

Oil & Gas: Frontier Issues Competition for New Supplies

IAEE 26th Annual Conference

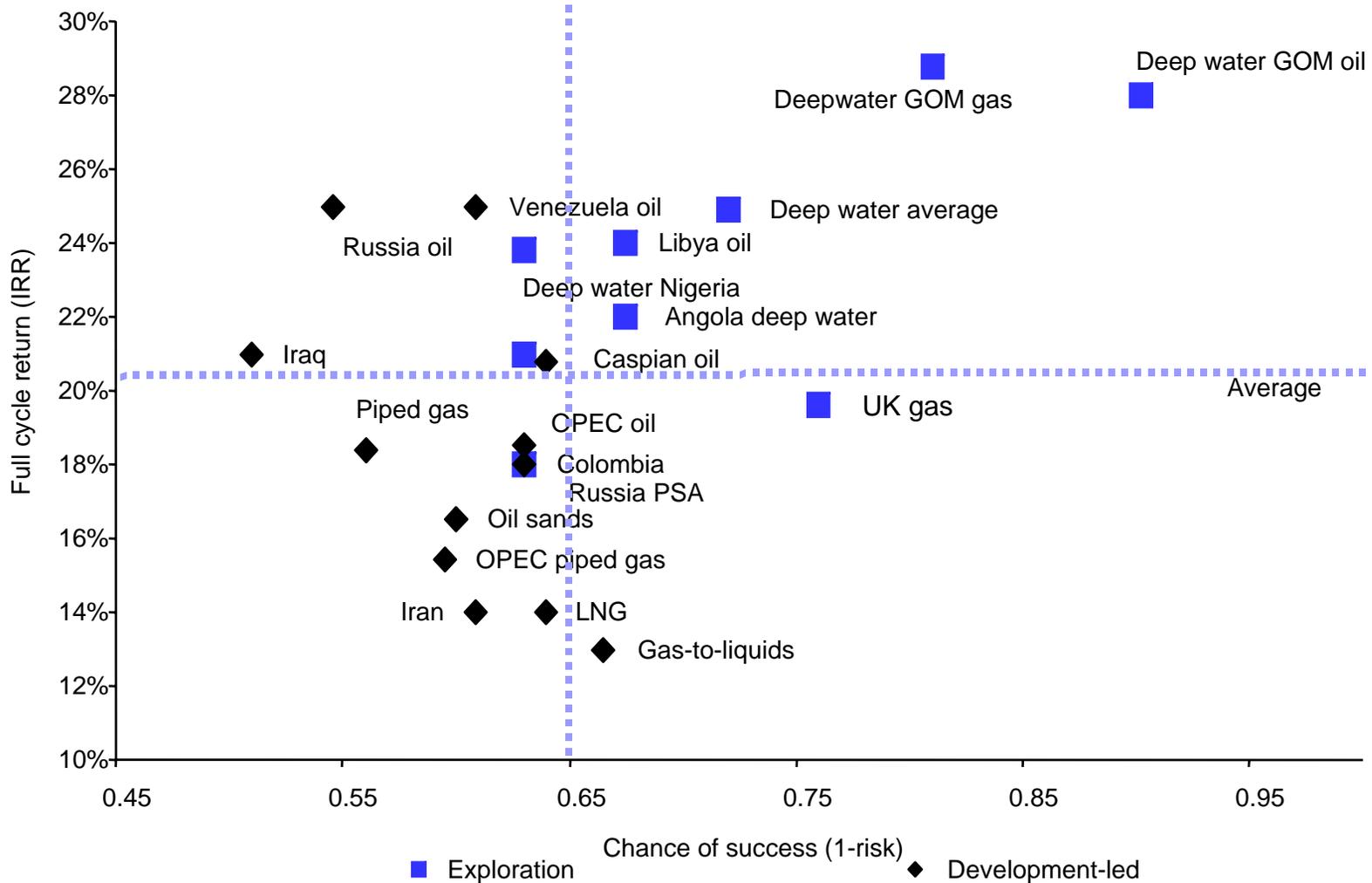
Prague

7 June 2003



Adam Sieminski
Deutsche Bank

Frontier Oil & Gas: Balancing the Risks



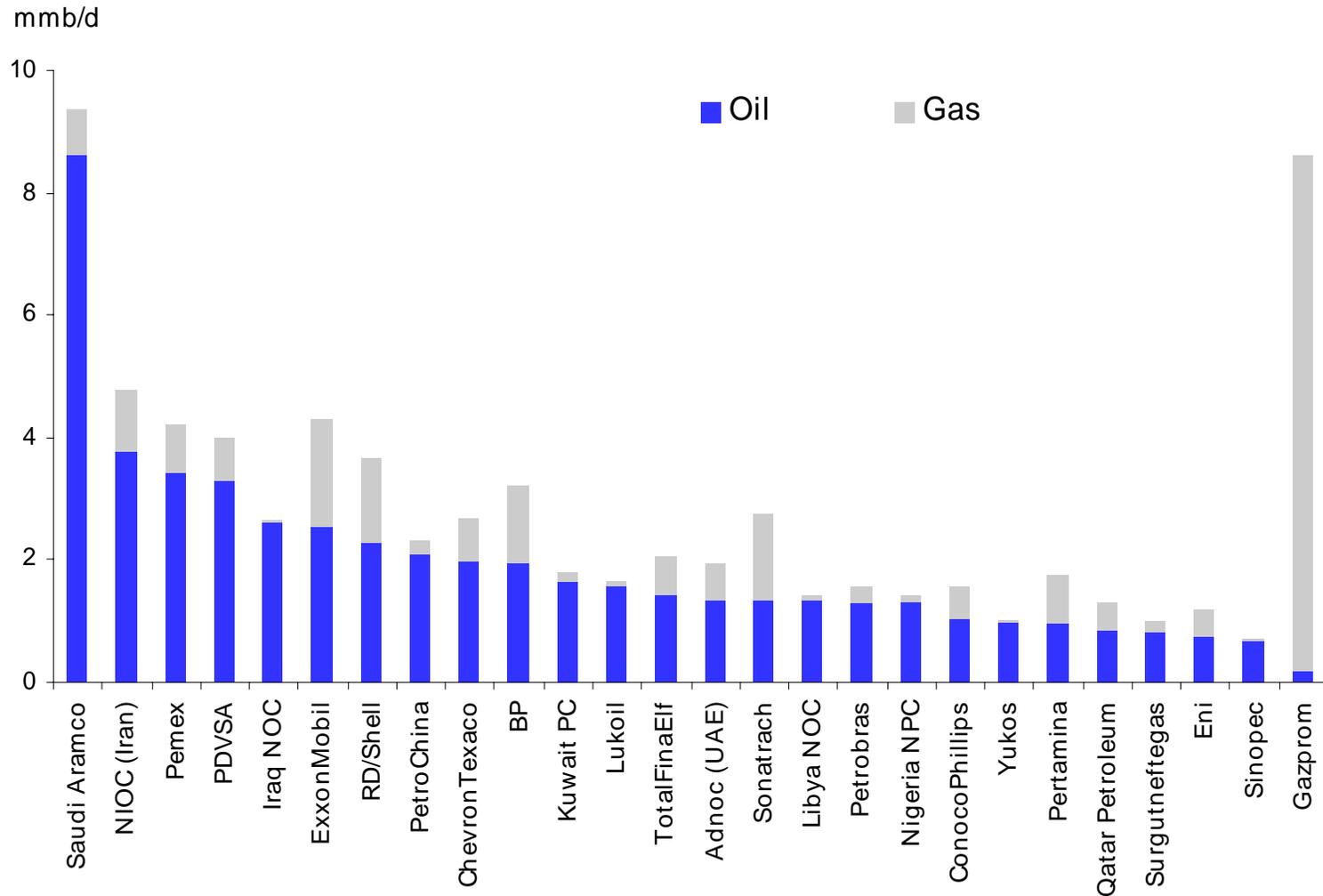
Source: Company reports; Deutsche Bank estimates

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Oil: Who Produces More Than One Million b/doe

...super-majors lagging the national oil companies

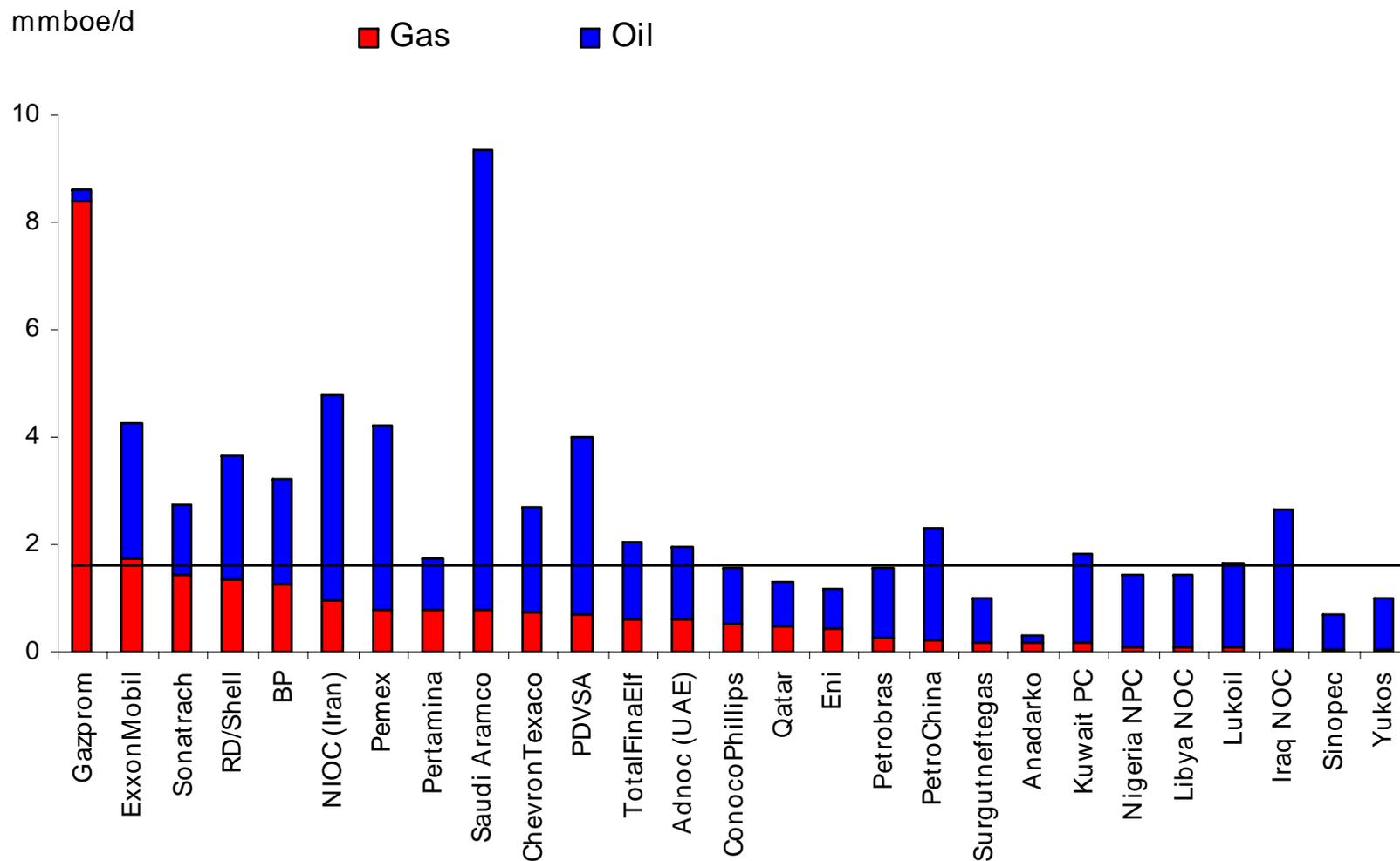


Source: PIW; Deutsche Bank estimates



Gas: Who Produces More Than One Million b/doe

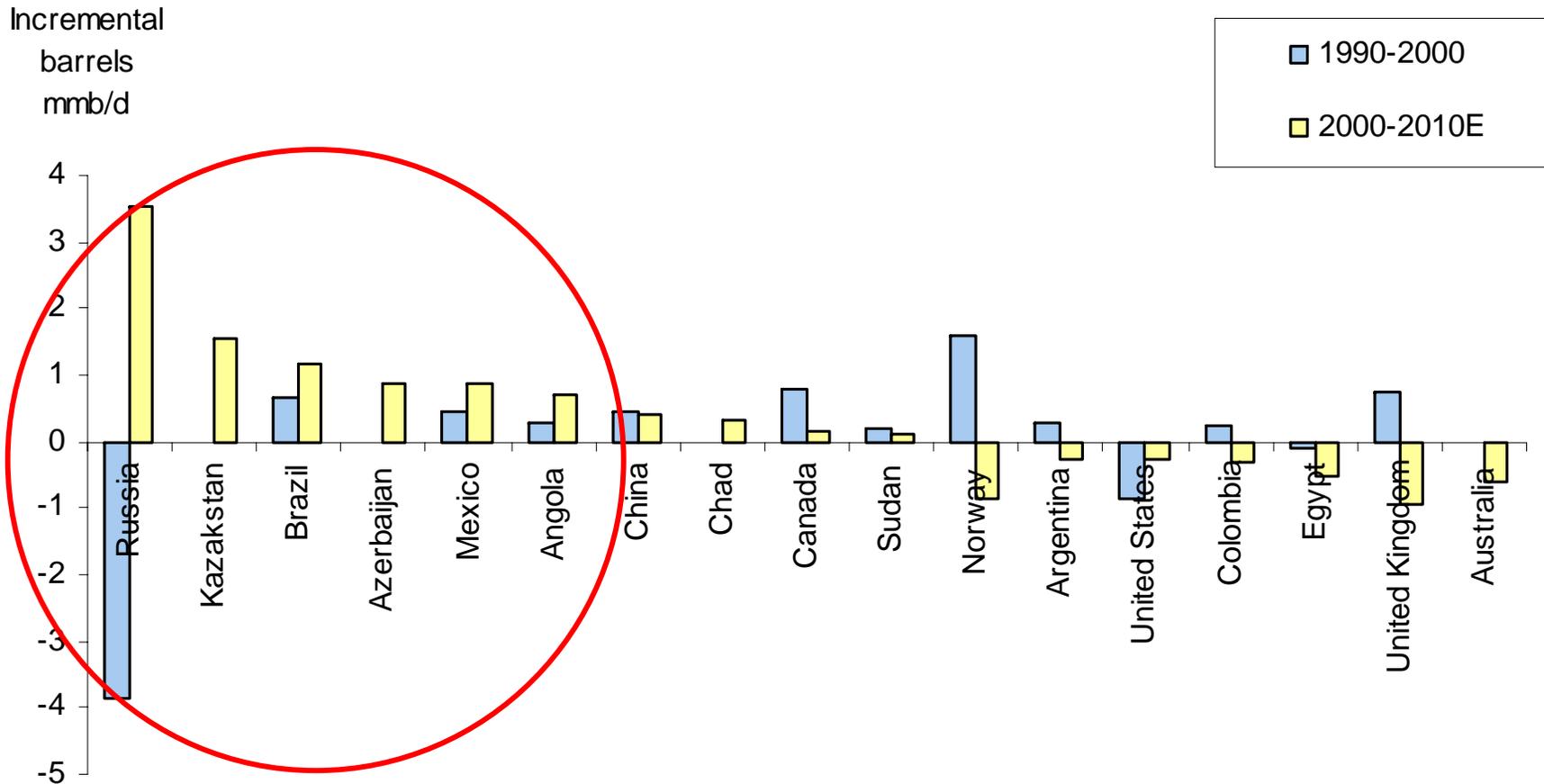
...national oil companies lagging the super-majors



Source: PIW; Deutsche Bank estimates

Non-OPEC Production Grows Strongly this Decade

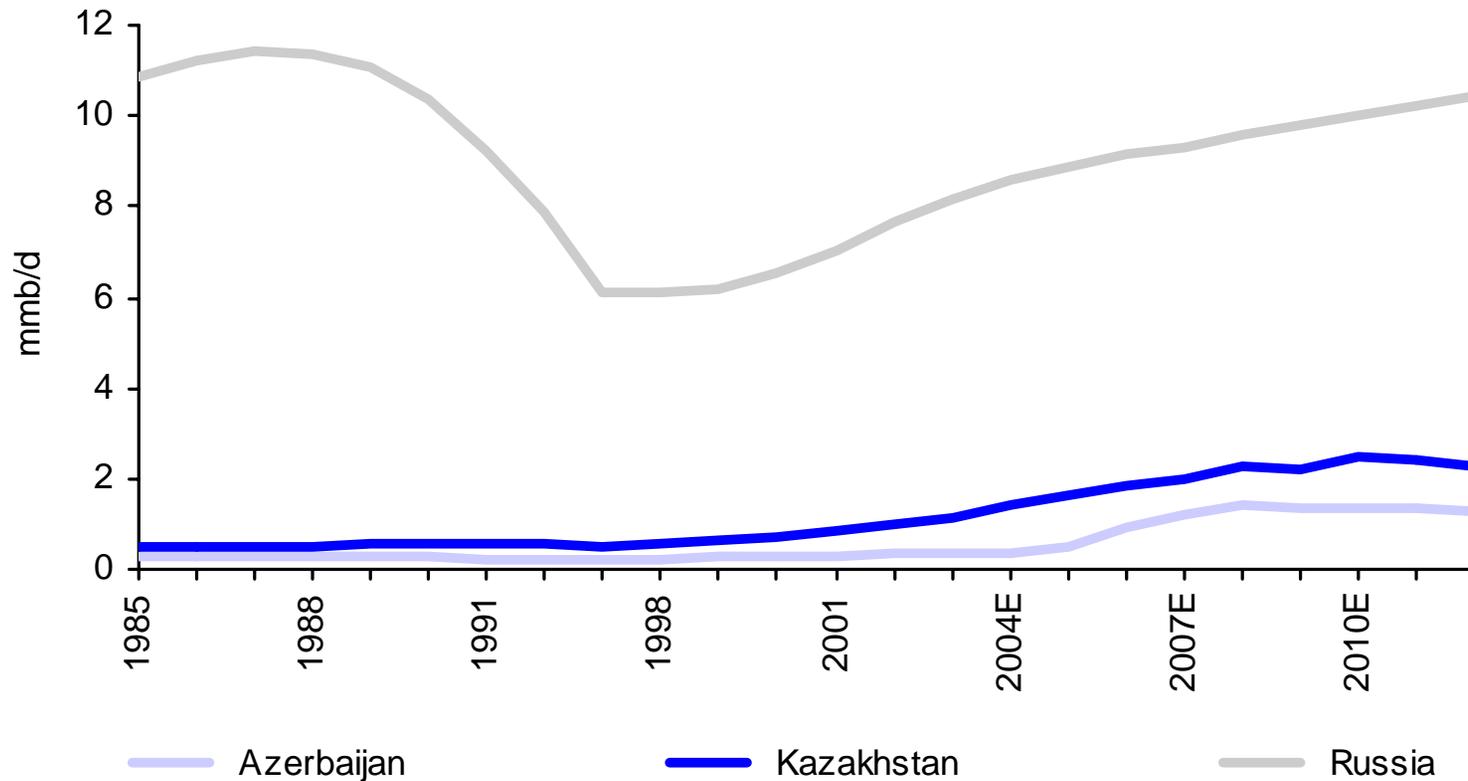
...but political risk is rising with new market entries



Source: IEA; Deutsche Bank estimates

Russia, Azerbaijan and Kazakhstan

...projected steady increases from the old Soviet frontiers

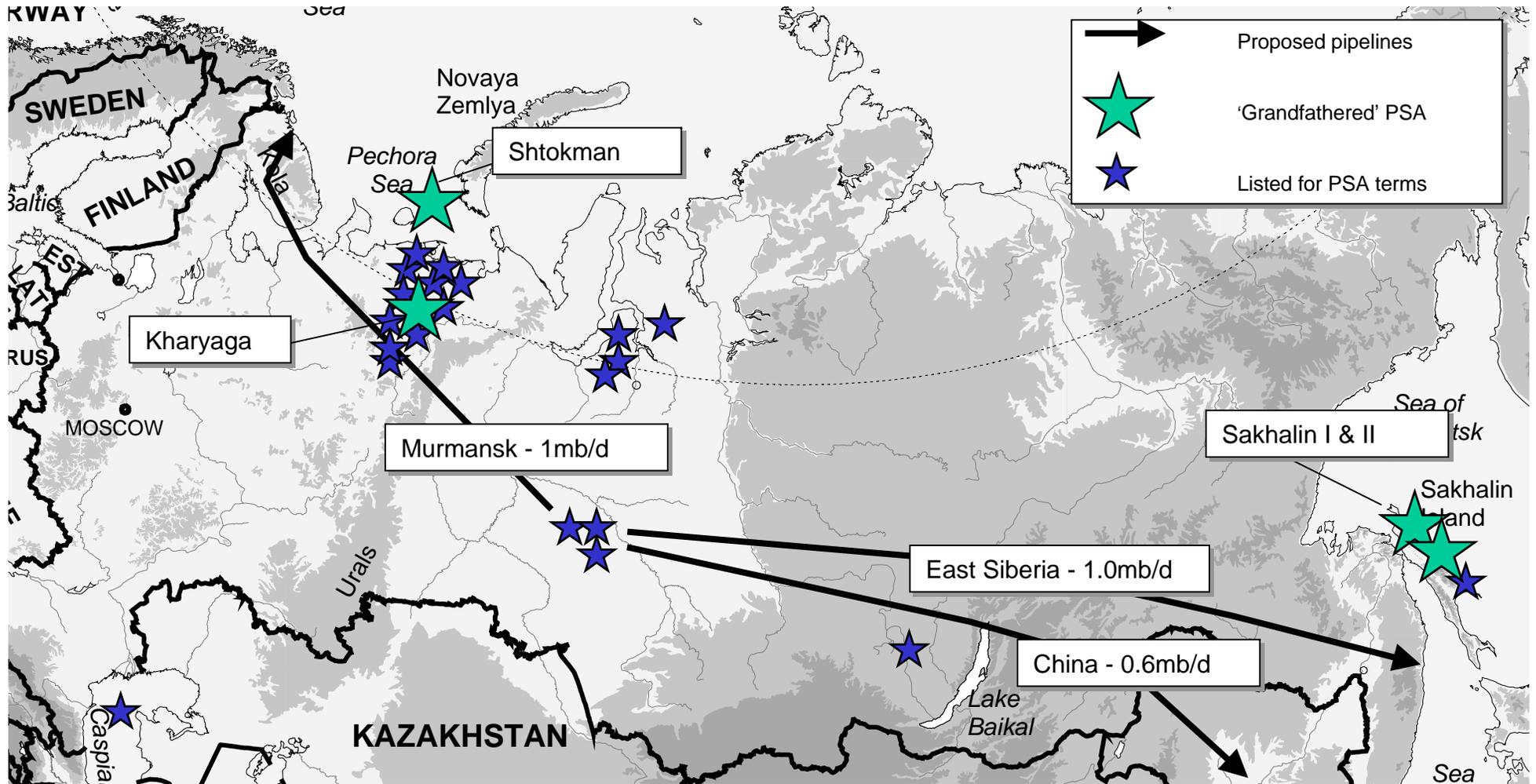


Source: IEA and US DOE/EIA (historical); Deutsche Bank estimates



Russia's Long-term Export Capability

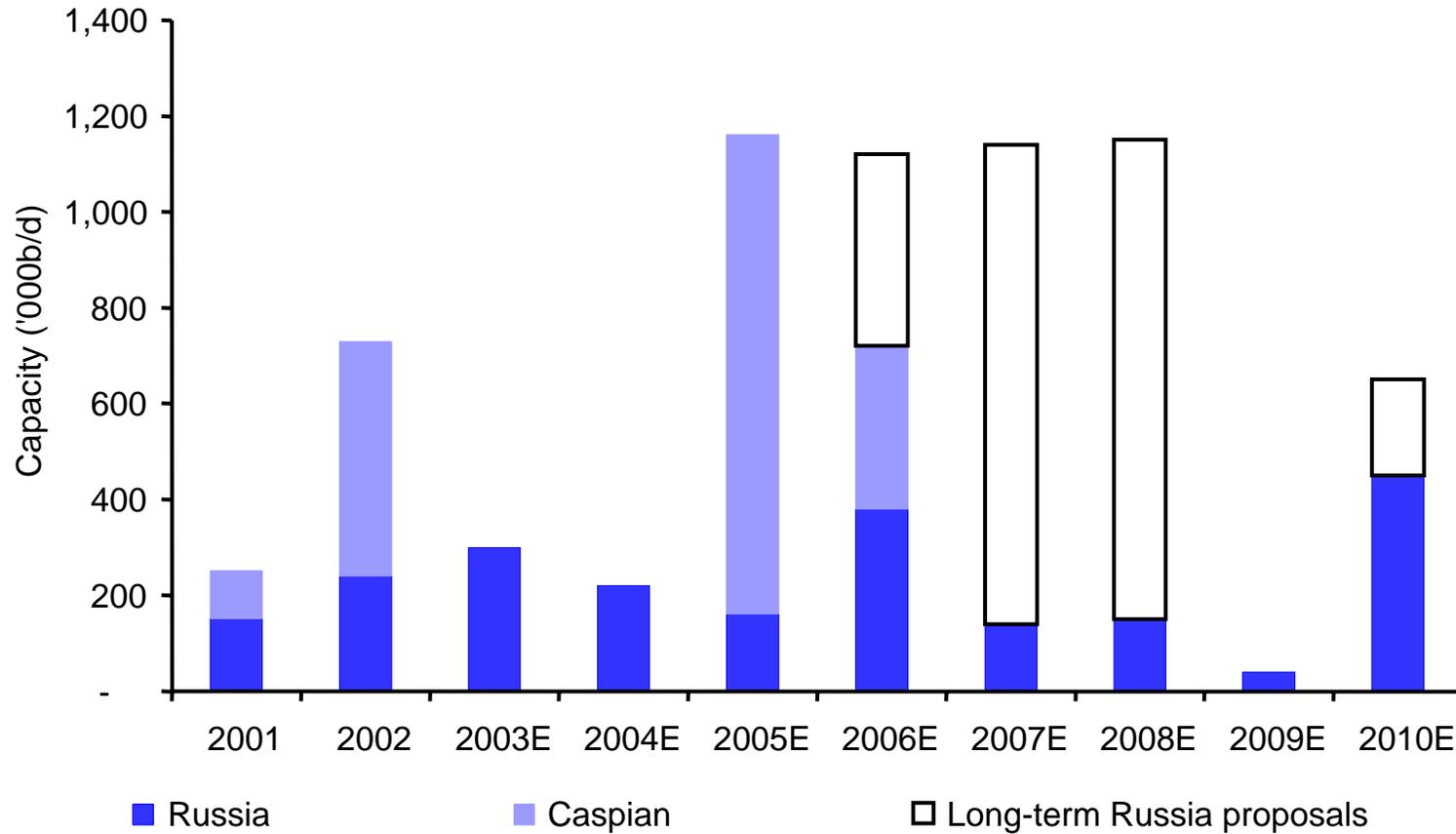
...new fields, new pipelines



Source: Company reports; Deutsche Bank estimates

Russia's Export Capacity Growth

...no let-up?

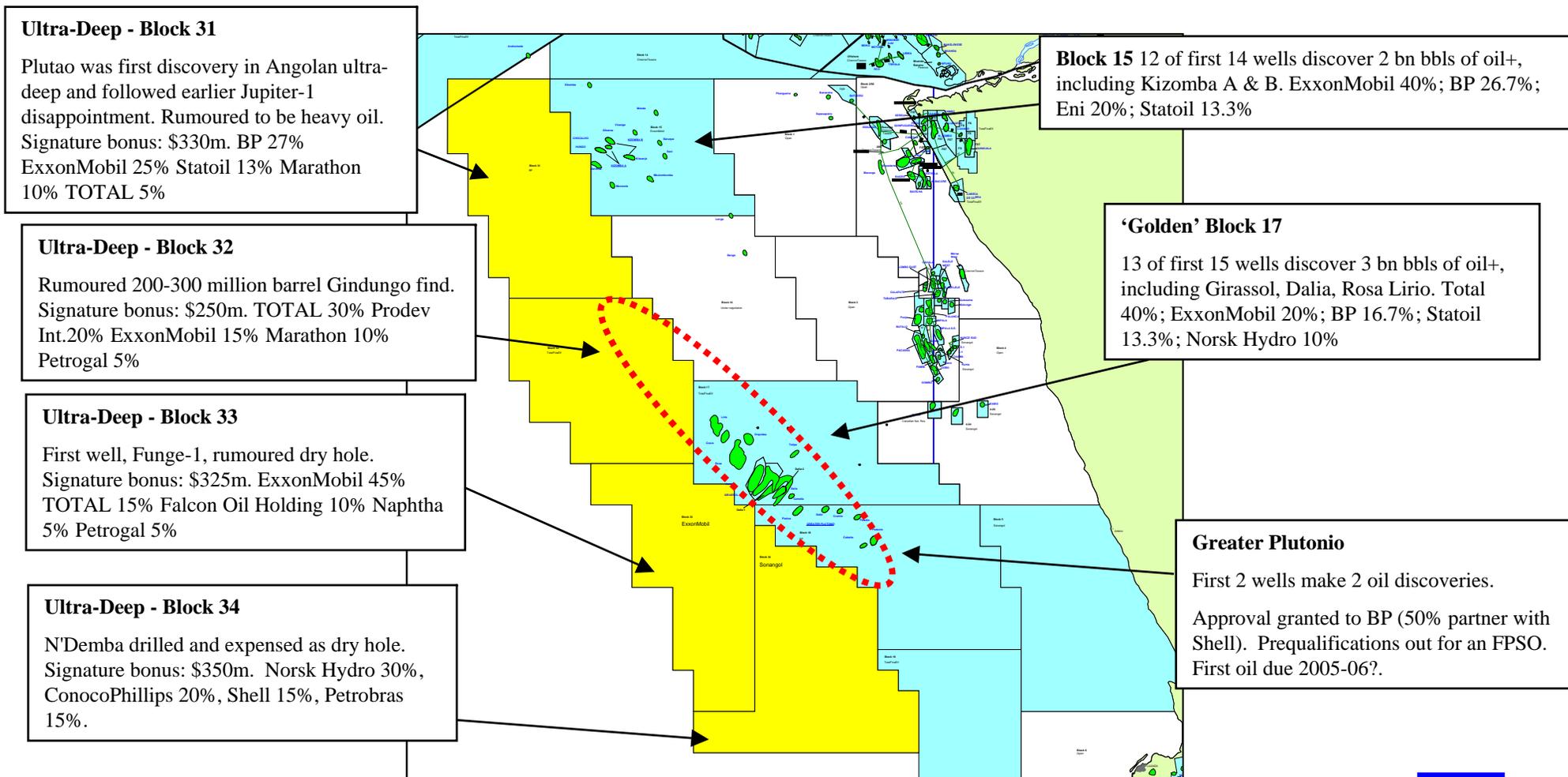


Source: Company reports; Deutsche Bank estimates

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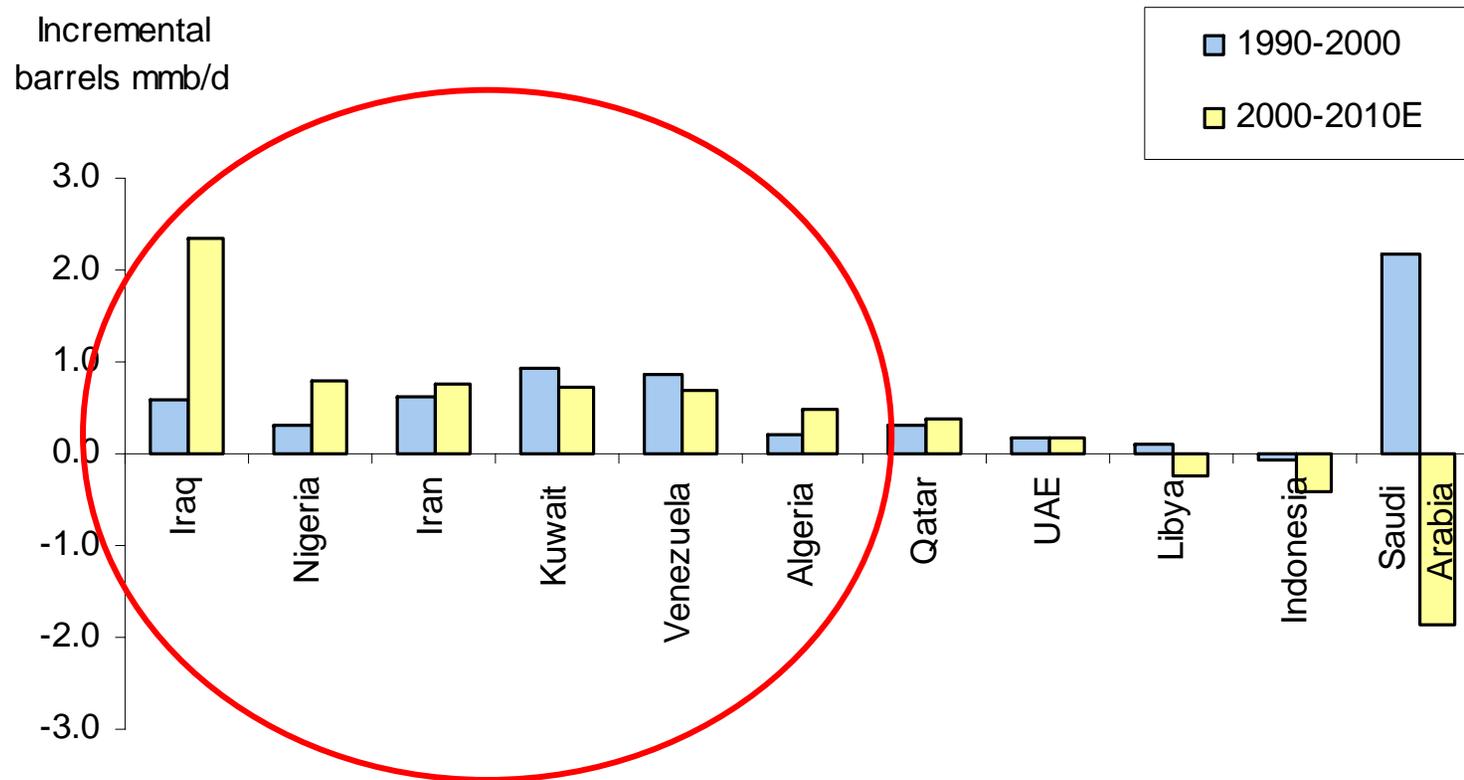
Deepwater Angola - Differentiated Results



Source: Deutsche Bank estimates, Wood Mackenzie

Bi-Polar OPEC Production Growth for this Decade

...is this acceptable to Saudi Arabia?

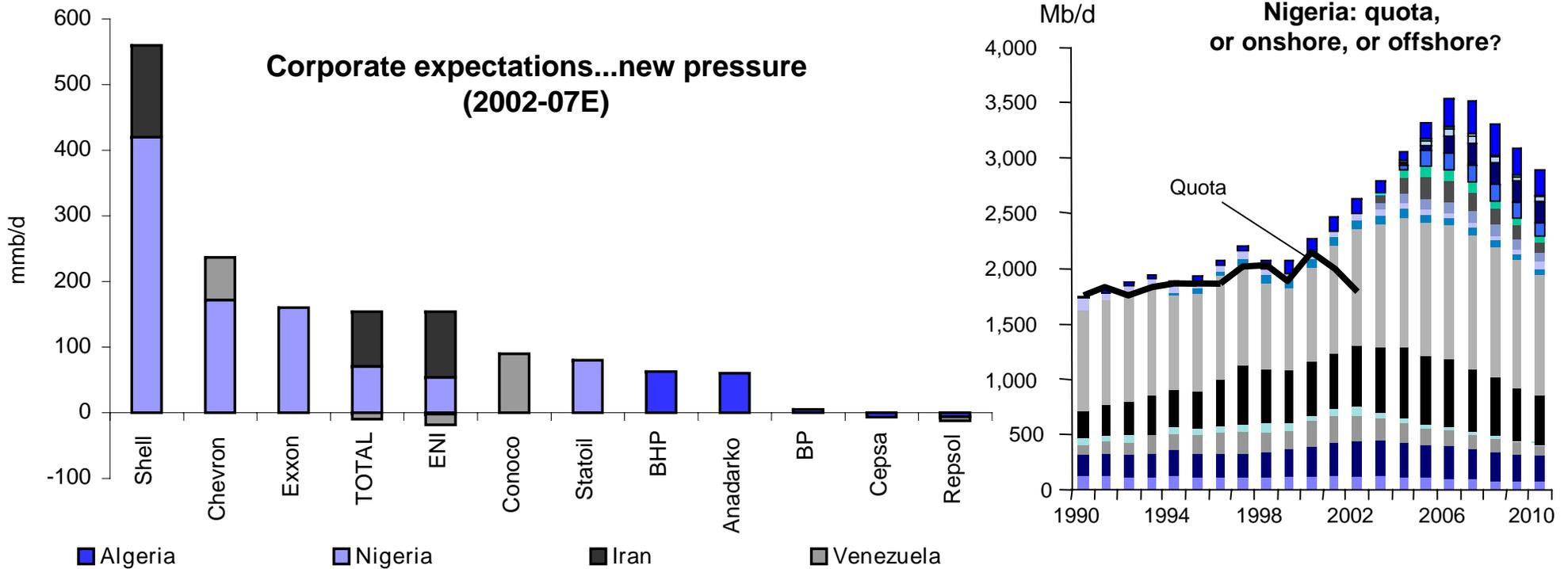


Source: IEA; Deutsche Bank estimates



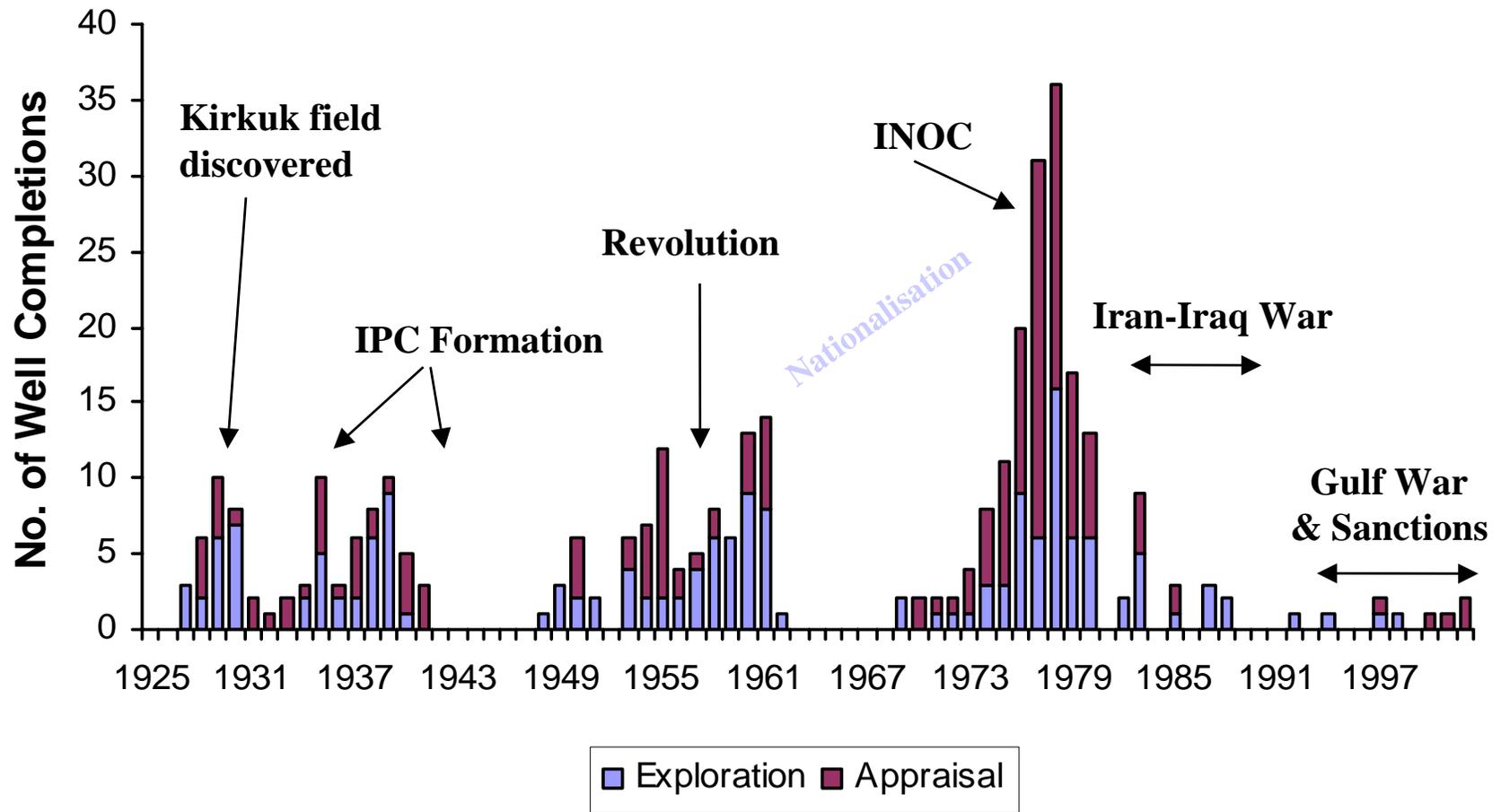
Emerging OPEC: Big Volume Potential

...but beware the quota conflict



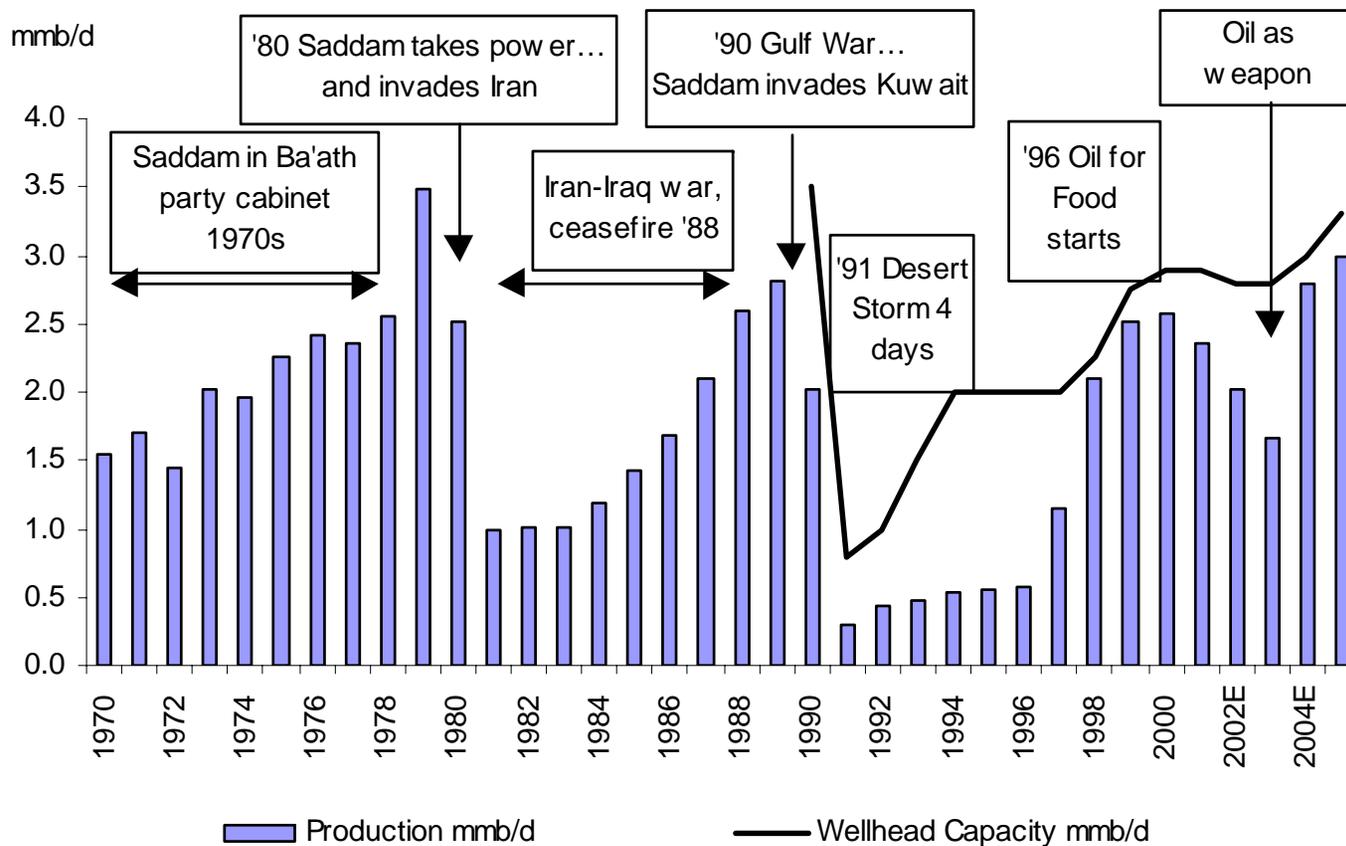
Source: Deutsche Bank estimates

Iraq Has a Long and Volatile History, With Industry Decimated by Conflict Since 1980



Source: Wood Mackenzie

Saddam and Iraq - Back to the 1970s?

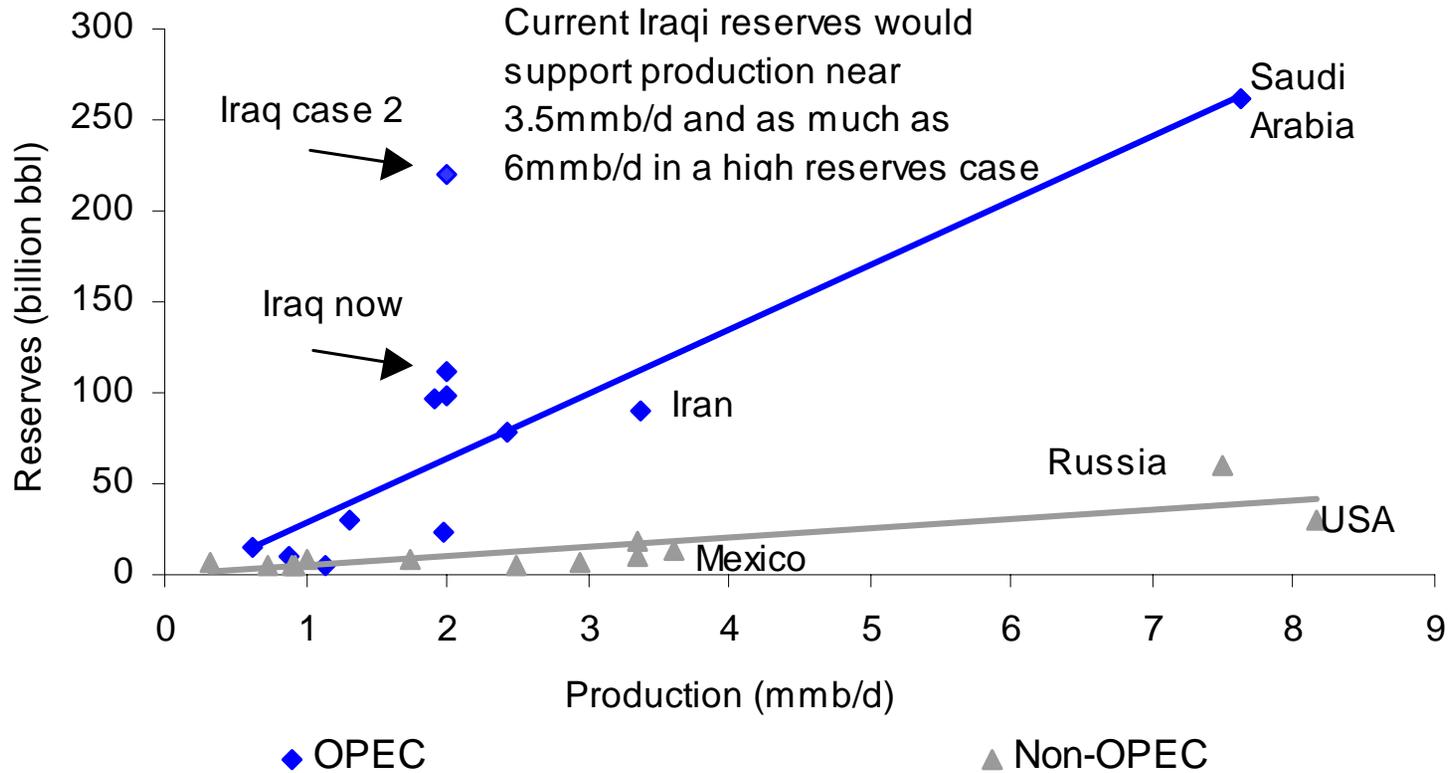


Source: US DOE, IEA, Deutsche Bank estimates



Oil Production Supported by Reserves

...OPEC produces below its potential compared to non-OPEC countries

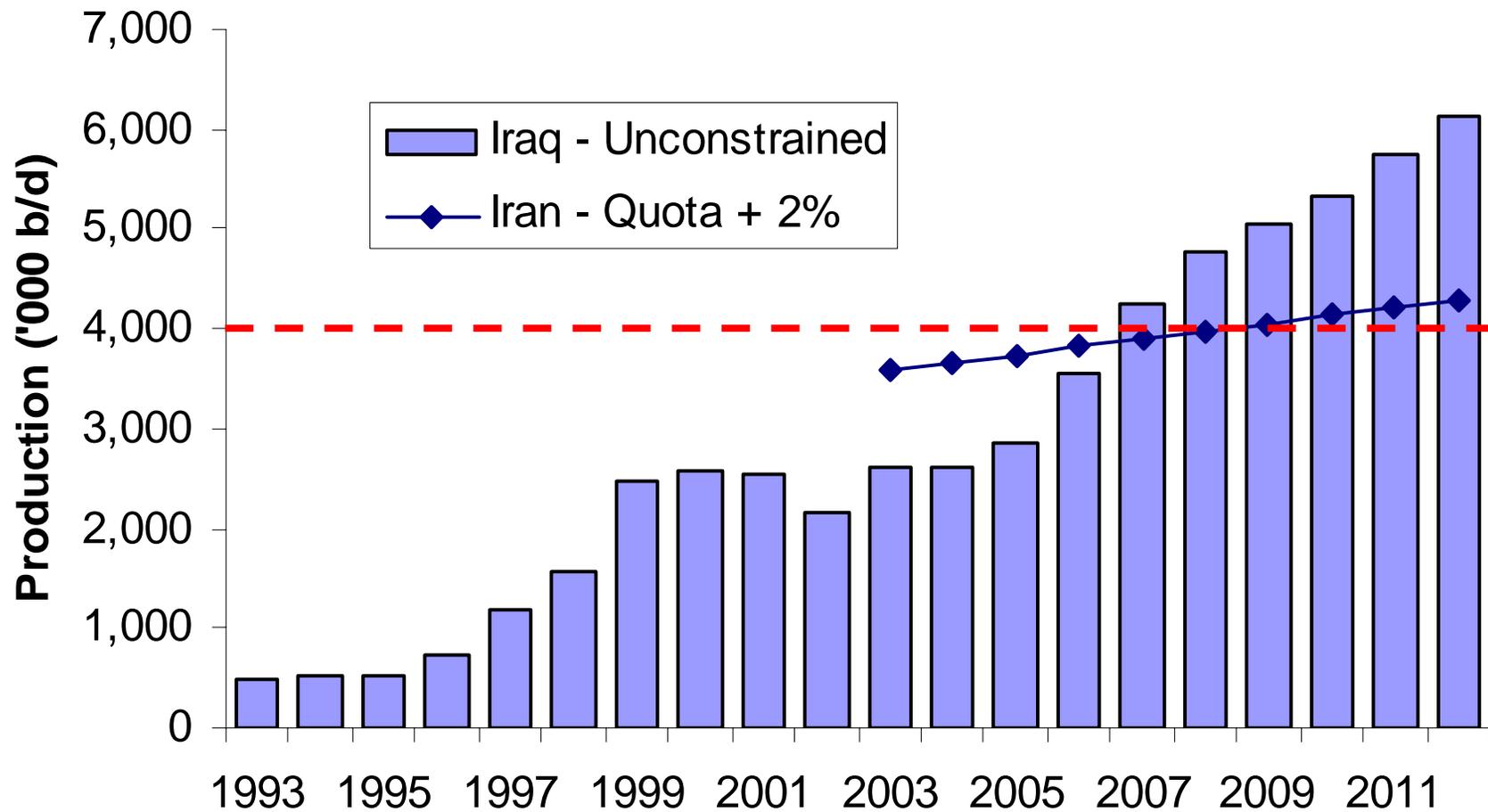


Source: Oil & Gas Journal; BP; IEA; Deutsche Bank estimates



Production is Likely to be Constrained by OPEC

...4 million b/d is a reasonable expectation

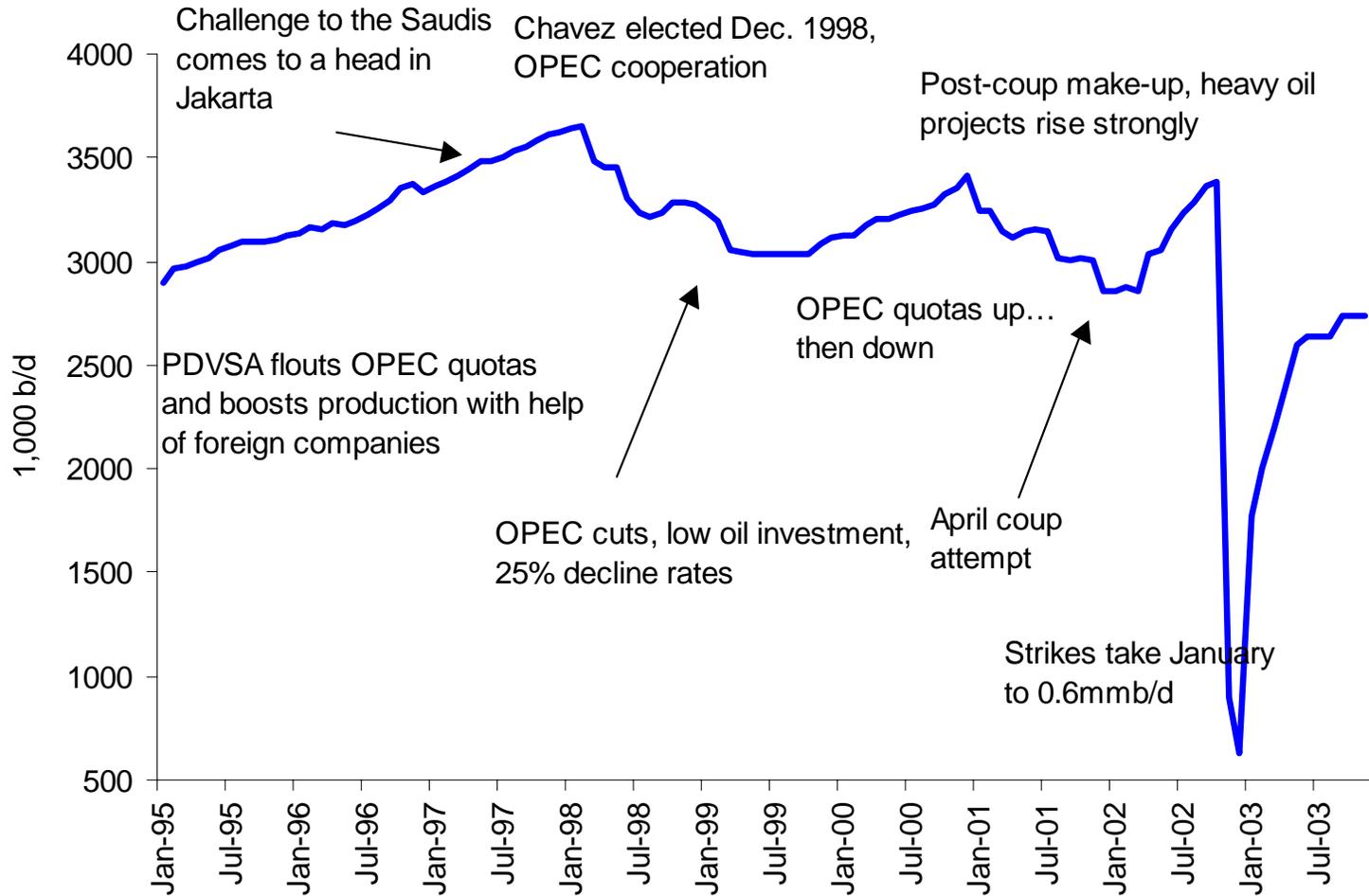


Source: Wood Mackenzie



Venezuela Production Has Been Volatile

...slipping on investment cutback and quotas
...rising after first strike, but devastated by second strike

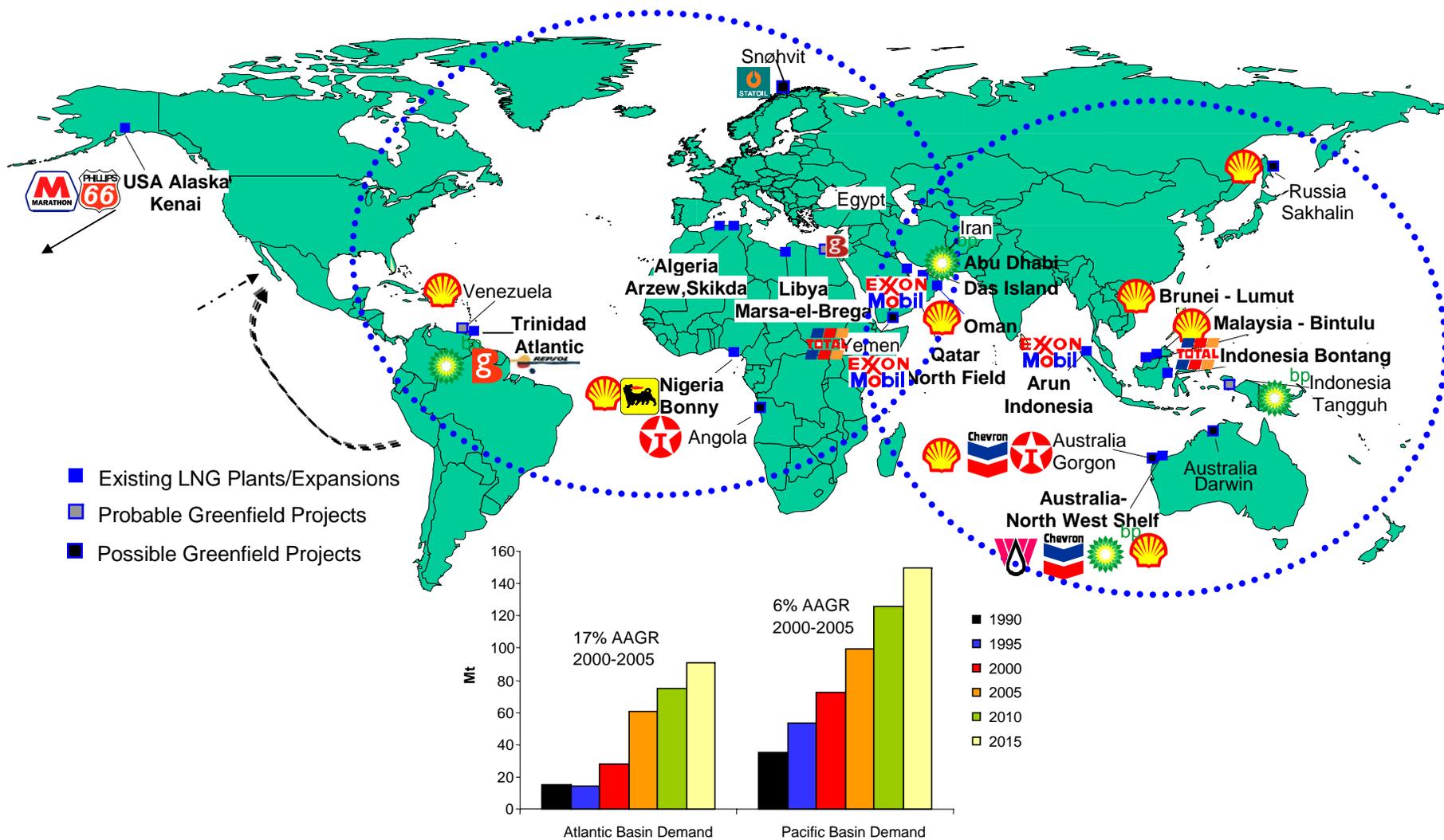


Source: IEA, Deutsche Bank

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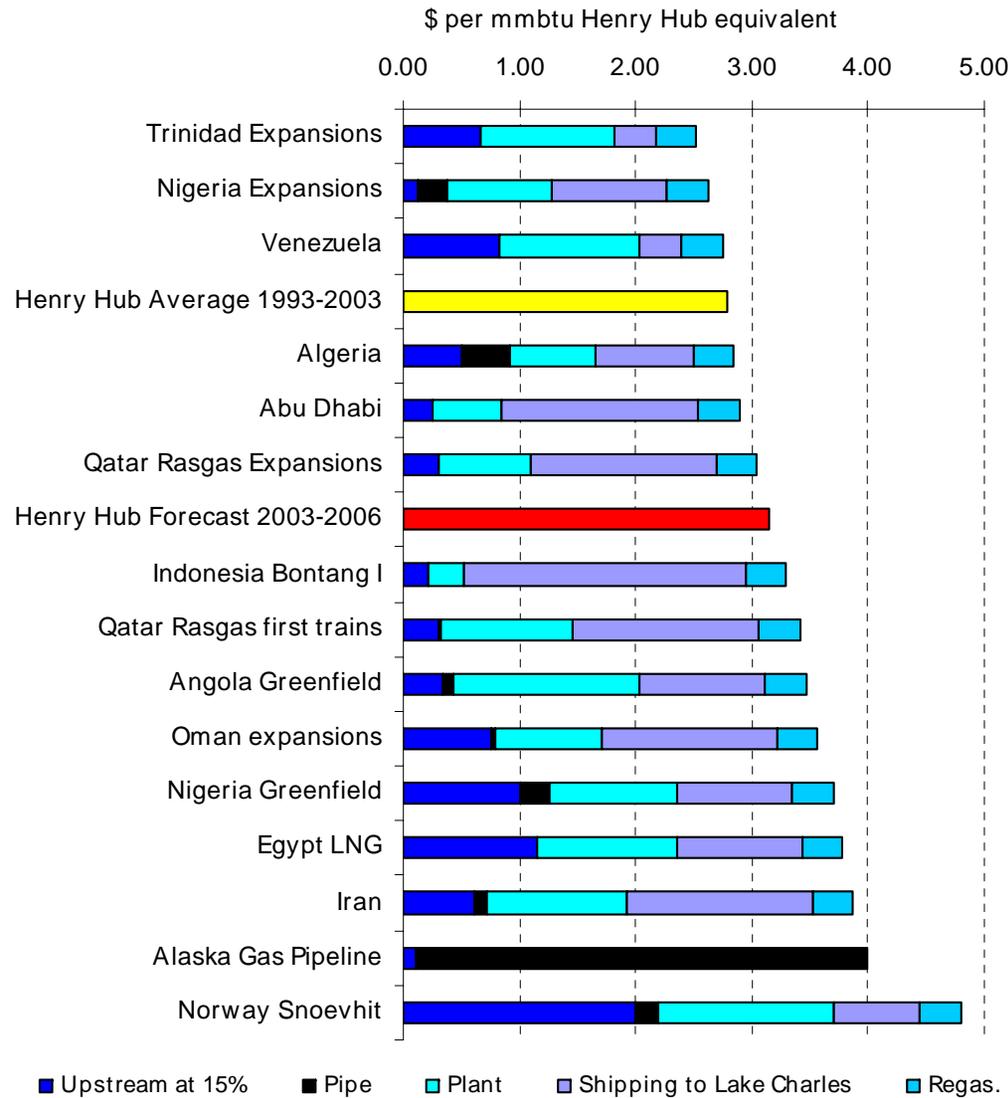


Where Is LNG? Global Supply: Two Regional Basins



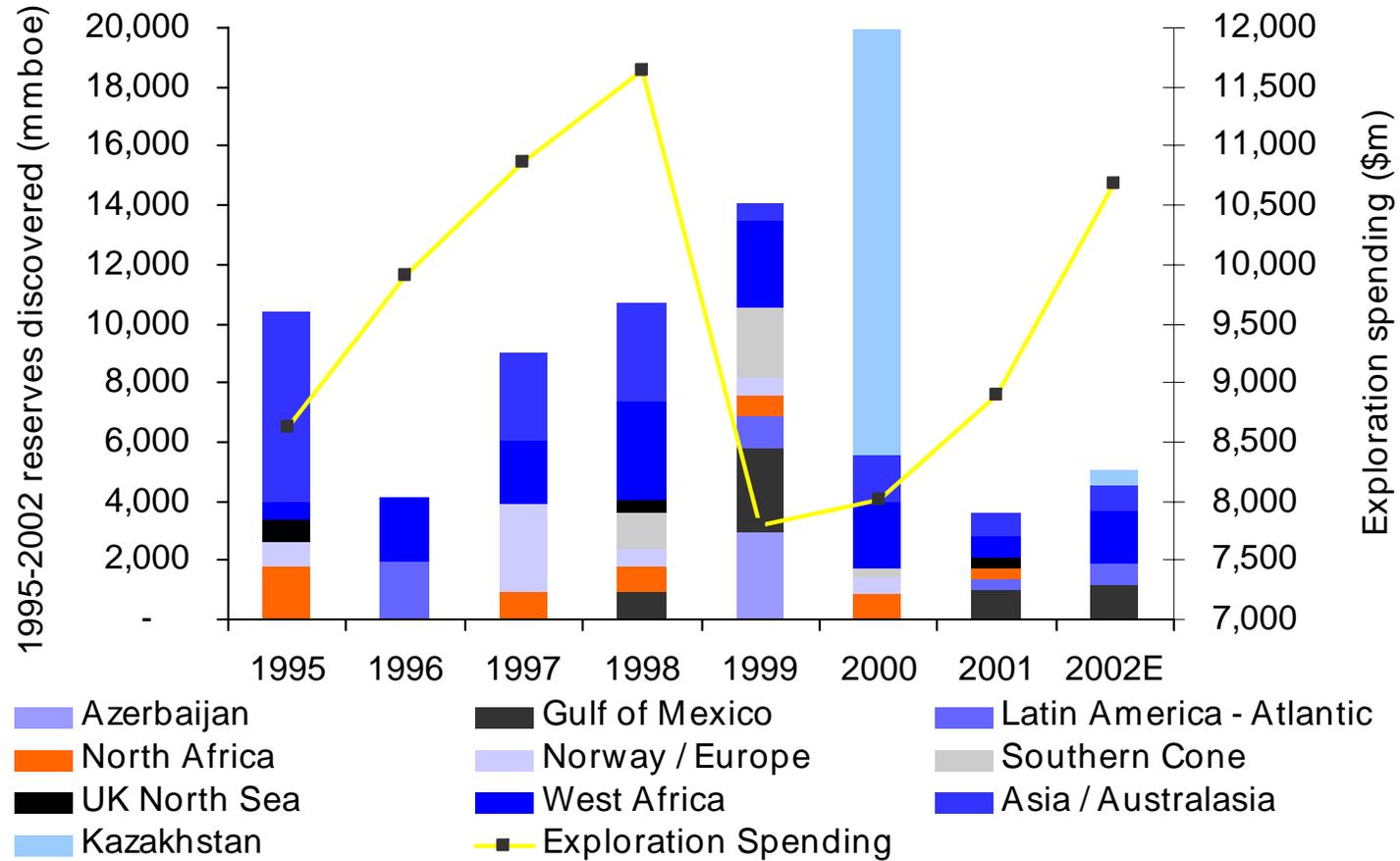
Source: Deutsche Bank estimates, Company data, Wood Mackenzie

LNG is Cost Competitive ... and there is 1000 TCF



Exploration Success

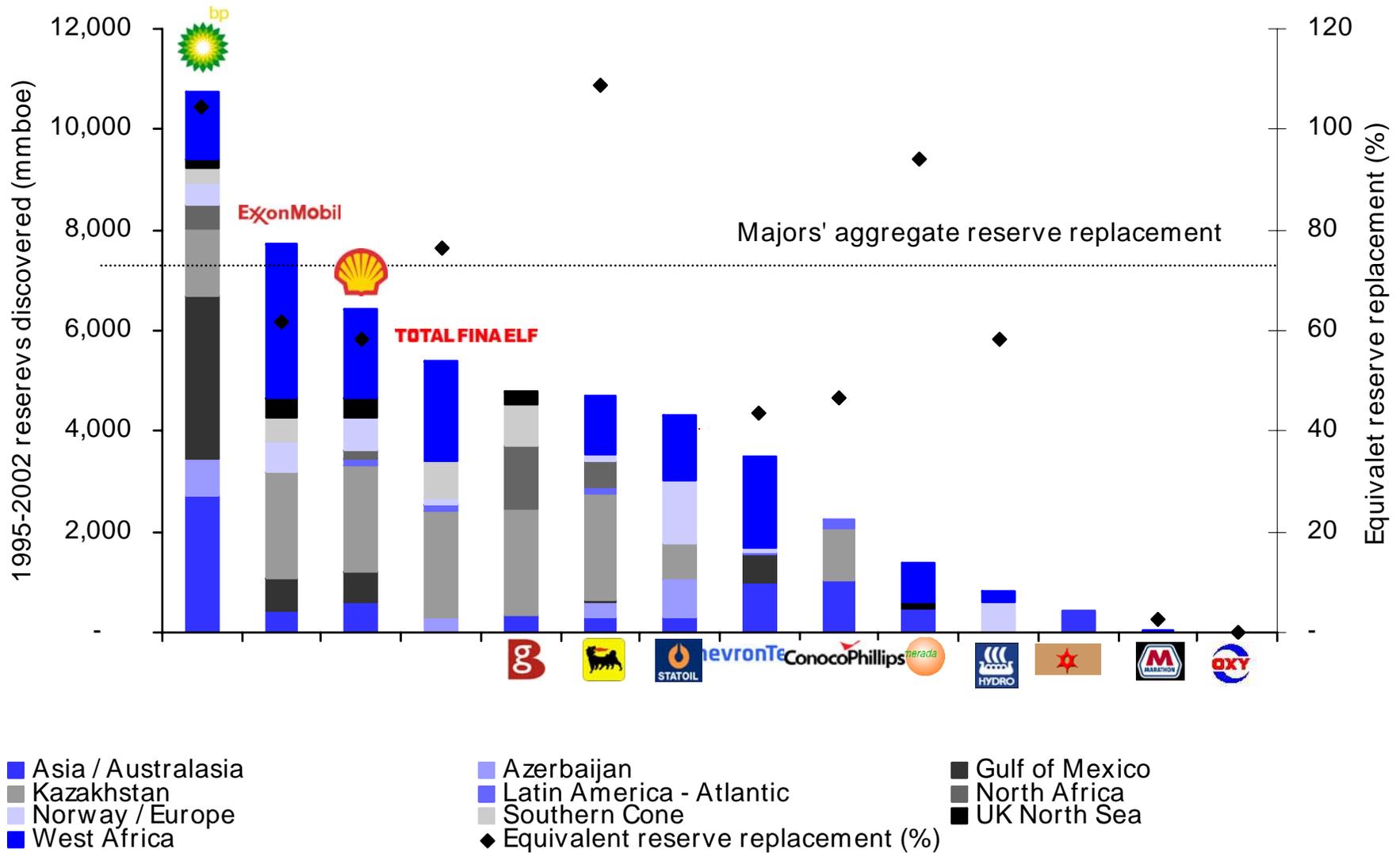
...boom and bust since 1995



Source: Company reports; Deutsche Bank estimates



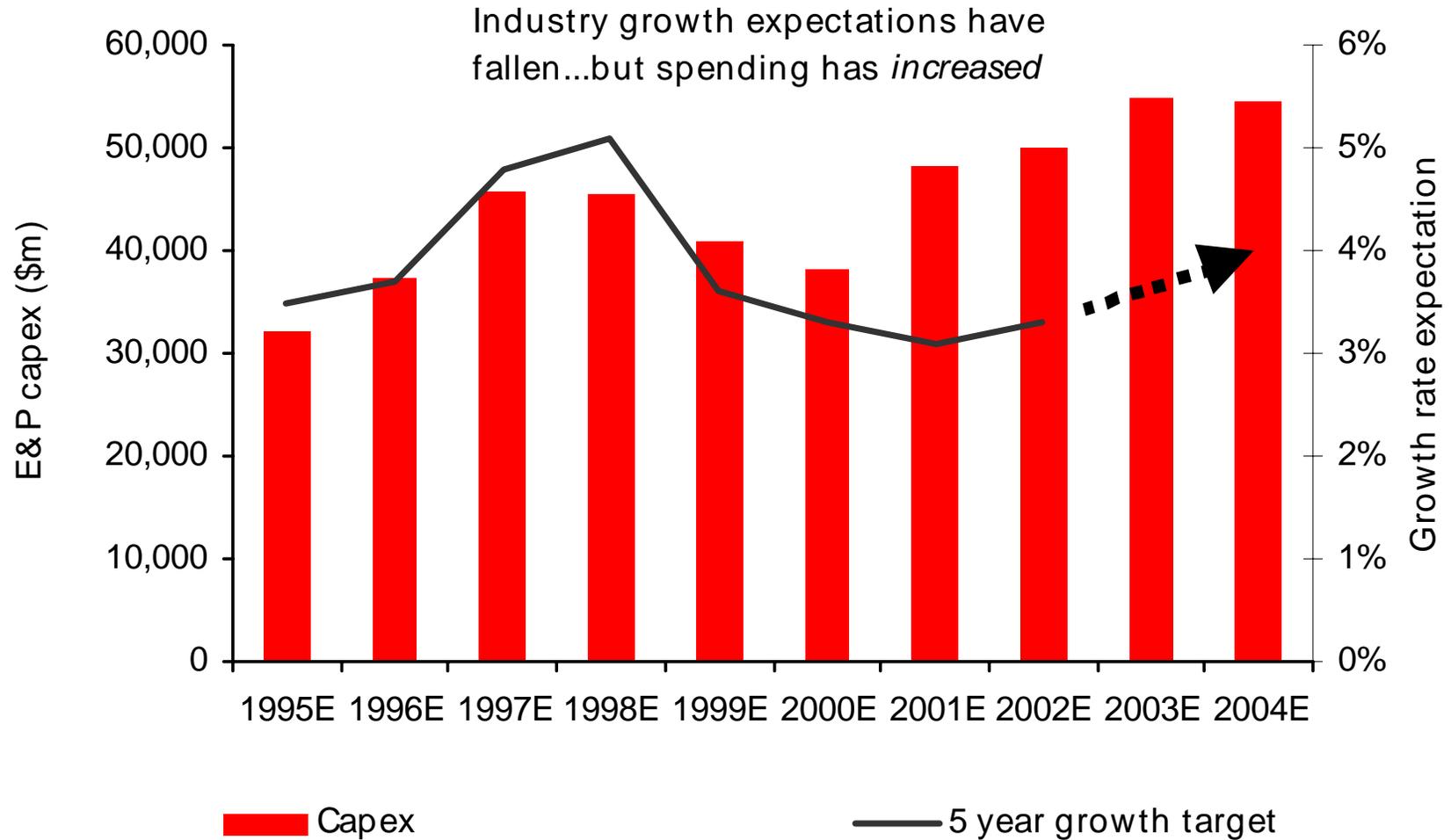
1995-2002 - Who Were the Key Explorers?



Source: Company reports; Deutsche Bank estimates

Growth Plans Reflect New Pragmatism on Cost and Pace

...spending back at mid-90s' levels but for lower growth

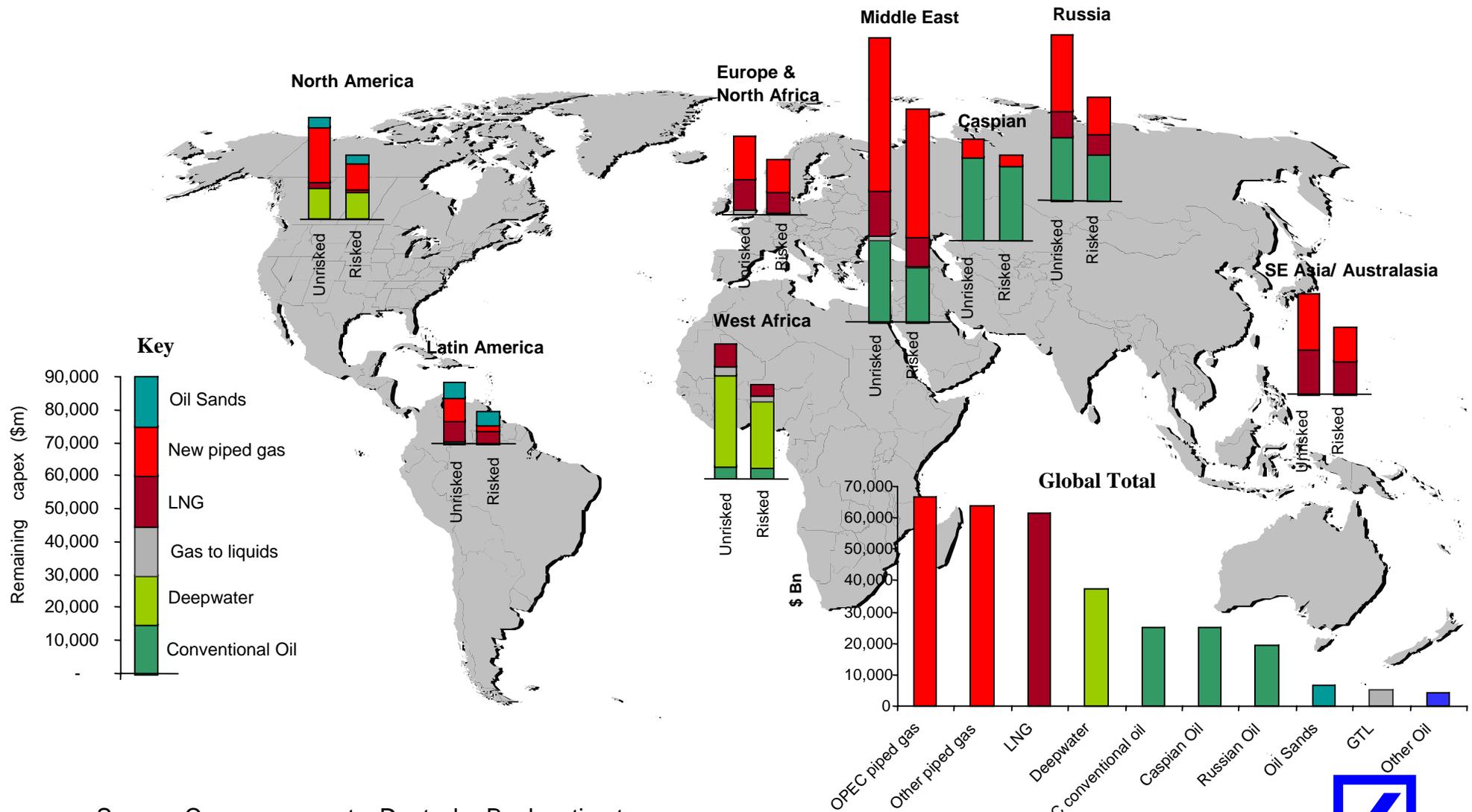


Source: Company reports; Deutsche Bank estimates



Intense Competition for New Upstream Hubs

...global options for the largest players, scale risk for mid-caps

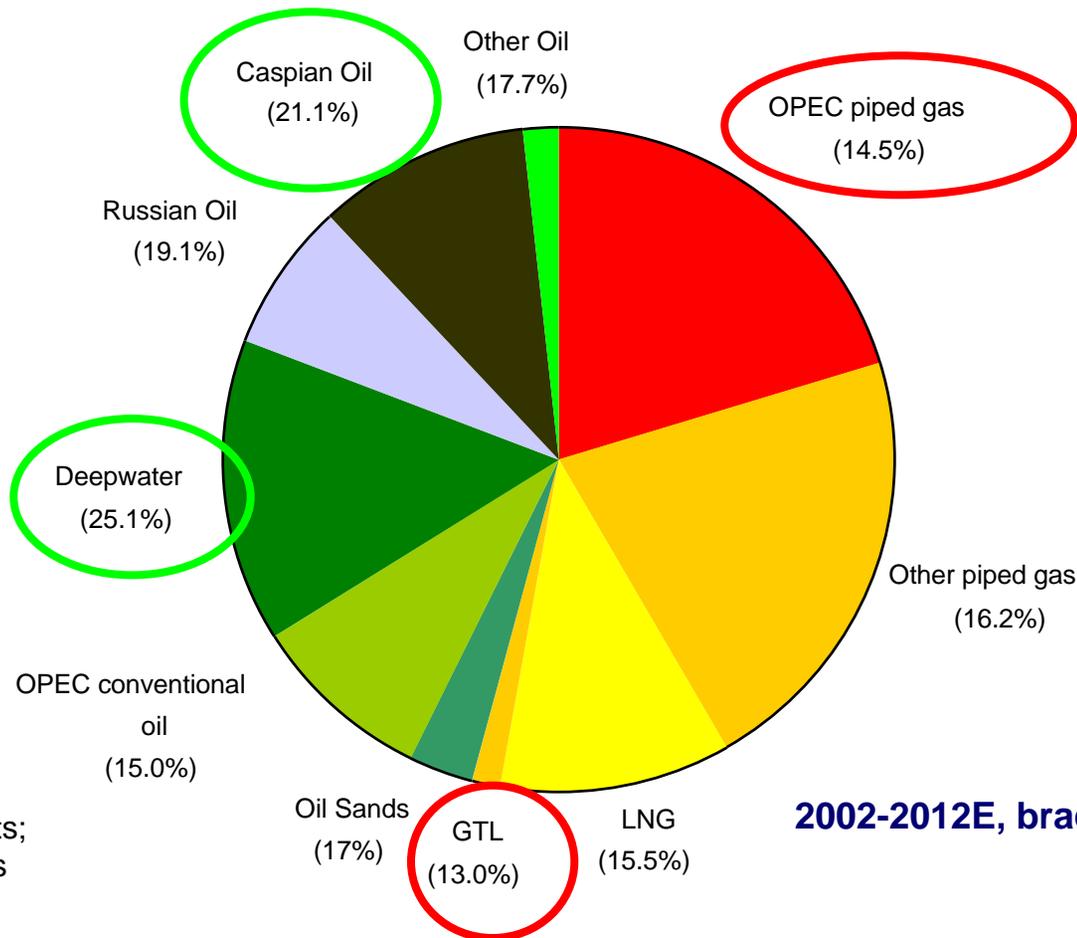


Source: Company reports; Deutsche Bank estimates

New Battlegrounds for New Legacy Provinces

....different appetites for politics, costs and returns

\$315bn of Growth Opportunities
'Risky'

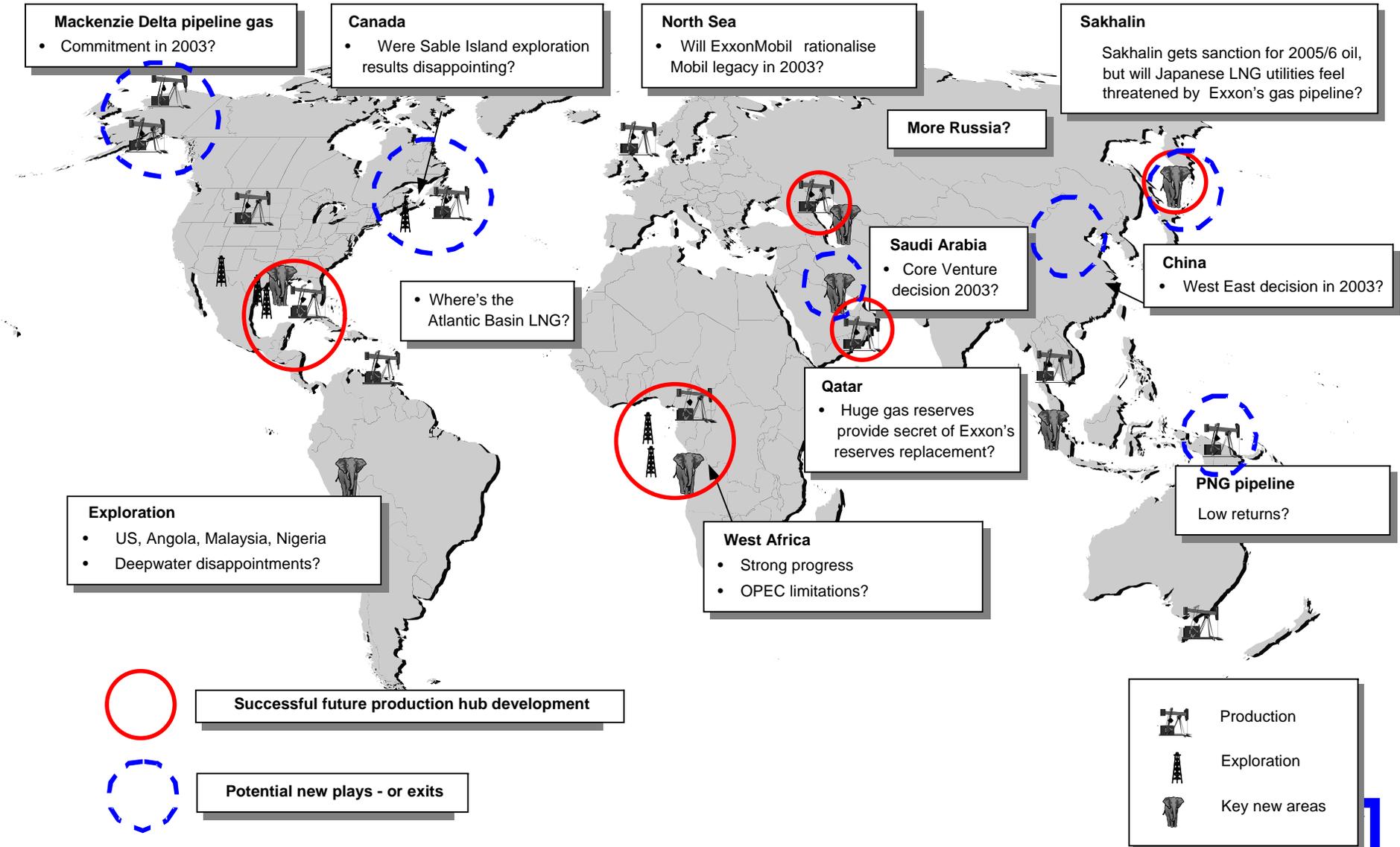


Source: Company reports;
Deutsche Bank estimates

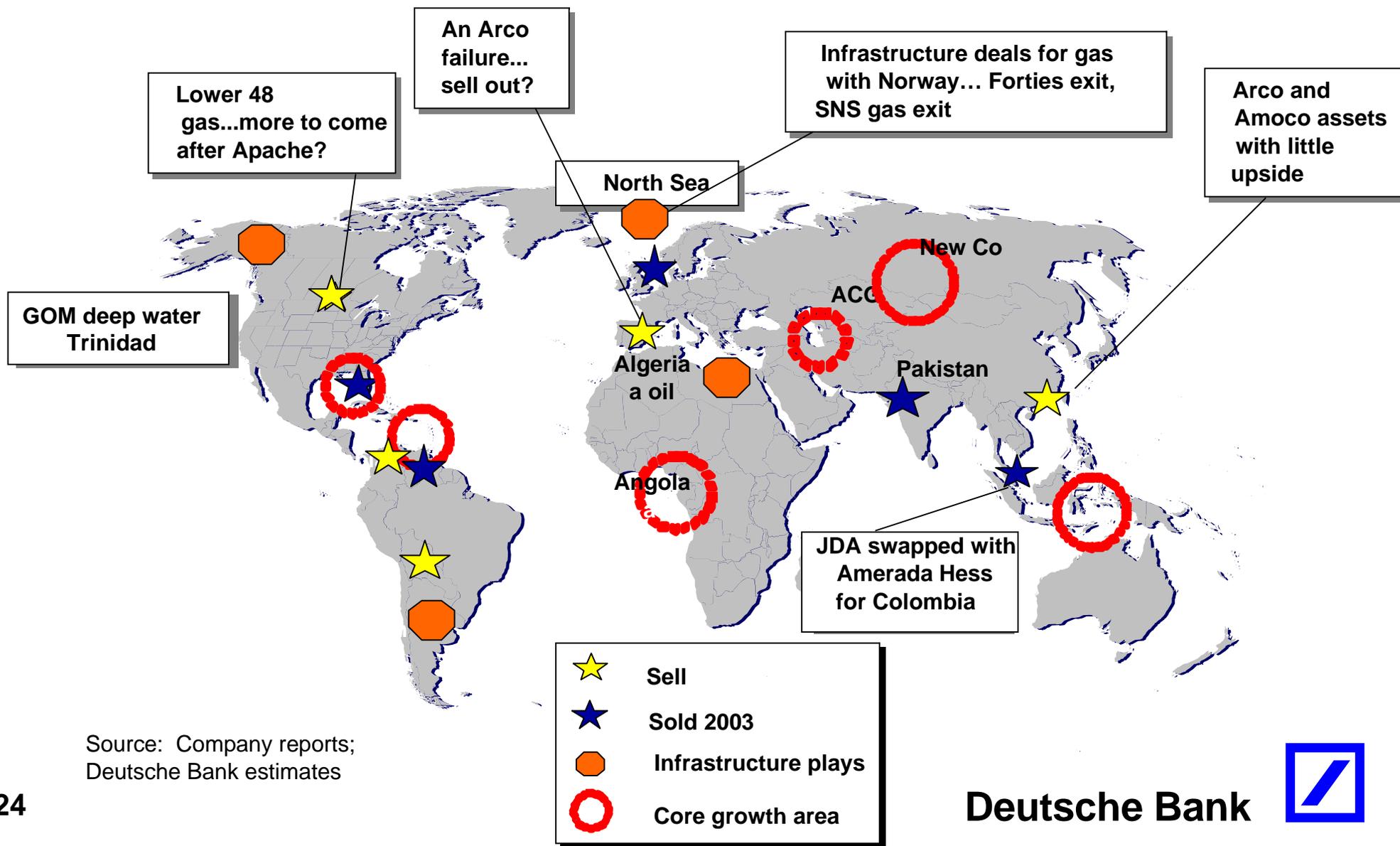
2002-2012E, brackets show weighted IRR



Global Upstream: Opportunity Rich to Meet Declines

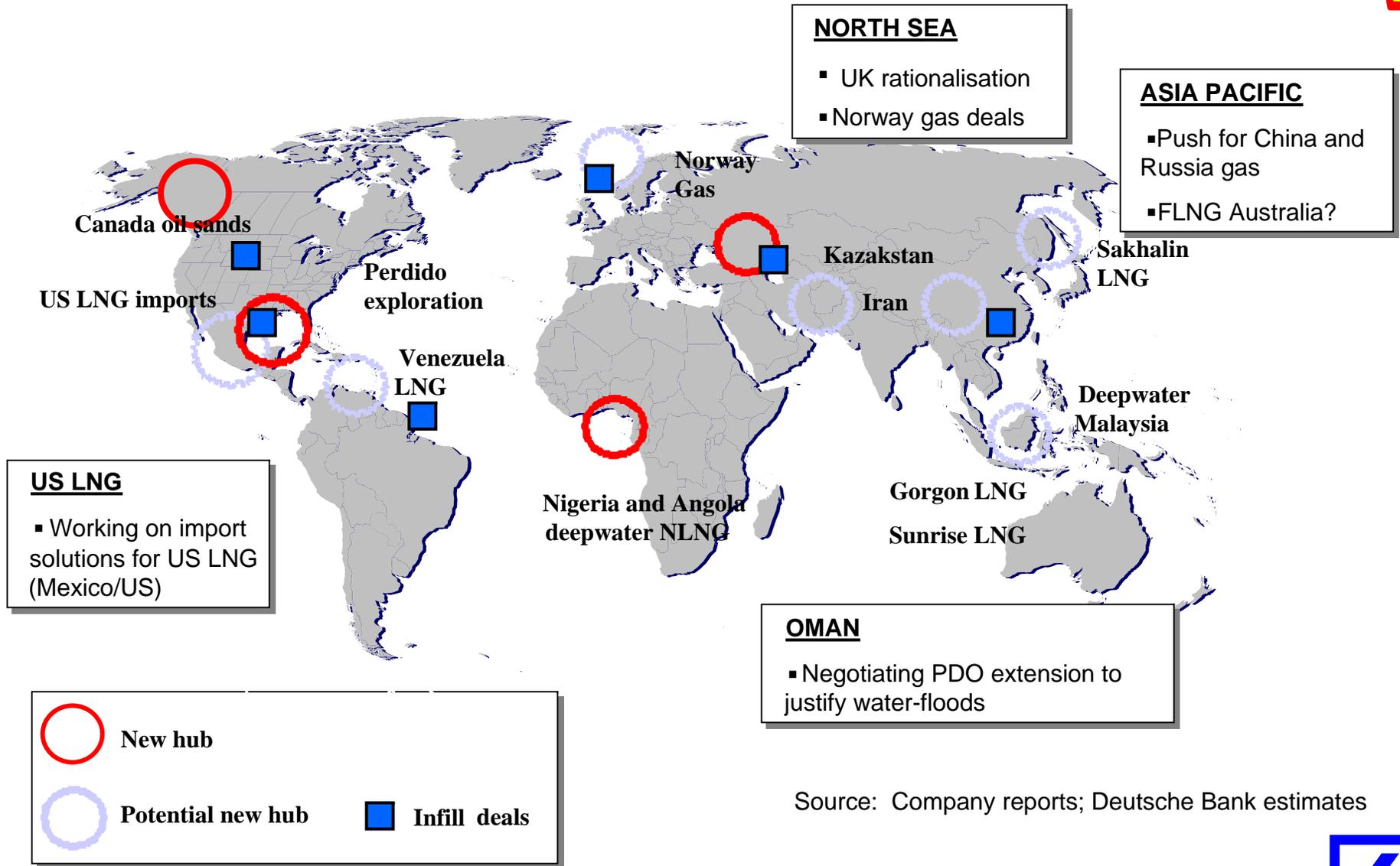


Capital Recycling Credentials Well Established



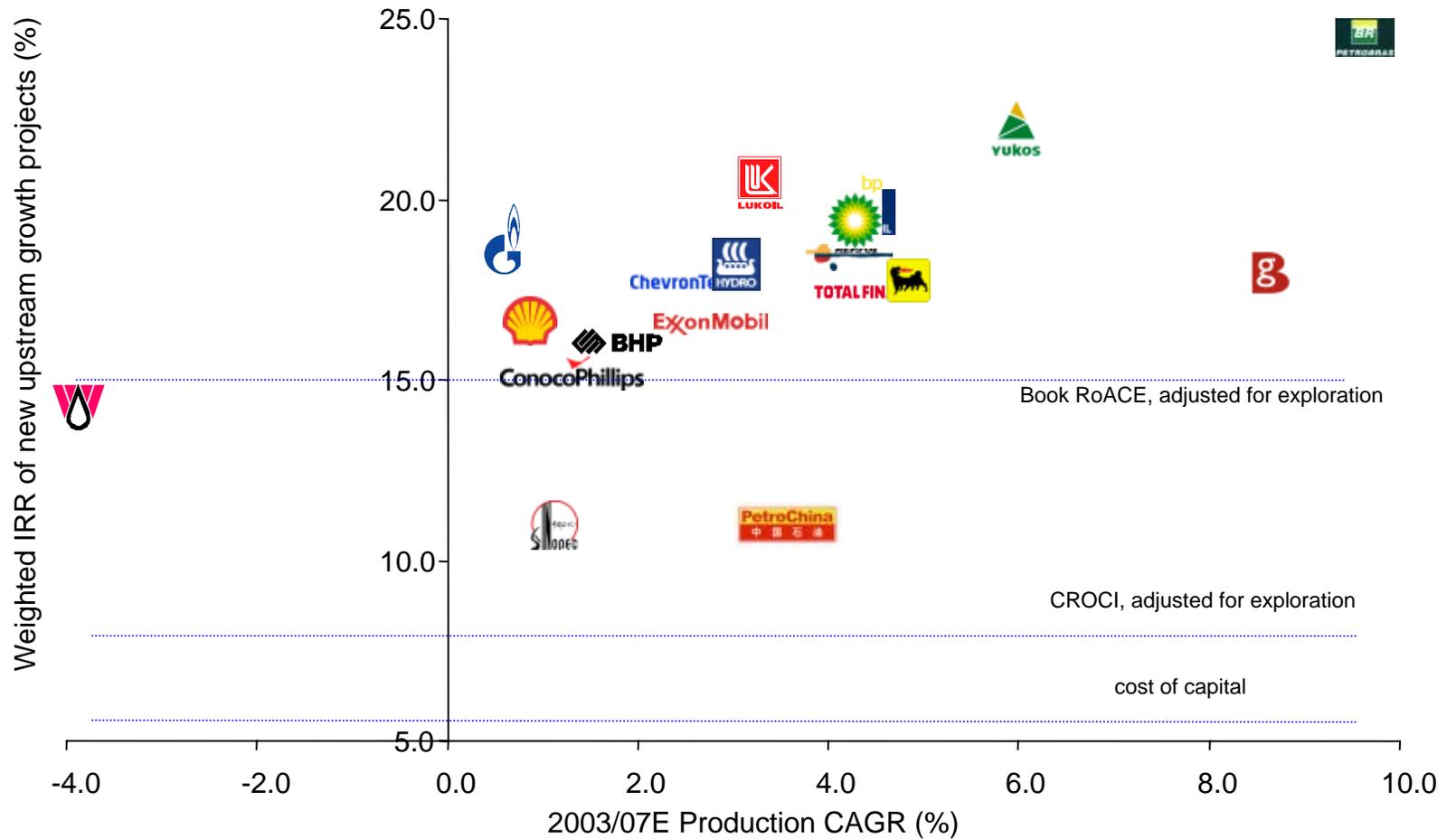
Source: Company reports; Deutsche Bank estimates

Shell's Upstream Options



Source: Company reports; Deutsche Bank estimates

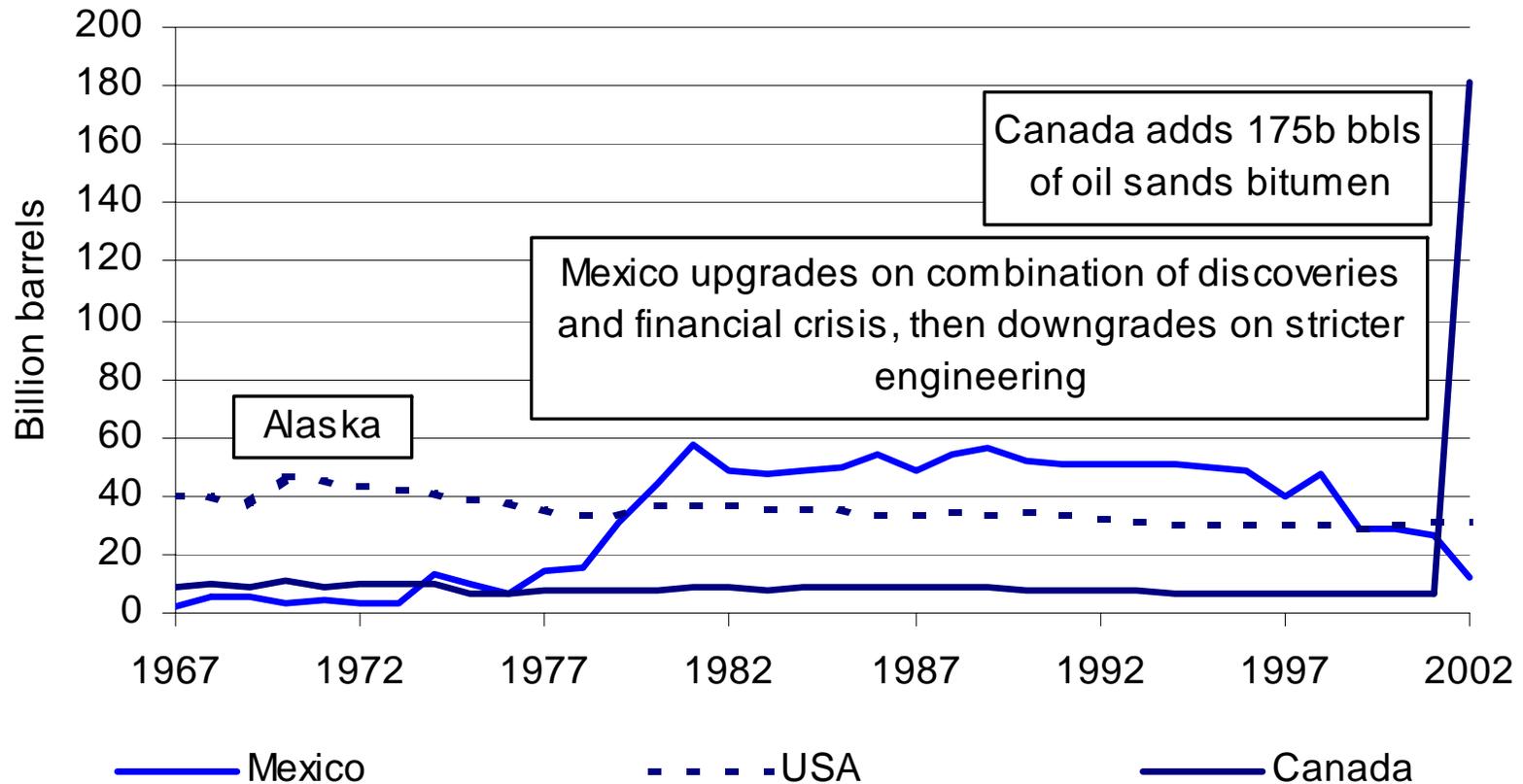
The Growth in Capital Employed Can Be Accretive



Source: Company reports; Deutsche Bank estimates

Oil and NGL Reserves in North America

...Mexico's mysterious mesa and Canada's quantum leap

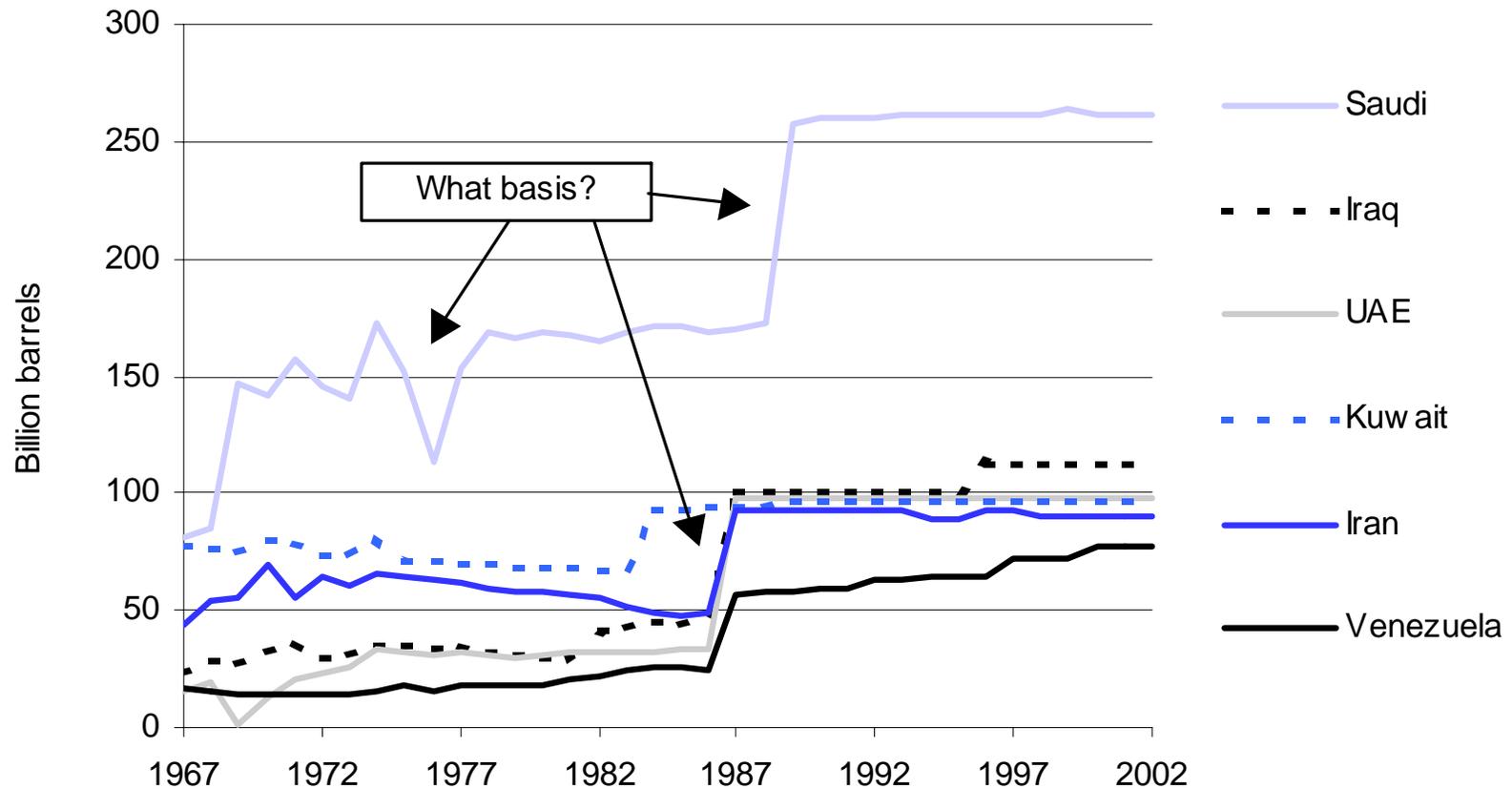


Source: BP, Oil & Gas Journal



Crude Oil Reserves over Time in Key OPEC Nations

...have some of the reserves been politically motivated?

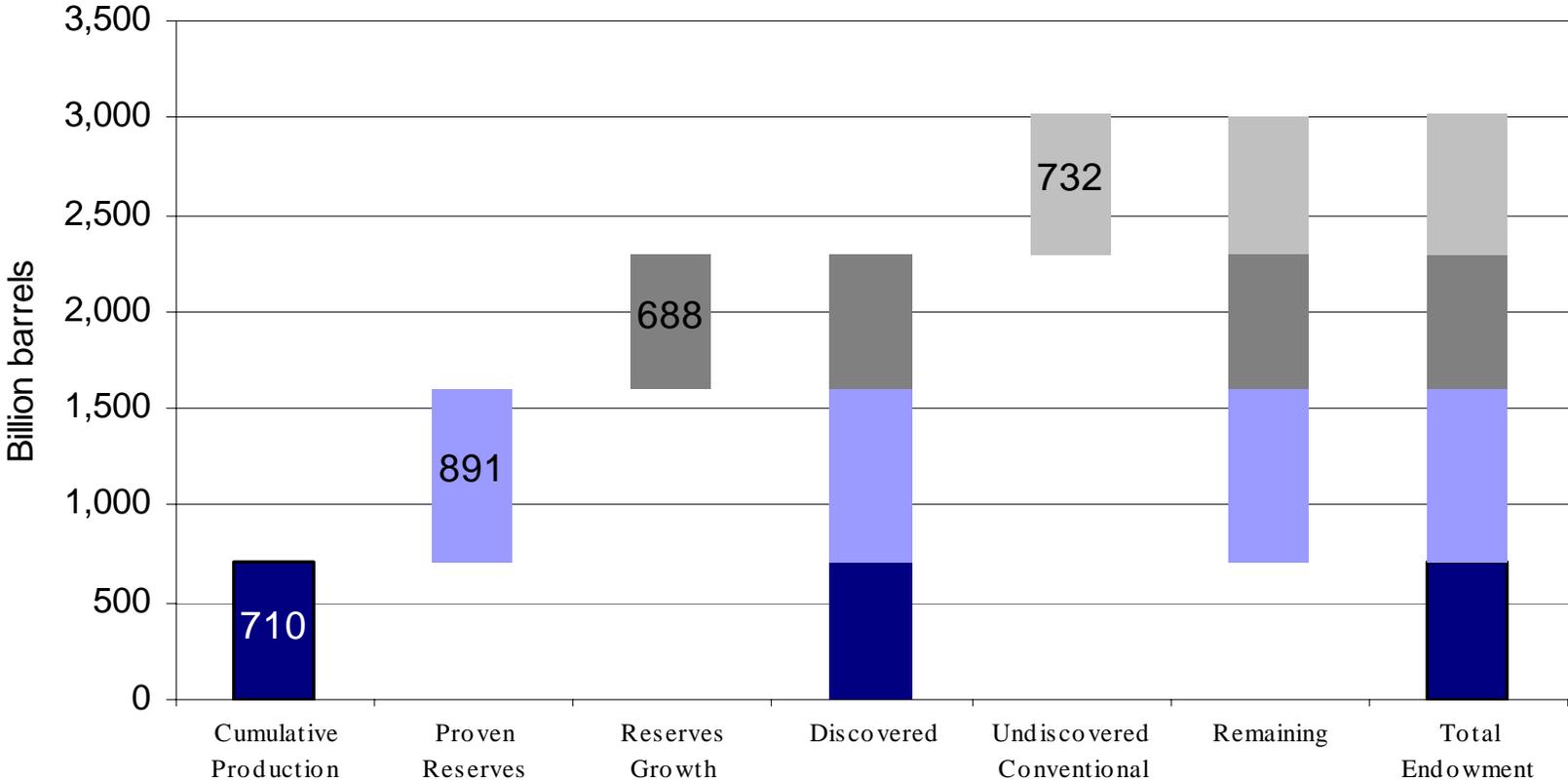


Source: BP, *Oil & Gas Journal*



World Conventional Crude Oil Endowment

...a lot left to find



Source: USGS World Petroleum Assessment 2000

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...accurate forecasting is a tough business

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