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The Costas Grammenos Center for Shipping, Trade & Finance

Seventh City of London Biennial Meeting 2013

Three questions that keep me awake at night!

Three questions

- Will the price of gas in 2020 match current investment requirements?
- How can the investments of a non-operating (OBO) partner be better protected?
- How can asset liquidity be stimulated in a mature basin?

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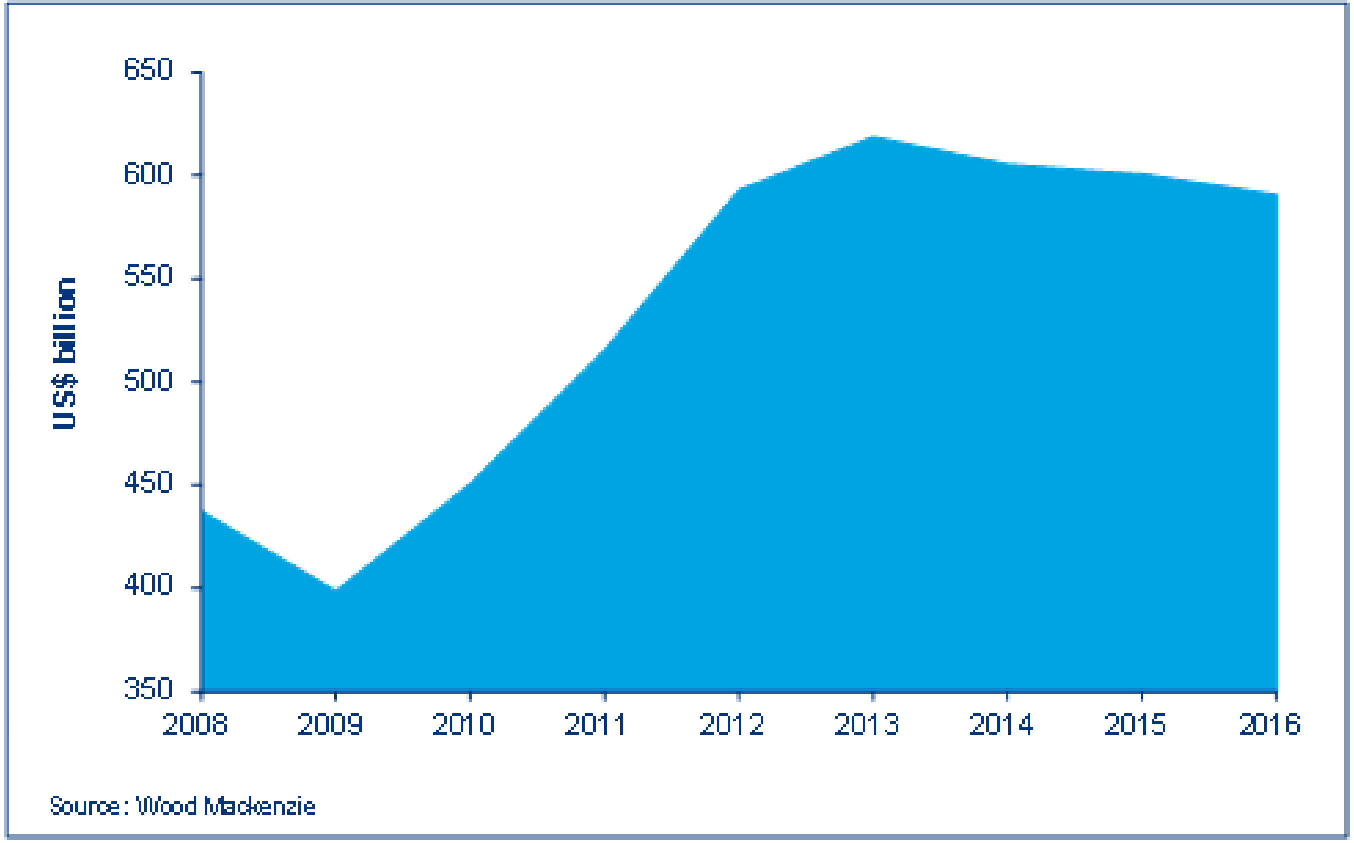
Context of these questions

- In 2013 OBO global capital investment was ca. £270Bn
- The largest global OBO is EXXON Corporation
- JX's UK Profit Centre is the largest OBO organisation in the UK
- JX is investing over $3.5Bn in the next five years in the UK
- Protecting – and hopefully adding value to- that investment is a key objective of the UK Profit centre

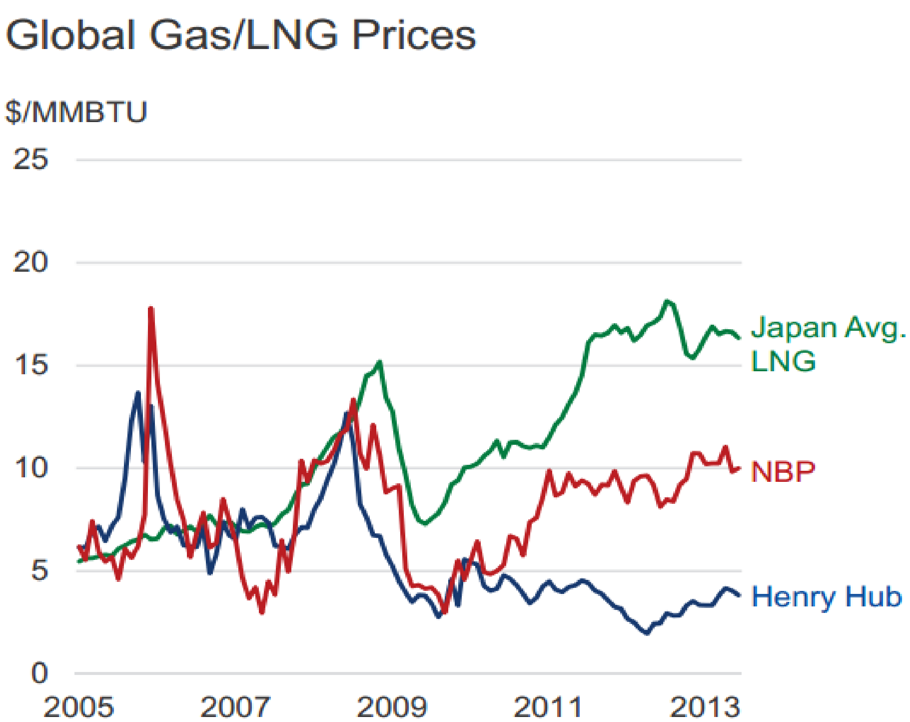
Actual and planned upstream capital spend : 2008-16



Will the price of gas in 2020 match current investment requirements?

- The world is awash with gas
- Conventional, shale gas, CBM
- $350Bn will be invested per year for the next five years
- Today there are wide regional variations
- Will these differentials persist into the Third Decade when current investments are at peak production?

Will the price of gas in 2020 match current investments requirements?



Regional price differentials cannot survive with this level of investment

A globalised gas price will be lower- possibly much lower

Will the price of gas in 2020 match current investments requirements?

- **Is lower prices good for everyone?**

- Not if you are a gas-producing country or a gas-investor!

- Culzean gas field is 1.5TCF of gas in the Central North Sea – in 2020 it has the ability to supply 10% of UK gas
- It will generate tax revenues of $3bn and reduce the BoP for the UK by $1.5bn/year for at least five years
- Now multiply that by 10 for the full impact on the Treasury

Will the price of gas in 2020 match current investment requirements?

- My bet is that a globalised gas prices will not globally slip below $8/Mmbtu- based on assumptions for NA LNG

- …..but there is a growing concern; and this could damage the confidence to invest further in large gas projects

- Without continuous investment we run- eventually- the risk of breaks in supply

- The path to gas globalisation will not be smooth!

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How can the investments of a non-operating (OBO) partner be better protected?

- The rights of OBO's to timely information has always been a contentious issue

- In Upstream Oil and Gas our rights are protected in Joint Operating Agreements- but enforcing these is very difficult

- Access to timely information relies to a large extent on the goodwill and foresight of the Operators

- When problems arise the OBO is often the last to know

How can the investments of a non-operating (OBO) partner be better protected?

- *Why is this such a concern?*

Costs

- Between 2008-12 Greenfield Projects over ran, on average, 30%; Brownfield projects 50%. These numbers may be light!

- The problem is now so serious that with 'non-transparent operators' a cost premium has to be added (P90 costs are used)

Safety

- Waiting for HSE notices and enforcements orders is too late
- What did the Macondo partners know? What did they do?

How can the investments of a non-operating (OBO) partner be better protected?

- What is being done?

Proactive OBO Management System

- Transform the OBO business into a proactive organisation that not only protects but adds value
- Become an essential part of the problem solving with the Operator

Insurance and Government action

- Macondo was a disaster for everyone
- A well-informed OBO could have mitigated the risk to some extent
- Insurance and government action to insist on transparency and time

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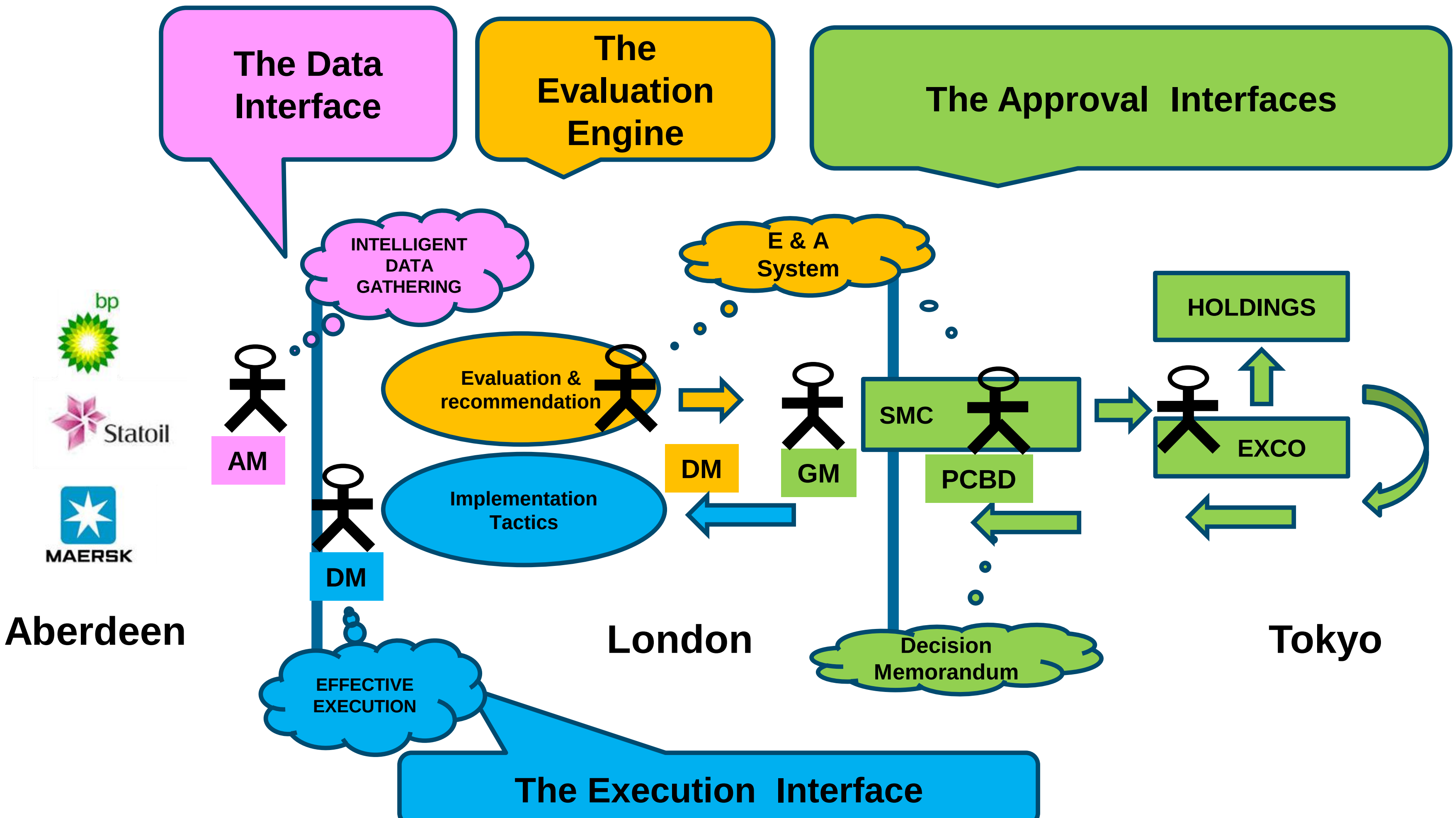

How can asset liquidity be stimulated in a mature basin?

- It is a common problem in many mature businesses that the strategies of original entrants (‘harvest’) and new entrants (‘growth’) clash

- The problem for oil and gas basins is that the original entrants typically control the infrastructure that the new entrants have to tieback into (Brownfield activity).

- Under these circumstances the big operators control the cost and schedule of tiebacks but have ‘no skin-in-the-game’

How can asset liquidity be stimulated in a mature basin?

- This is a particularly serious problem in the UK North Sea where the original entrants- mainly the Supermajors- have been hanging on for too long; they don't explore and only invest in the few remaining highly commercially attractive project- that any oil and gas company would invest in

- The basin has 20Bnboe (ca $1.4Tn off the BoP) still to exploit but the scale and risk-return on the investments are below the cut-off of the original players

- The problem is doubly problematical in that a large part of the remaining recoverable lie beneath the platforms that the original players control

How can asset liquidity be stimulated in a mature basin?

- When the original players are displaced- Apache replacing BP in Forties- the field and the basin re-vitalised. Apache recovered a further 100mmbbl ($8bn off BoP)

- But tying-back to much of the infrastructure is now too risky for the new entrants- either projects are abandoned or more expensive Greenfield solutions have to be sought

- In the case of the North Sea, successive HMG's have tried to stimulate change through fallow field initiatives. Ironically the recent DRD's may also help to un-lodge the orginal players

How can asset liquidity be stimulated in a mature basin?

- But change is slow because the original players have other interests that make departure difficult but they still dominate all committees- including the Industry Representative body UK Oil and Gas.

- There needs to be something more radical… but that requires a clear oil and gas strategy and a proactive government

Sleeping remedy?

In all three issues raised today, the role of government and its civil service are critical for the efficient exploitation of hydrocarbons- particularly in the mature phase that the majority of the OECD (low political risk) basins are now at.

Macondo occurred partly because of lax regulation and while reducing government cost is an understandable objective during austerity- this can go too far with unexpected consequences

I will sleep better if I thought that the excellent oil and gas team we have in DECC were better funded and supported than is currently the case.