ❑ Hydrocarbon investment in Egypt, Libya and Algeria have so far remained largely intact while oil and gas operations in Syria have been badly affected
- ❑ As long as political unrest and public turmoil continues new hydrocarbon investment prospects in North Africa will remain constrained but with ongoing prospects not affected. However, the huge oil and gas potential of region cannot be unlocked as country risk will for some time remain high



# GDP & Industrial Production in the Arab Spring Nations (percent change)

**Table 1 - GDP and Industrial Production in the Arab Spring Nations (percent change)**

|                               | 2008 | 2009 | 2010 | 2011  | 2012(F) | 2013(F) |
|-------------------------------|------|------|------|-------|---------|---------|
| <b>Inflation-Adjusted GDP</b> |      |      |      |       |         |         |
| Egypt                         | 7.2  | 4.7  | 5.1  | 1.8   | 0.8     | 2.8     |
| Libya                         | 2.8  | -1.6 | 2.9  | -41.8 | 20.1    | 9.5     |
| Tunisia                       | 4.5  | 3.1  | 3.1  | -1.1  | 2.5     | 3.7     |
| <b>Industrial Production</b>  |      |      |      |       |         |         |
| Egypt                         | 8.3  | -3.5 | 10.0 | -6.4  | 7.0     | 3.6     |
| Libya                         | 2.0  | -4.5 | 0.8  | -74.0 | 34.3    | 13.0    |
| Tunisia                       | 3.3  | -4.5 | 7.7  | -3.7  | 1.5     | 7.1     |

F=Forecast

Source(s): IMF and OECD and World Bank and MAPI



## Egypt's Strategic Role

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- ❑ Not on account of its oil production.
- ❑ In 2011 oil production was 735 thousand bpd and consumption stood at 709 th. bpd
- ❑ Egypt though is a net gas exporter with production at 61.3 BCM in 2011 and domestic consumption of 49.6 BCM
- ❑ Egypt is an important transit route for crude moving between Red Sea and Mediterranean through the Suez Canal and the SUMED pipeline



## Egypt's Strategic Role (continued)

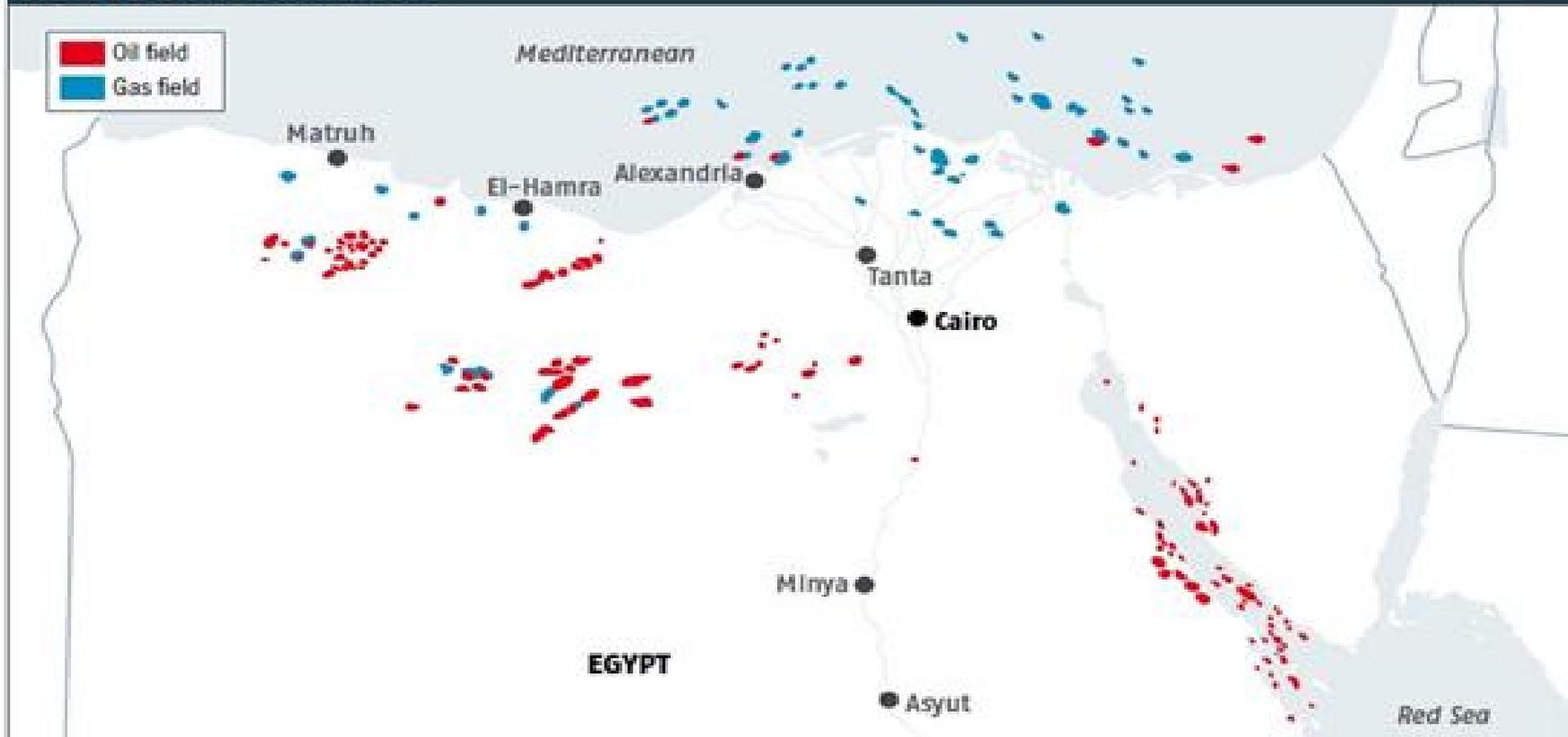
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- 2.0 mbp moves daily through the Suez Canal in both directions and 1.9 mbp through the SUMED Pipeline (Gulf of Suez to Sidi Kerir)
- 35.000 ships transited the Suez Canal in 2010 with only 10% oil tankers as there are limitations in handling VLCC's and ULCC's. Suezmax is biggest category (160.000DWT)
- Suez Canal is strategically less important than the Strait of Hormuz through which some 40% of all seaborne traded oil flows.



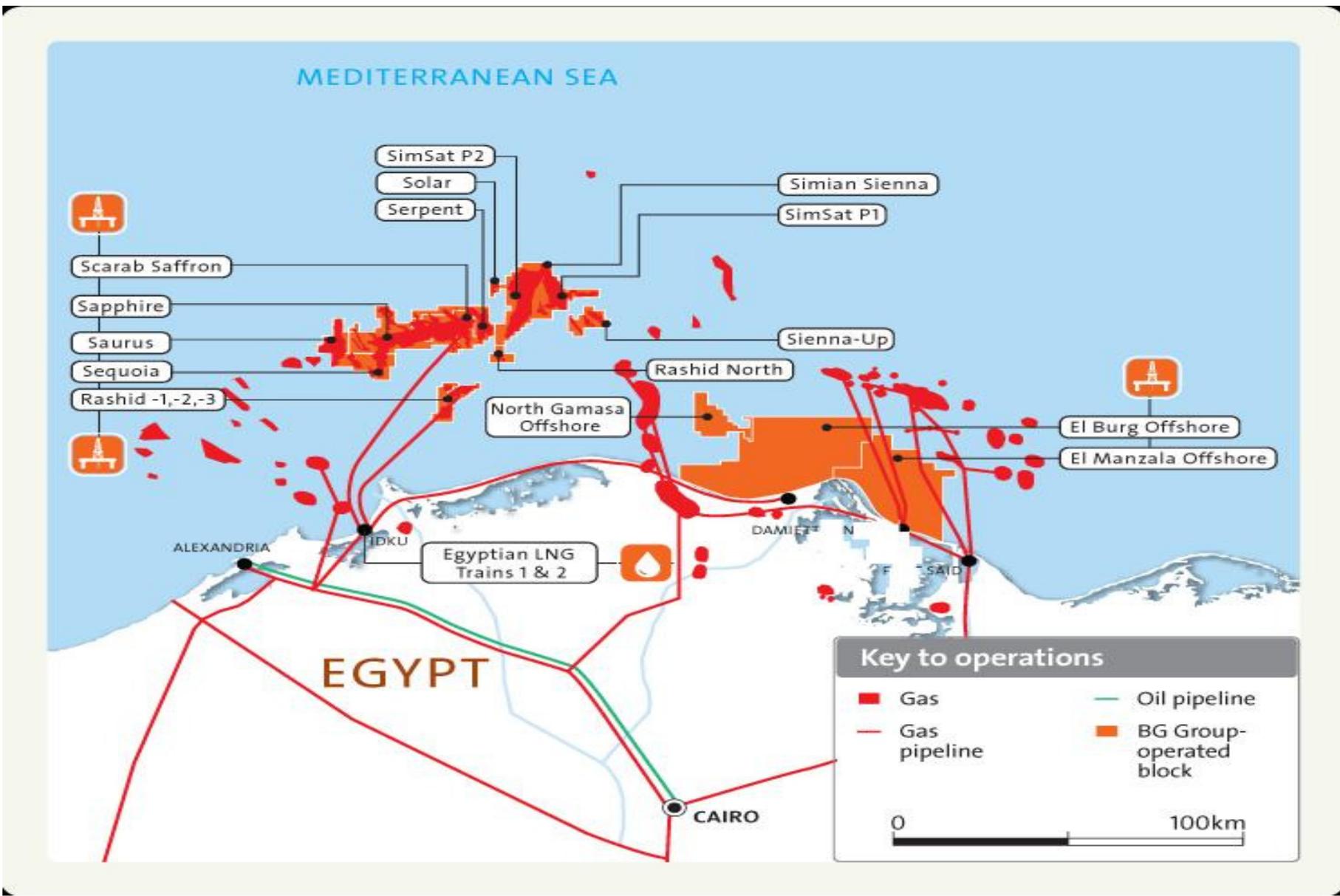
# Egypt's oil and gas fields

## EGYPT OIL AND GAS FIELDS

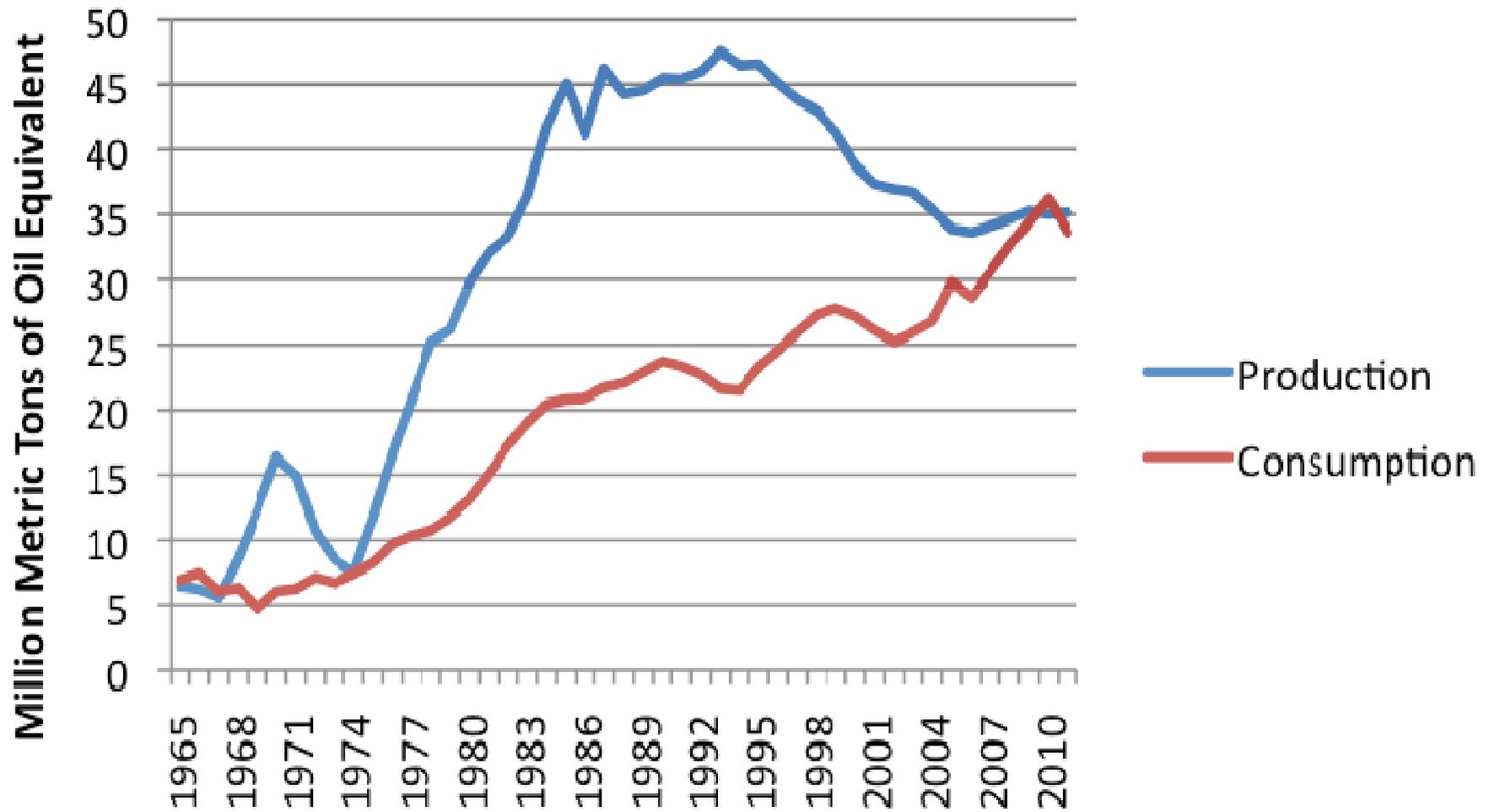




# Egypt - Oil and Gas Infrastructure

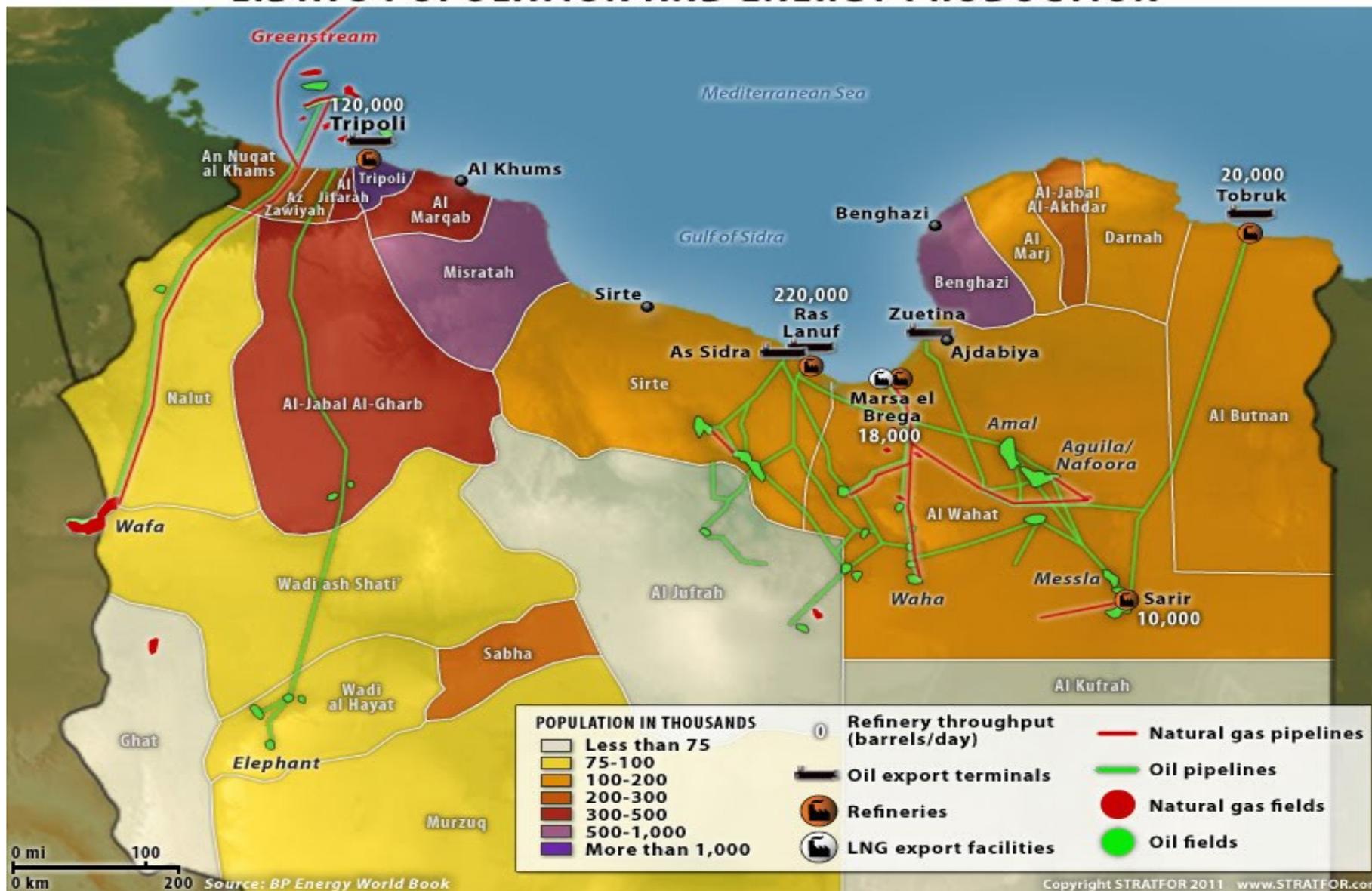


## Egypt - Oil Production and Consumption



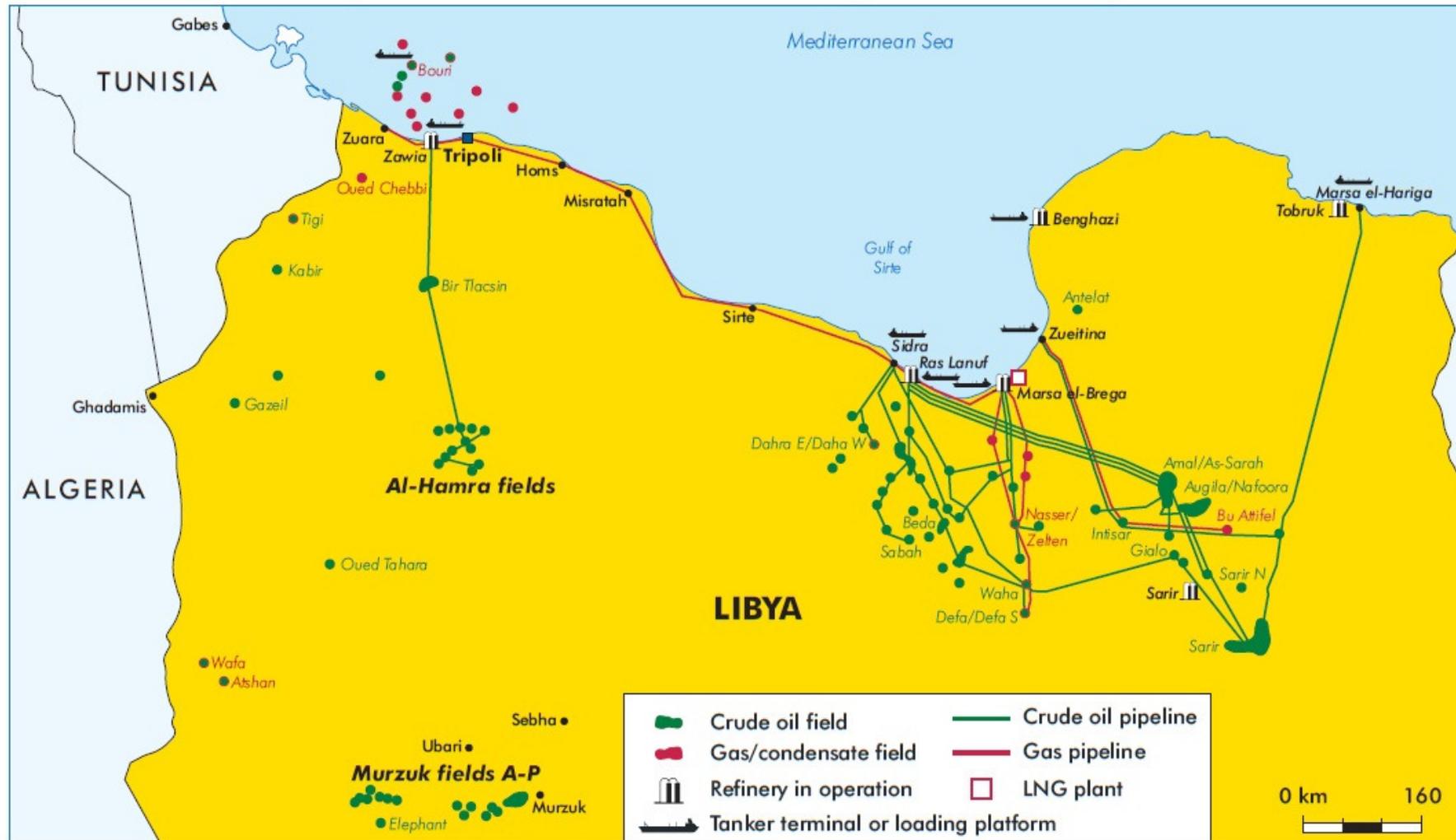


## LIBYA'S POPULATION AND ENERGY PRODUCTION

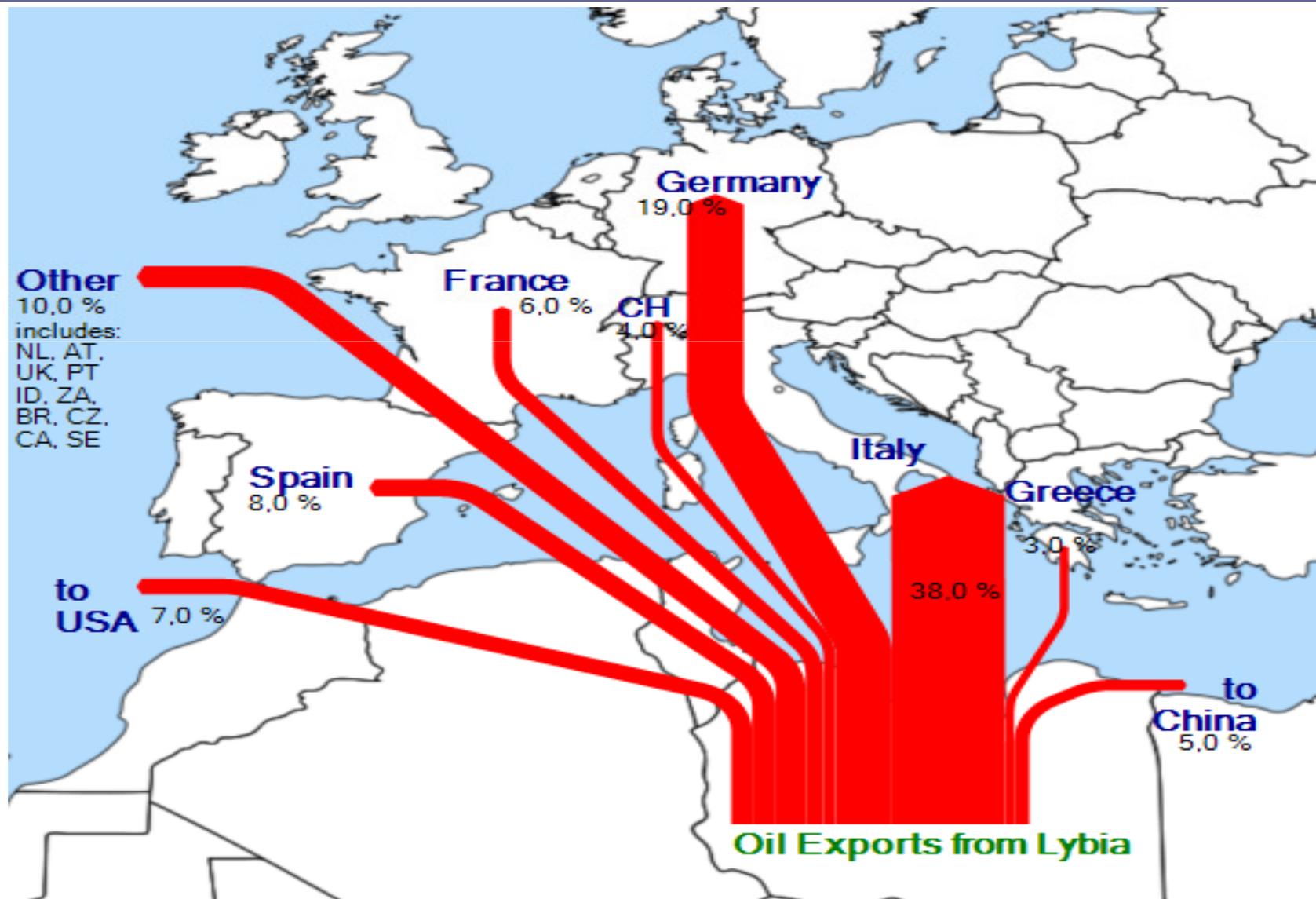


# Libya - Main Oil & Gas Fields and Infrastructure

Figure 14.4: Main Oil and Gas Fields and Energy Infrastructure in Libya

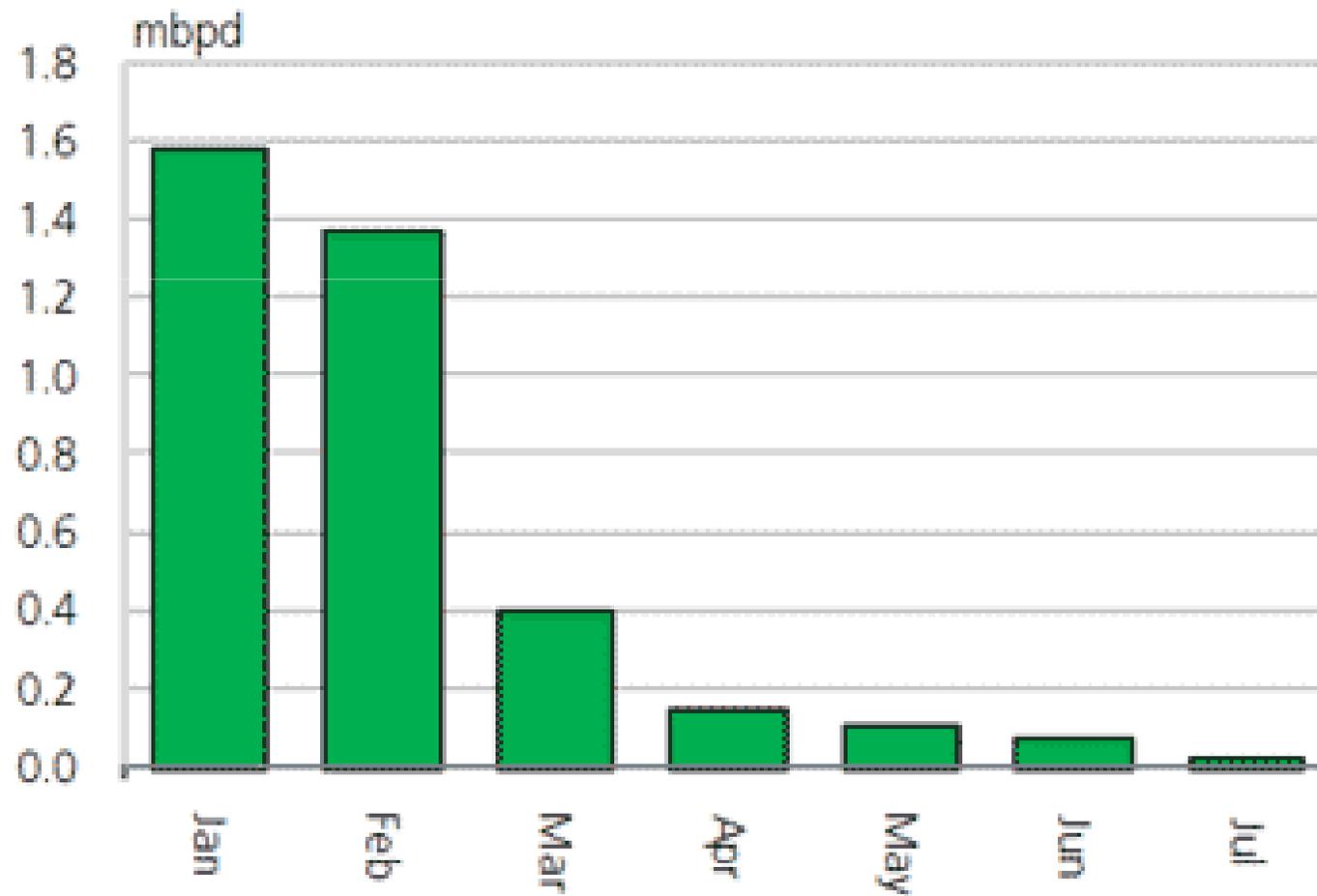


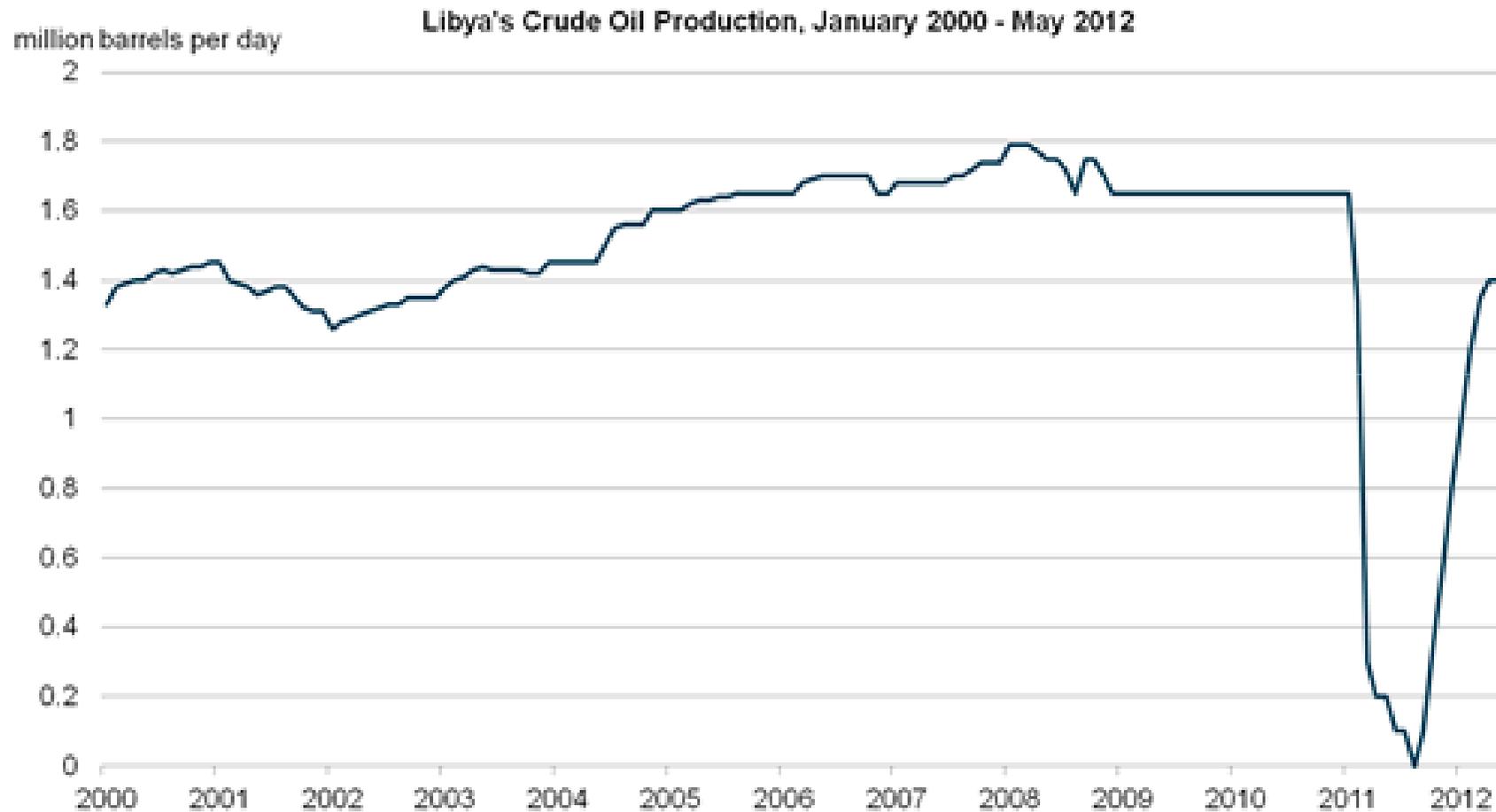
## Oil Exports from Libya before the “Arab Spring”



## Libya's oil production in 2011

Figure 1: Libya's oil production in 2011





Source: U.S. Energy Information Administration, *International Energy Statistics and Short-Term Energy Outlook*

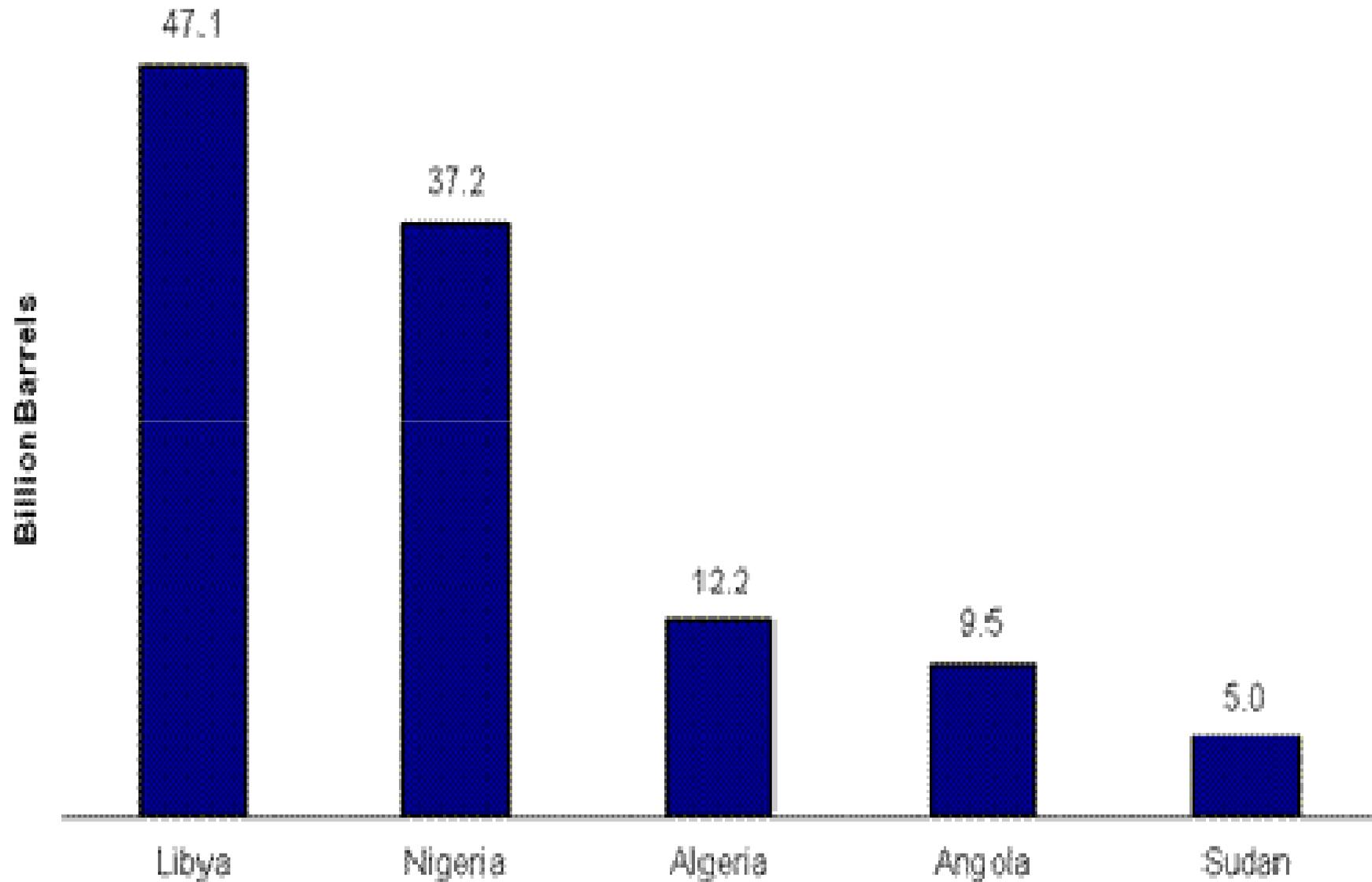


## Algeria as a Key Gas Supplier to Europe

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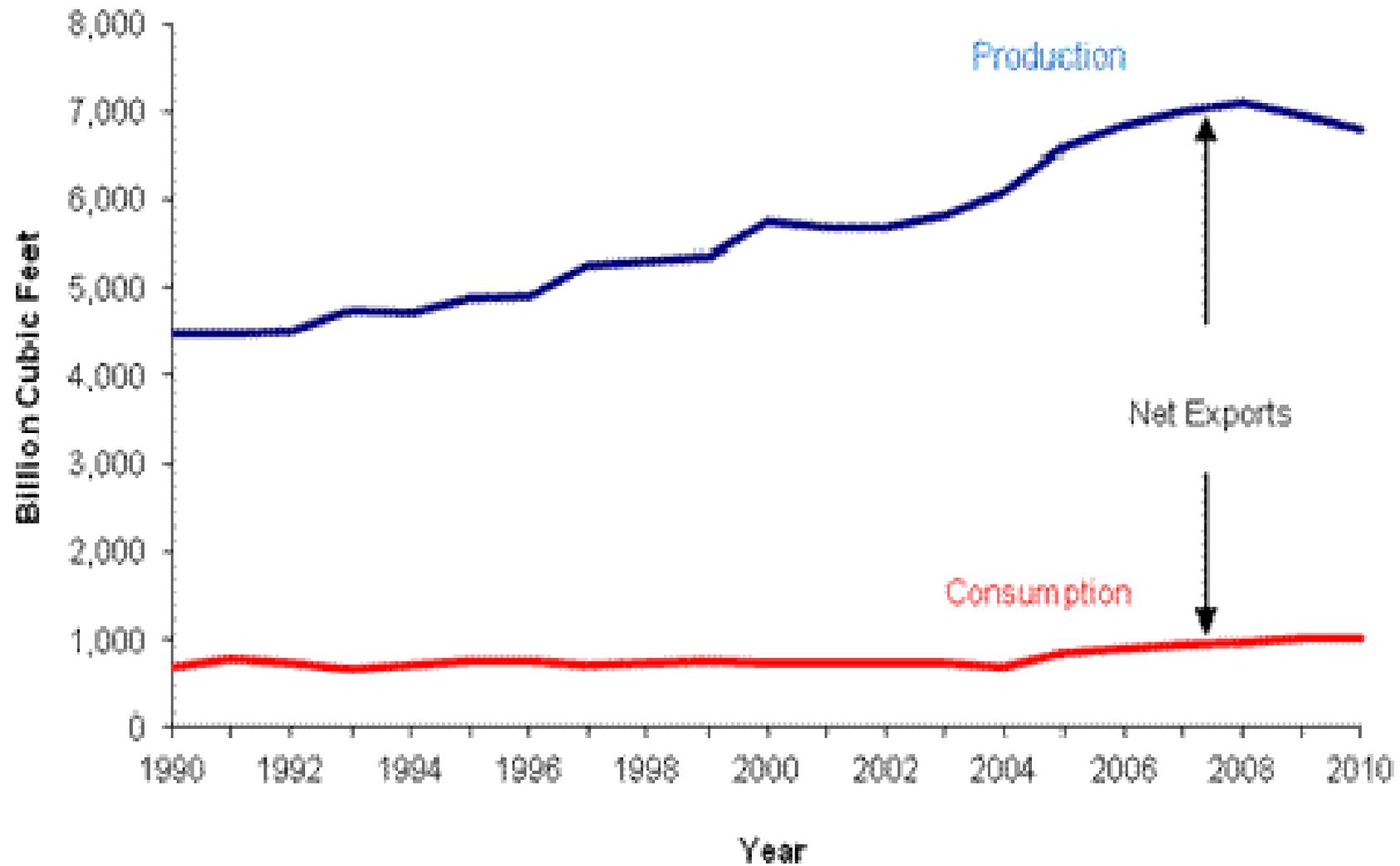
- ❑ Produced 78 BCMA in 2011 with anticipated slow rise to 85 BCMA by 2015
- ❑ Lack of adequate investment for new field development
- ❑ Exported 32.9 BCMA via pipeline to Italy, Spain and France
- ❑ Exported 16.8 BCMA via LNG to Europe
- ❑ Total gas exports in 2011 amounted to 51.5 BCMA
- ❑ Algeria supplied 9.5% of European gas needs in 2011
- ❑ However, latest terrorist incidents have raised uncertainty about country's future as key gas supplier to Europe

Top 5 African Proven Oil Reserve Holders, 2012



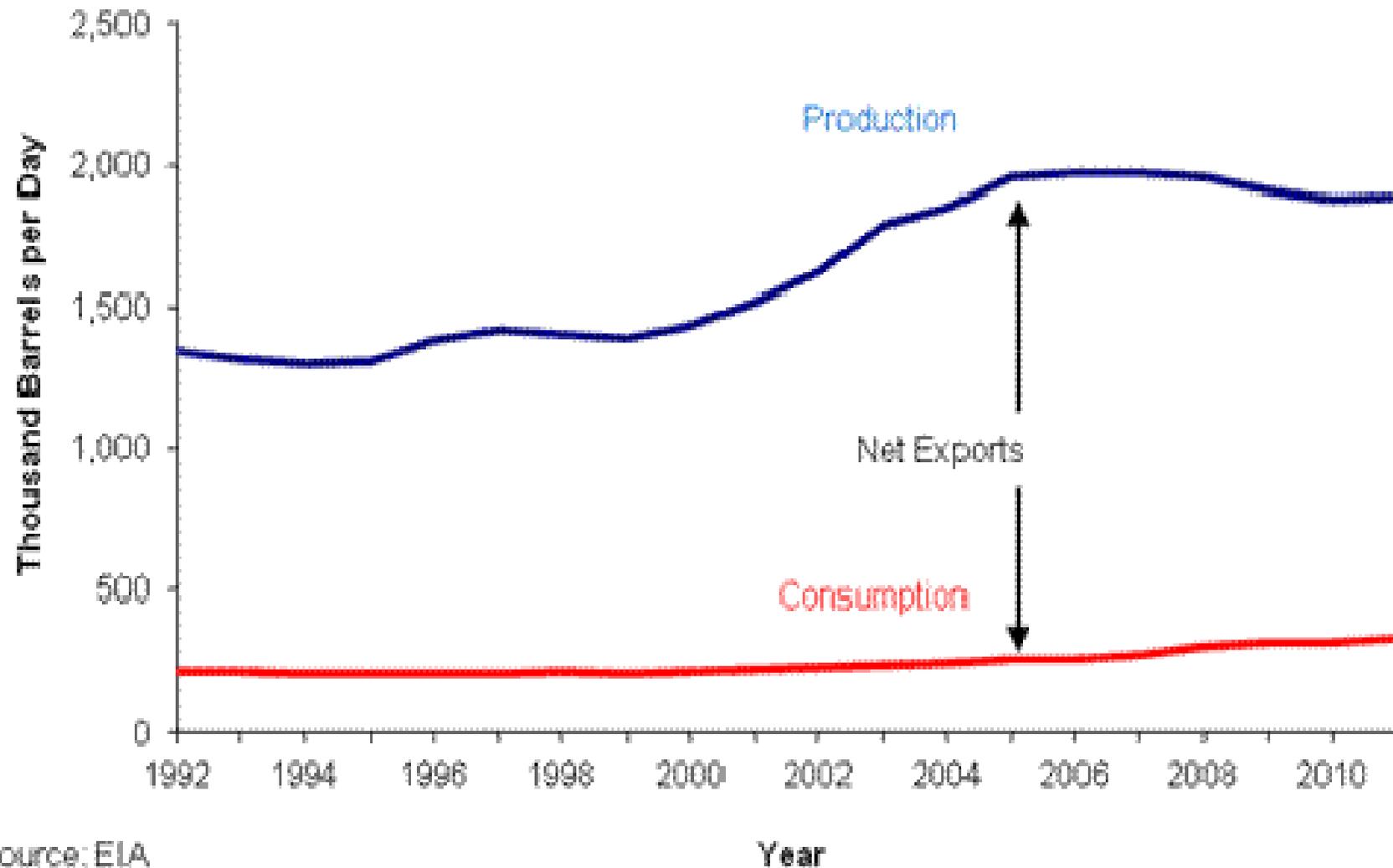
Source: Oil and Gas Journal

## Algeria's Total Natural Gas Production and Consumption, 1990-2010



Source: EIA

## Algeria's Total Oil Liquids\* Production and Consumption, 1992-2011



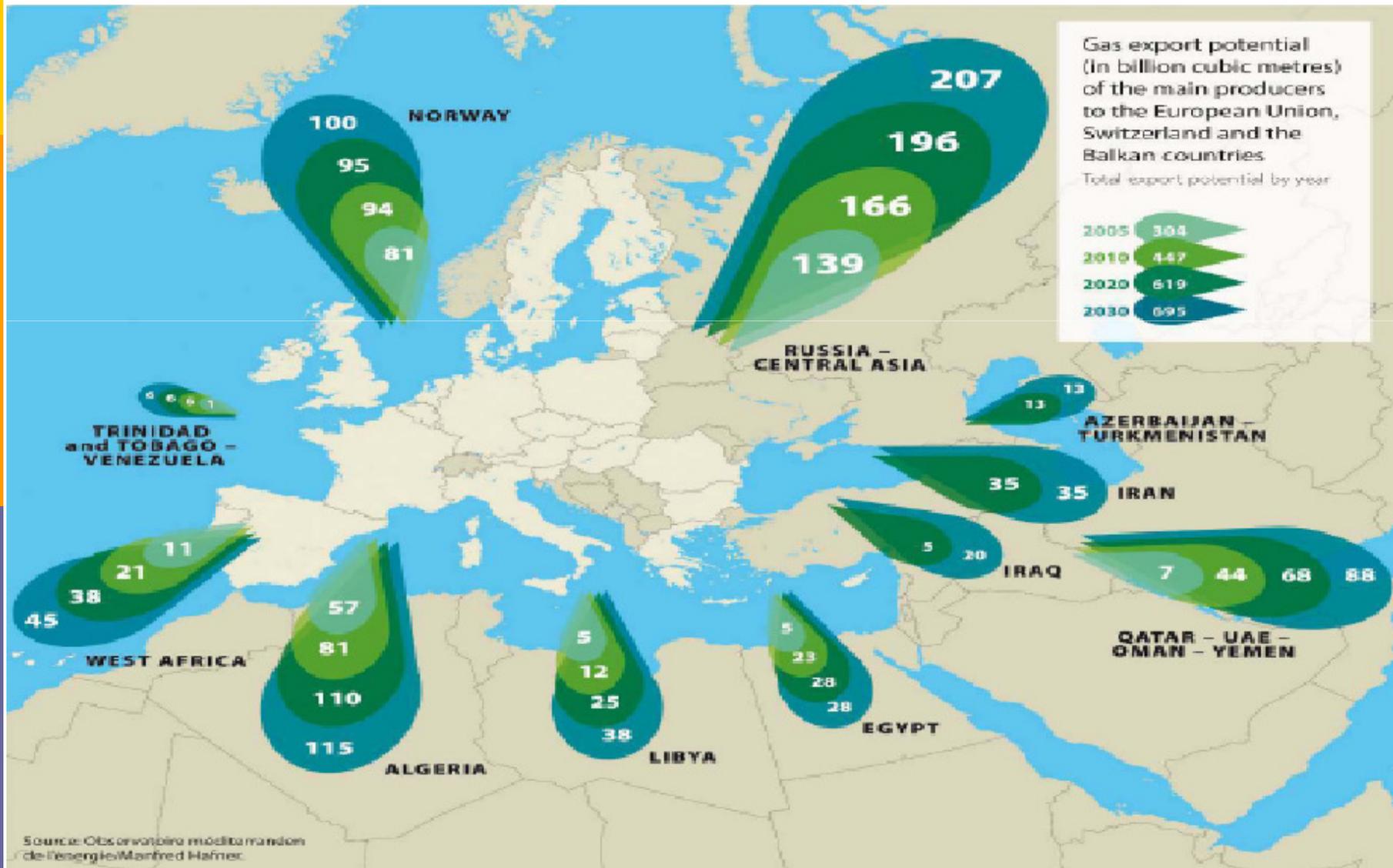
Source: EIA

\* Crude oil plus NGL and Condensate

# Major Oil & Gas Fields and Infrastructures in Algeria



# Gas export potential to Europe





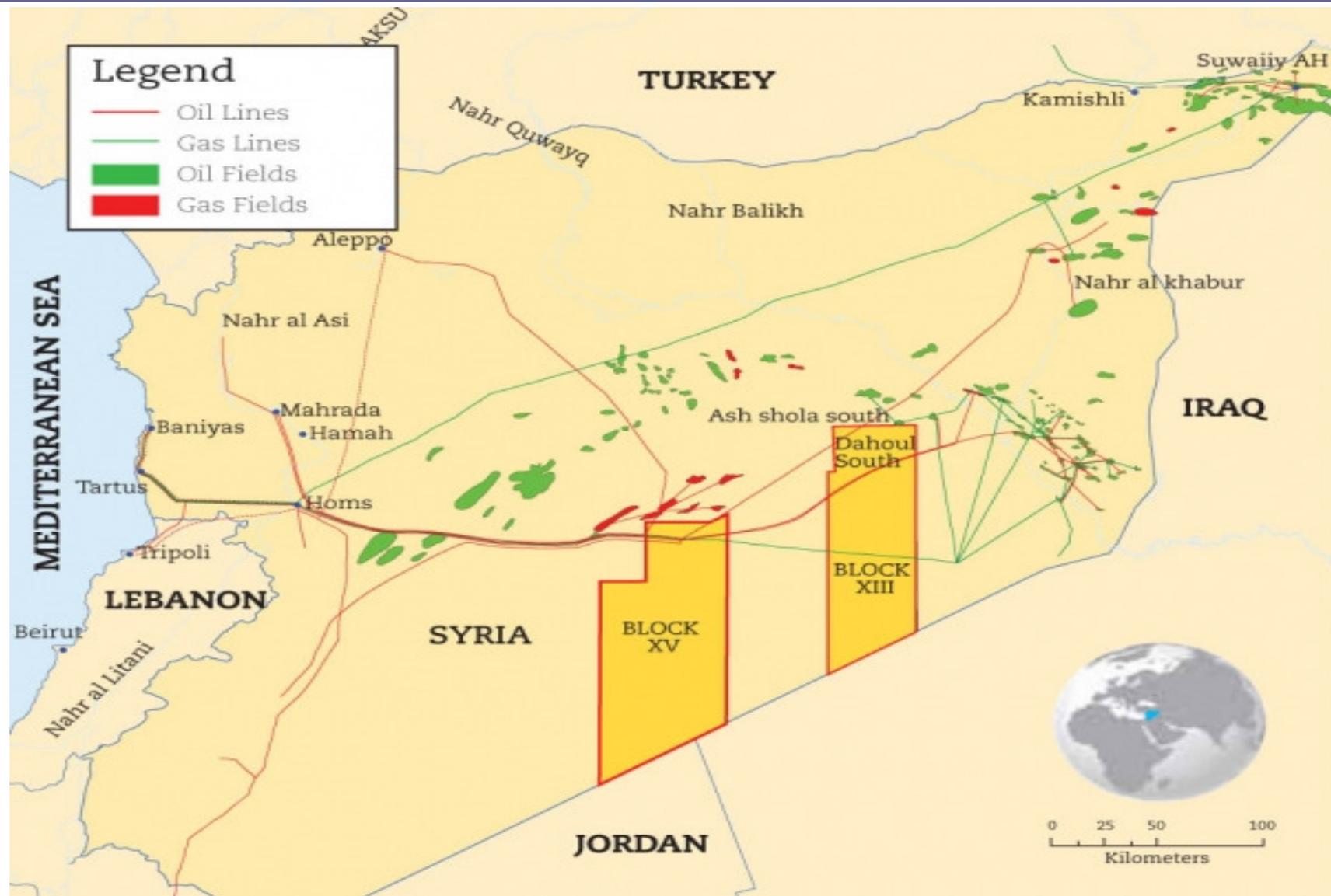
## Oil and the Syrian Crisis

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- ❑ Syria is small but traditional Middle East oil producer which for many years had been producing some 500,000 to 600,000 bpd from several onshore fields mainly in the Hasaka region in the north east and in Deir Ezzor
- ❑ According to BP's Statistical Review of 2011 Syria was producing 323 bpd with its domestic consumption nearing 260,000 bpd. Therefore only a limited amount of oil was exported, less than 80,000 bpd
- ❑ Following the overrun by rebels (in November/December 2012) of several oilfields in the eastern province of Deir Ezzor oil production has come under renewed pressure. A further decrease in production below the current 160,000 bpd is foreseen
- ❑ Syria's insurrection has already been discounted as a geopolitical risk and therefore the deepening crisis is not affecting further international oil prices
- ❑ If and when Iran is drawn openly into the conflict the markets will sense higher geopolitical risk and this inevitably will translate into higher oil prices



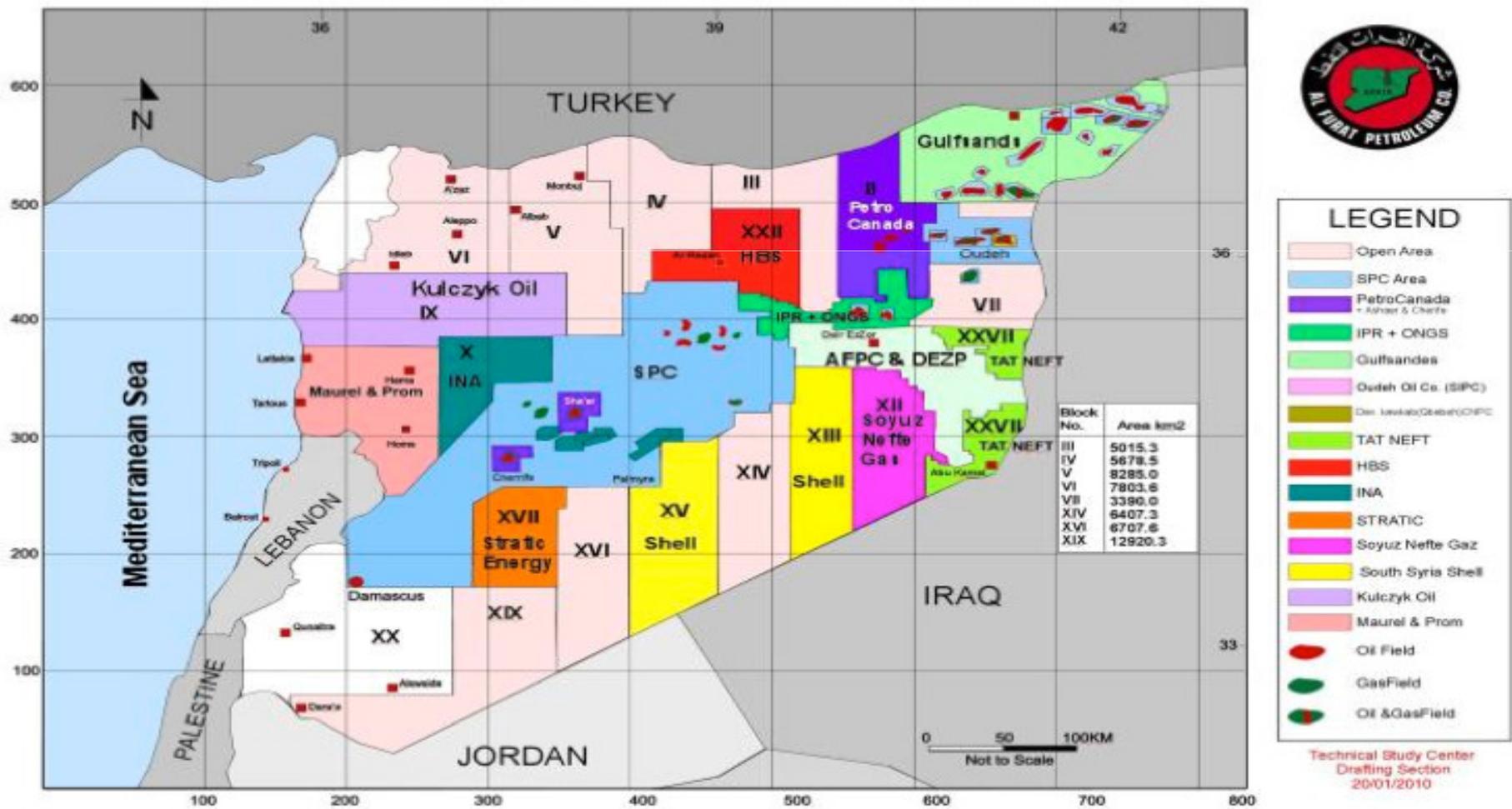
# Syria: Oil & Gas and Infrastructure





# Syria's Exploration Blocks

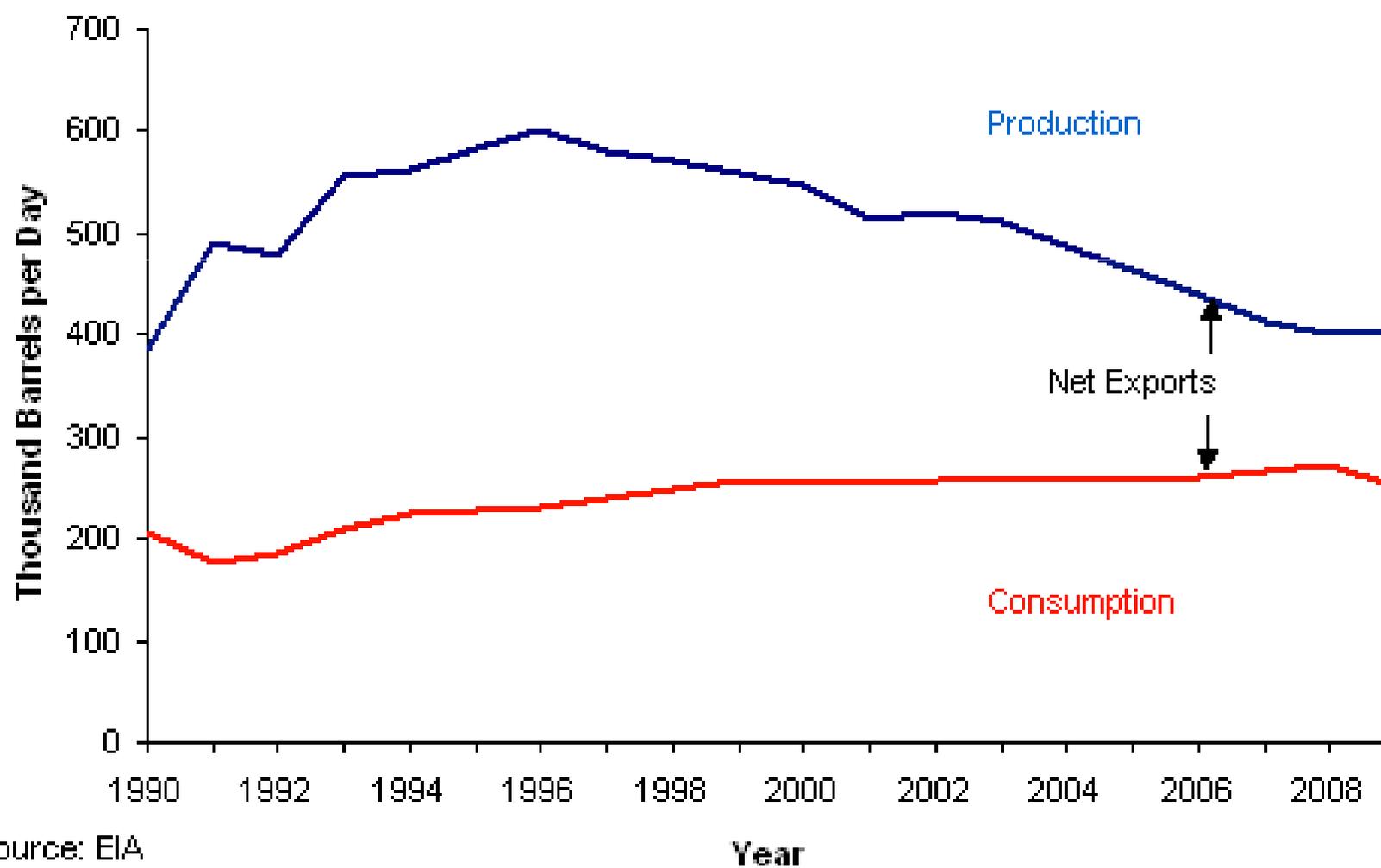
Map of Service Contract and Development Areas 2010







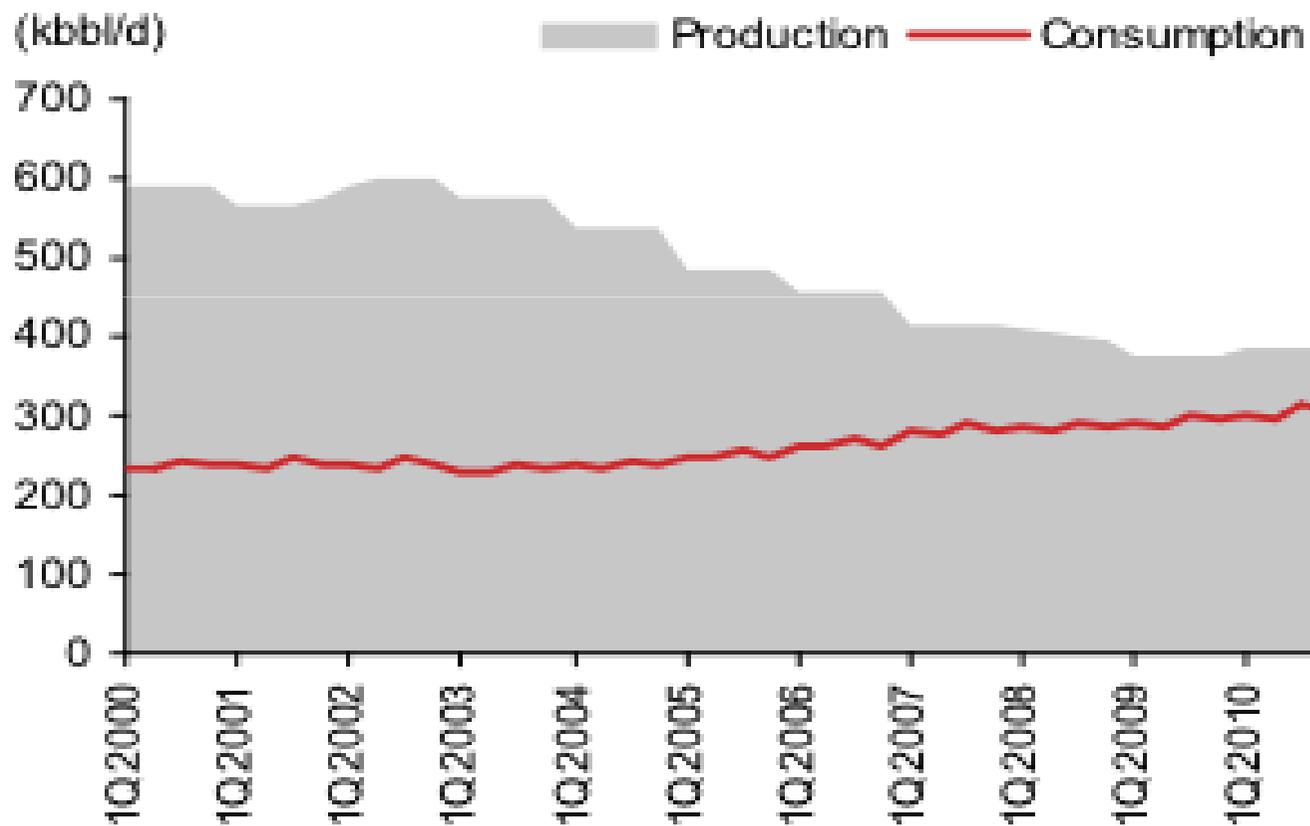
## Syria's Total Petroleum\* Balance, 1990-2009



Source: EIA

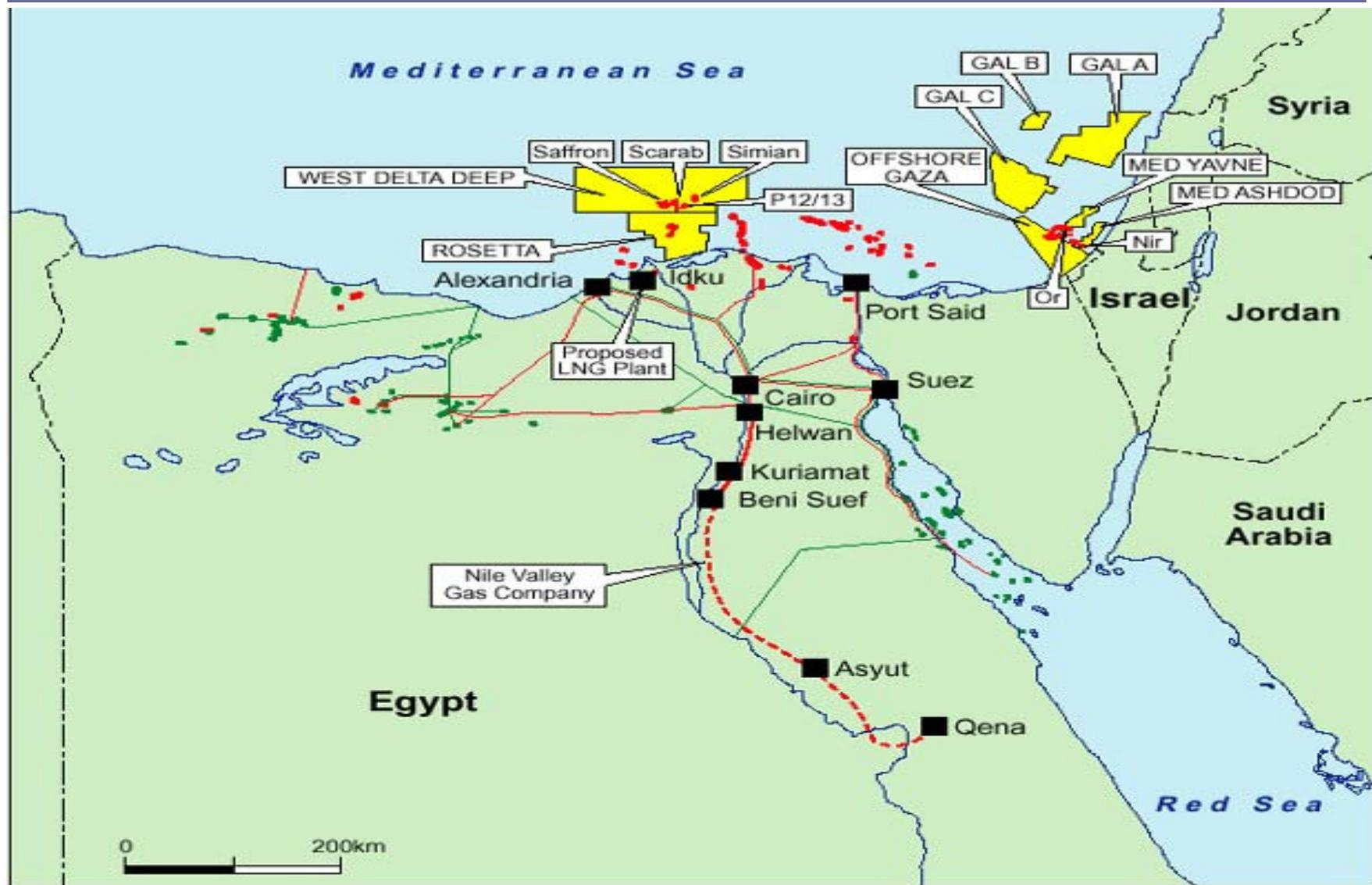


## Syria oil production & consumption



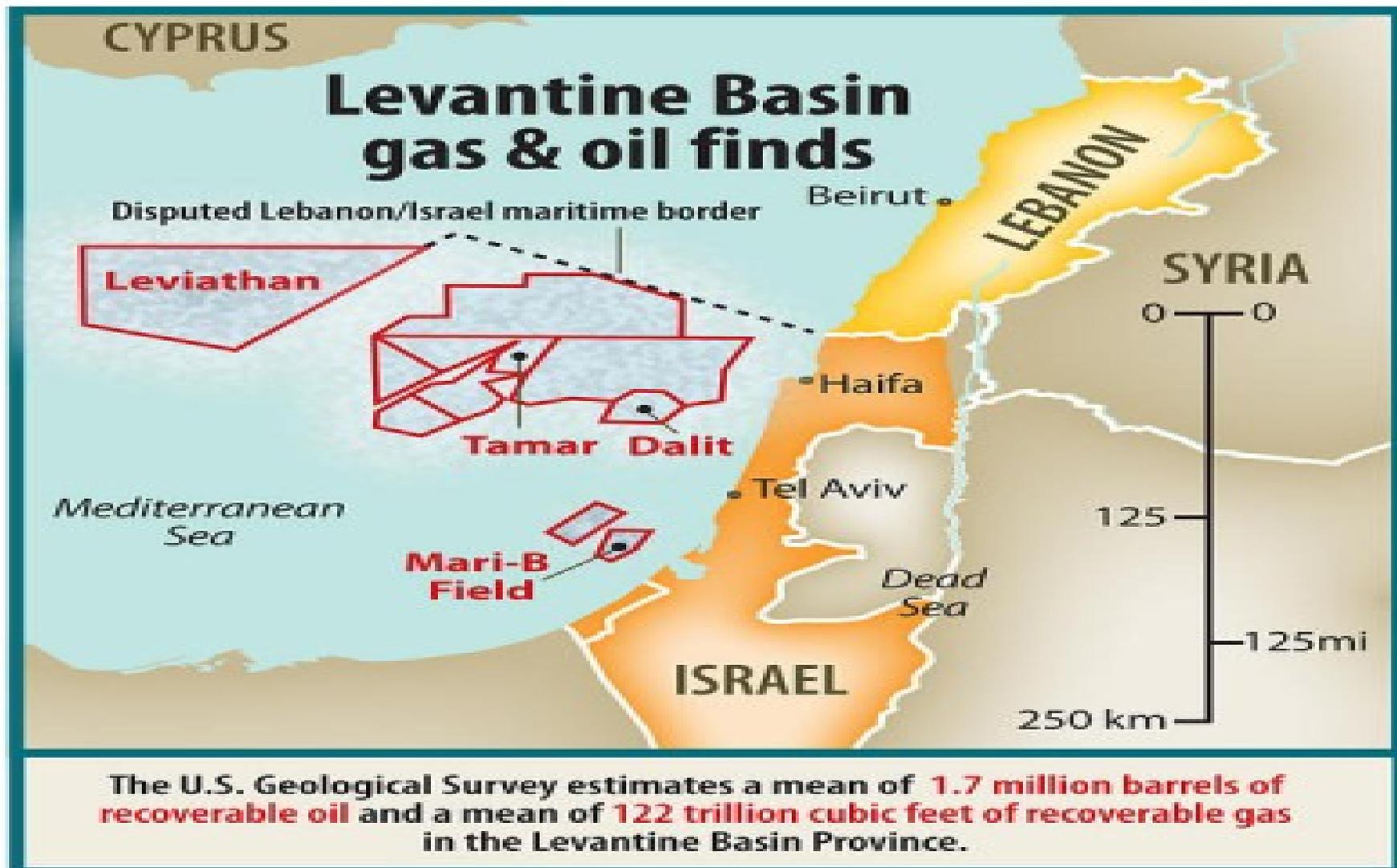
Source: IEA, Nomura research

# Egypt & Israel Hydrocarbon Fields





## Israel – Oil and gas finds

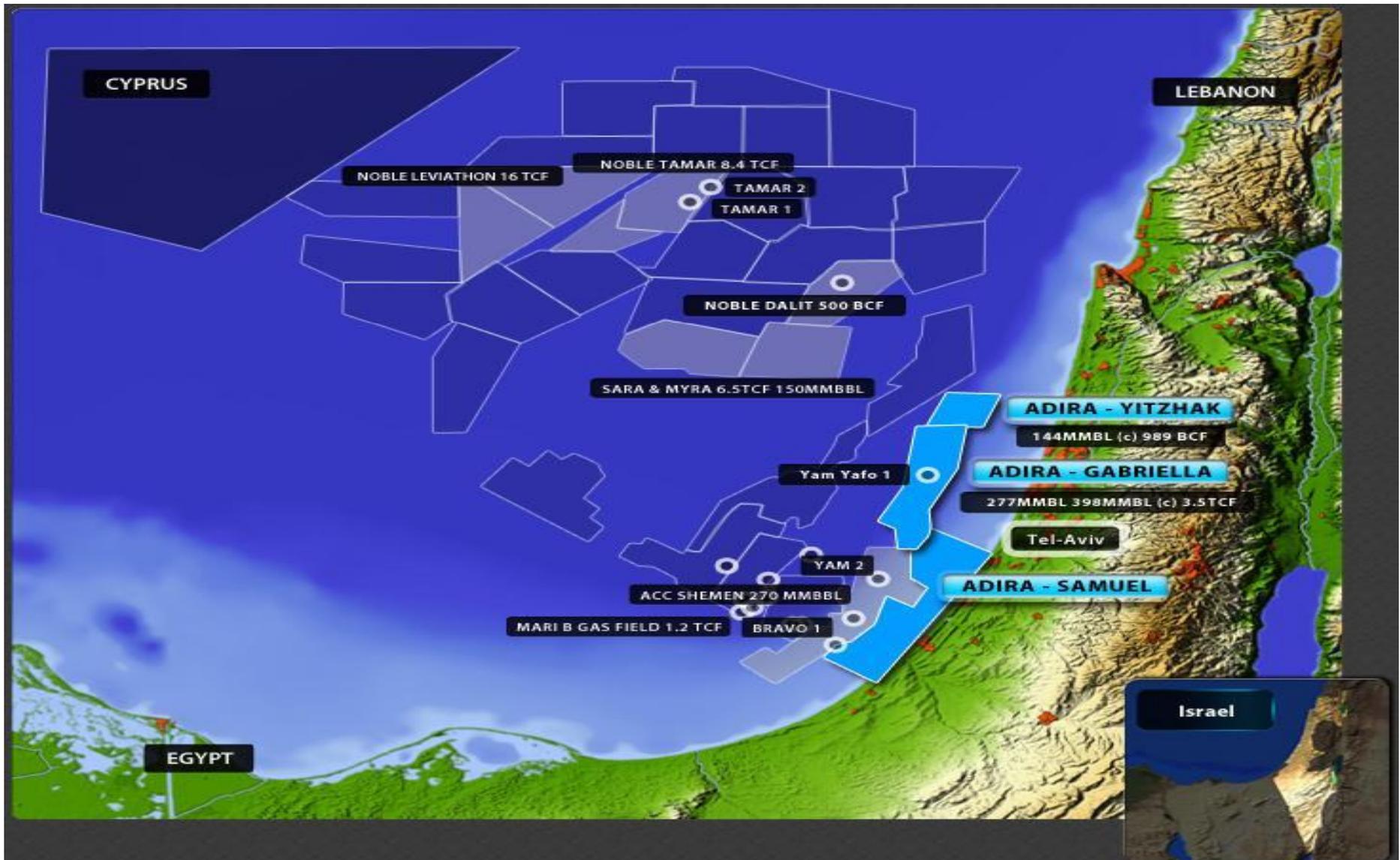


SOURCE: Noble Energy Inc.

MAP: JOHN KEHE/STAFF



# Israel & Cyprus Exploration Blocks



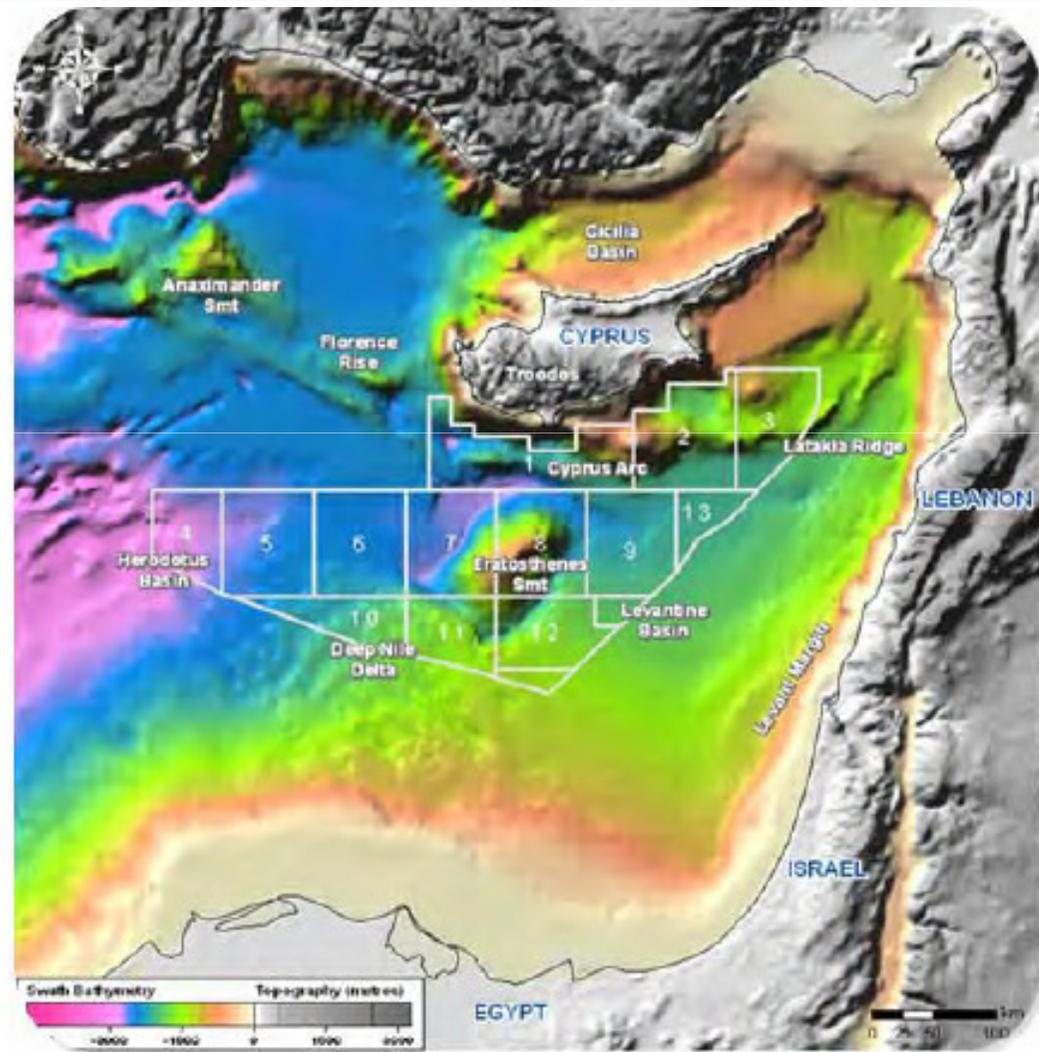


# Israel & Cyprus Gas Fields



# Offshore Cyprus: A New Frontier & Emerging Area

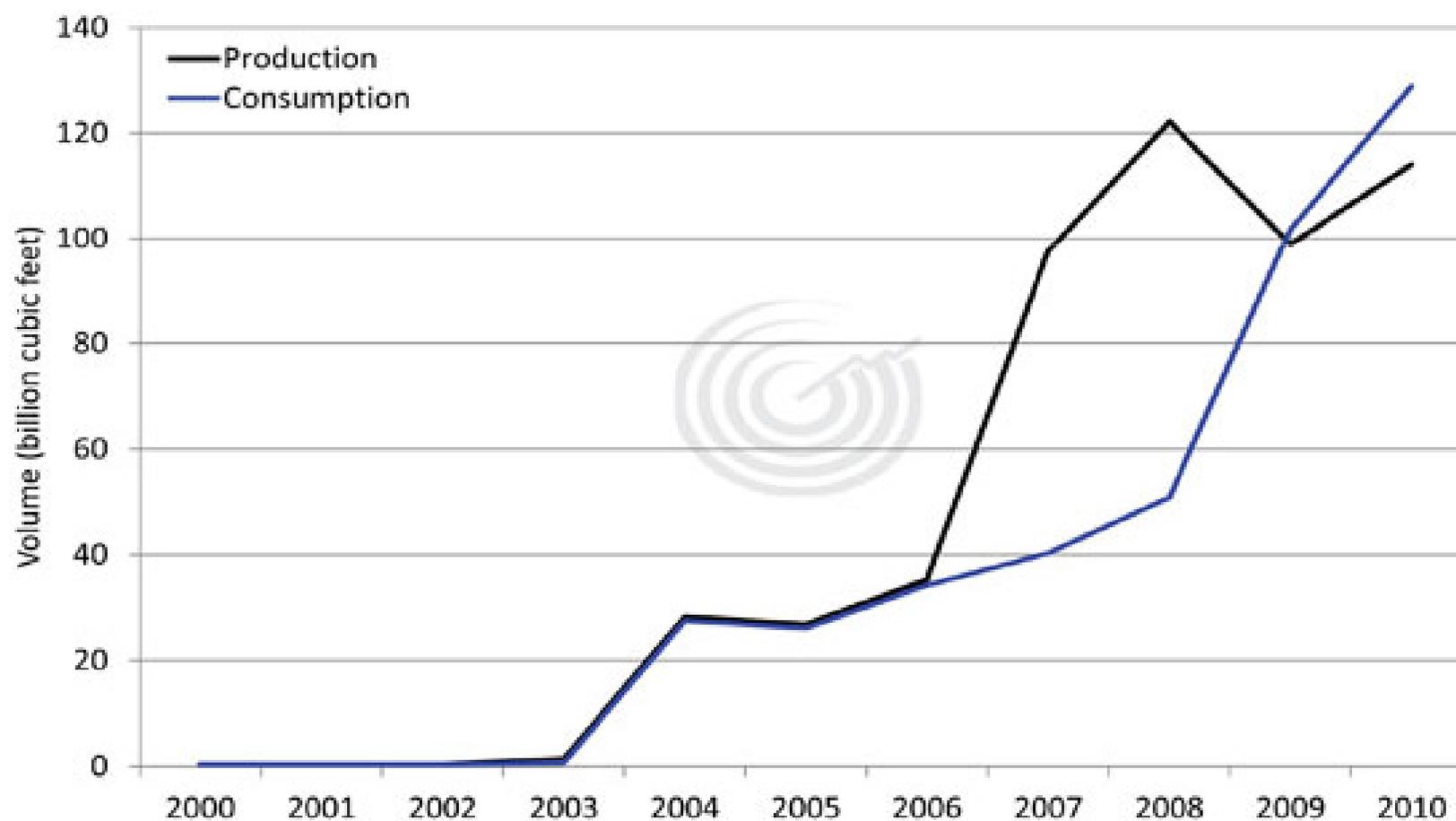
- ▶ Located at the crossroads of big international energy routes
- ▶ Full member state of the EU with stable business environment
- ▶ Open services-oriented market economy
- ▶ A strategic hub for business activities in the region
- ▶ Big hydrocarbon discoveries in the region
- ▶ A promising regional geological background
- ▶ Many leads of considerable size
- ▶ Access to the EU market and the Greater Mediterranean Region (large potential for oil and gas trading)





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## The Rise of Natural Gas in Israel



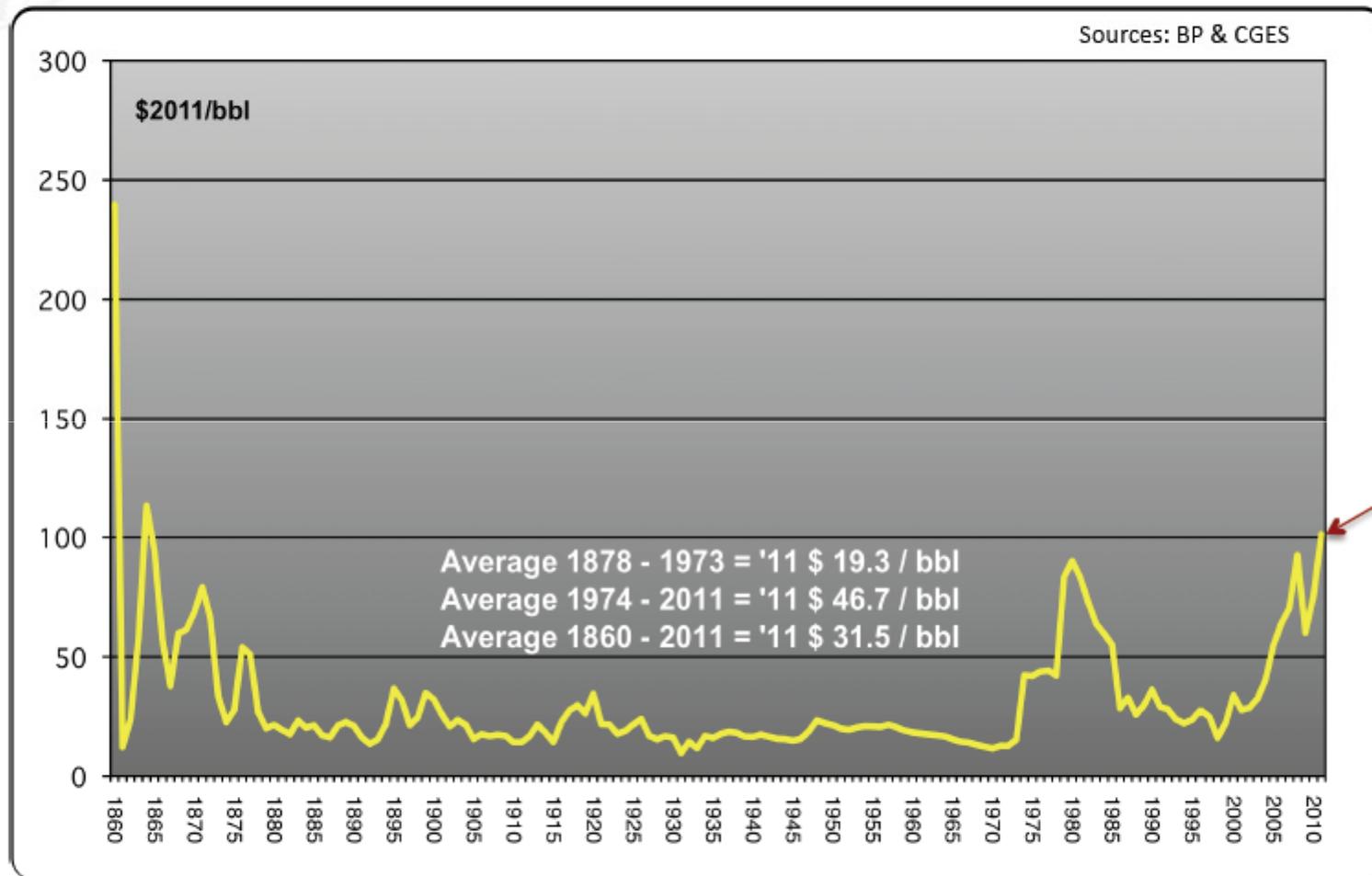


## The Arab Spring and Oil Prices

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- Between Jan. 20, 2011 and Feb. 22, 2011 the ICE Brent benchmark increased by \$12.0/bbl or 12.5% during the peak of Egyptian turmoil.
- In the 3 months from December 1 to Feb 28, 2011 the increase was \$22/bbl or 25.5%.
- As the Libyan crisis erupted oil prices shot up to \$126.0/bbl (May 2011).
- International oil prices were maintained at high levels between \$125 to \$129 as crisis spread to Yemen, Bahrain and Syria.
- The Arab Spring had a clear effect in considerably increasing geopolitical risk.
- In June 2011 the IEA released some 60 million barrels (2 million barrels a day over 30 days) , in order to prevent supply crunch and lower oil prices. Brent prices dropped by 10 -12\$ and traded below \$110.0/bbl in June-July 2011.

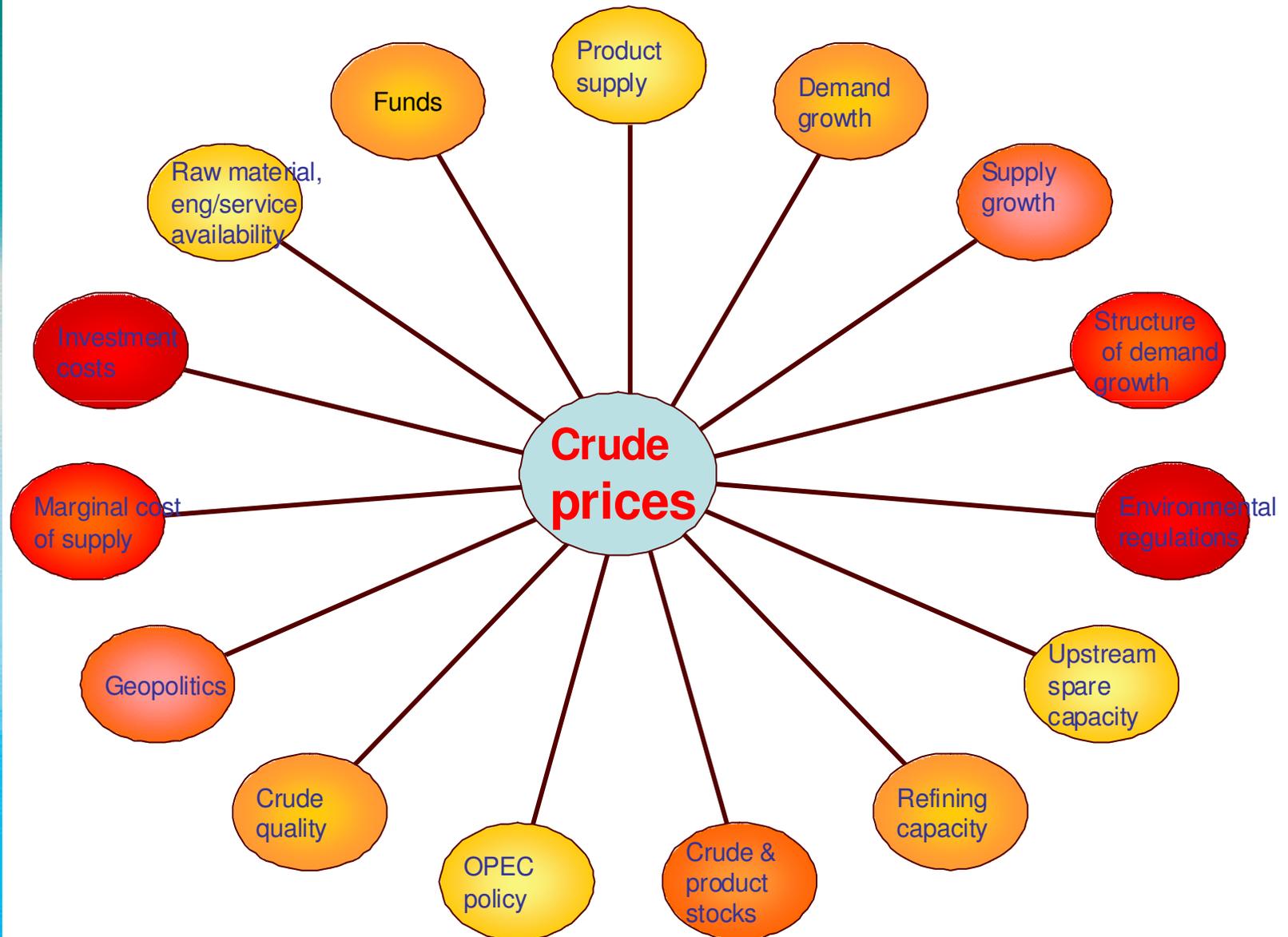
# Real oil prices from 1860 to 2011



From John D. Rockefeller's consolidation of the US oil industry in 1878 until the first oil price crisis of 1973-4 the price of oil averaged \$19.3/bbl in 2011 US Dollars and was fairly stable throughout this long period. After 1973 the real price of oil averaged around \$47/bbl in 2011 \$ and became volatile.



# Price formation: no single driver



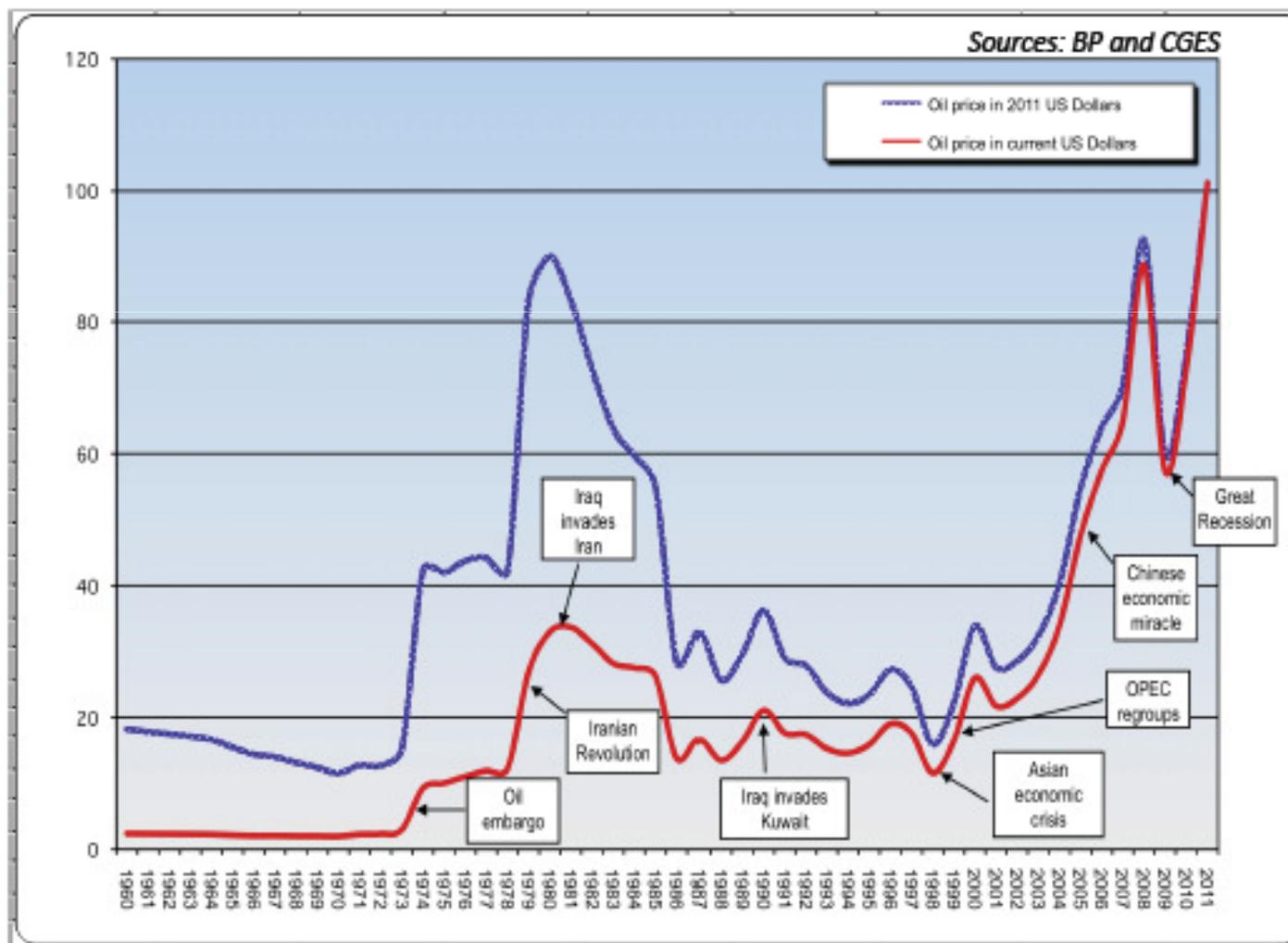
MEDIUM  
TERM

Oil  
Market  
Report

© OECD/IEA

OECD/IEA 2007

## Nominal and real oil prices, and their peaks and troughs, 1960 – 2011



# ICE Brent futures over a 3 month period, up to February 24, 2011

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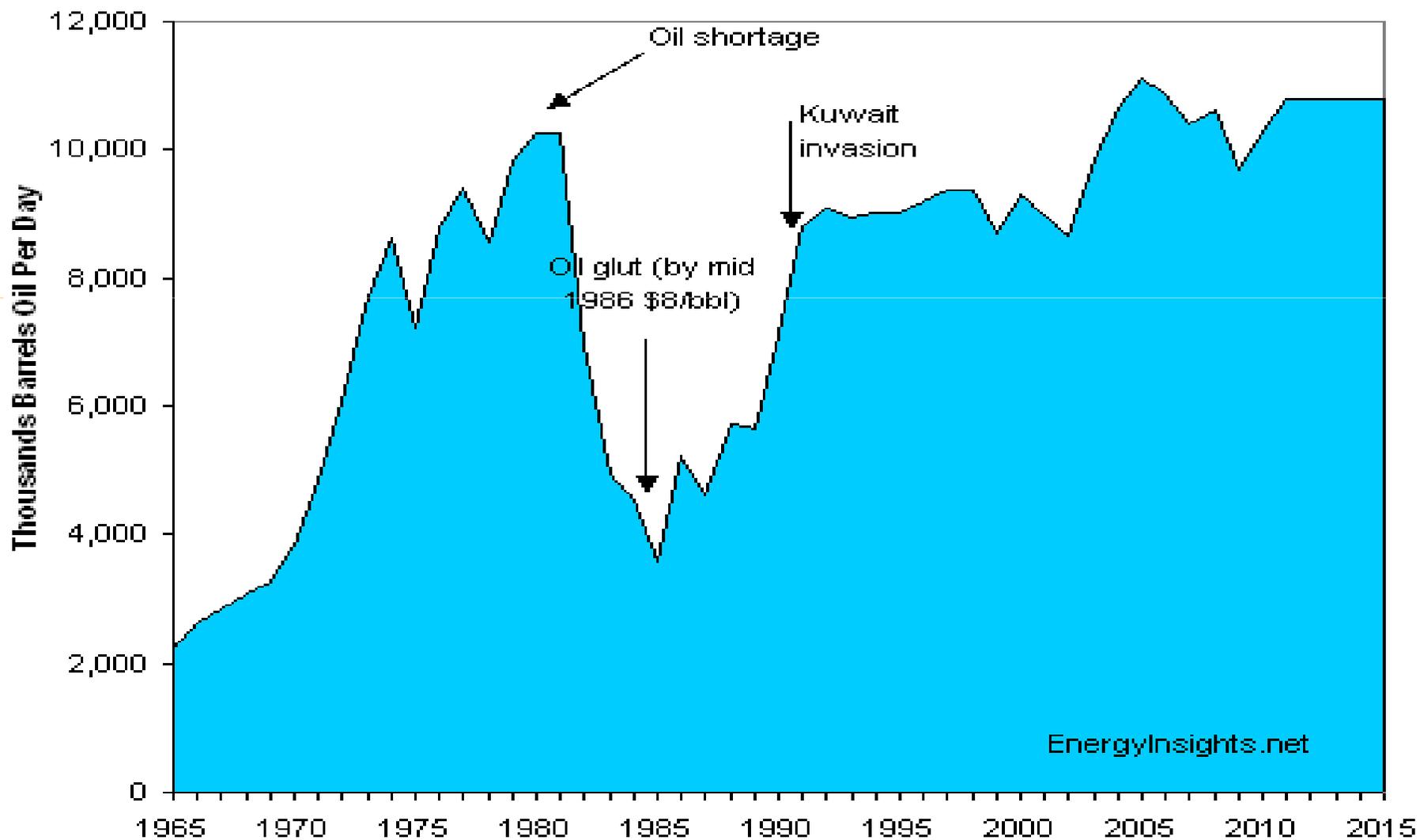


# Oil Prices Trends



Source: Argus Fundamentals, ICE, CME

**Oil Production Saudi Arabia since 1965 and forecast to 2015**



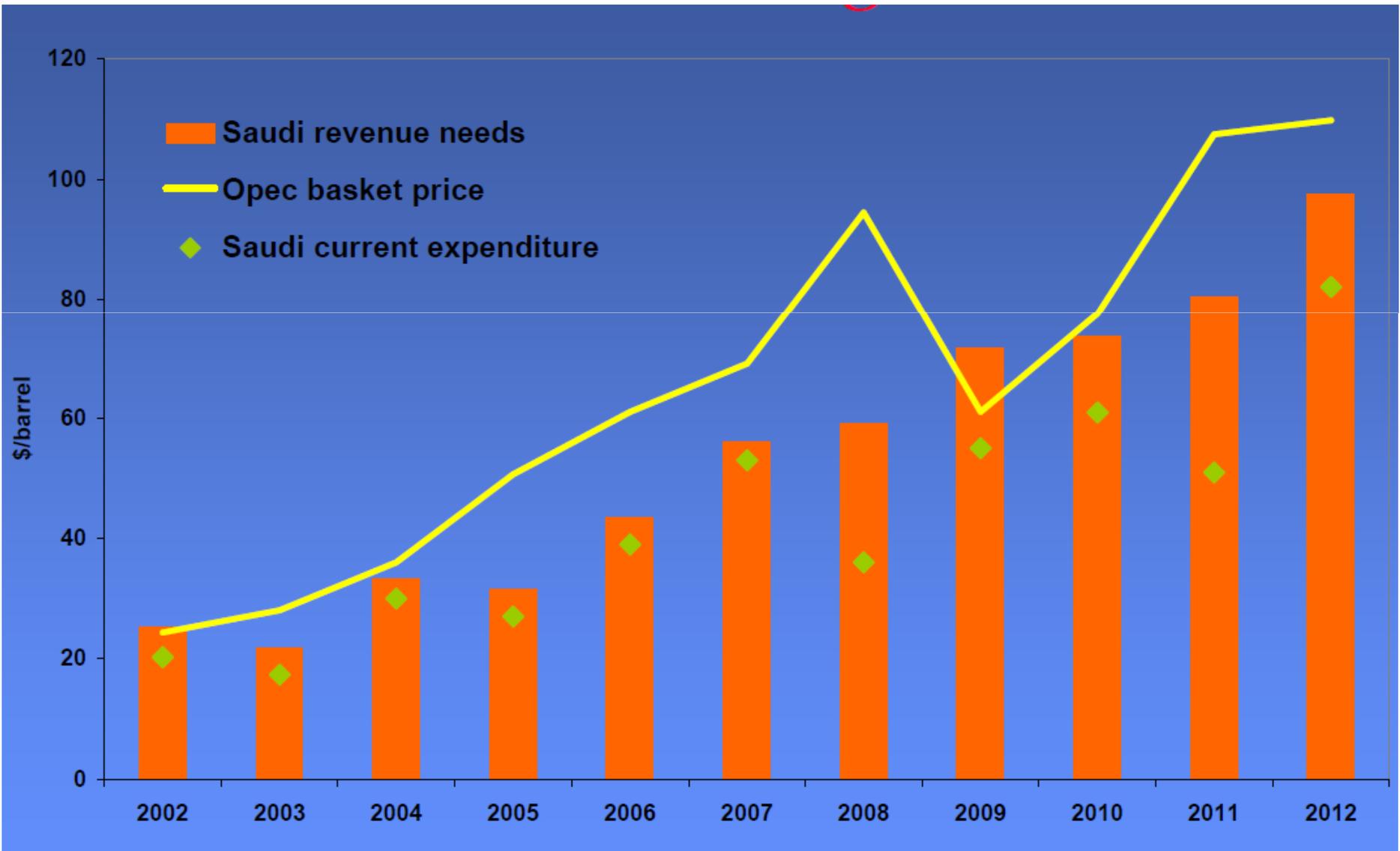


# Oil Infrastructure in Saudi Arabia



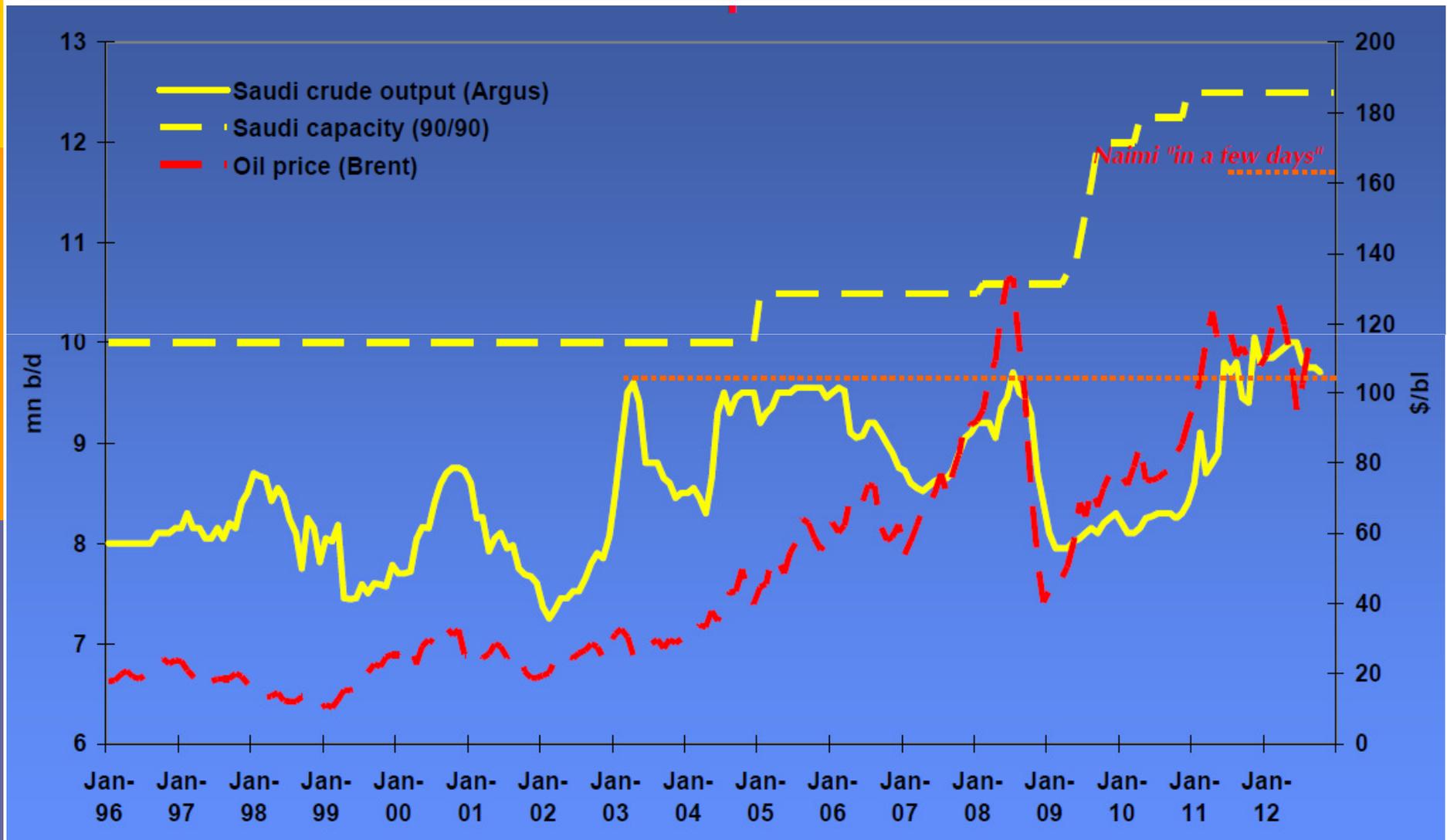


# Saudi Budgets



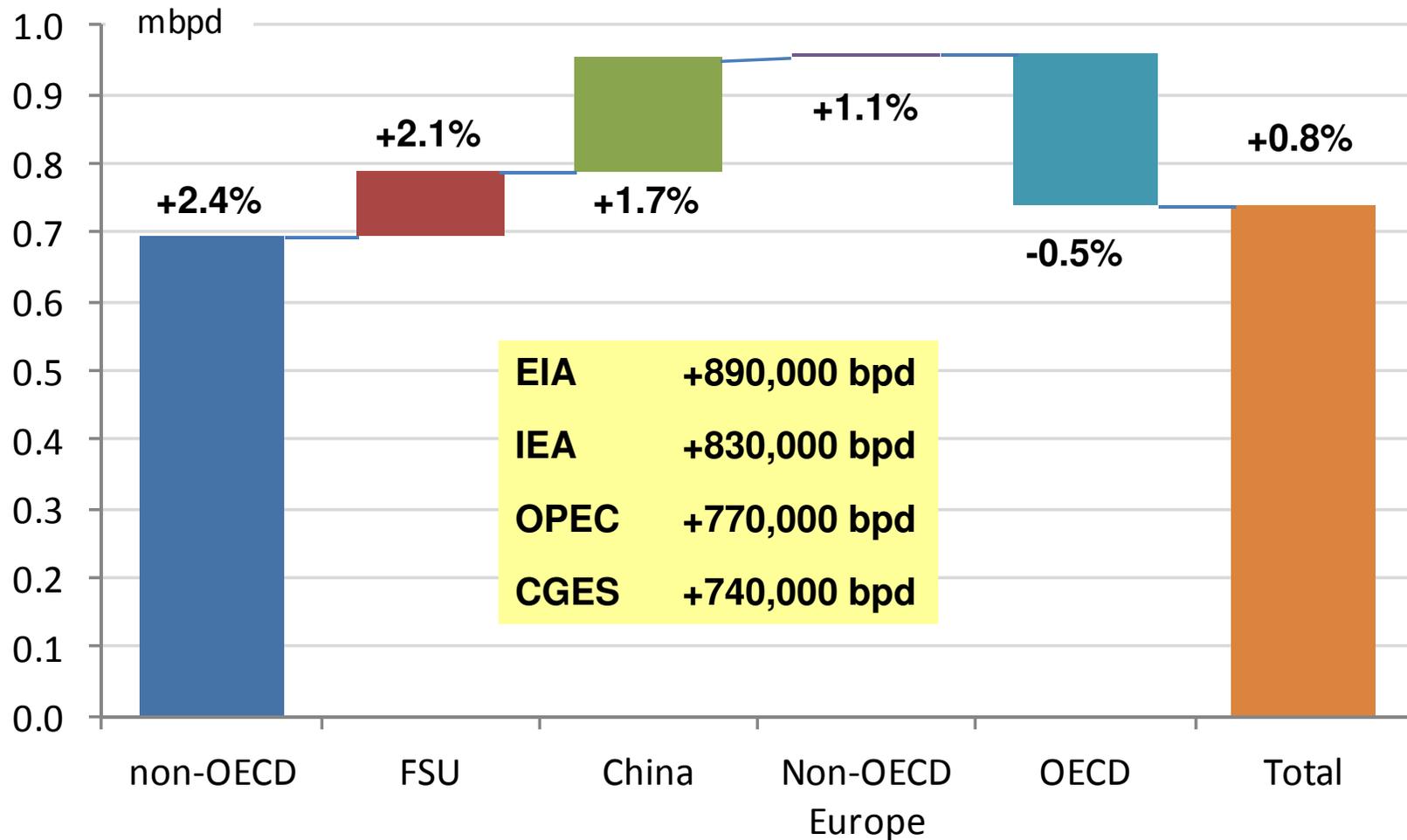


# Saudi Power



# Demand growth forecasts - 2013

## Forecast of incremental global oil demand in 2013





# Factors Affecting Oil Price Formation

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## Upward Pressures

- Reduction in OPEC oil supply
- Syria's civil war and spill over danger
- Continuing Arab Spring unrest
- Resurgence of terrorist attacks against oil and gas installations following latest incidents in Algeria
- Mounting fears of Israeli strike against Iranian nuclear facilities
- Fears of Gulf oil and gas supply disruptions
- Decline in US and global oil inventories
- Fears of disruption of Russian gas exports to Europe
- Weakening of US dollar relative to Euro
- Adverse weather pattern in northern hemisphere



## Factors Affecting Oil Price Formation

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### Downward Pressures

- Eurozone crisis and continuing decline of EU economies
- Disappointing German manufacturing output
- Strengthening of Euro relative to US dollar
- Reduced 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



## Energy Security Considerations

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- 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



## Factoring in Geopolitical Risk

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1. Iran continues with uranium enrichment – USA increases diplomatic pressure
2. Israel renews bombardment threats
3. Military and naval built up in Persian Gulf follows
4. In response Iran enforces periodic onboard checks which results in delays of ship traffic and causes oil supply disruptions
5. Renewed terrorist attacks in North Africa (i.e. Libya and Algeria) lead to the slowing down, or even disruption, of gas exports to Europe



## Concluding Remarks (I)

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- ❑ Arab Spring's impact so far on oil markets has been temporary (8-10 months during 2011) and marginal in view of limited oil and gas quantities exported (less than 2.5% of global oil requirements)
- ❑ The impact has been more pronounced in terms of increased geopolitical risk thus affecting international oil prices
- ❑ Geopolitical risk amplified by spillover effect (i.e. Yemen, Bahrain, Syria) and renewed terrorist threats (i.e. Libya and Algeria)



## Concluding Remarks (II)

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- If the present Arab insurrection had taken place 25 to 30 years ago the geopolitical impact and oil market ramifications would have been a lot greater because of a much weaker global information gathering and analysis capability as it happened in the case of the first oil crisis in 1973/74 and the second one in 1979/80
- IEA's organization, its strategic oil reserves and active role helped to a large extent diffuse market volatility and dampen uncontrolled price rises during the Arab Spring, especially following Libya's oil production demise in 2011



## Concluding Remarks (III)

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- ❑ Arab Spring has acted as an accelerating factor for the development of alternative oil and gas supply sources in East Med.
- ❑ Israel and Cyprus have been forced to speed up efforts in developing their offshore gas deposits and install LNG storage and gasification facilities; following Egyptian gas exports suspension to Israel via Arab Pipeline
- ❑ The new political regimes that will result from the “Arab Spring” could help increase transparency in oil gas and thus attract much needed foreign investment to the region.
- ❑ Finally, Israel & Cyprus gas deposit development presents a new paradigm shift as large scale hydrocarbon production can develop outside Arab-Muslim domain



## Concluding Remarks (IV)

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- In spite of persistent high oil prices over the last 2 years global demand and markets continue to expand
- High oil prices are not affecting as they used to global economic growth as oil contributes less to the average economic output
- Geopolitical risk factors are already largely discounted in today's prices – although there is ground for further rises should an unstable situation arise (e.g. natural disaster, terrorist attack, military conflict)
- There is growing trend to diversify natural gas supply with continuing strong inroads by LNG
- 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**

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