



ENERGY MATTERS 2013

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Professor Paul Stevens

From “Seven Sisters” to “Six Brothers”:
What changing global oil markets might mean for
New Zealand

Wednesday 30 October, 6.30-7.45pm

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From “Seven Sisters” to “Six Brothers”: What changing global oil markets might mean for New Zealand?

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Energy Matters 2013

The Energy Centre, University of Auckland

October 30th 2013

Presentation outline: A story of great uncertainties

- The prospects for oil demand
- The prospects for supply
- Changes to the global oil market since the 1970s
- “OPEC’s dilemma” leading to price volatility
- Implications of oil price volatility for New Zealand

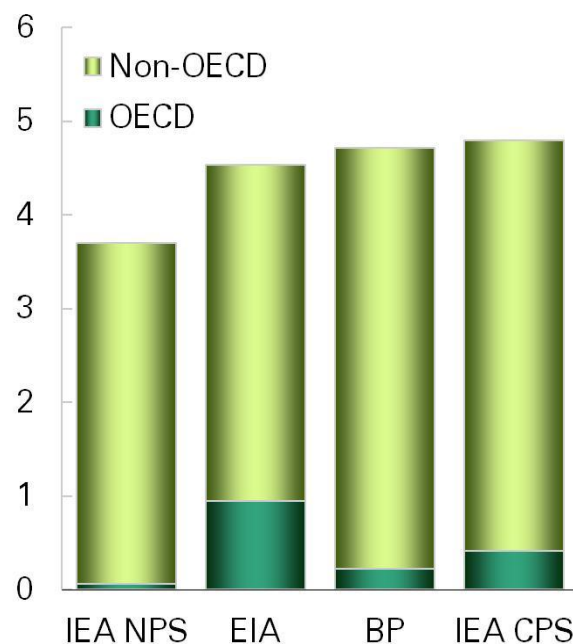
The prospects for oil demand

Comparison with other outlooks: the key difference...

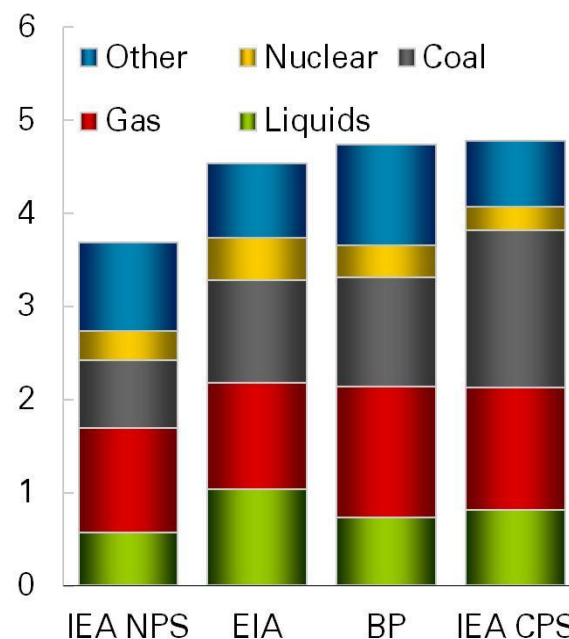


Growth of energy consumption, 2010-2030

Billion toe



Billion toe



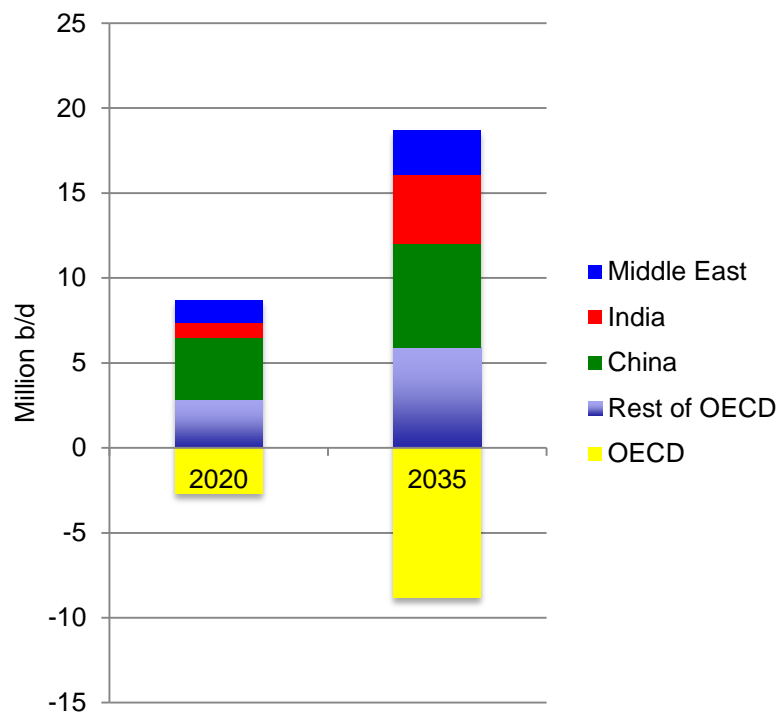
Energy Outlook 2030

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The prospects for oil demand: A closer look

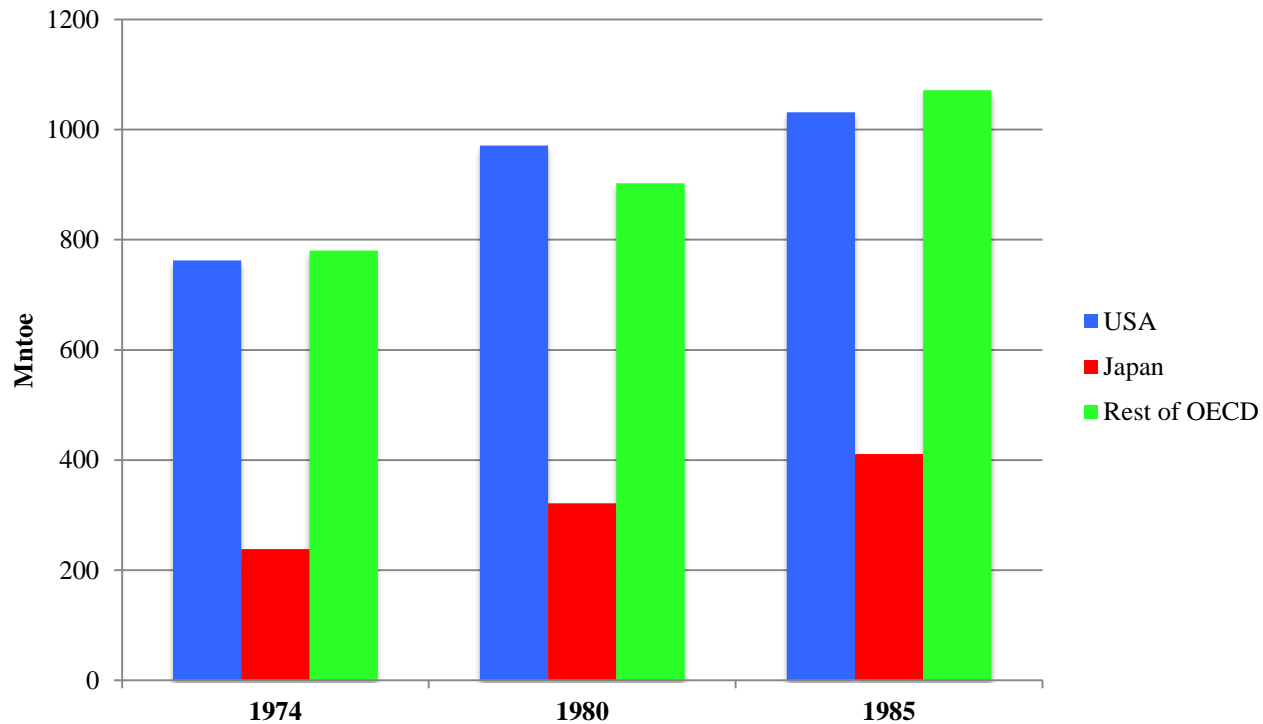
World oil demand growth from 2011
IEA New Policies Scenario WEO 2012



- Note the role of the MICs – 68% of the Non-OECD growth
- BUT beware ...“Once upon a time ...”

But beware!!!

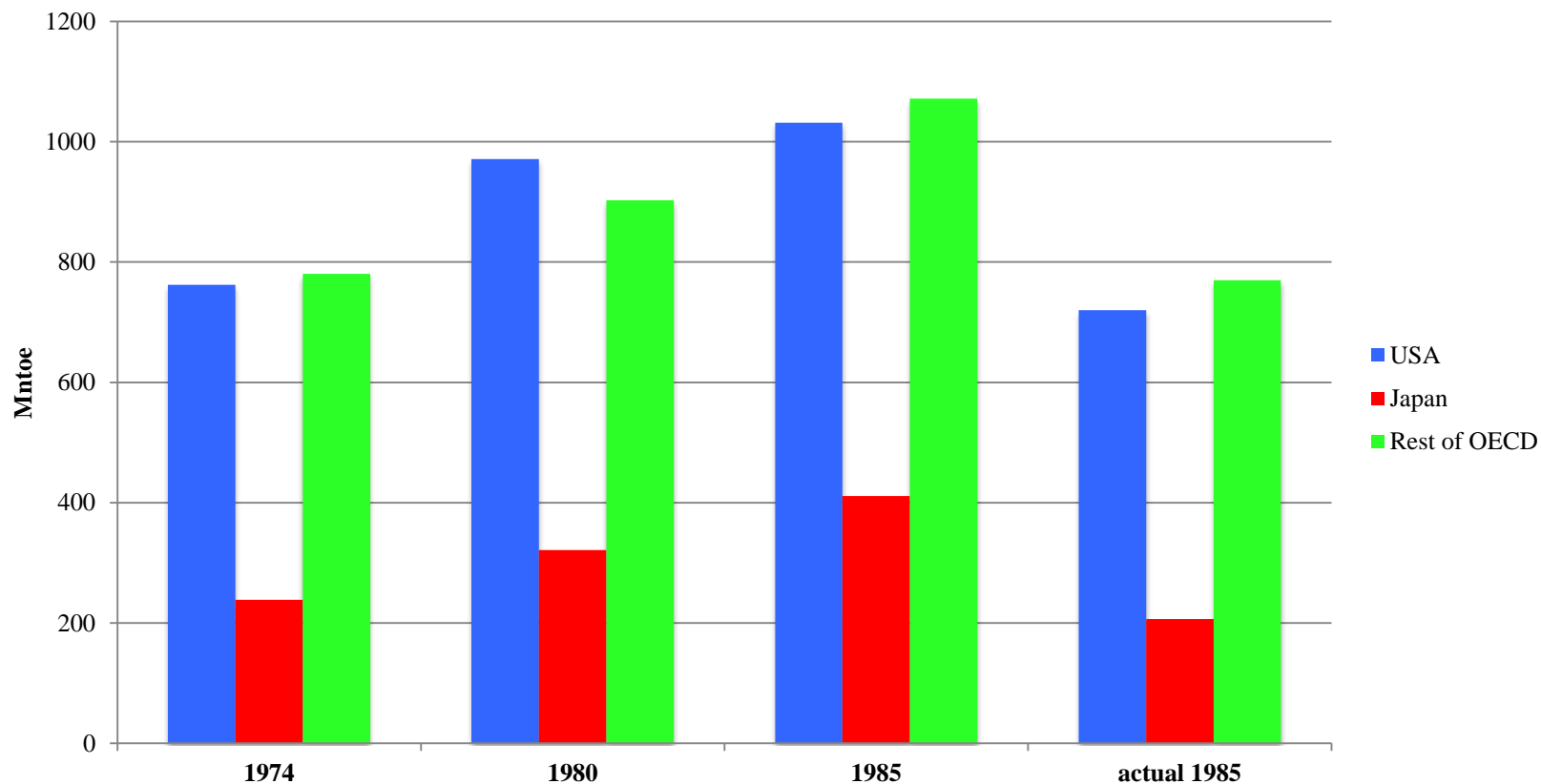
OECD Oil Demand Forecast 1977



World Energy Outlook OECD 1977

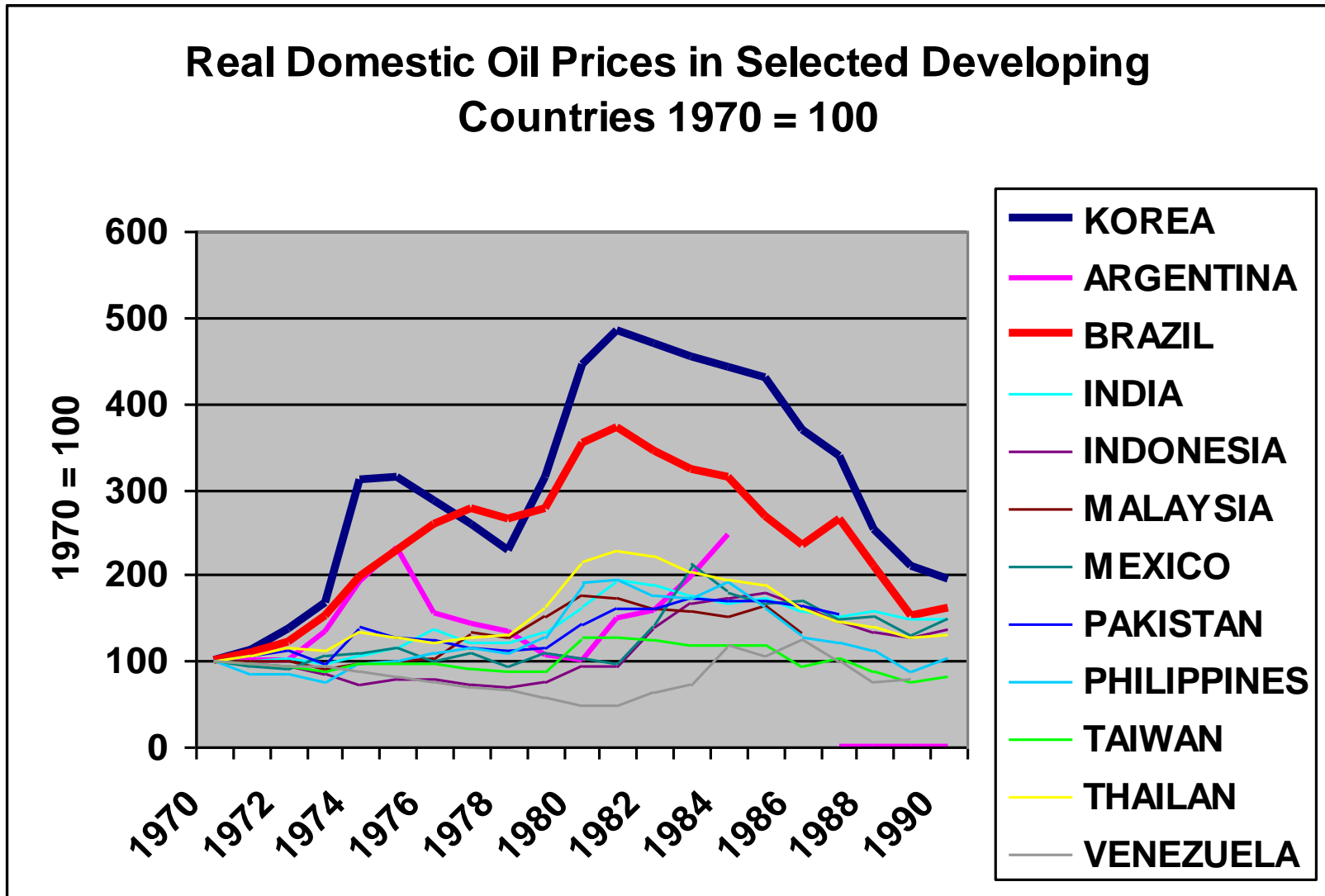
But beware!!!

OECD Oil Demand Forecast 1977

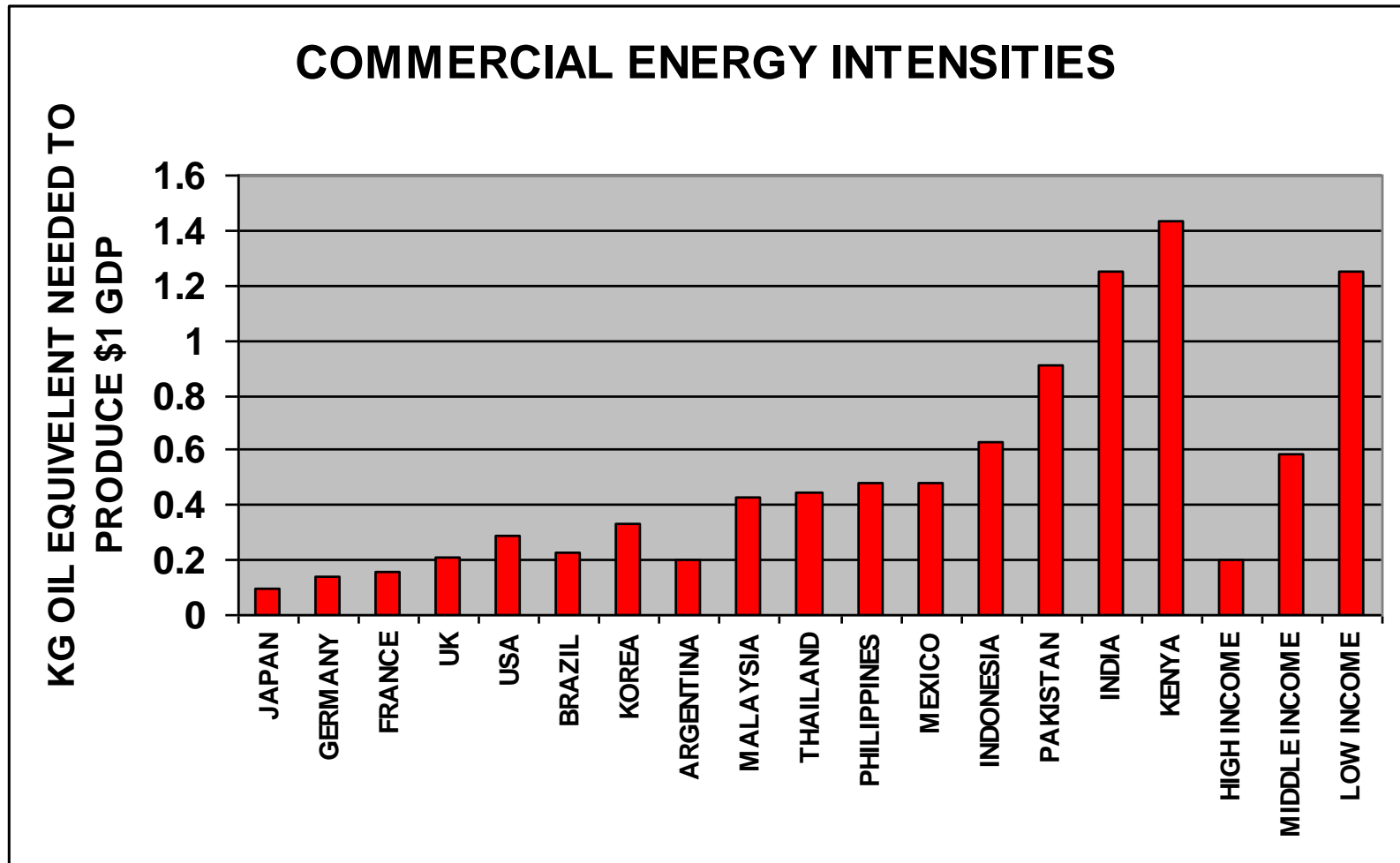


World Energy Outlook OECD 1977. Actual BP Statistical review of World Energy 2009

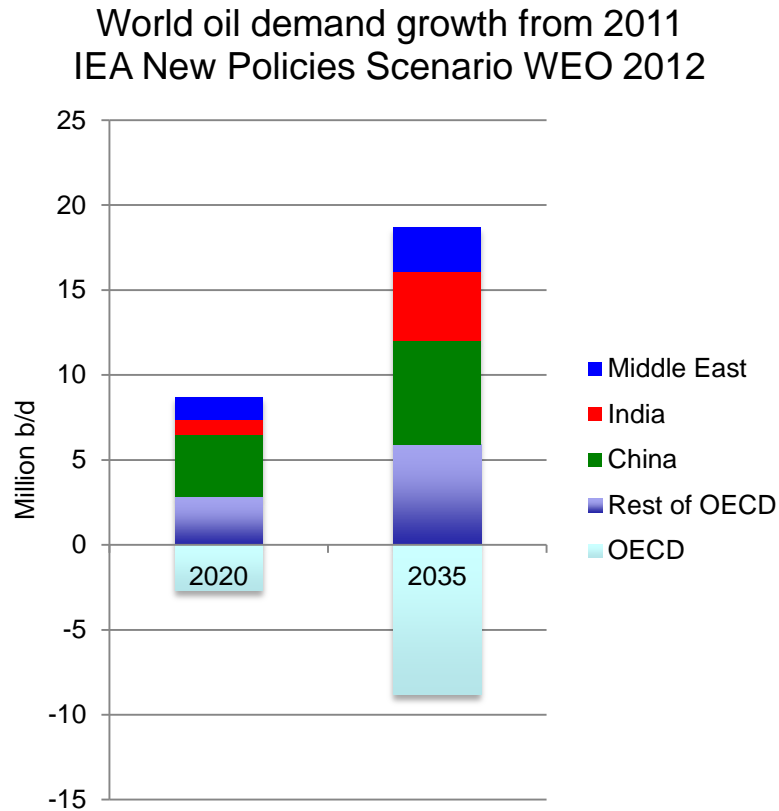
But Beware!!! Do not forget the impact of price



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But beware!!! Do not forget the impact of price

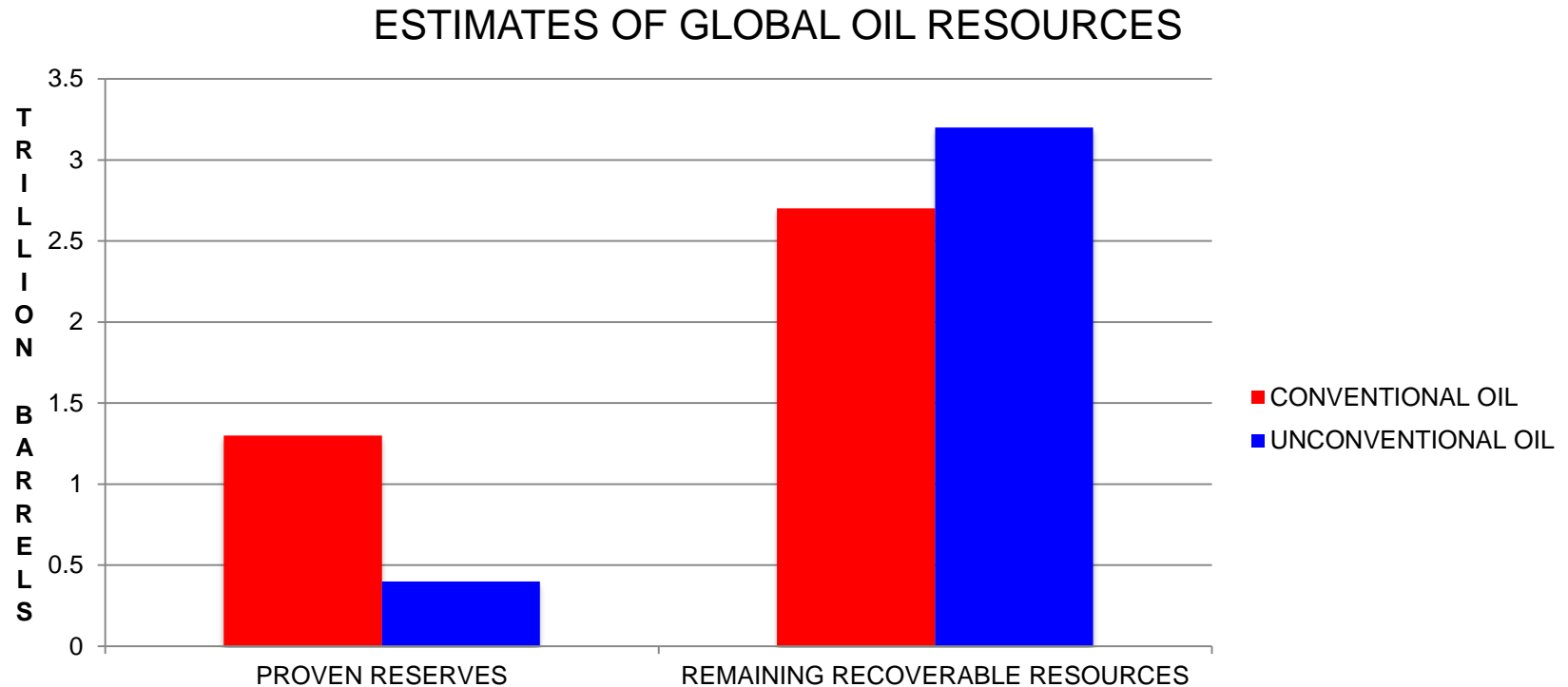


- Note the role of the MICs – 68% of the Non-OECD growth
- Low prices to final consumers BUT this has been changing
 - India 2002
 - China 2009
 - Middle East ???
- Thus future oil demand is uncertain

Presentation outline: A story of great uncertainties

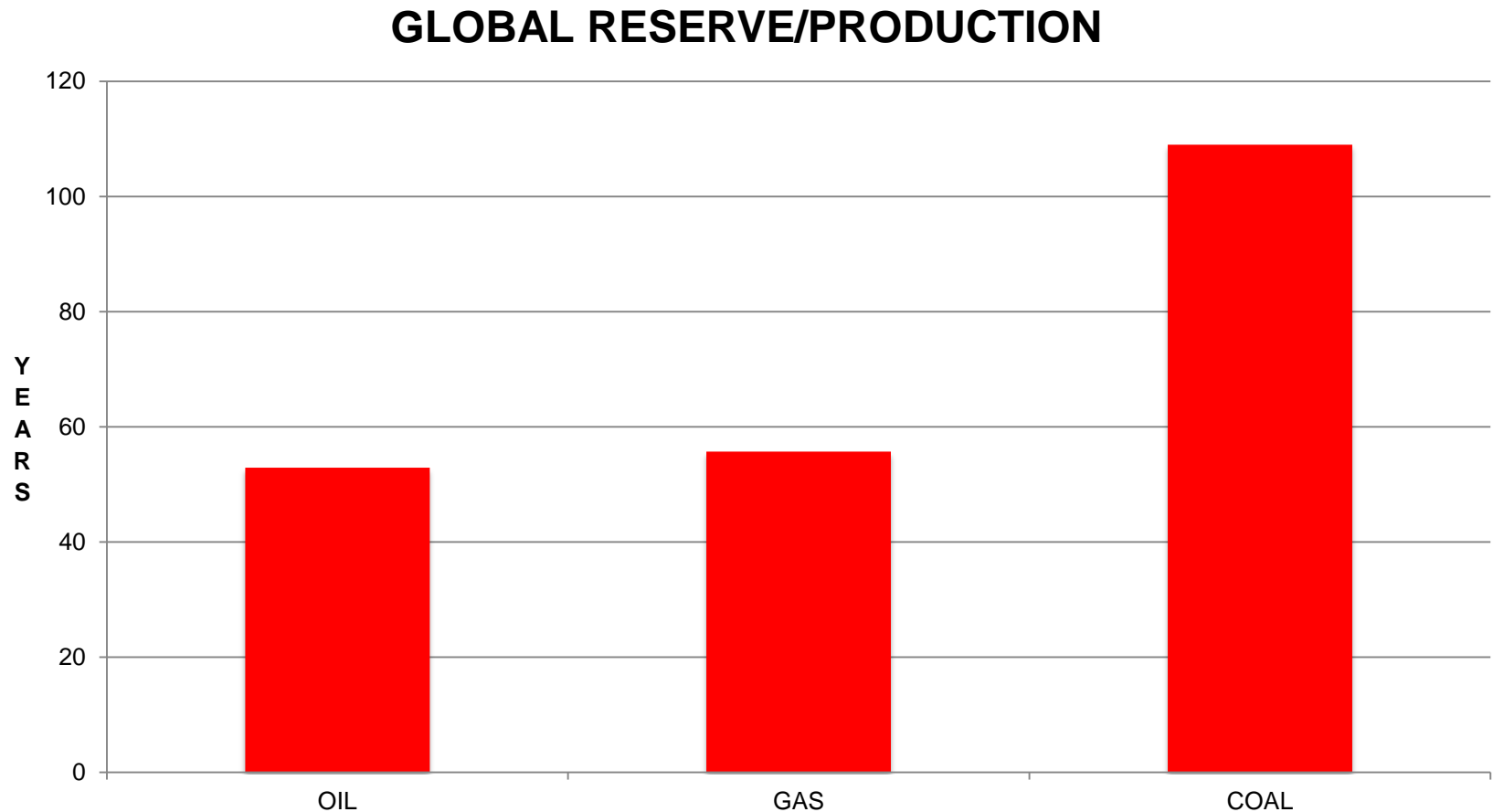
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The prospects for supply



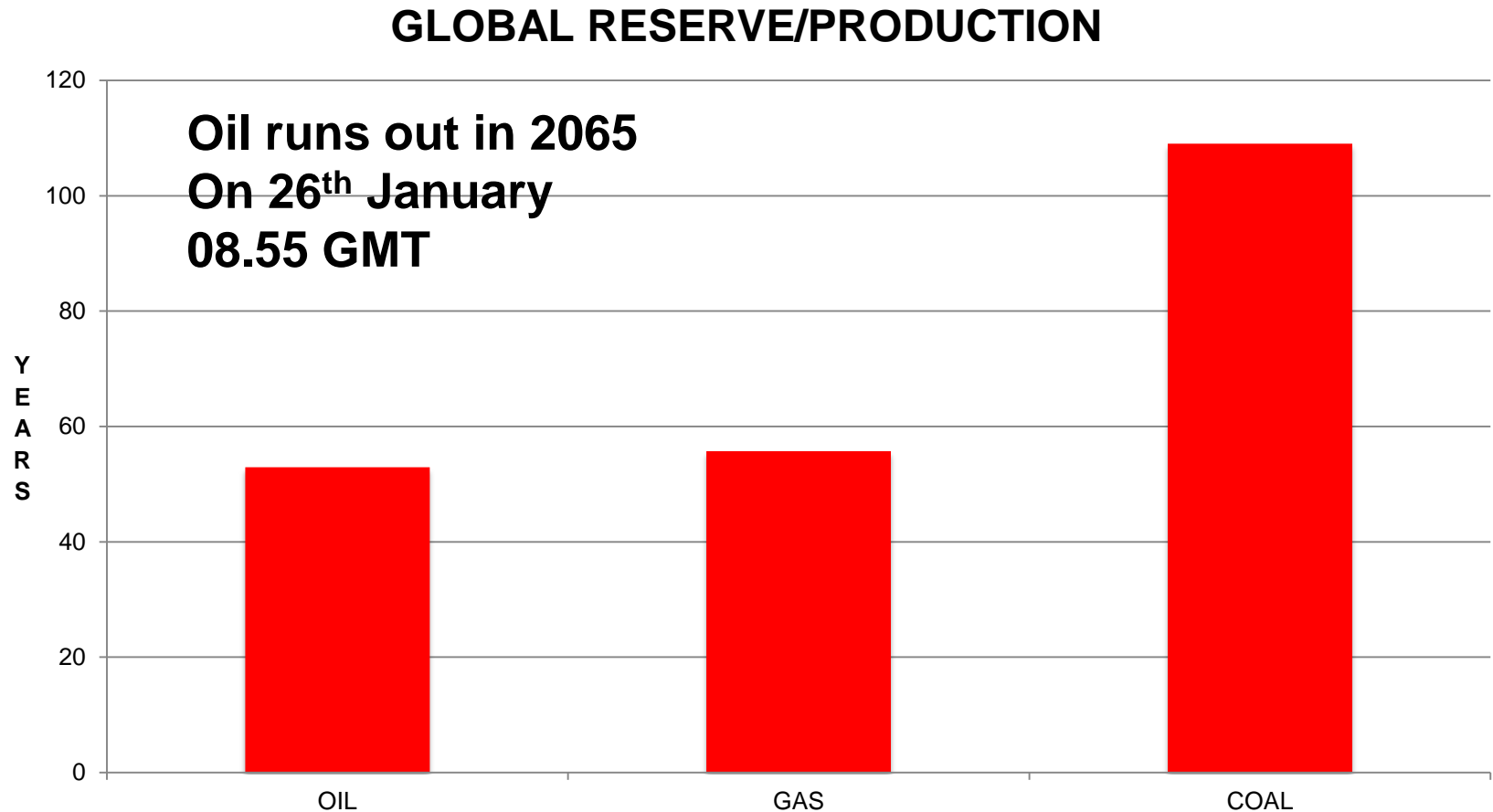
Source: IEA Resources to Reserves 2013: Oil, Gas and Coal Technologies for the Energy markets of the Future. OECD Paris

The prospects for supply



SOURCE: BP Statistical Review of World Energy 2013

The prospects for supply



SOURCE: BP Statistical Review of world Energy 2013

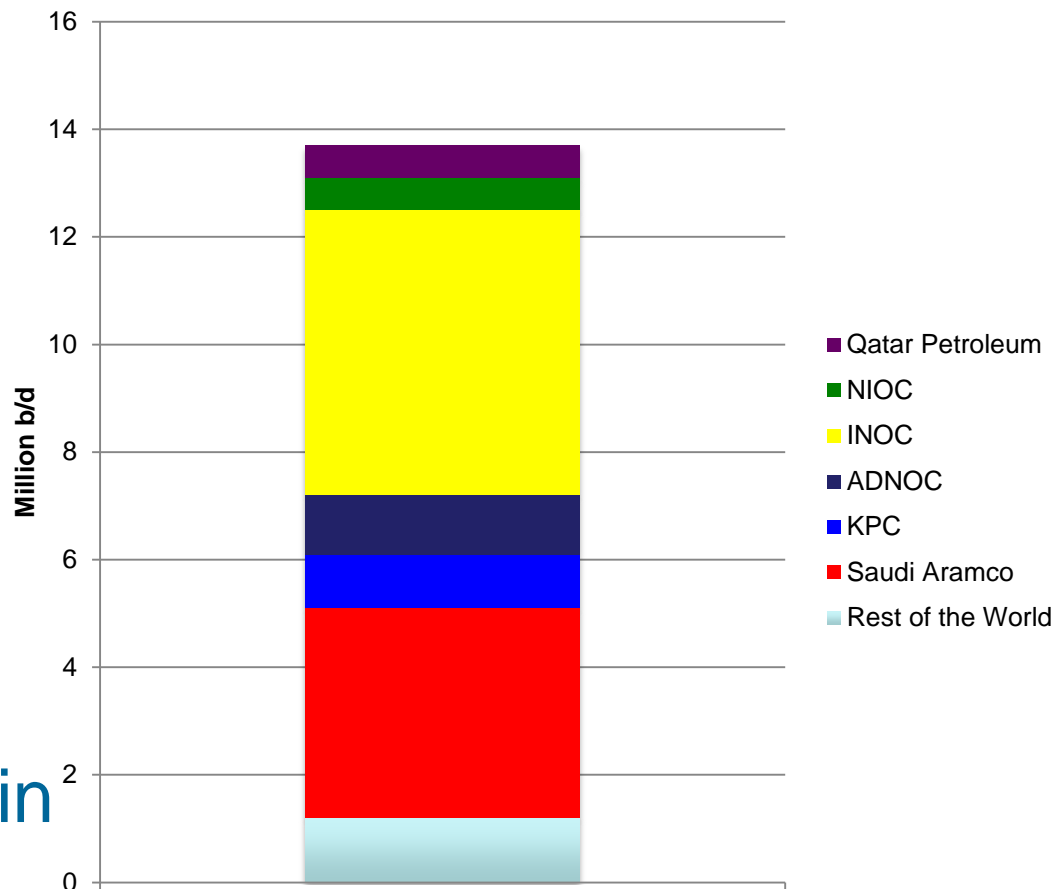
The prospects for supply? The key issue of willingness and ability to invest and produce the oil

- Before the 1970s - **The “Seven Sisters”** dominated—Exxon, Mobil, Chevron, Texaco, Gulf, BP, Shell (+CFP)
- **TODAY** are they their willing to invest, given a limited ability to access low cost reserves in a world driven by a financial strategy – “value based management”
 - ExxonMobil, Chevron, BP and Shell all increasing capex. TOTAL is reducing capex. Guess whose shares have risen? (Bloomberg 28 Oct 2013)
- **SINCE THE 1980s** the “Six Brothers” dominated ...

Meet the “six brothers”

- Willingness and depletion policy
 - “Oil in the ground ...”
- Ability = Mixed record
 - Saudi Aramco = excellent
 - ADNOC + Qatar = OK
 - KPC, NIOC + INOC = ☹️☹️
- Future supply uncertain

Sources of growth in oil production* 2010-2035
IEA WEO 2011 New Policies Scenario



*Includes NGL's and unconventional oil

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The oil market and prices before the 1970's

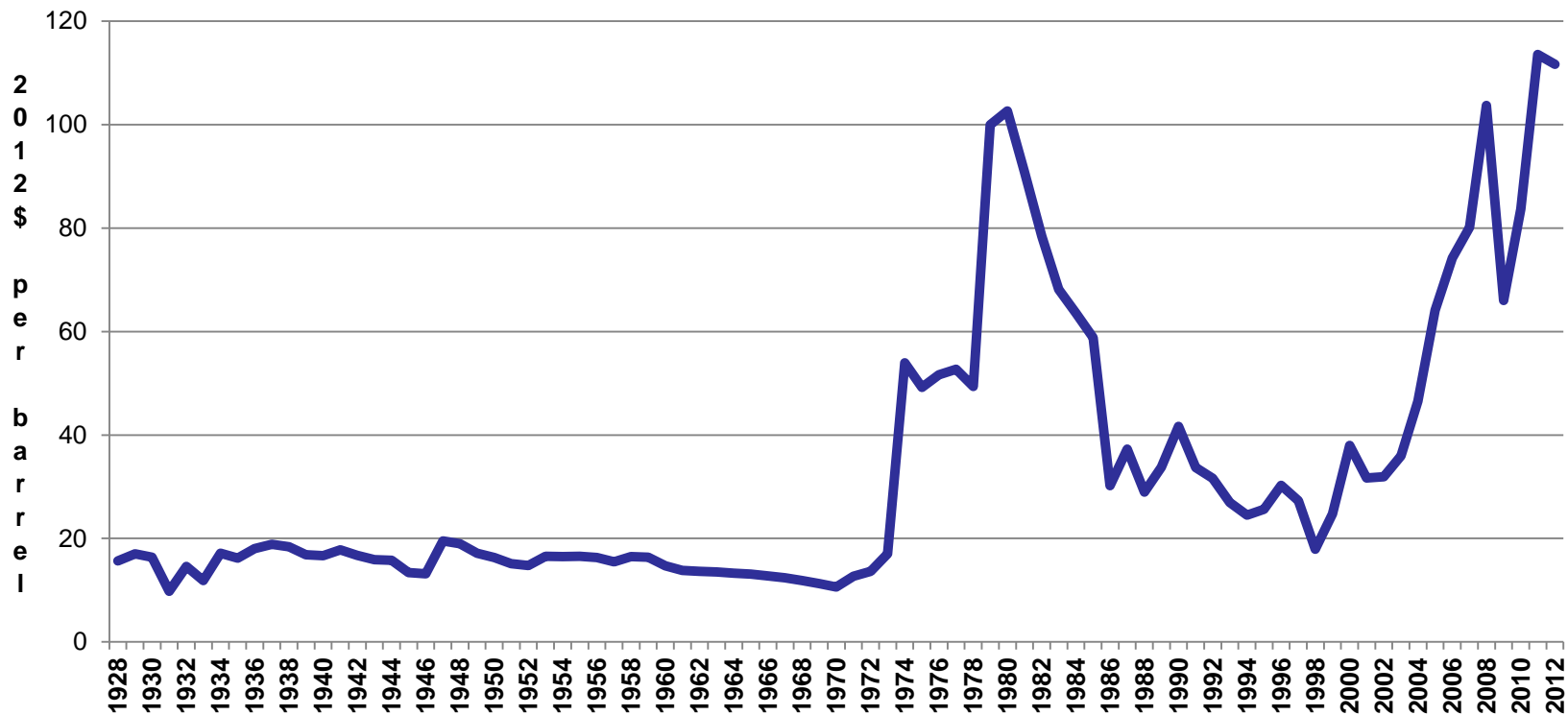
- The market was dominated by the “seven sisters”
 - Exxon, Chevron, Gulf, Mobil, Texaco, BP, Shell (+CFP/TOTAL)
- They were operationally vertically integrated which required “posted prices” as tax reference prices
- Price determination = Administered price
 - A “group of men” – **the producers** - in a room said a number
 - If the “those outside the room” – **the refiners** - believed it, that was the oil price!

The first oil shock

- **Pre-1970's** “The men in the room” were from the “seven sisters” - “those outside the room” were from the “seven sisters”.
- **Since 1950**, they had been saying a relatively low number
 - They feared competition from other fuels (mainly nuclear)
 - They feared a backlash from their own (OECD) governments

Price patterns – before and after

Oil prices 1928-2012

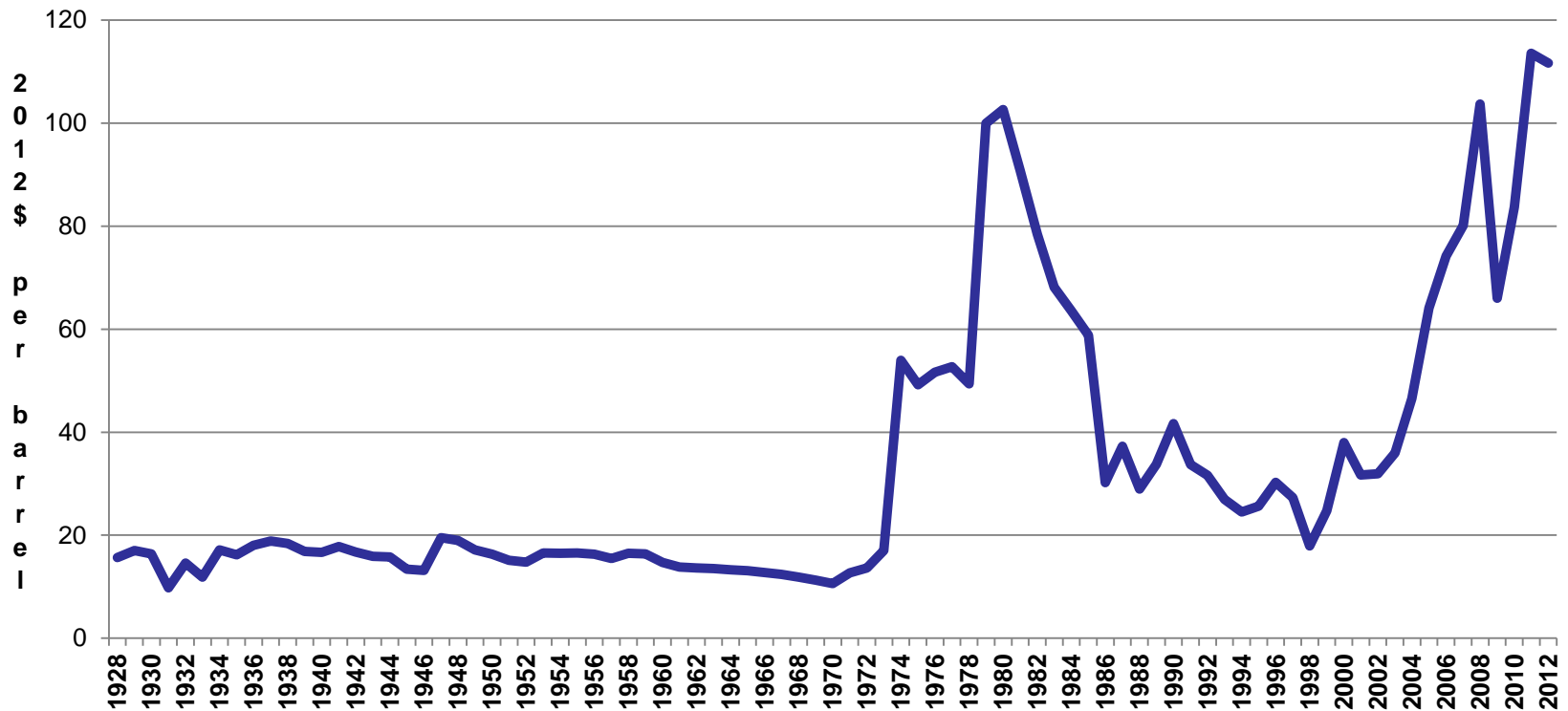


The first oil shock

- **Pre-1970's** “The men in the room” were from the “seven sisters” - “those outside the room” were from the “seven sisters”.
- **Since 1950**, they had been saying a relatively low number
 - They feared competition from other fuels (mainly nuclear)
 - They feared a backlash from their own (OECD) governments
- **New developments after 1970**
 - In Libya in 1970, gov't forcibly enters the room jointly to negotiate prices
 - October 1973 Arab OPEC + Iran “why do we need oil company men?”
 - Unilaterally increase price = First Oil Shock 16th October

Price patterns – before and after

Oil prices 1928-2012



The oil market today: very different from 1973

- The market is now dominated by the “Six Brothers”
- The oil price is now a market price largely based on spot prices
- **BUT** “the men in the room” are still relevant. However, now they are the OPEC producing governments
- **AND** the “number they say” now is a production level not a price

So now who are “those outside the room”?

Wet barrel market refiners

- *Trading real barrels
- *Spot and term contracts



Paper barrel markets

- *“Money managers”



What are the main linkages? Perceptions

Wet barrel market

Paper barrel markets

Influences perceptions about surplus/shortage



“Signals” what prices might be

“Those outside the room”?

Wet barrel market refiners



Paper barrel markets



RESULT = Price determination doubly complicated and uncertain

IN THE OLD DAYS – They simply had to believe the (price) number and that was the price – made it predictable

TODAY – They have to 1. believe the (production) number **AND** then 2. decide how it will affect price = **Very unpredictable**

New approach to setting price: Problems generating uncertainty?

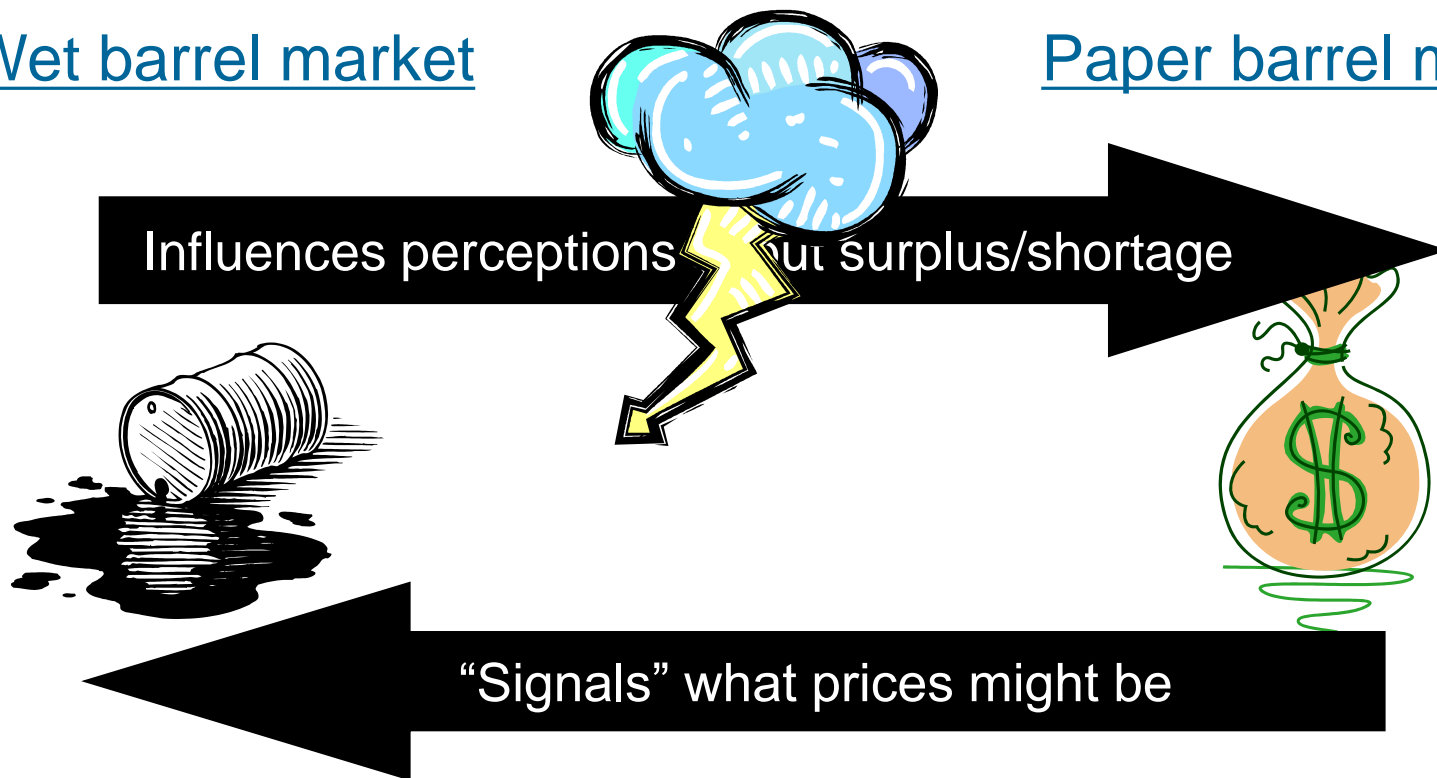
- **1. Believing the production number**
 - The market data on supply and demand are awful
 - Inventory data are even worse
 - OPEC members cheat
- Added to this uncertainty – **2. translating the production number into price...**

Translating the production number into price

Problems with the linkages = A disconnect

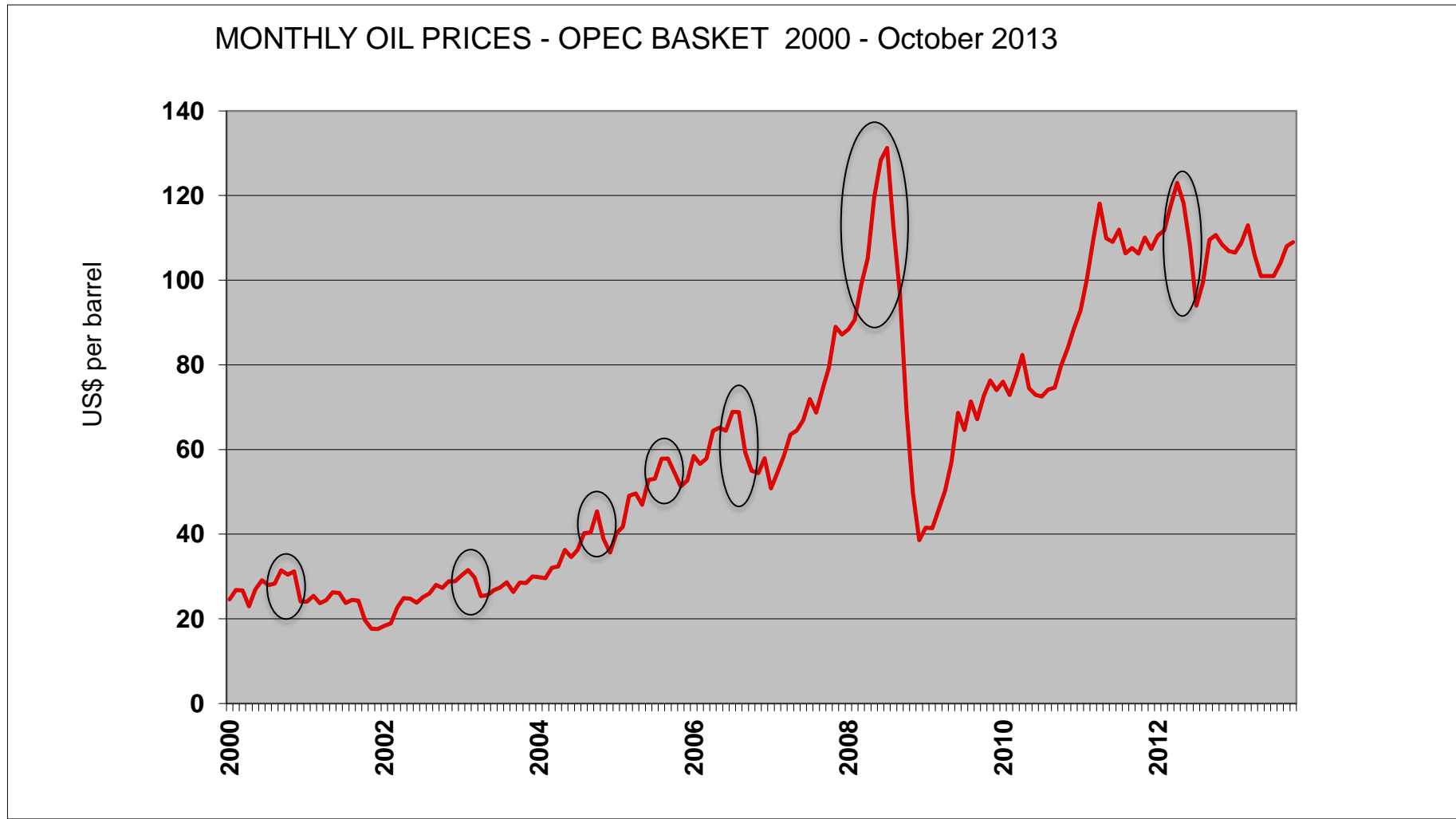
Wet barrel market

Paper barrel markets



IN OTHER WORDS “the paper barrel markets outside the room” often misread the implications of the production number. They don’t understand the oil industry...

When they misread, there is a dramatic adjustment



Presentation outline: A story of great uncertainties

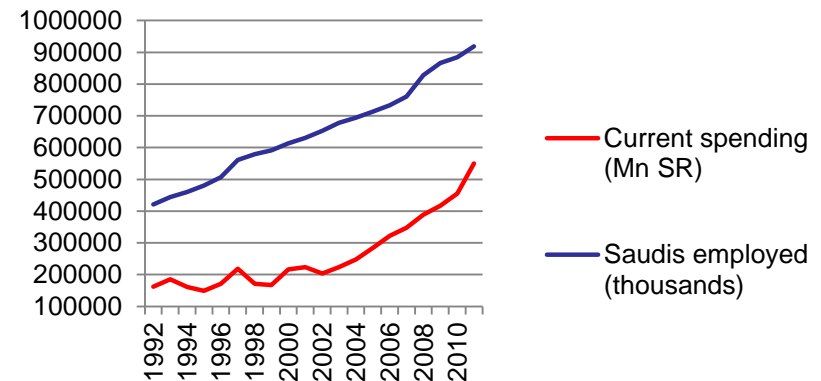
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What is “OPEC’s dilemma”? Starts with the need for a higher “supply price”

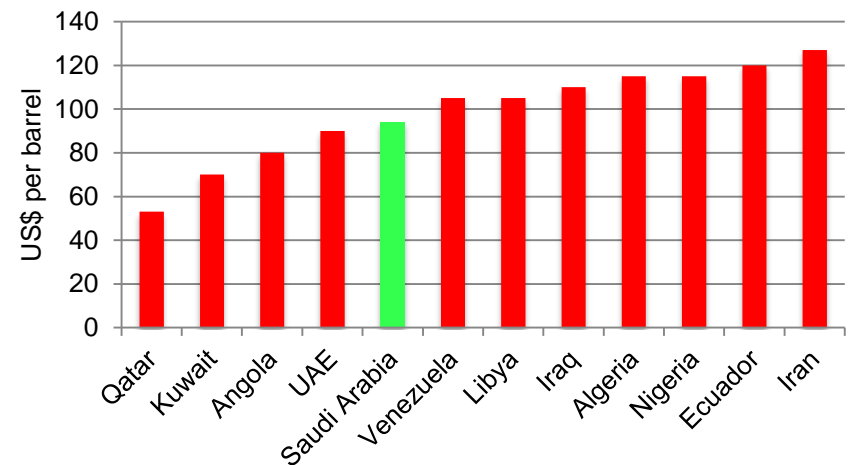
- The legacy of the Arab uprisings
 - Need to pacify populations
 - “Supply price” risen. Saudi Arabia 2008 =\$50 2012 =\$94

BUT HIGHER PRICES ...

Saudi Arabia Public Sector employment and current government spending 1992-2011

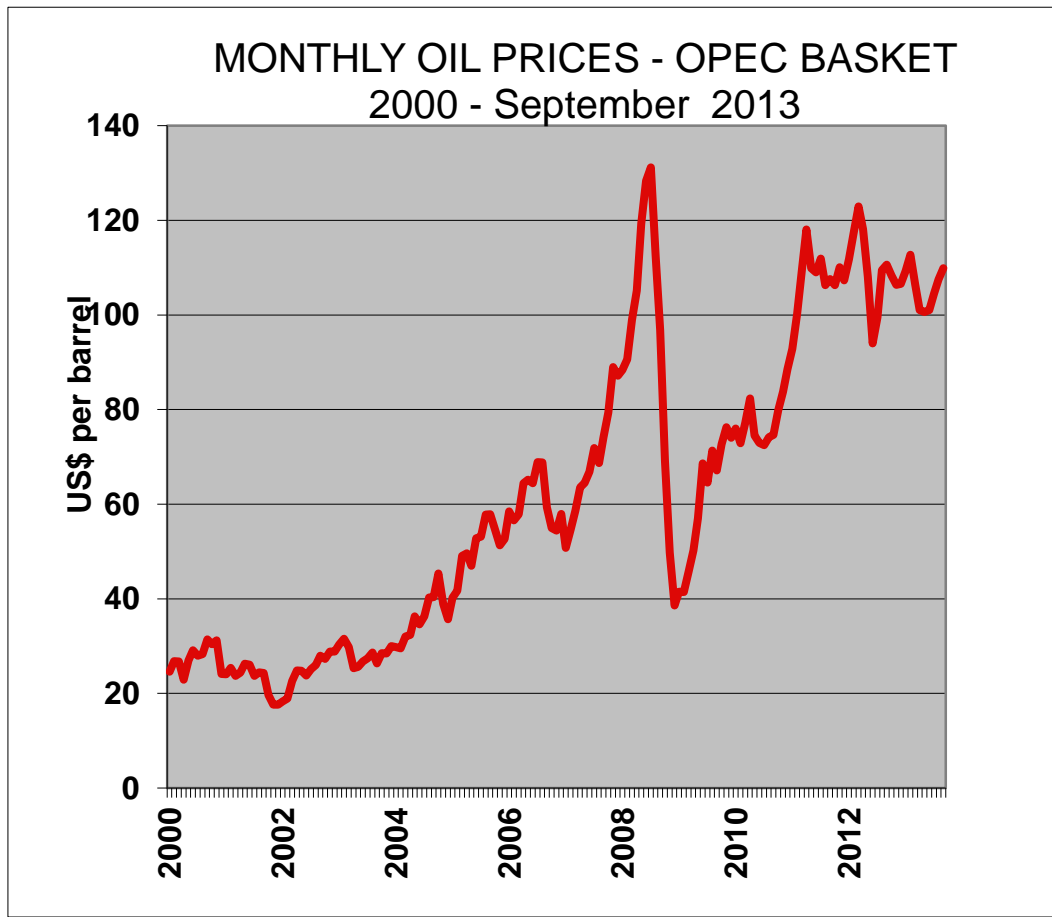


OPEC Median Budgetary Break-Even Price

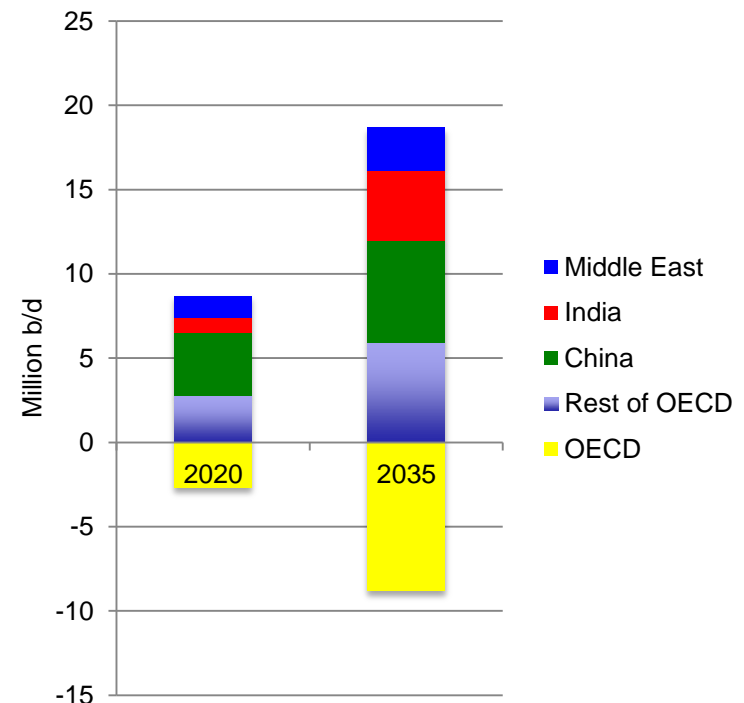


... Higher prices lead to demand destruction

- Meet the MICs! (AGAIN)
 - Between 2011-35 they are expected to account for 68% of Non-OECD oil demand growth.
BUT



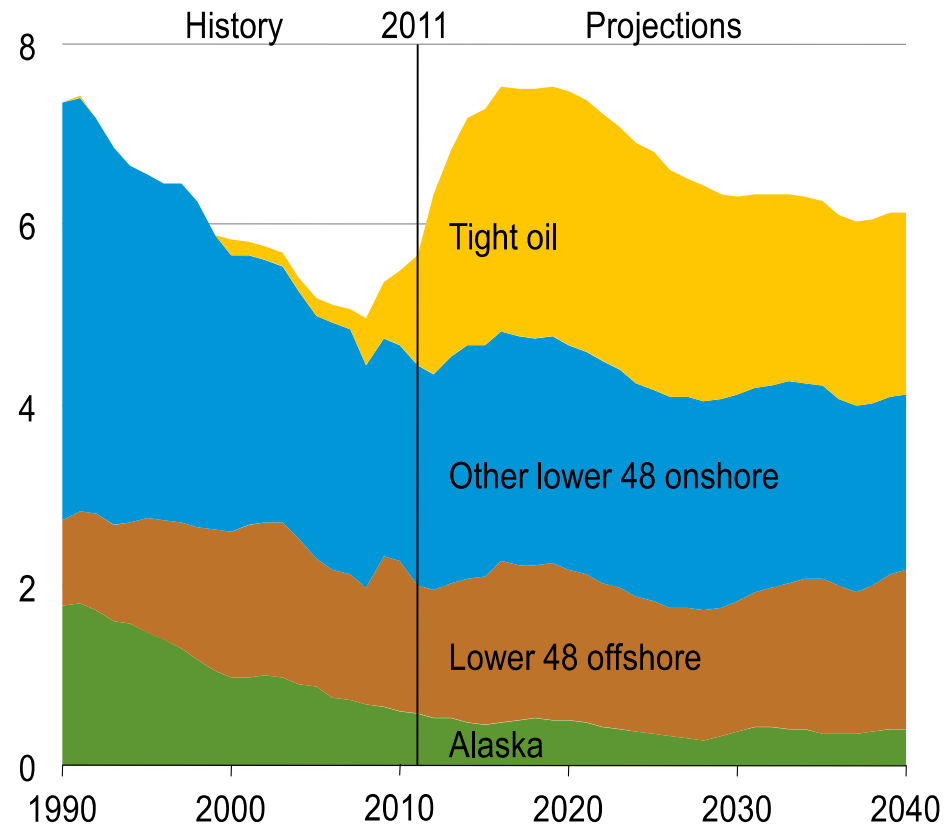
World oil demand growth from 2011
IEA New Policies Scenario WEO
2012



Higher prices also lead to more supply

- Technological legacy of the “shale gas revolution” + the impact on liquids
- 2011 oil analysts joke – “the next member of OPEC will be.....”
- 2012 US oil production increased by 1 million b/d

Figure 1. U.S. domestic crude oil production by source, 1990-2040 (million barrels per day)



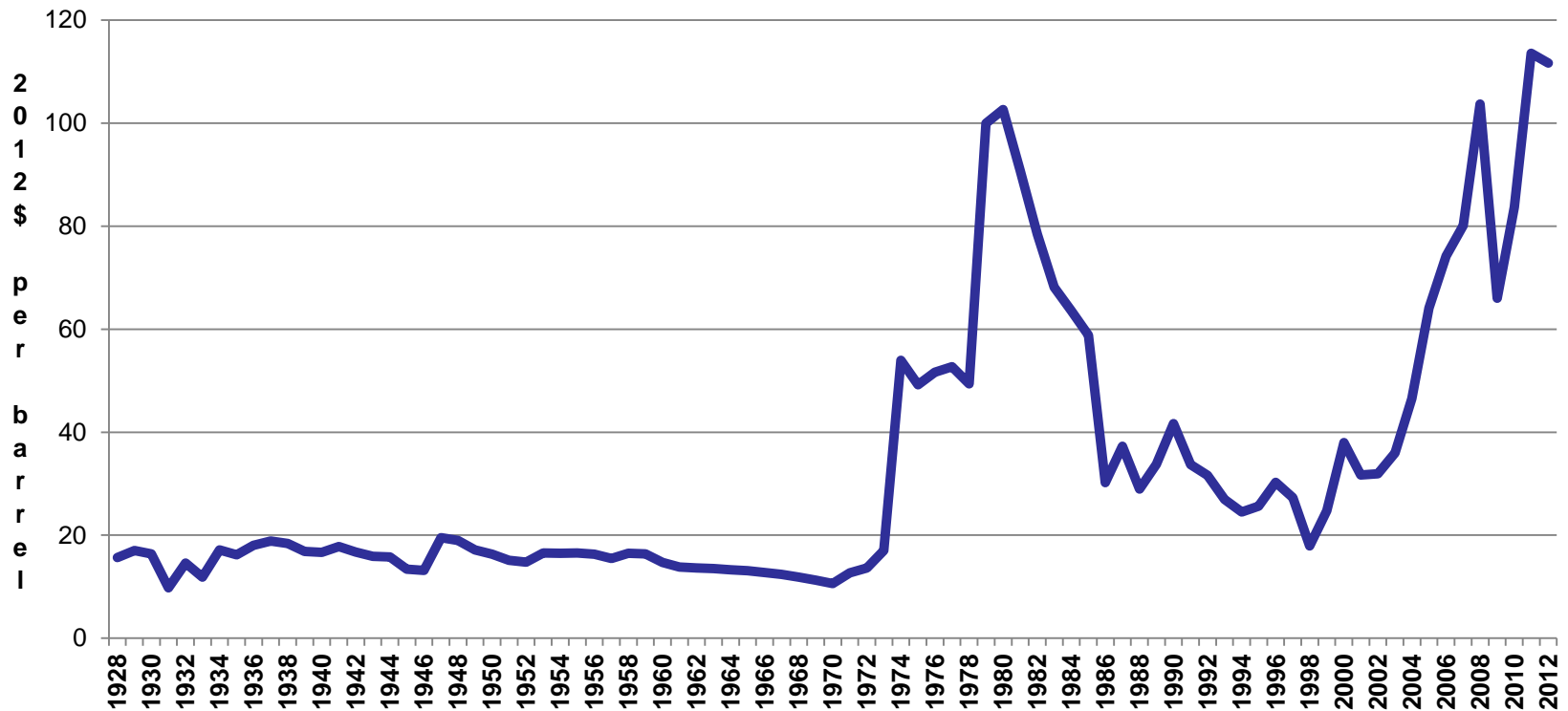
EIA Energy Outlook 2013

All this leads to “OPEC’s dilemma”

- OPEC members need a high price to survive politically
- But this will lead to a market reaction
 - Demand destruction
 - Increased supply
- **This situation is unsustainable** and is very **similar to 1980-86**. Will it be a re-run of 1981-86 leading to a price collapse?

Price patterns – before and after

Oil prices 1928-2012



Similarities to 1981-86 THEN ...

- Saudi Arabia was acting as “**swing supplier**” to protect prices – **same again today**
- **New oil provinces** lurked on the sidelines but requiring higher prices – **same again today**
- **Very bullish outlook on oil demand** which ignored price effects – **same again today**
- **BUT THERE ARE DIFFERENCES...**

What are the differences from 1981-86?

- As explained **price determination far more complex**
- The rise of the **paper/futures markets** means prices are more volatile and price will change faster.
- Post the Arab Uprisings = **much greater threat of political unrest** which will spook markets and create a geo-political premium on prices
- **Greater divisions within OPEC post 2003.** 1986 rescued because of détente between Saudi Arabia and Iran. Today ...

Conclusions

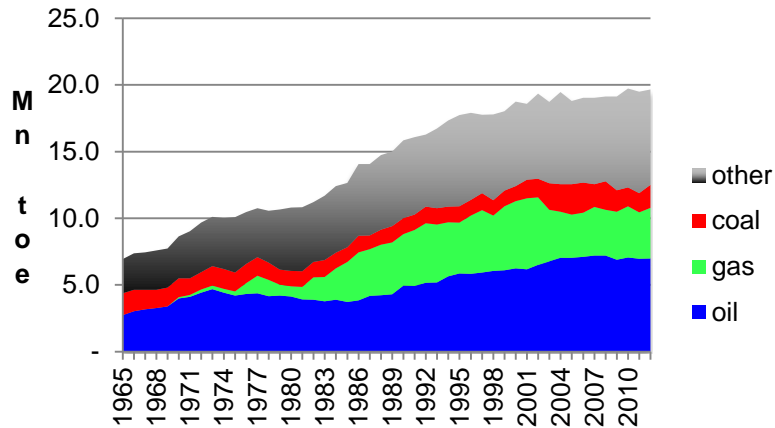
- A much lower price is likely although the timing is uncertain and depends upon how long Saudi Arabia will play the “swing role” ... How much “wriggle room”?
- When price falls, possible political unrest in MENA may lead to a price rebound driven by the “money managers”
- Meanwhile the potential for more geo-political outages and consequent price spikes remain real. **2013 outages** Libya 1 mb/d, Nigeria 0.8 mb/d, Iran 0.3 mb/d, Iraq 0.3 mb/d
- **Overall = much greater crude price volatility**

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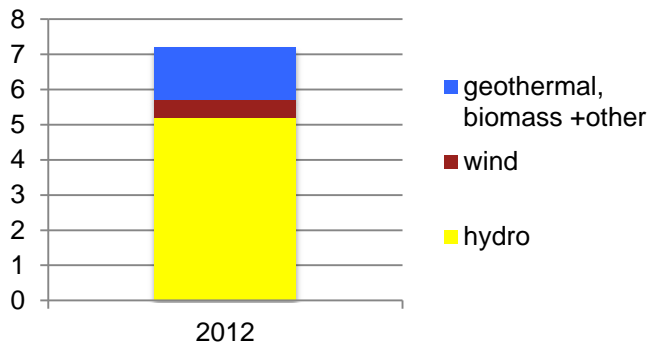
New Zealand: The energy picture

New Zealand Energy Consumption
1965-2012



BP Statistical Review of World Energy 2013

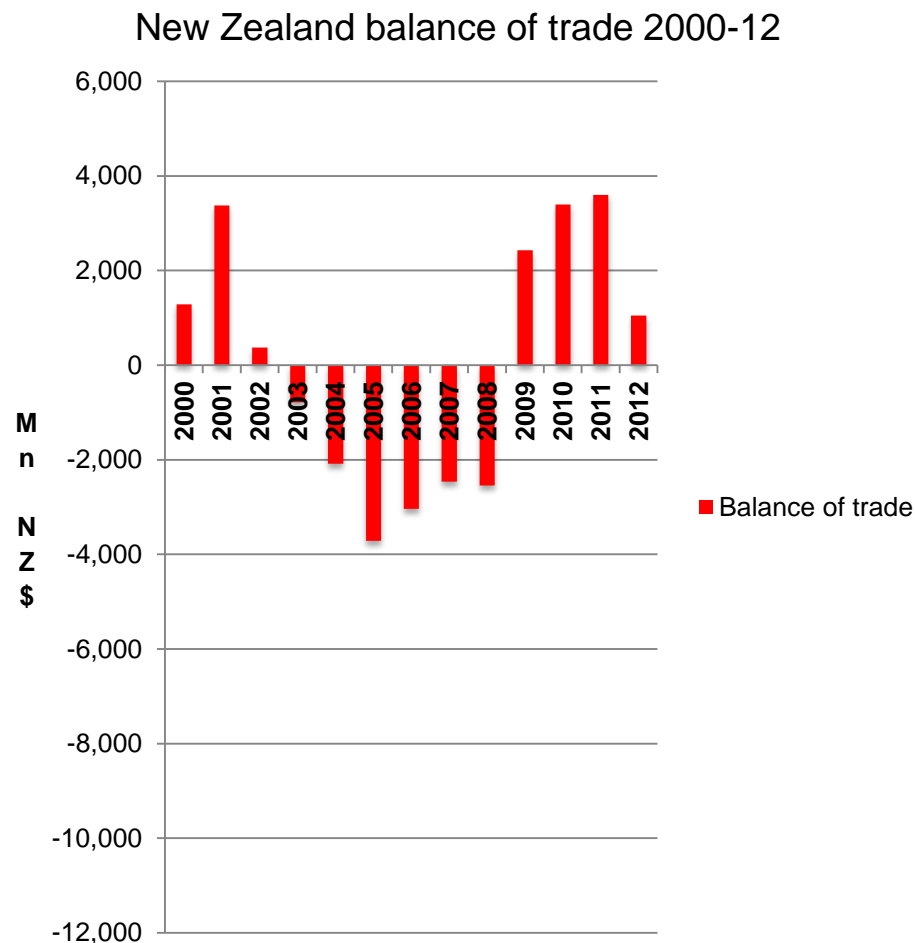
New Zealand "other" energy
consumption



- Oil remains important for New Zealand
- Accounts for 35.5 % of primary energy in 2012
- Vast majority for transport = limited scope for alternatives

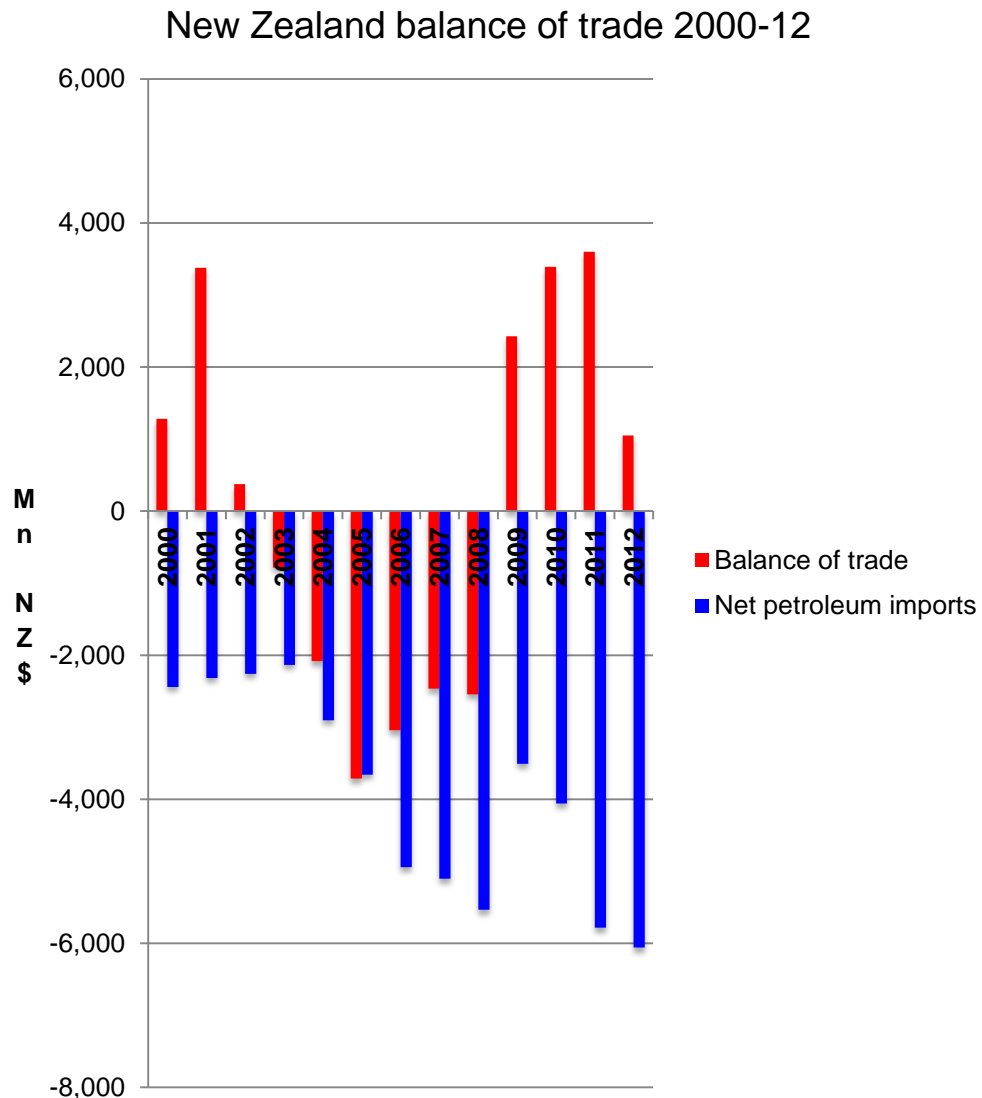
New Zealand: The economic picture and oil

- Importance to New Zealand balance of payments



New Zealand: The economic picture and oil

- Importance to New Zealand balance of payments
- Issue of investments with volatile oil prices
 - To develop oil and gas – needs an “attractive” fiscal/regulatory regime as you compete for upstream investment dollars
 - In renewables given New Zealand’s comparative advantage?





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