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THE NEW OIL ORDER: Thoughts on how decision makers in national oil companies might adapt………

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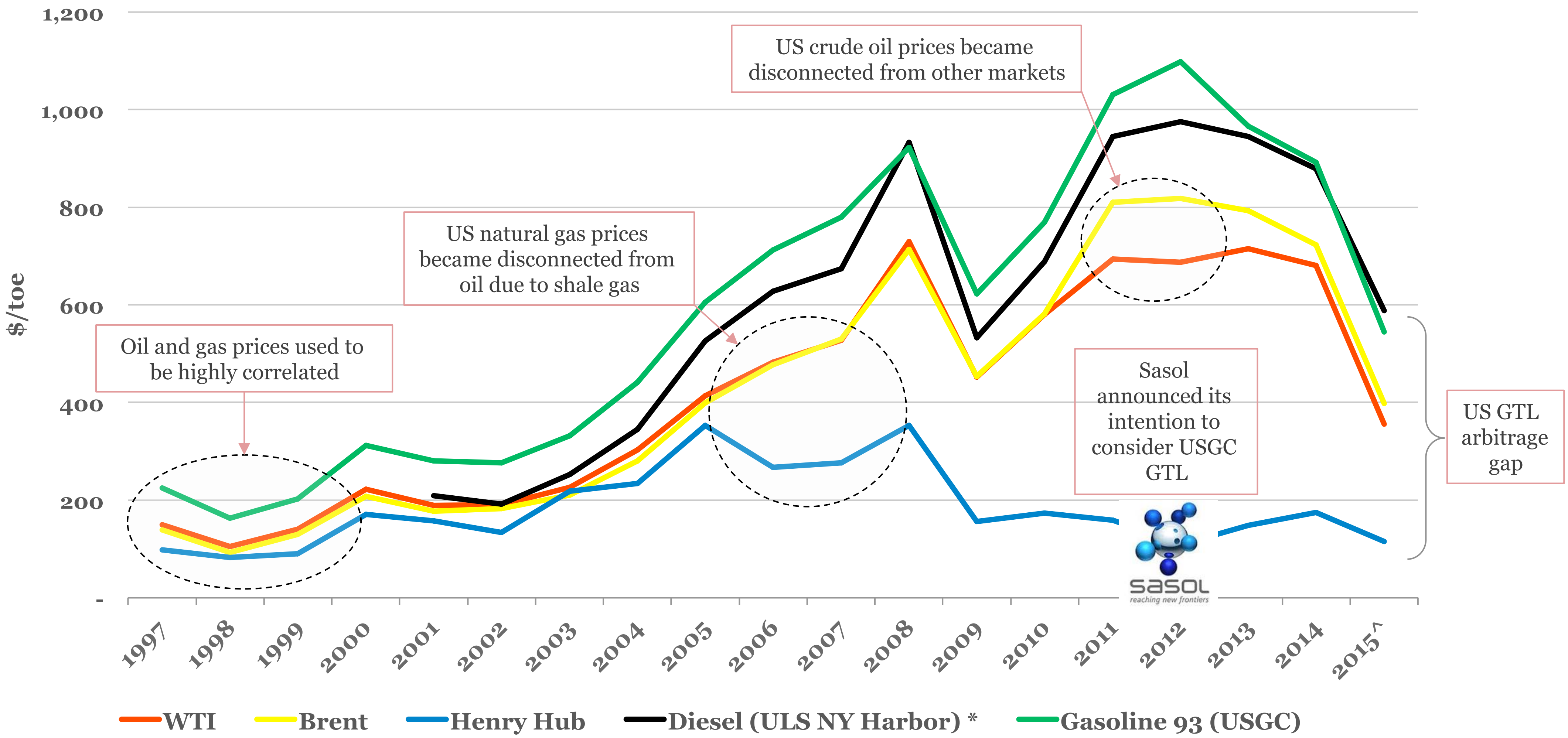
THE NEW OIL ORDER

An industry in turmoil

- Aspects of the New Oil Order
- The world with a new source of marginal supply
- How might national oil companies and producers adapt?

TURMOIL:
Triggered by new ways to apply existing technologies



Source: *CEG analysis* * *2001-2005 estimated* ^ *2015 – Actual average prices to 16 March 2015*

TURMOIL:
Long term changes in the structure of the industry

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- **Long Term:** The decline in oil prices that began in 2014 was inevitable and triggered by a fundamental shift in the industry
- It was brought about by using new technologies to produce unconventional oil. They can deliver oil (and gas) to market from shale formations which were previously thought to be uneconomic
- **Short Term Supply:** Other factors also contributed to the collapse in prices:
  - Russian oil production is at the highest level since the break-up of FSU
  - Iraqi crude output highest since 1979
  - Saudi Arabia abandoned its role as swing producer
  - Weak oil demand in Europe, China and Japan
  - The strong US dollar has furthered dampened demand
- These were partly offset by short term perceived political risks arising in Libya, Syria / Iraq, Yemen and South Sudan

TURMOIL:
Some Impacts

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- The accessible resource base and industry structure (by which hydrocarbons are delivered to markets) have been permanently transformed by unconventional oil and gas
- In turn, these will alter the way markets function and price discovery takes place

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REMEMBER:

"The Stone Age?"

- Oilmen are fond of saying:

"The Stone Age did not end because we ran out of stones.
The Oil Age will not end because we will run out of oil."

THE NEW OIL ORDER:
Breakeven Prices

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- Throughout the history of the industry, proven oil and gas reserves have grown much more quickly than consumption
- It should therefore not be surprising that prices are not controlled by the size of the global resource base
- Instead, oil prices are mainly determined by the quantity and quality of highly variable streams of crude delivered to diverse markets around the world
- Breakeven prices are location-specific and must involve understanding:
  - Netbacks from price markers applicable to individual producing areas; and
  - Operating costs and capital structure at individual locations

THE NEW OIL ORDER:

We won't run out of stones

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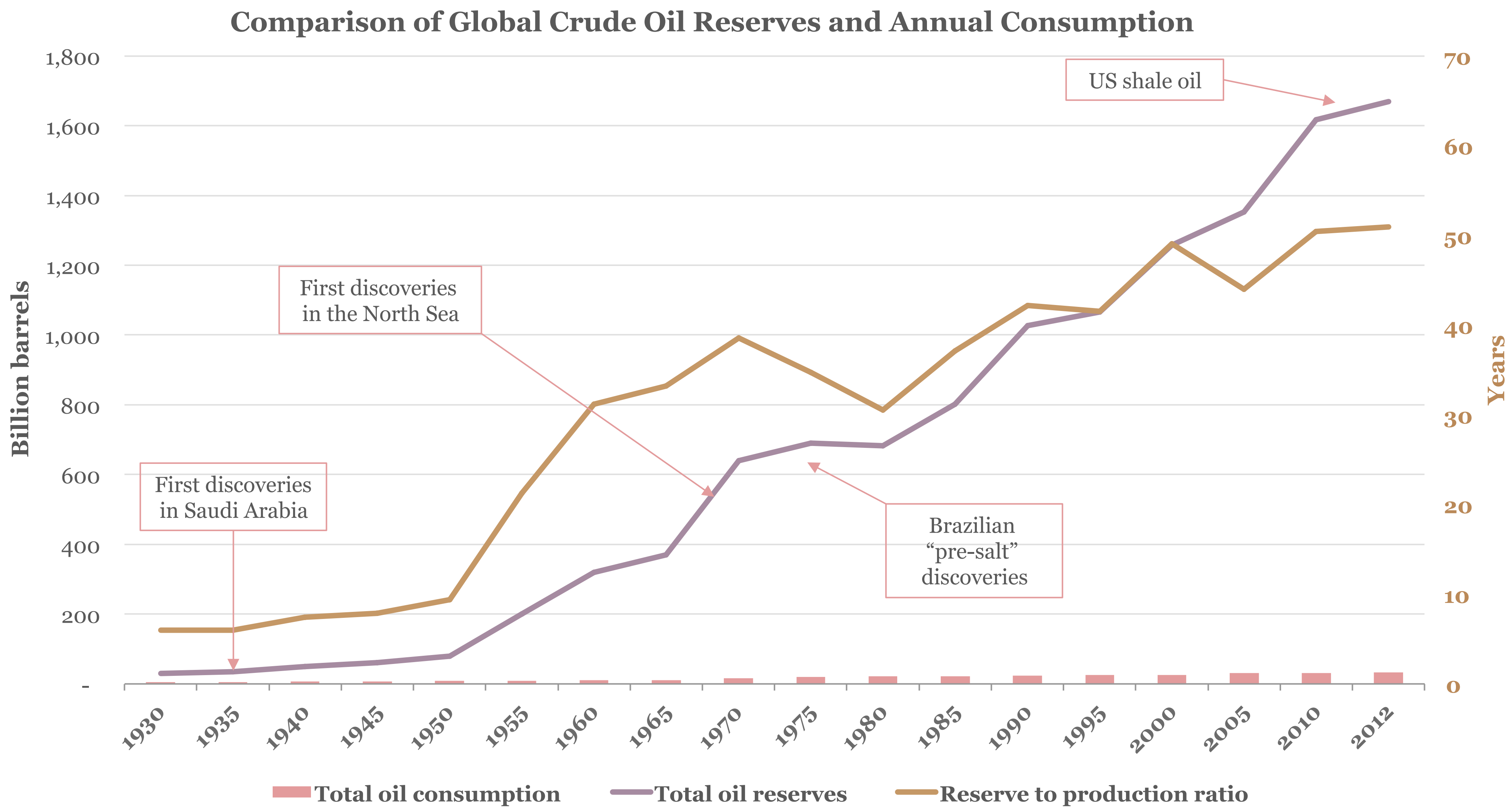

PLUS:
We won't run out of gas either

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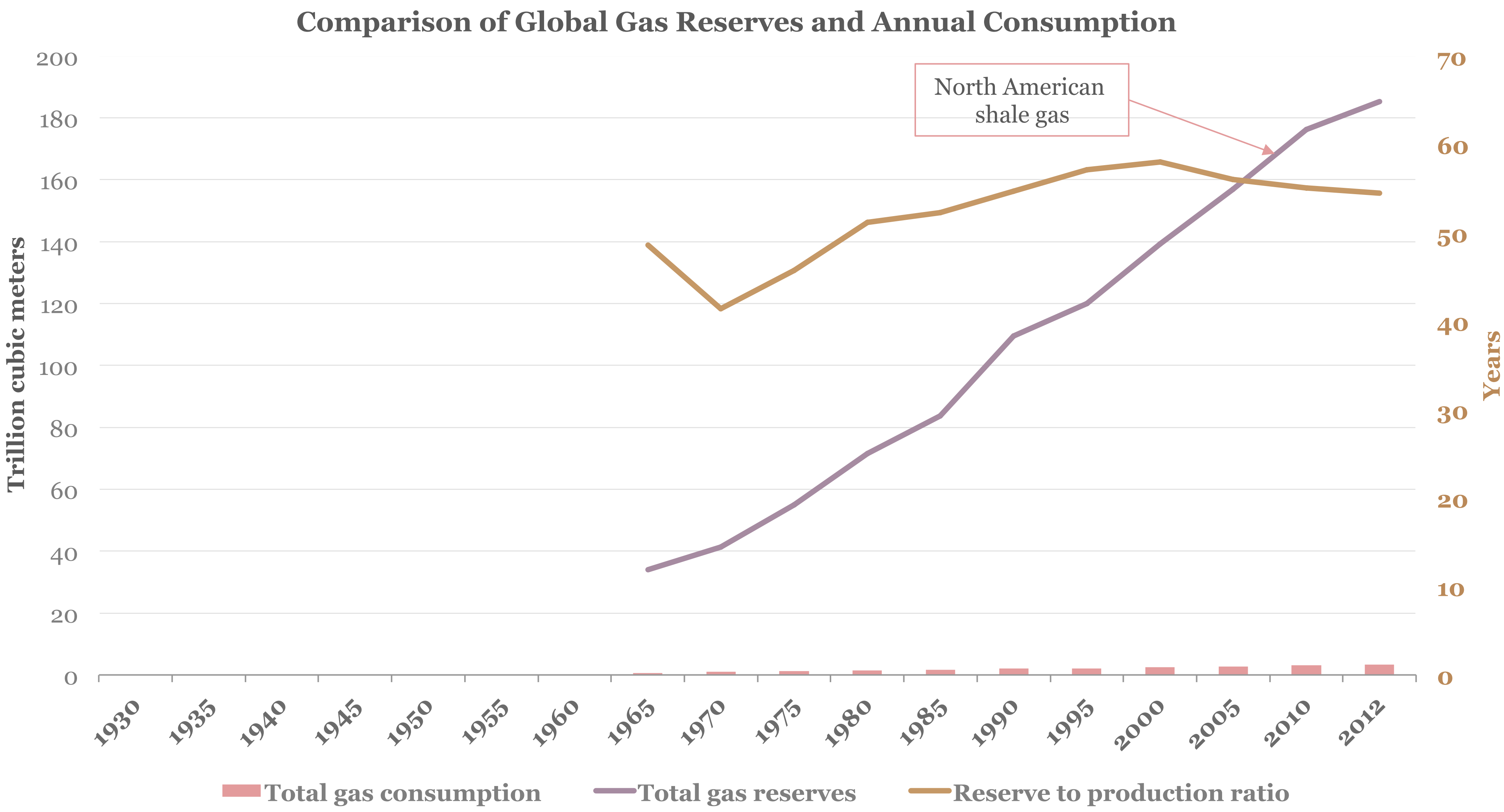

NEW SOURCES OF MARGINAL SUPPLY

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MARGINAL SUPPLIES:
Now there is a new one

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Previously:

- Base load oil supply was high cost. Increasingly in frontier regions, deploying new technology often developed by the majors
- Marginal supply came from low cost producers, which often were also countries with developing economies

But now:

- Shale gas and shale oil in North America have become parallel, marginal sources of supply. They are not, however, necessarily the lowest cost
- It is naïve to think that North America will be the only region where such output will be prolific
- Shale extraction technology will inevitably be deployed elsewhere, despite differences in market structure, regulation and availability of drilling / production infrastructure

MARGINAL SUPPLIES:

OPEC is just a collection of low cost producers

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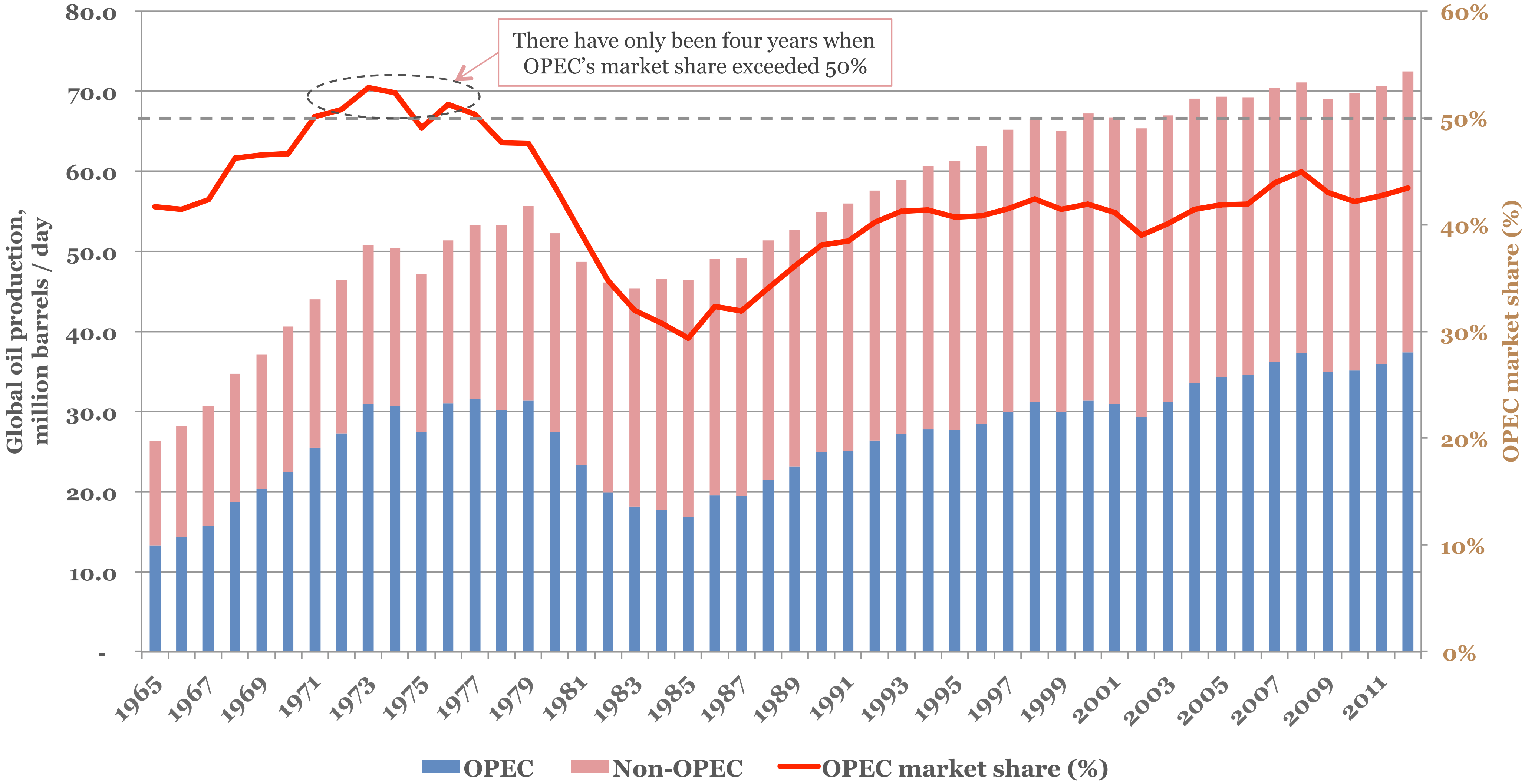

Source: BP Statistical Review of World Energy 2013

NEW SOURCES OF MARGINAL SUPPLY:

Looking at the future

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- OPEC has never been a cartel
- It was only able to influence global prices through regulating production of low cost oil, but this does not set the price
- Predicting the future trend of oil prices requires an understanding of the interaction between multiple factors, some of which are new to the industry:
  - The extent to which US shale oil production is affected by short term changes in global oil prices
  - The rate at which shale technology will be applied outside North America
  - When (or if) the US removes the ban on crude oil exports
  - Whether constraints on export capacity will affect the level of Canadian oil sands output
  - Global demand growth and fuel switching

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ADAPTATION:
Issues for NOCs

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When deliberating future investments:

- Investments and forward planning need to be considered from a new perspective, where resources are no longer a constraint and it cannot be assumed that real oil prices will inevitably increase
- It is important to not underestimate the potential impact of unexpected changes in technology, such as:
  - Radical improvements in energy and /or hydrogen storage capabilities, making renewables and electric cars economically viable without subsidies
  - Sweeping shifts away from transport fuels, leading to increased conversion of oil and gas to chemicals
  - Consensus between Europe and the US on carbon pricing, allowing markets to assess the value of energy supplies having lower carbon content

ADAPTATION:
Breakeven oil price

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Breakeven oil prices on major projects: some important considerations

- Are all the costs of development allowable for through cost oil?
  - Frontier developments by NOCs have historically been a R&D laboratory for IOC operators and service companies where new technologies have been developed, refined and then used to the benefit of other projects
  - NOCs need to understand the provisions within their Production Sharing Agreements / Contracts and whether R&D is an allowable cost oil expense or IP generated for the benefit of the operator and / or its contractors
- The assessment of a project's viability at a particular point in time needs to take into account current and future revenues and costs
  - Historical costs should be treated as sunk and not form part of the decision-making process
- Some financial institutions, however, include sunk costs when estimating the breakeven oil price for individual projects. This may not reflect the economic realities facing the IOCs or NOCs

ADAPTATION:

Breakeven oil price (*continued*)

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- Many projects, especially in frontier regions, are likely to be cancelled in this new low oil price era. In turn, this will provide excess capital and create operational surplus capacity in the oil services sector, which will work to the advantage of companies that are still willing to take a long term view of the oil industry
  - Recent industry commentators have suggested that capital and operating costs are likely to decrease by approximately 20% - 30%, if not more
  - A breakeven analysis of a project's viability must factor in new lower levels of capital and operating costs as well as a lower oil price in order to be meaningful
- There has clearly been a major change in the market and its dynamics. NOCs should look carefully at the possibility of reopening PSA / PSC terms to address the following:
  - What are real costs of operations and what is allowable for cost oil?
  - How are benefits of any IP generated from a project treated? (particularly in frontier regions)

CONTACT DETAILS

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