CLINGENDAEL INTERNATIONAL ENERGY PROGRAMME | CIEP

The Role of Iraq in Global Oil Markets

Lecture Koninklijk Instituut Van Ingenieurs (KIVI)

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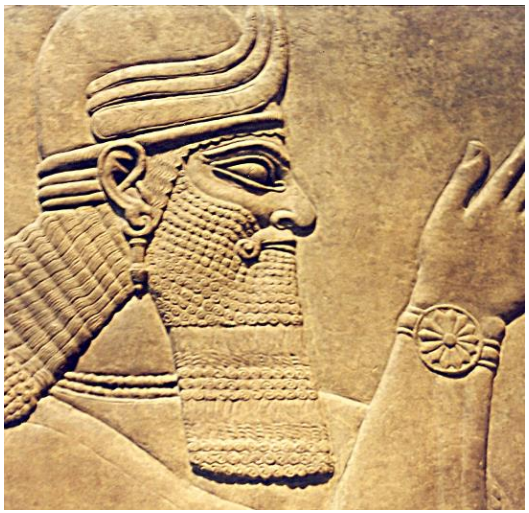
Overview

- **Oil In Mesopotamia And Early Days Of Iraqi Production**
- **The Big Promise: Can Iraq Deliver?**
- **How 'Indispensable' Is Iraq As An Oil Producer?**
- **Regional Rivalries and OPEC Leadership**

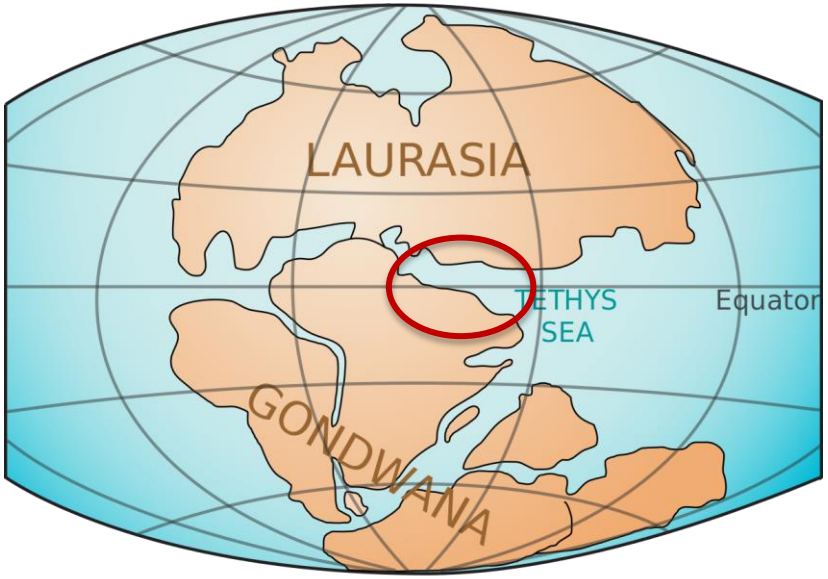
Q&A

1. Oil In Mesopotamia And Early Days Of Iraqi Production

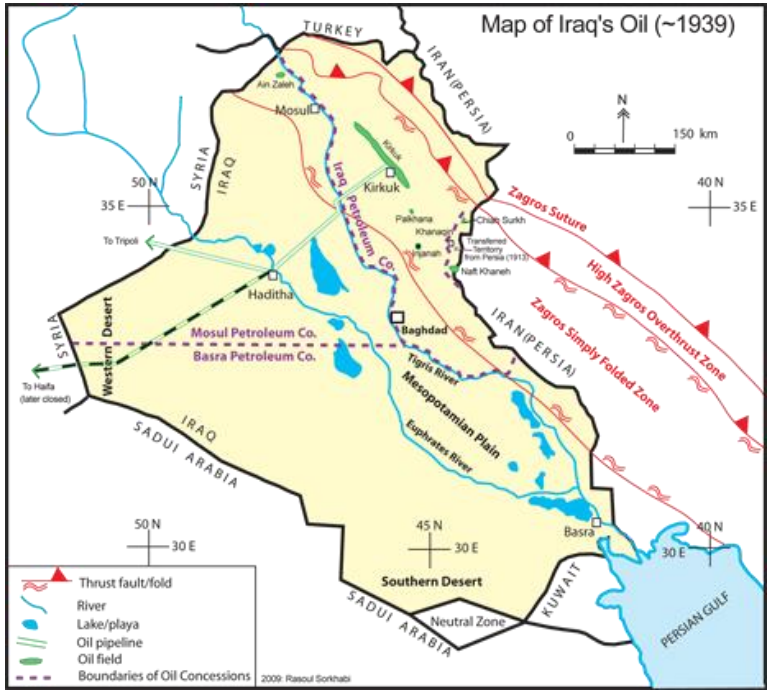


- ‘Land between two rivers’: The Cradle of Civilization
- Oil seeps: tar and bitumen used for waterproofing ships and building material

Why Is Iraq (and the Gulf) So Rich In Hydrocarbons?



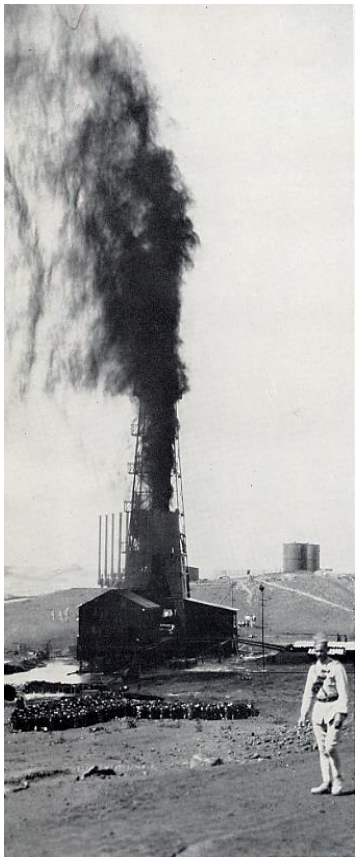
TRIASSIC
200 million years ago



Source: Wikimedia, GEOExPro

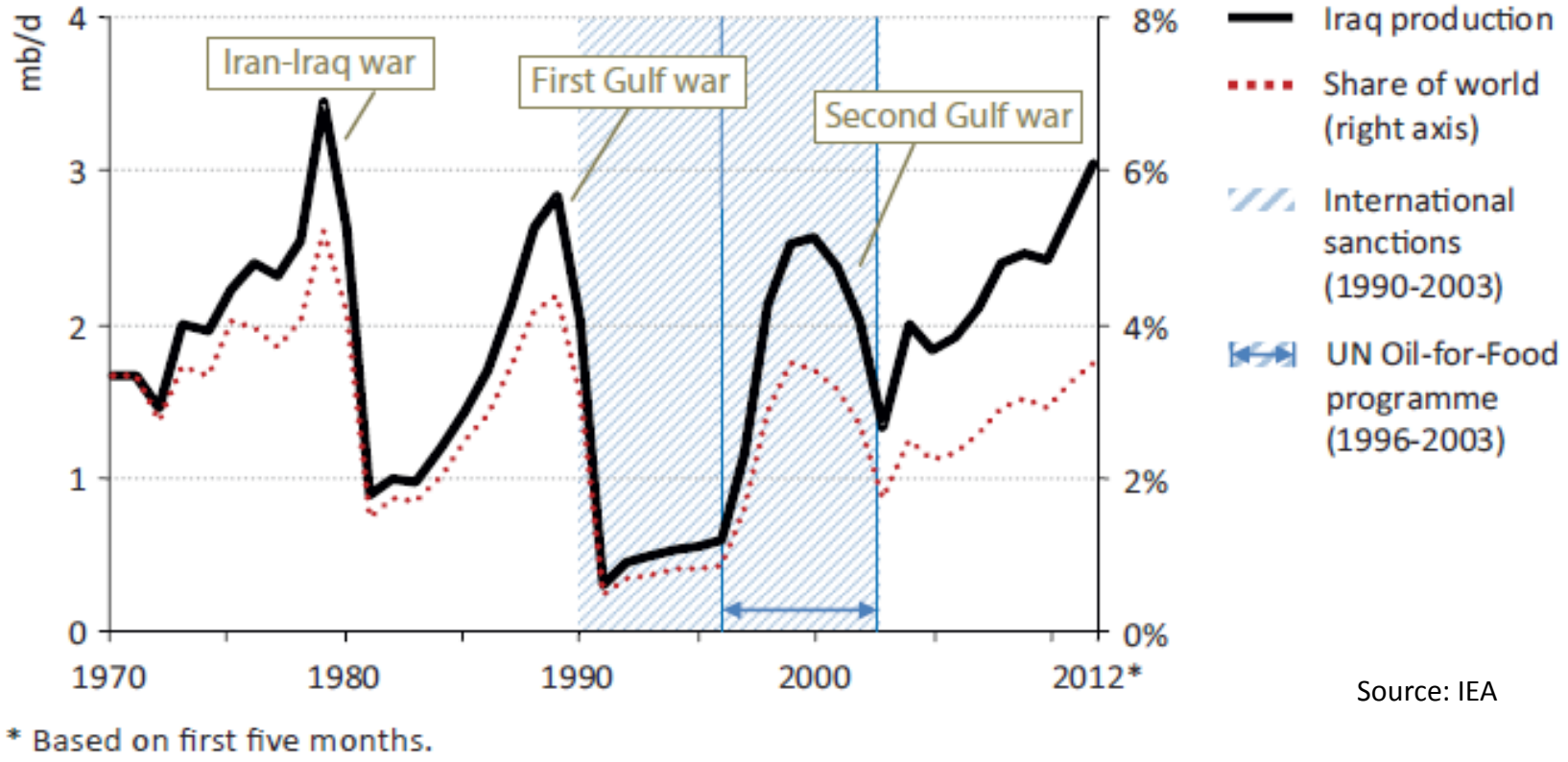
- Arabian and Asian continental plates collided and created Zagros Orogenic belt
- Tethys Sea that laid between plates completely closed and fossilized

Discovery of Baba Gurgur Oil Field, Kirkuk (1927)



- TPC (later IPC): enormous gusher of 42m high; environmental disaster
- Largest oilfield until Ghawar (1948); milestone for Middle Eastern oil industry

Iraqi Oil Production (1970 – 2012)



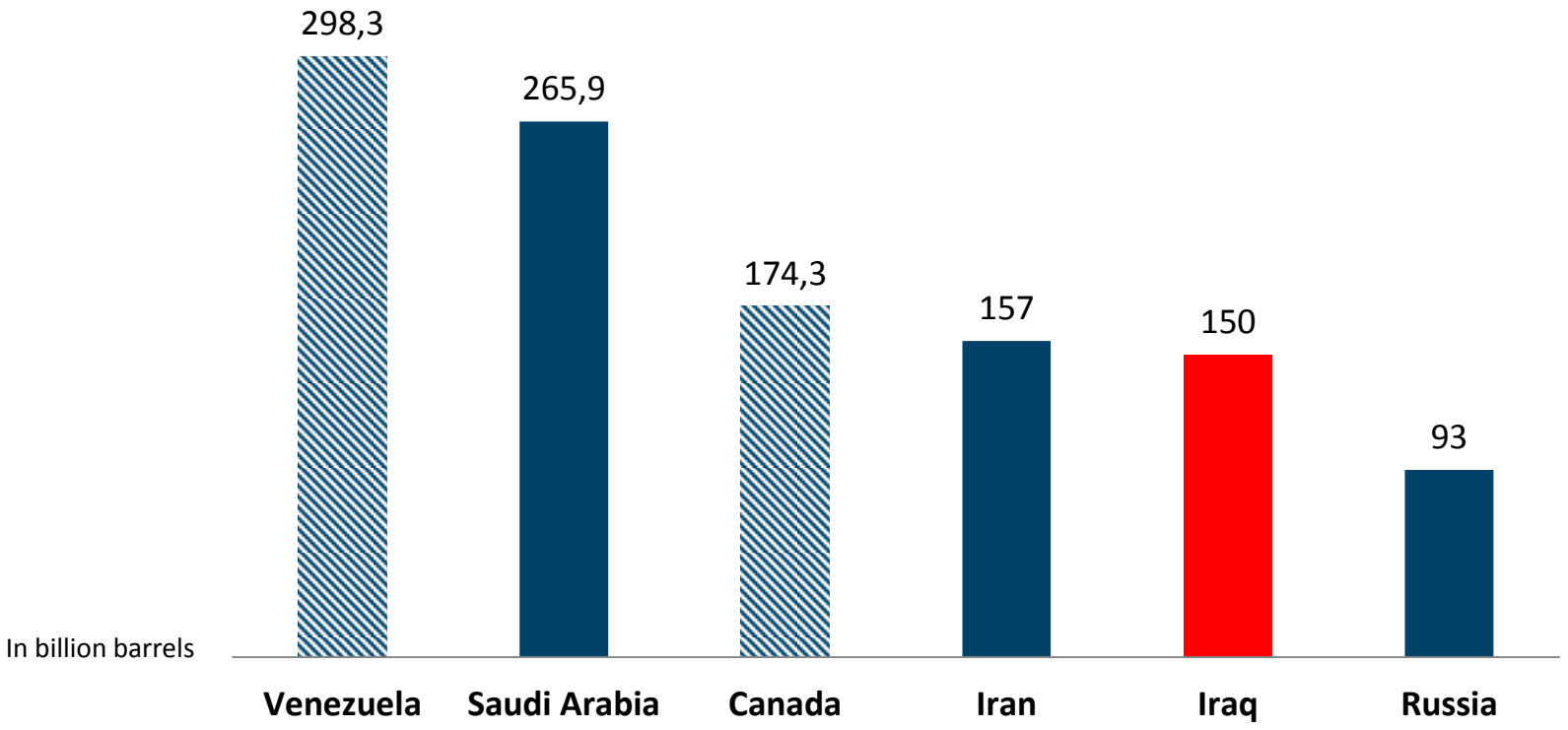
* Based on first five months.

Source: IEA

- Production profile Iraq volatile because of wars and sanctions
- Current production of around 3 mbpd not seen since end of 1970s…

2. The Big Promise: Can Iraq Deliver?

Iraqi Proven Oil Reserves Are Amongst The Largest In The World



Source: BP, CIEP

- Iraq has the world's fifth largest proven oil reserves, third largest conventional
- Huge upside potential due to under-exploration and uncertainty about Iraqi Kurdistan

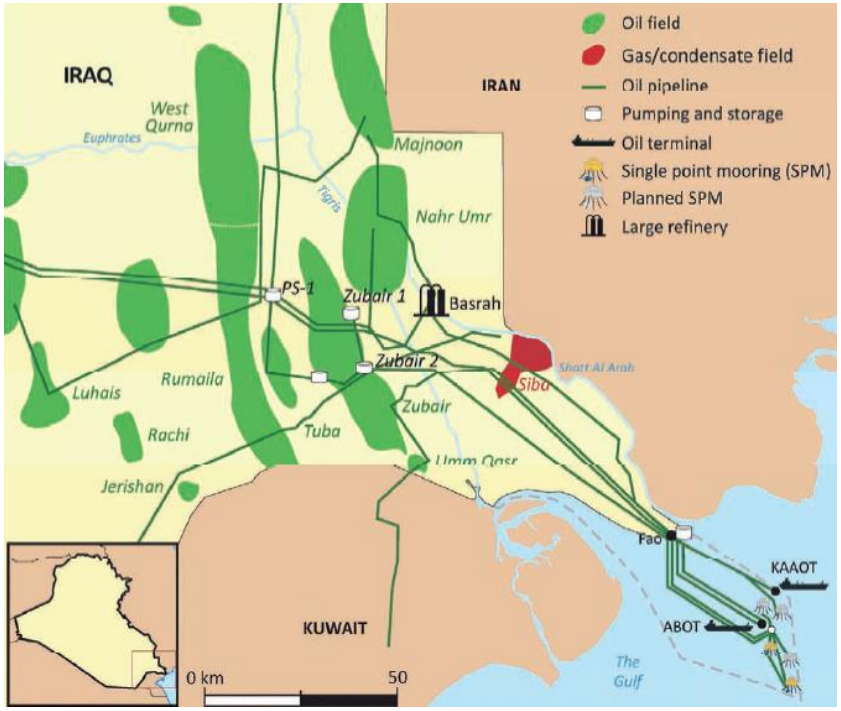
Iraq's Low Cost Reserve Base

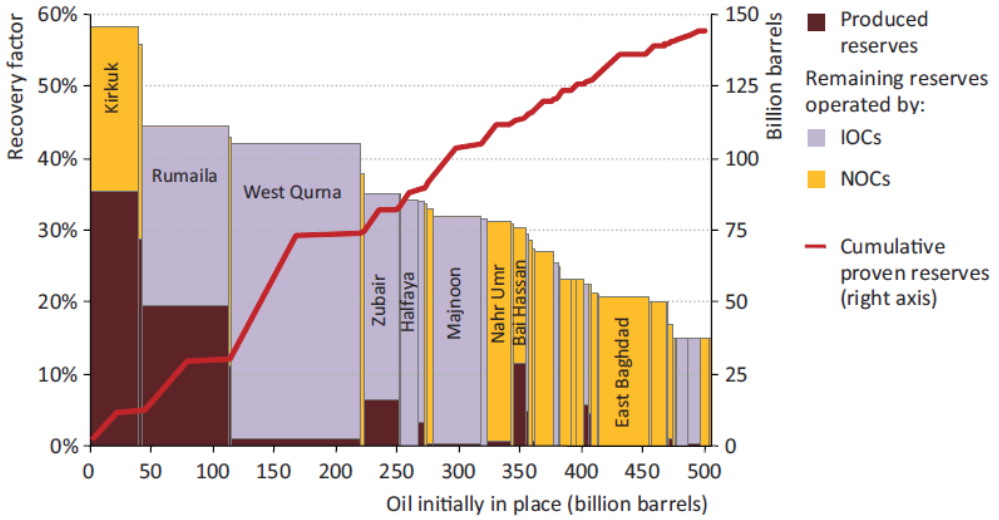
	Type of project	Scale of project (mb/d)	Capital cost* per barrel of capacity ($2011/bbl)	Operating cost** ($2011/bbl)
Iraq	Expansion super giant (south)	1.00	7 000-12 000	2
	New super-giant (south)	1.00	10 000-15 000	2
	Mid-size (north)	0.25	15 000-20 000	2-3
Saudi Arabia	Generic expansion	0.50	15 000	2-3
Brazil	Deepwater pre-salt	0.25	70 000-80 000	15-20
Kazakhstan	North Caspian offshore	0.25	70 000-80 000	15-20
Canada	Canadian oil sands with upgrading	0.25	100 000-120 000	25-30

* Capital cost per barrel of plateau rate production capacity. ** Operating cost includes all expenses incurred by the operator during day-to-day production operations but excludes taxes or royalties that might be levied by the government as well as other compensation to the operator, such as remuneration fees.

Source: IEA analysis.

Iraq's Jewels In The Crown

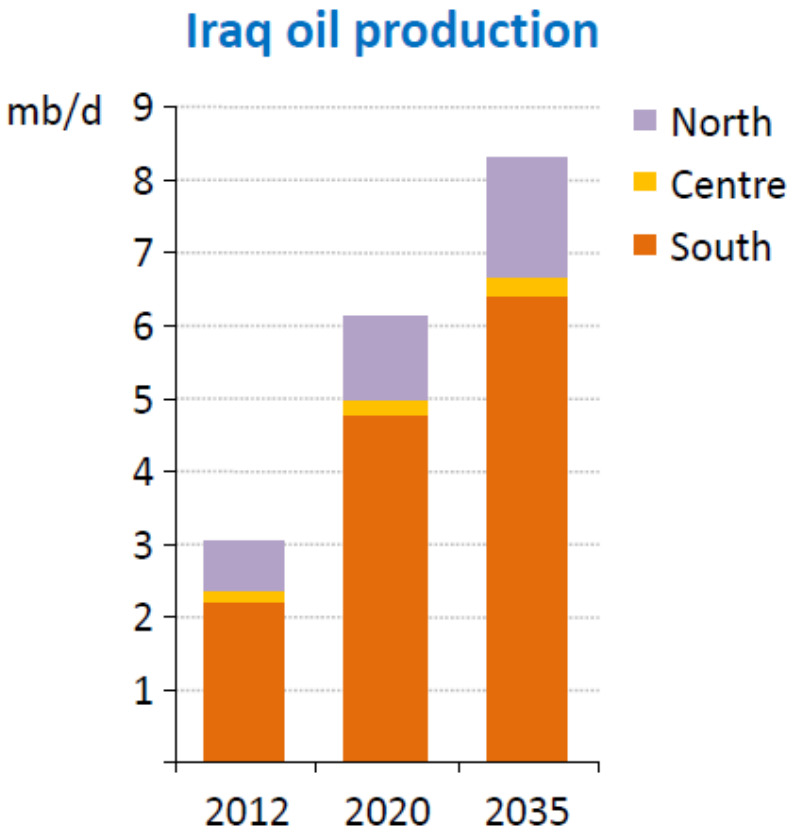


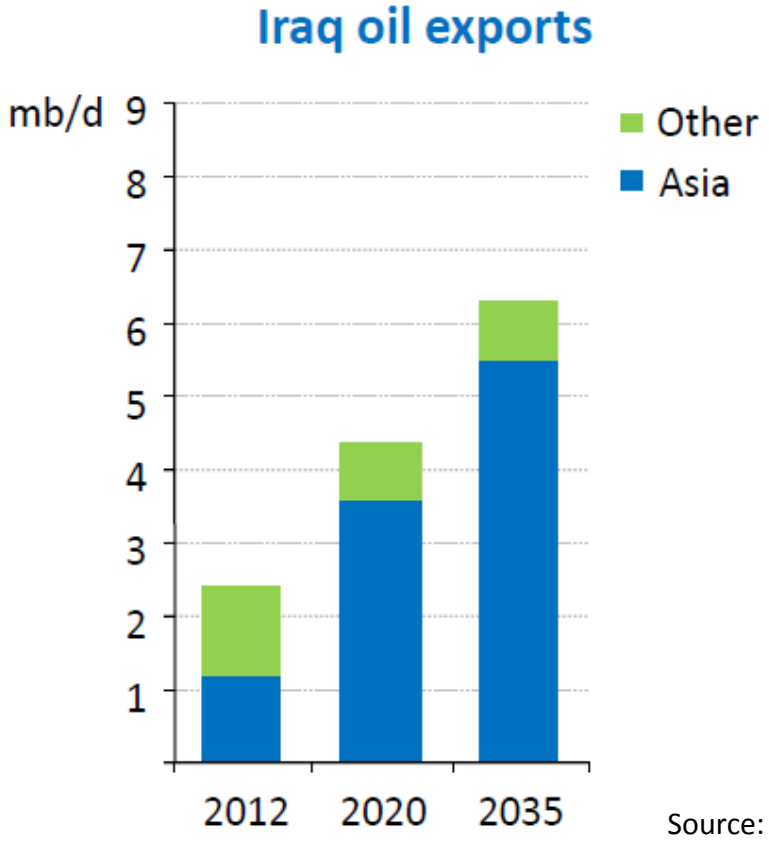


Source: IEA

- Super giant fields in the south bring large economies of scale to their exploitation
- Uncomplicated geology, clustered around Basrah (Gulf export), low population density

High Expectations

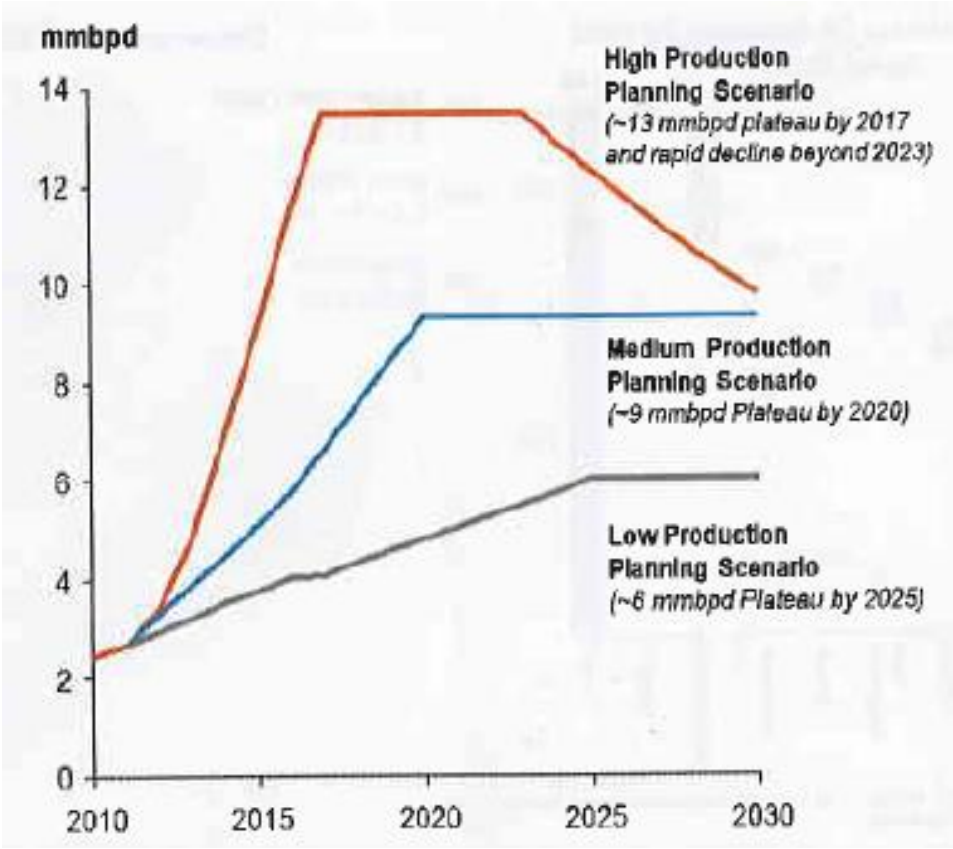




Source: IEA

- IEA Central Case scenario: Iraq accounts for 45% of global production growth to 2035
- By the 2030s the country becomes the world's second largest oil exporter

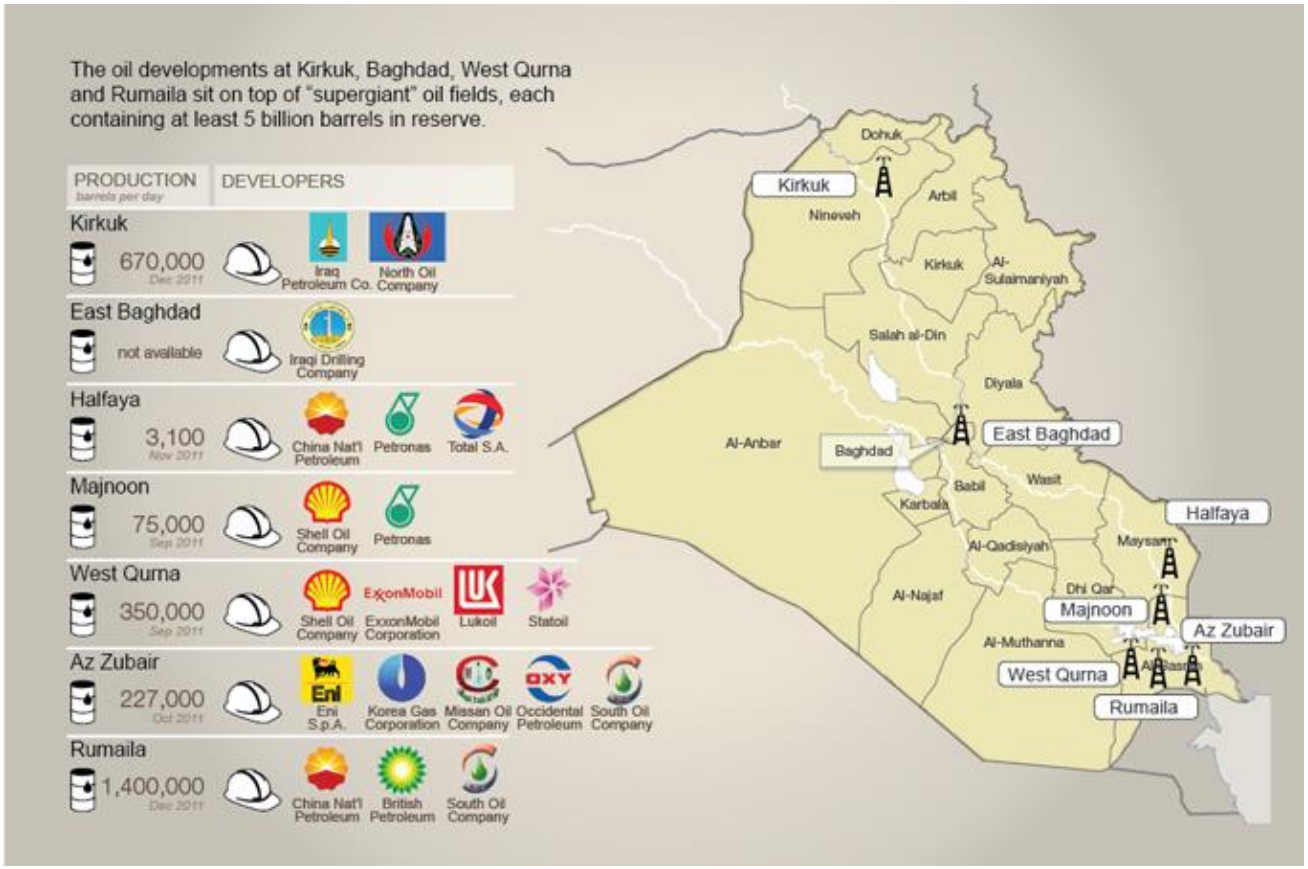
Iraq's Ambitious View: Integrated National Energy Strategy (INES)



Advisory Commission
Council of Ministers, Iraq

- Iraq has given up high production scenario in order to extend production plateau
- Contracts with IOCs have been signed (and revised) to reach 9 mb/d by 2020

Western IOCs Dominate The Iraqi Upstream

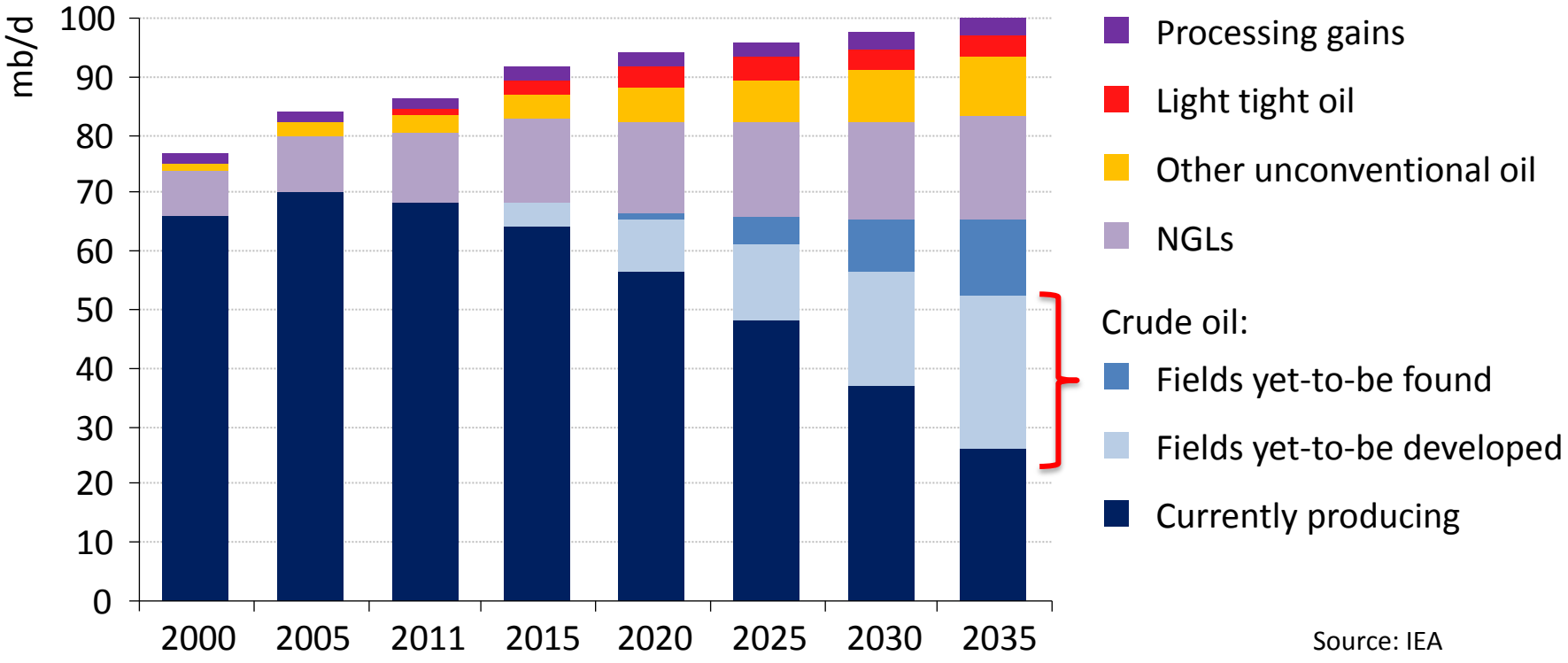


- Main <u>brownfields</u> (e.g. Rumaila, West Qurna-1) and <u>greenfields</u> (e.g. West Qurna-2, Majnoon) were auctioned in 2009 despite absence of national Iraqi Oil Law
- Contracts awarded strike a balance between PSCs and TSCs; low fee per barrel

The Global Importance of Iraqi Oil Supplies

IEA: "The world needs Iraq to make up for natural depletion"

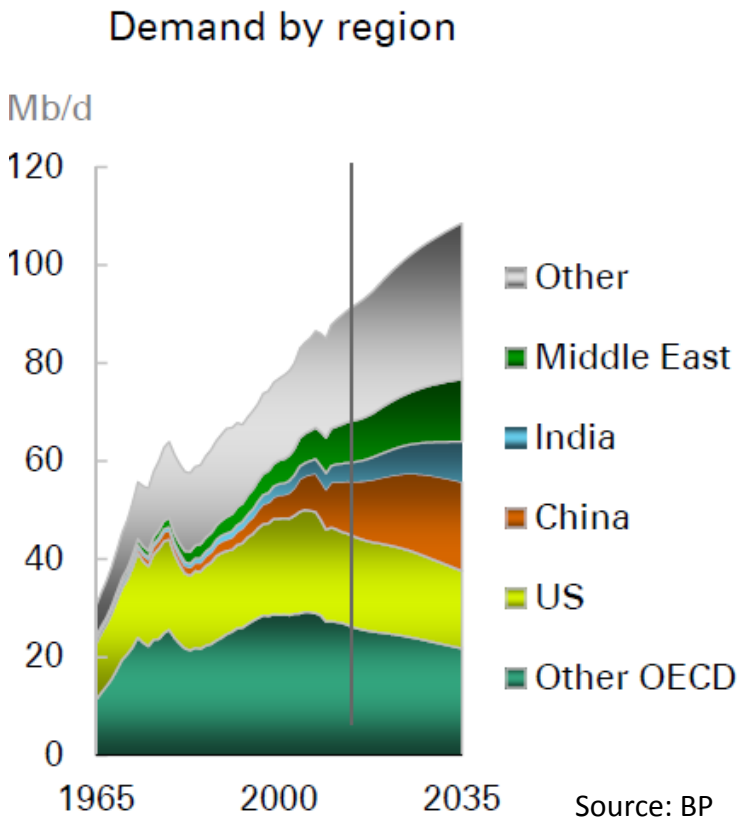
World Oil Supply



Source: IEA

Global Oil Demand Growth Driven By Non-OECD, China

IEA: "If Iraq fails, it will mean trouble for all of us"

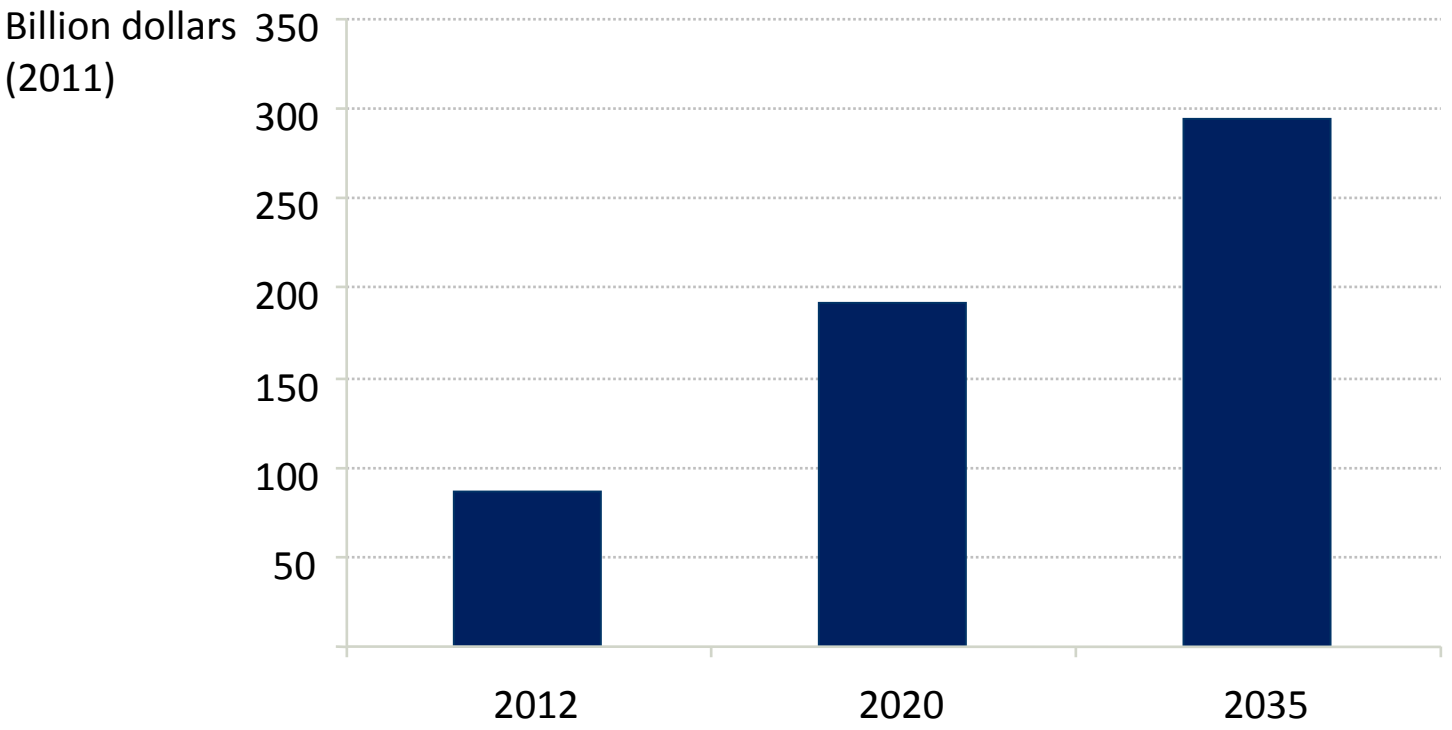


Source: BP

- Global demand for oil expected to rise from current 90 mb/d to 100-109 mb/d by 2035
- China's oil consumption expected to grow from 10 mb/d today to 16-18 mb/d by 2035
- Oil consumption concentrated in two sectors: transport and petrochemicals (feedstock)

The Importance Of Oil For Iraq

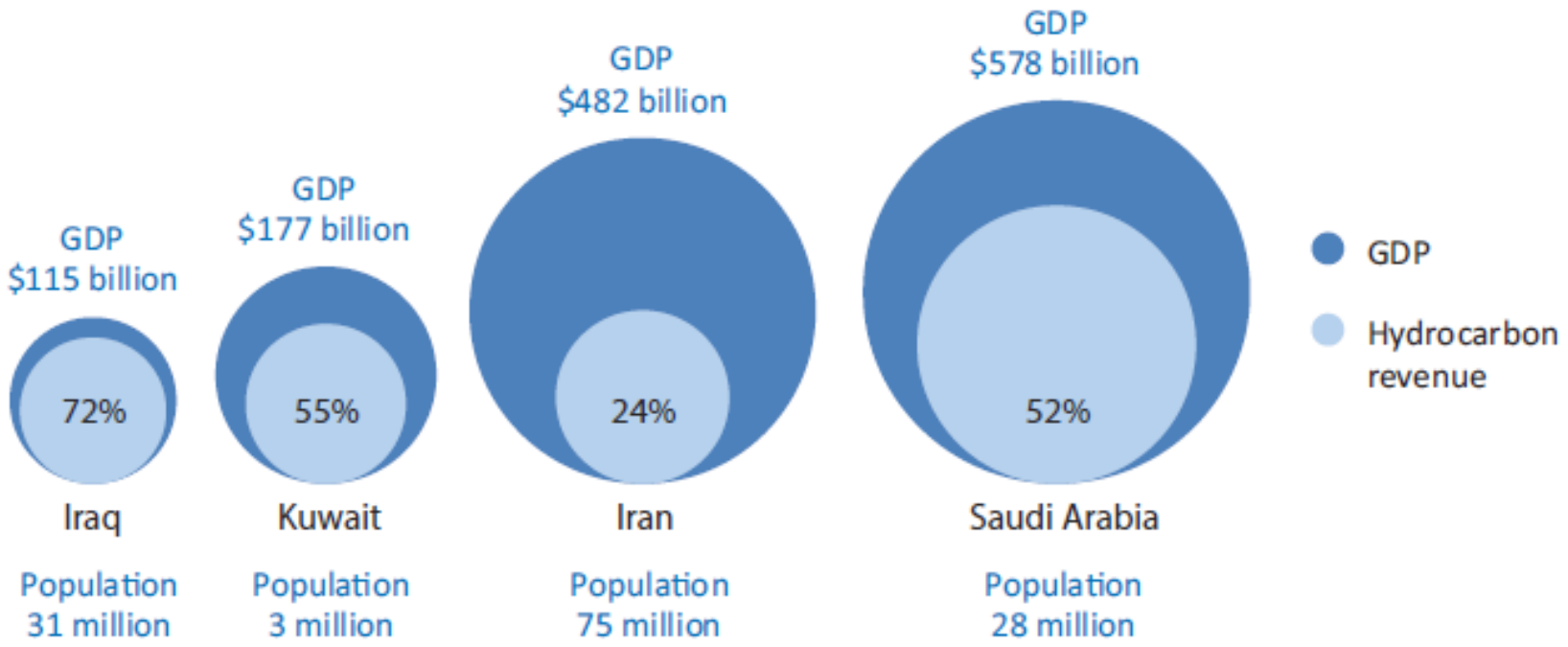
Iraq Oil And Natural Gas Revenues



Source: IEA

- Iraq's socio-economic development directly linked to its energy sector
- Success would lift Iraq's GDP in 2035 to the level of Saudi Arabia today

Iraq: A Rentier Resource State 'par excellence'



Source: IEA

- Oil exports account for 95% of government revenue; three-quarters of GDP is oil
- Petroleum sector only employs 2% of Iraqi workforce; private sector limited
- Challenge: increase oil revenues and use them to support greater economic diversification

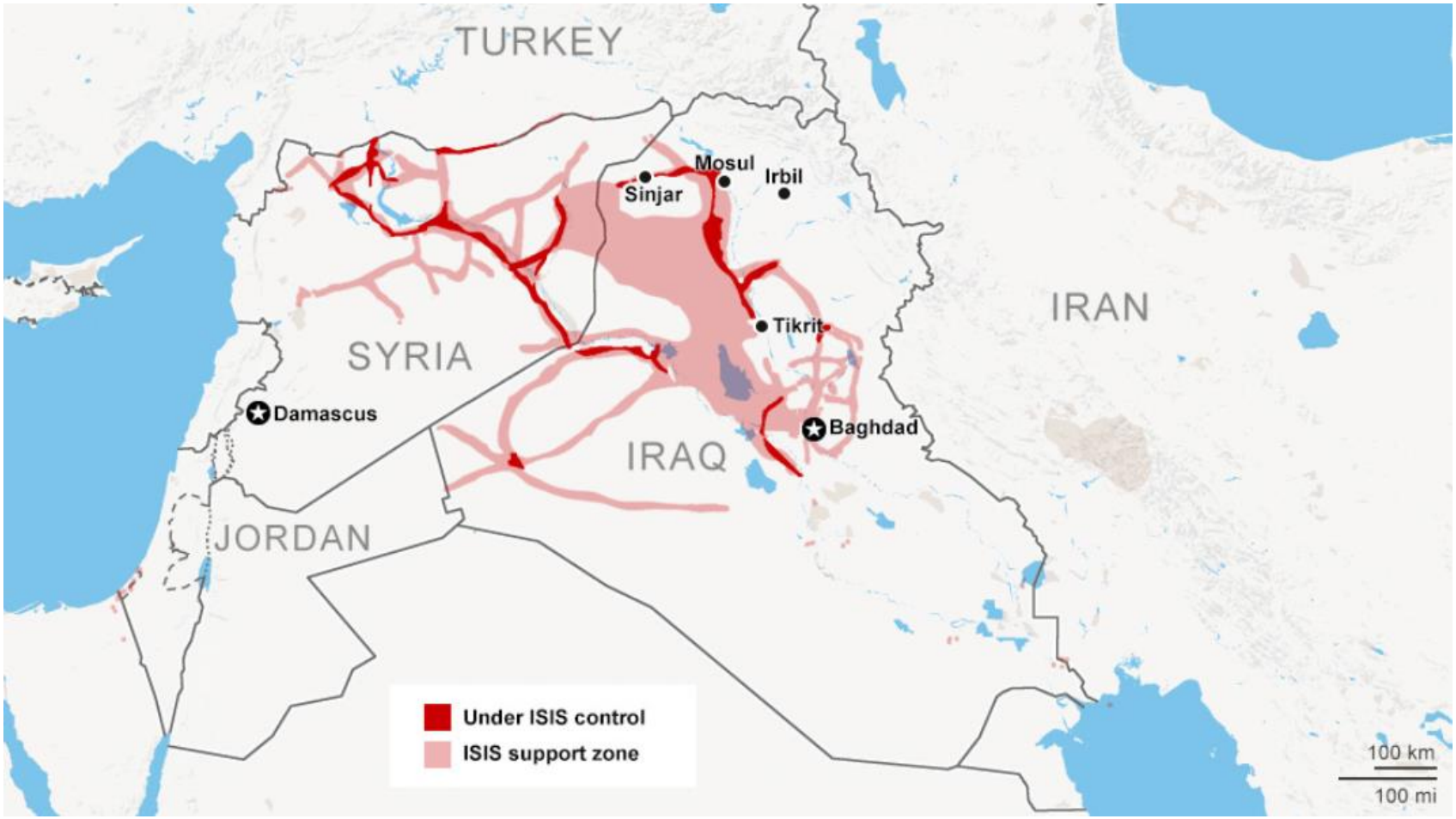
A Plethora Of Aboveground Challenges

Based on its geology, Iraq's oil potential is almost infinite…
However, many 'aboveground' challenges are hampering Iraq's ambitions:

- **Security** – spill-over Syrian civil war, attacks on pipelines, rise of **ISIS**, etc.
- **Political** – tensions Sunni/Shia/**Kurds**, fragile central government and continued absence of Oil Law, corruption and bureaucracy, etc.
- **Infrastructure** – drilling rigs, export infrastructure, **flaring**, refining, etc.



The Rise of ISIS



Source: FT

- Southern fields not (yet?) threatened, exodus of companies operating in KRG
- ISIS heavily discounts oil from fields it controls; daily revenues amounting to $3mn

The Rush Towards Iraqi Kurdistan

Source: FT

Drivers of O&G investment in KRG

- Majors: dissatisfaction with contract terms Baghdad
- KRG awards full-fledged PSCs
- Better business climate
- 45bn barrels proven oil reserves

2011: ExxonMobil signs PSCs for 6 blocks, some in disputed areas…
Later: Chevron, Gazprom, Total, etc.

Issues

- Containment of IS
- Legal disputes with Baghdad
- Export infrastructure
- Resource nationalism

Flaring

- Iraq has, next to oil, also a large potential as a gas producer (exports uncertain)
- Most gas is flared due to infrastructure inadequacies, but big plans (BGC, Shell)

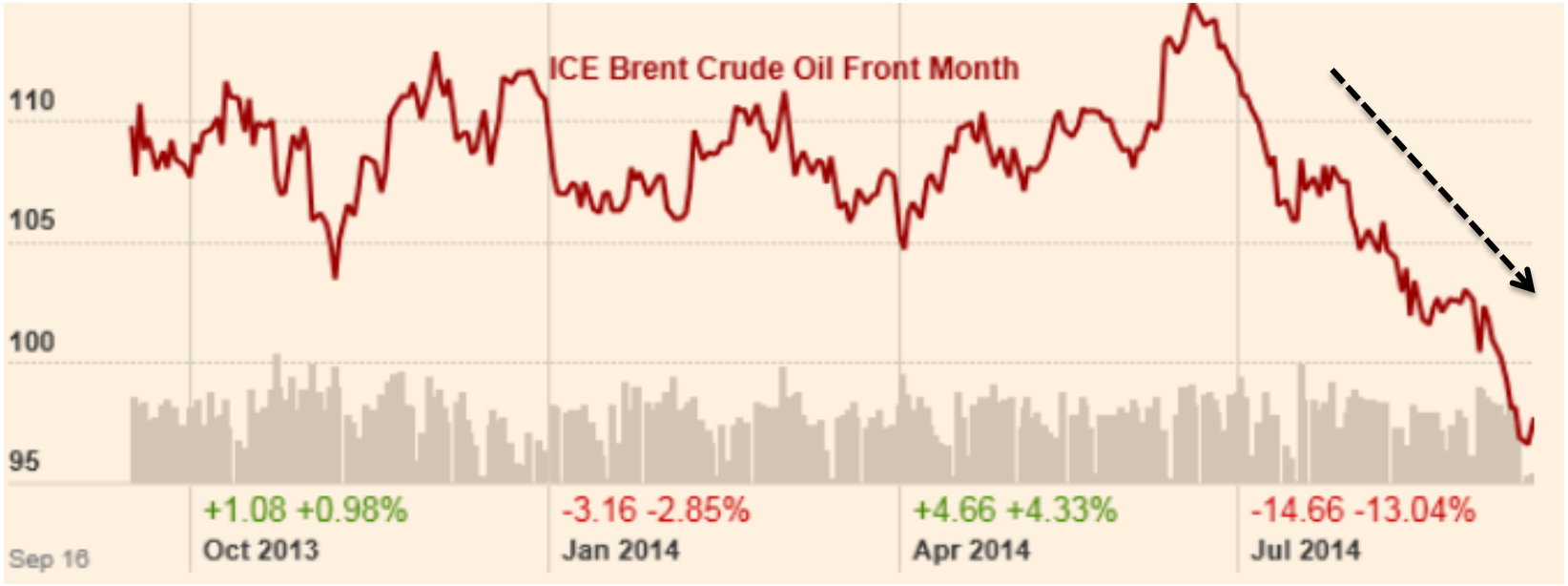
Where Are We Now?

- February 2014: Iraq hit highest oil production level in 35 years (3.6 mb/d)
- Since then, production has slipped to 3.1 mb/d due to logistical constraints, political turmoil, IS
- Exports from Iraq's north cut off since March 2014, Kirkuk-Ceyhan (450,000 bpd) pipeline "out of action for two years"
- Oil production in Iraq's south going strong…

= IEA: **"Iraq's oil growth targets at risk, threat to global supplies"**
IEA now expects Iraq to produce 4.54 mb/d by 2019 (half of INES: 9 mb/d by 2020)

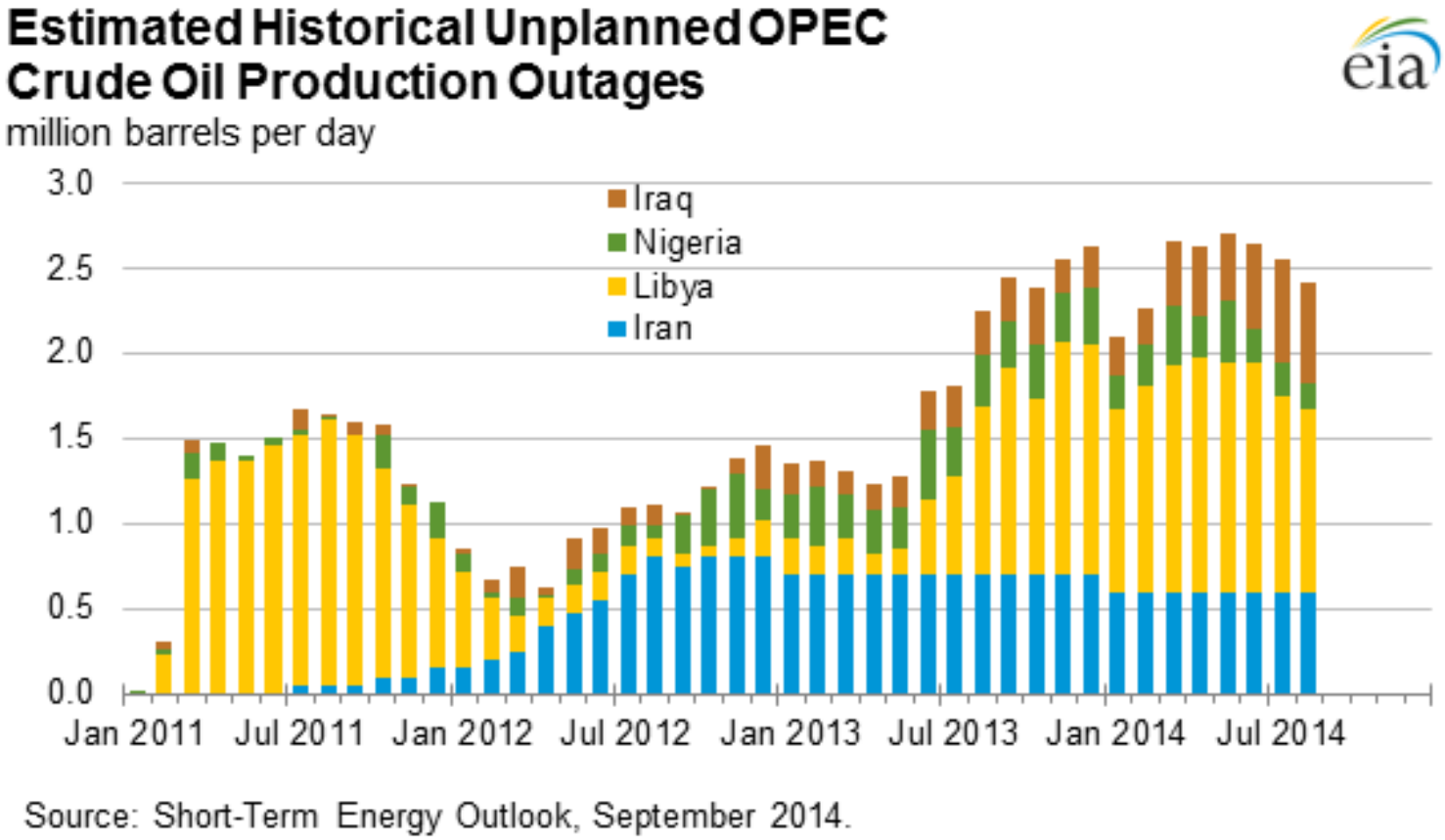
What does this mean for global oil markets and energy security?

3. How ‘Indispensable’ Is Iraq As An Oil Producer?



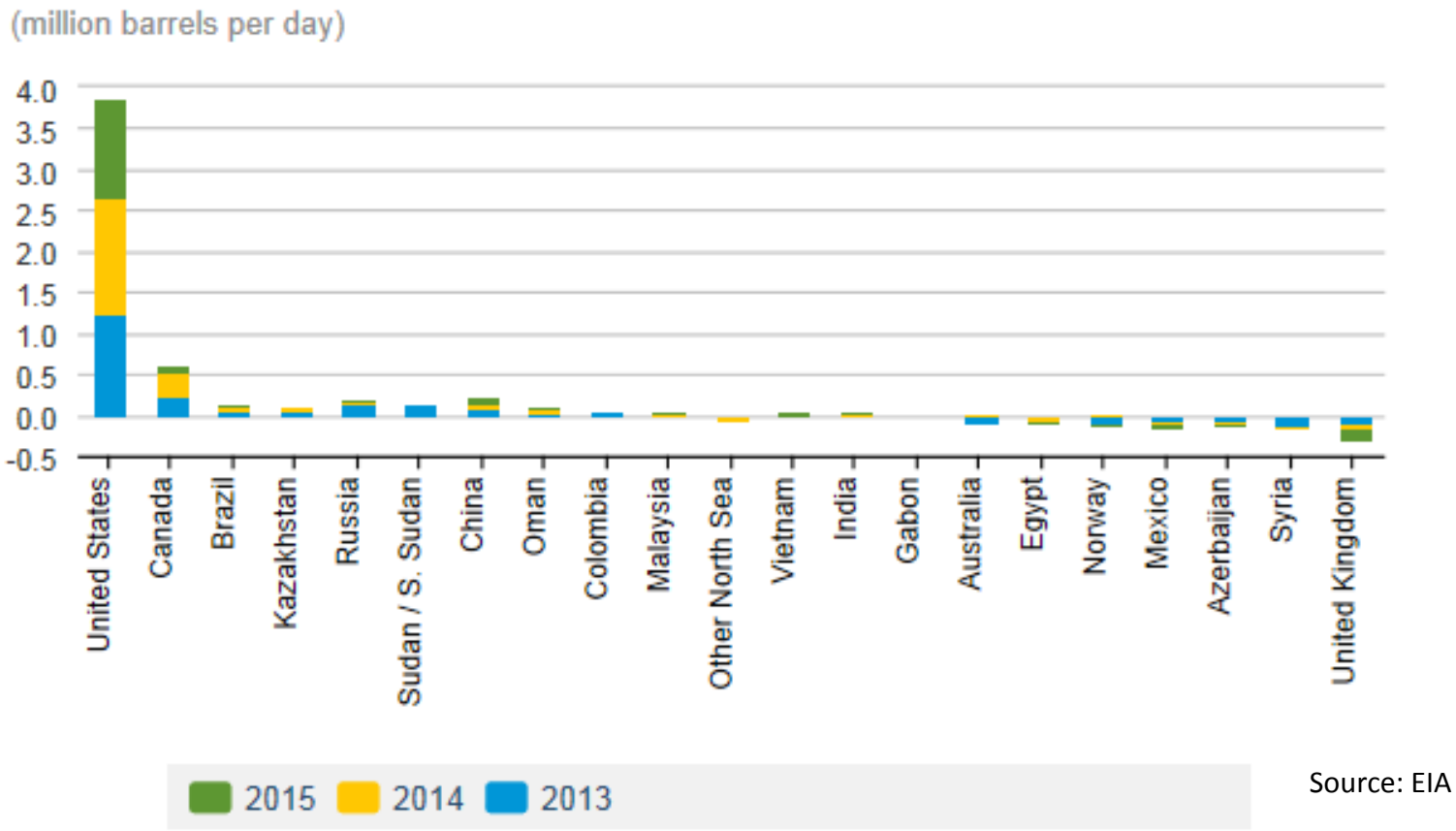
Source: FT

- Oil prices on a steep, downward trajectory since July 2014…
- Counterintuitive: world faces multiple crises (IS, Ukraine/Russia, Libya, etc.)



- OPEC output declining due to outages in key producing countries
- Saudi Arabia's spare capacity still intact (~ 2.5 mb/d)…

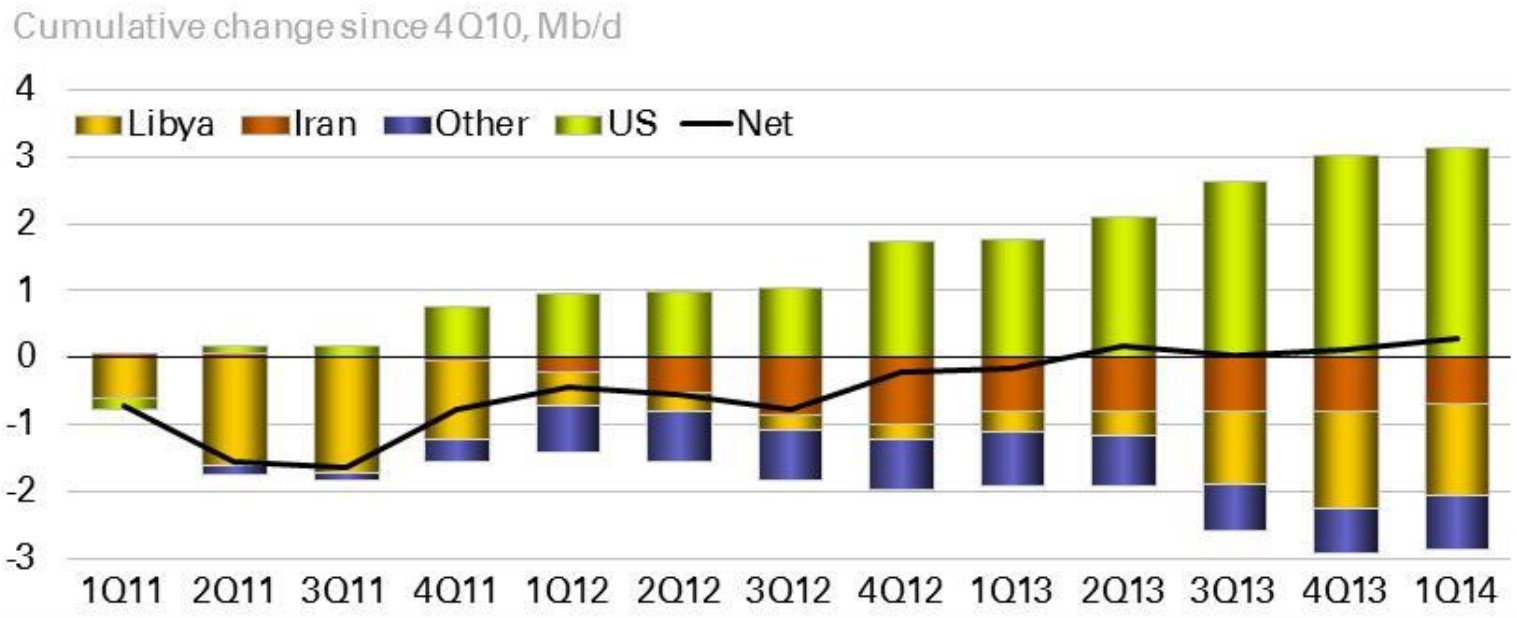
Strong US / non-OPEC Liquid Growth Balances The Market



Source: EIA

- US oil production surging due to shale revolution (+ 1 mb/d per year)
- Backing out of US imports frees up global supplies…

Oil supply disruptions and US production growth



Source: includes data from US Energy Information Administration
Note: Other includes Sudan/S Sudan, Syria & Yemen

BP Statistical Review of World Energy

- US output of LTO matches OPEC production outages almost perfectly
- Stable Brent oil prices mask oil market turmoil and structural changes…

The US Shale Revolution: How Deep and How Long?

Shale levels off after 2020

- Conventional thinking
- High decline rates
- Sweet spots drilled
- Too high costs
- US remains importer

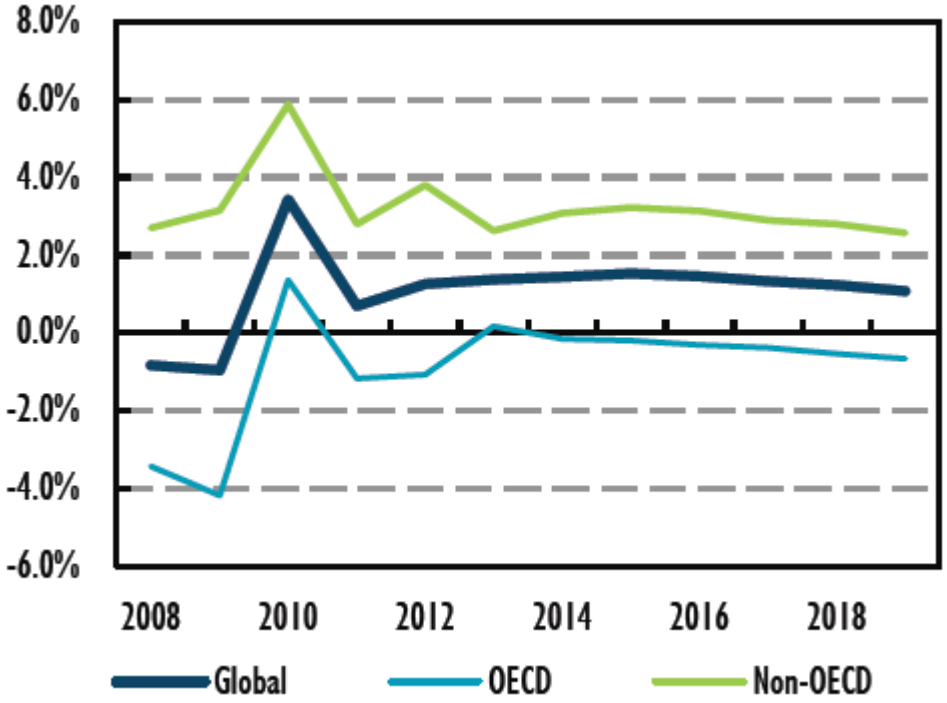
Shale grows after 2020

- Shale still young
- Well productivity rising
- Cost levels declining
- Enormous resource base
- US import independent

- A competitive industry spurs continued technological innovation

Supply Overhang And Weak Demand: The Bear Is Back

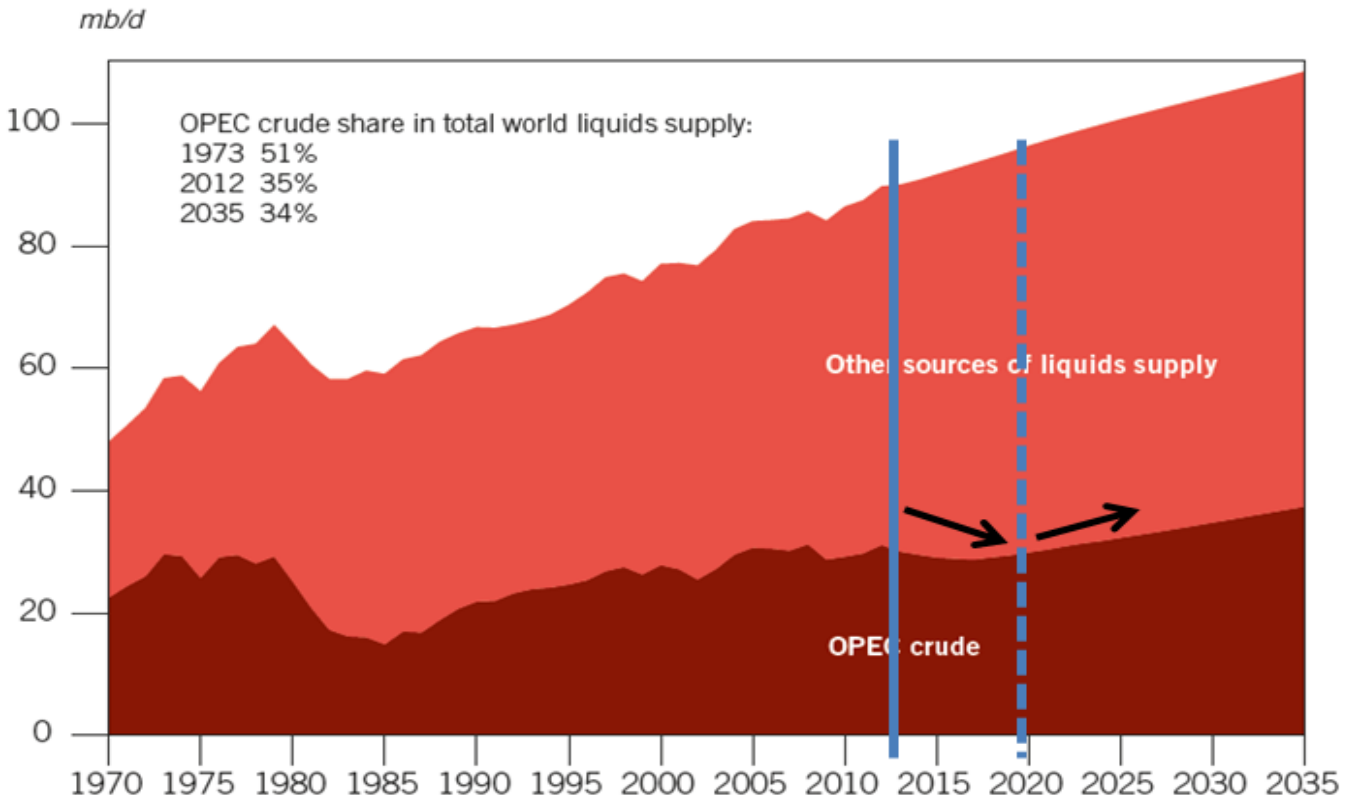
Global Oil Demand Growth



Source: IEA

- IEA: "slowdown in demand growth EU, China nothing short of *remarkable*"
- Strong USD is adding to downward pressure on oil prices

The ‘Call on OPEC’



Source: OPEC, CIEP (2013)

- US shale boom is eroding OPEC share in production pie
- Room for OPEC, Iraq after 2020, Middle East key supplier again?

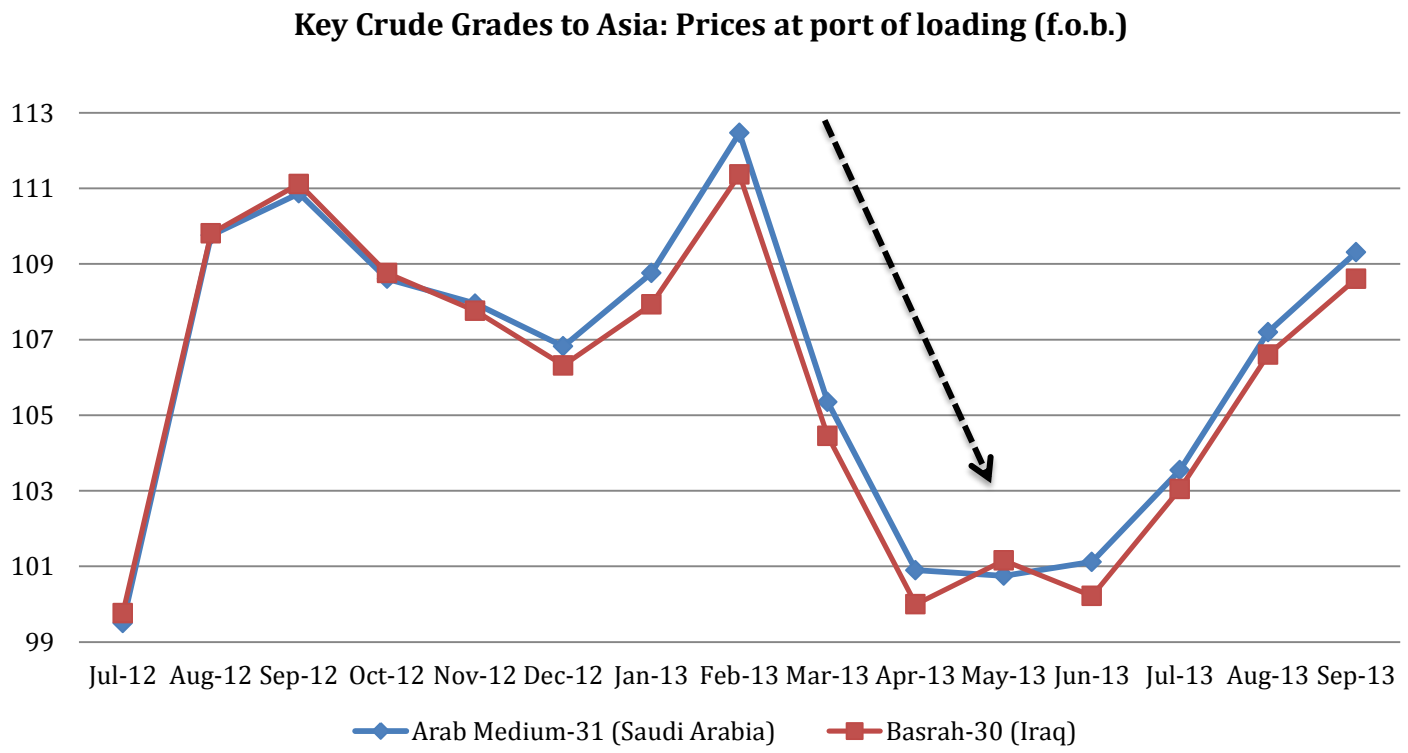
4. Regional Rivalries and OPEC Leadership

A Multi-Headed OPEC

In a shrinking market, OPEC faces a host of challenges (again):

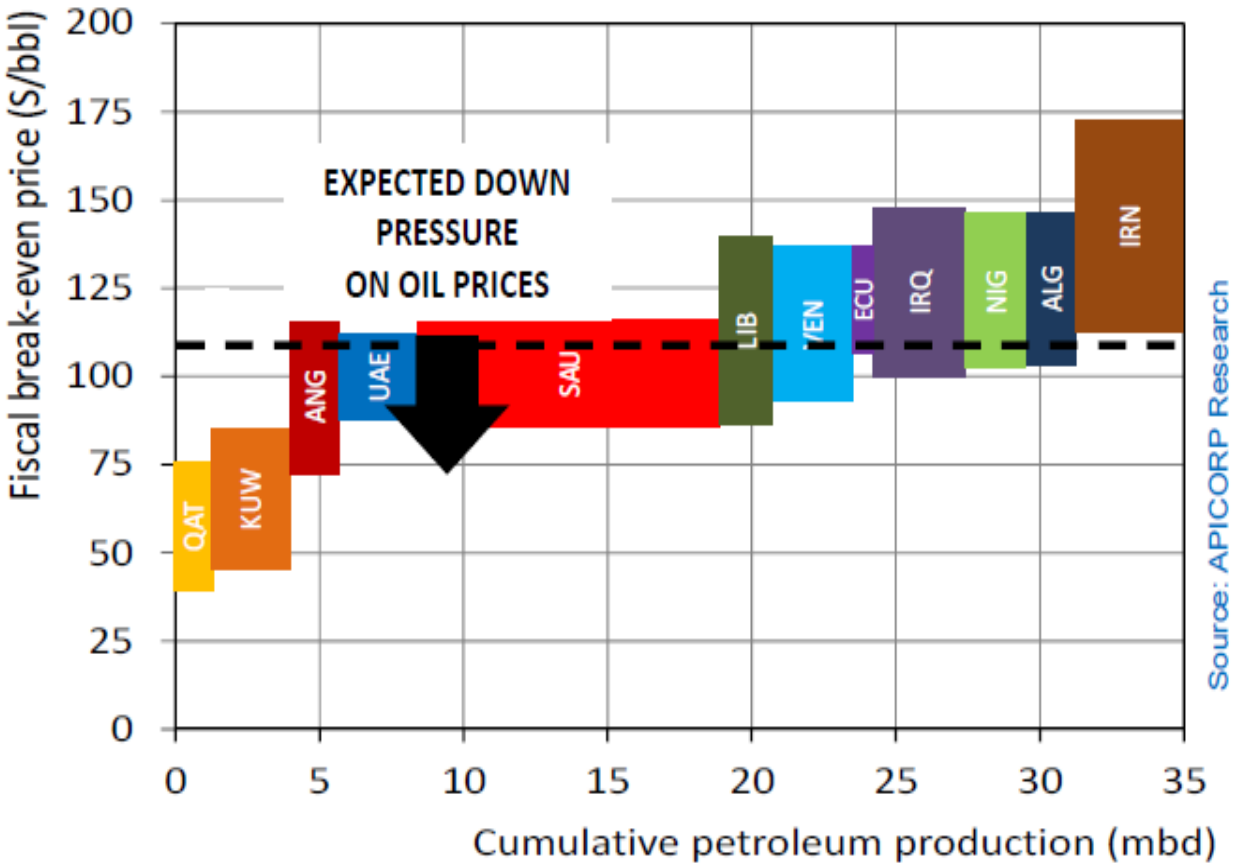
- What capacity investments to make and when?
- How to accommodate Iraq (and Iran)?
- Will Saudi Arabia continue to invest in spare capacity?

The Export Battle To Asia



- Fight over Asian market share lays bare the internal disputes between members
- OPEC cohesion will remain a key oil market uncertainty…

The “OPEC Dilemma”



- OPEC needs high oil prices to support budgets
- This, however, stimulates non-OPEC supply growth & leads to demand destruction..

Q&A

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Thank you!

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