Reflections on the New E & P Front

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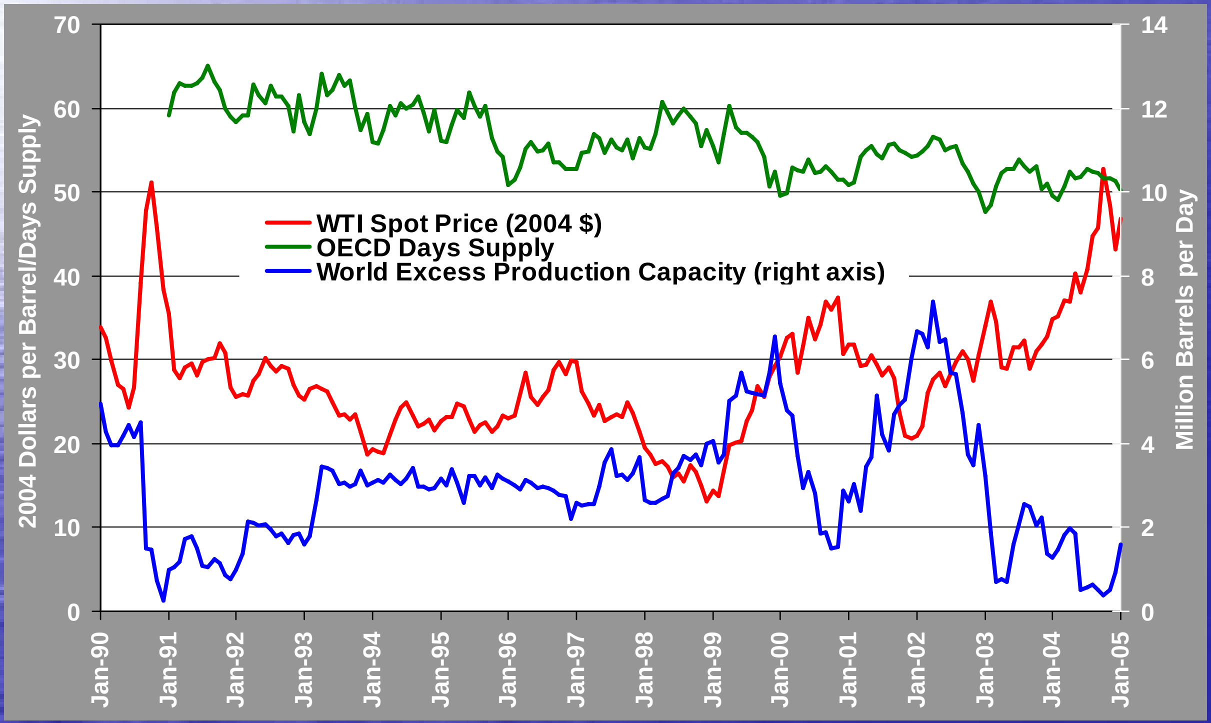
IHS Users Forum

New Price Environment



Source: EIA.DOE.GOV

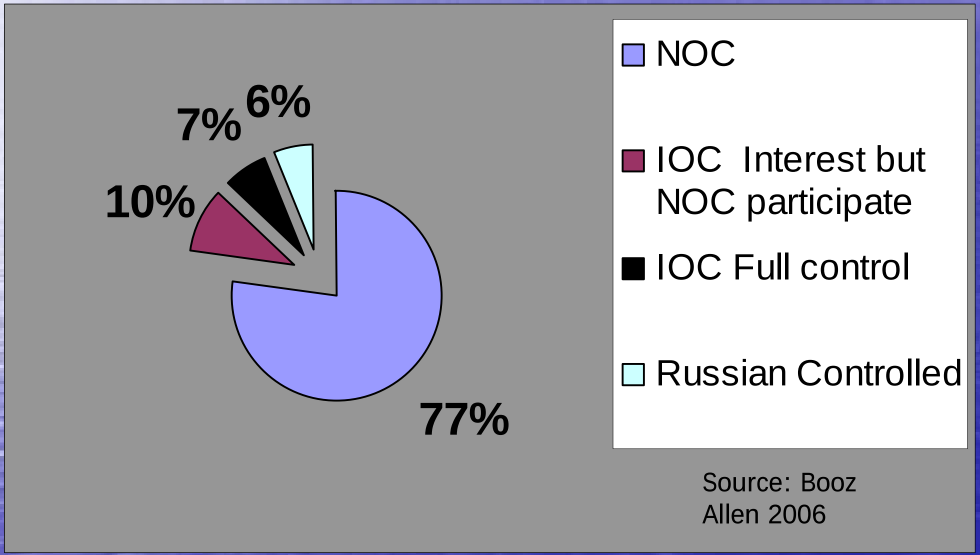
Worldwide supply anxiety caused by:

- Growth of developing world, especially China and India, in parallel with continued US high demand
- Failure and bottlenecks in the delivery system
- Lack of major discoveries to replace declining reserves
- Conflicts/instability in key producing regions
- Speculation in the market
- Changes in gasoline and diesel specs due to environmental regs

Industry Challenges

- Access to commercial resources and acreage
  - Three prospectives- NOC's, super majors and large independents
- Rising costs
  - Limited equipment, services and people to execute programs
- Increased political risk and lack of stable contract/investment terms
- Infrastructure and delivery systems bottlenecks

Changing Role of NOC's



- Control more than 77% world remaining resources

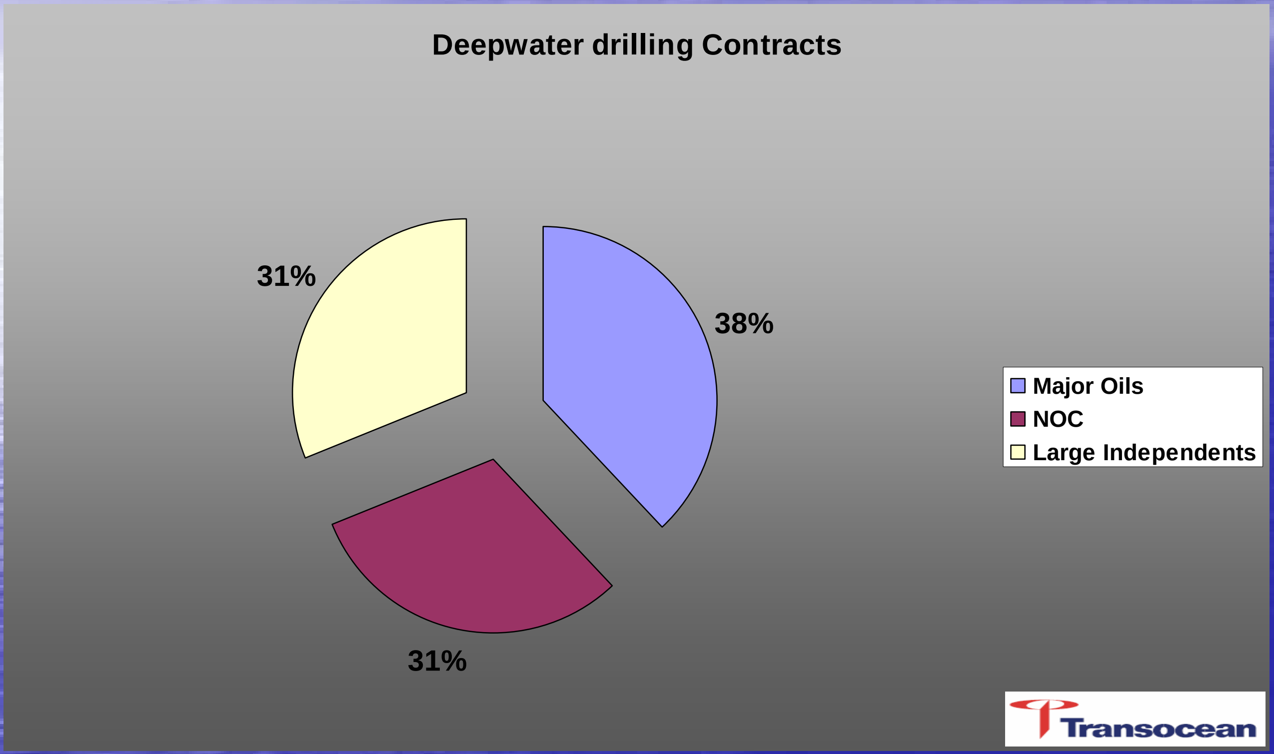
New assertions:

- – Maintain greater control/ownership of the barrel
- – Participate in the price upside
- – Self sufficiency (economic security) across value chain:
  - Adding refineries or modernizing/ upgrading existing refineries and complementary infrastructure
  - Developing long ignored gas resources
- – Creating proactive sustainable career and job opportunities for their people

NOC Changing Role

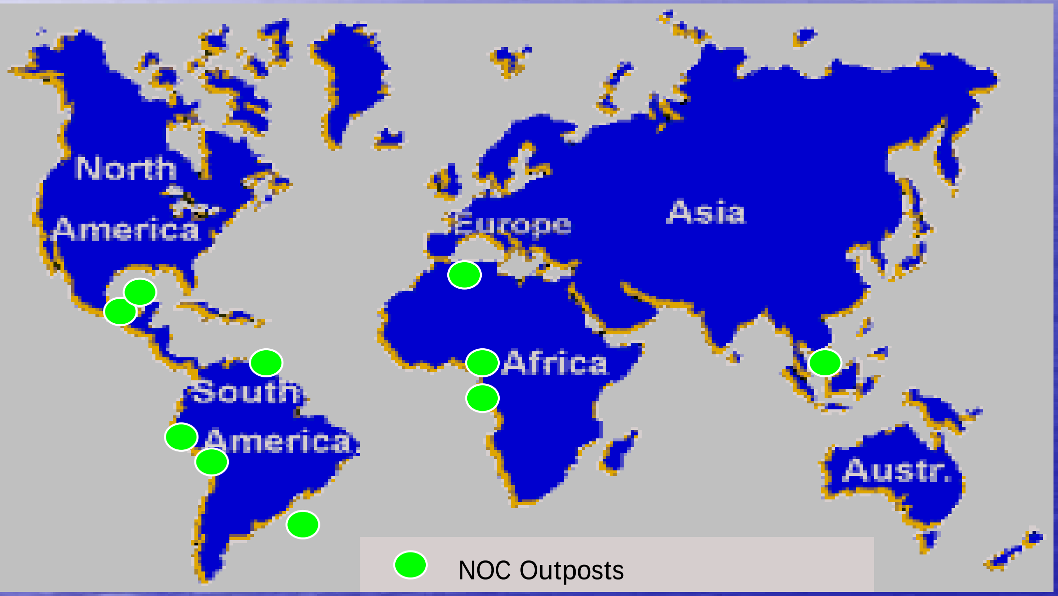
- Setting new limits...with different rules:
  - NOC have few barriers such as ILSA sanctions and human rights issues
  - Lower costs of capital...
  - Forsake ROCE hurdles of IOC's
  - Play the strategic card as trade partners, region partners, etc

NOC Changing Role



- Recreating or renewing NOC's:
  - Bolivia, Argentina
- Gained almost equal footing in worldwide resource race.

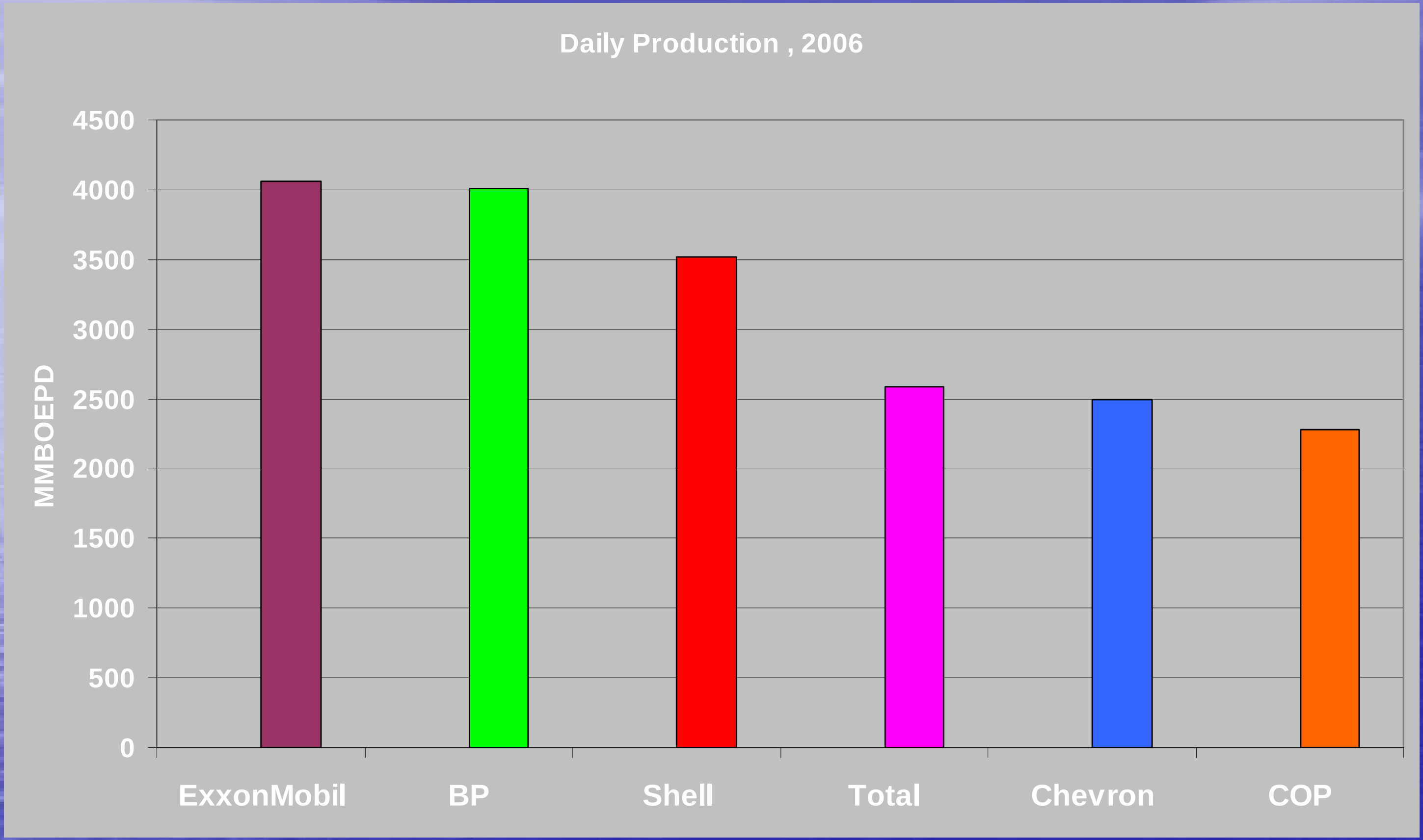
NOC - Moving Abroad



Competing worldwide for upstream assets :

- Exploration rights:
  - Petrobras, Petronas, Pertamina, Sonatrach, CNOOC, Japex, CNPC, KNOC, Statoil, OMV
- Buying Production -- Brasil, Peru, Nigeria, Ecuador, Libya and GOM

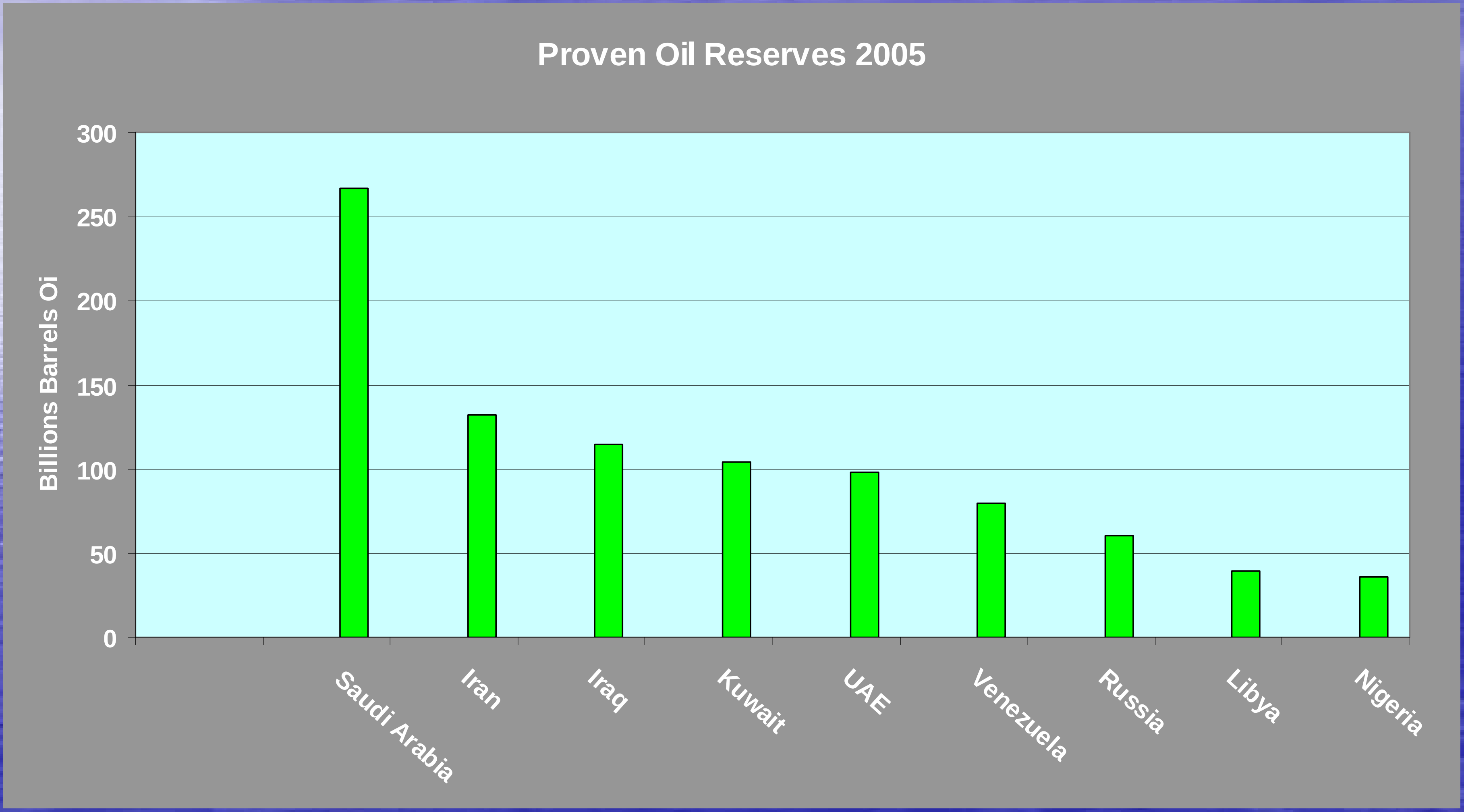
Super Majors - Replacement Game



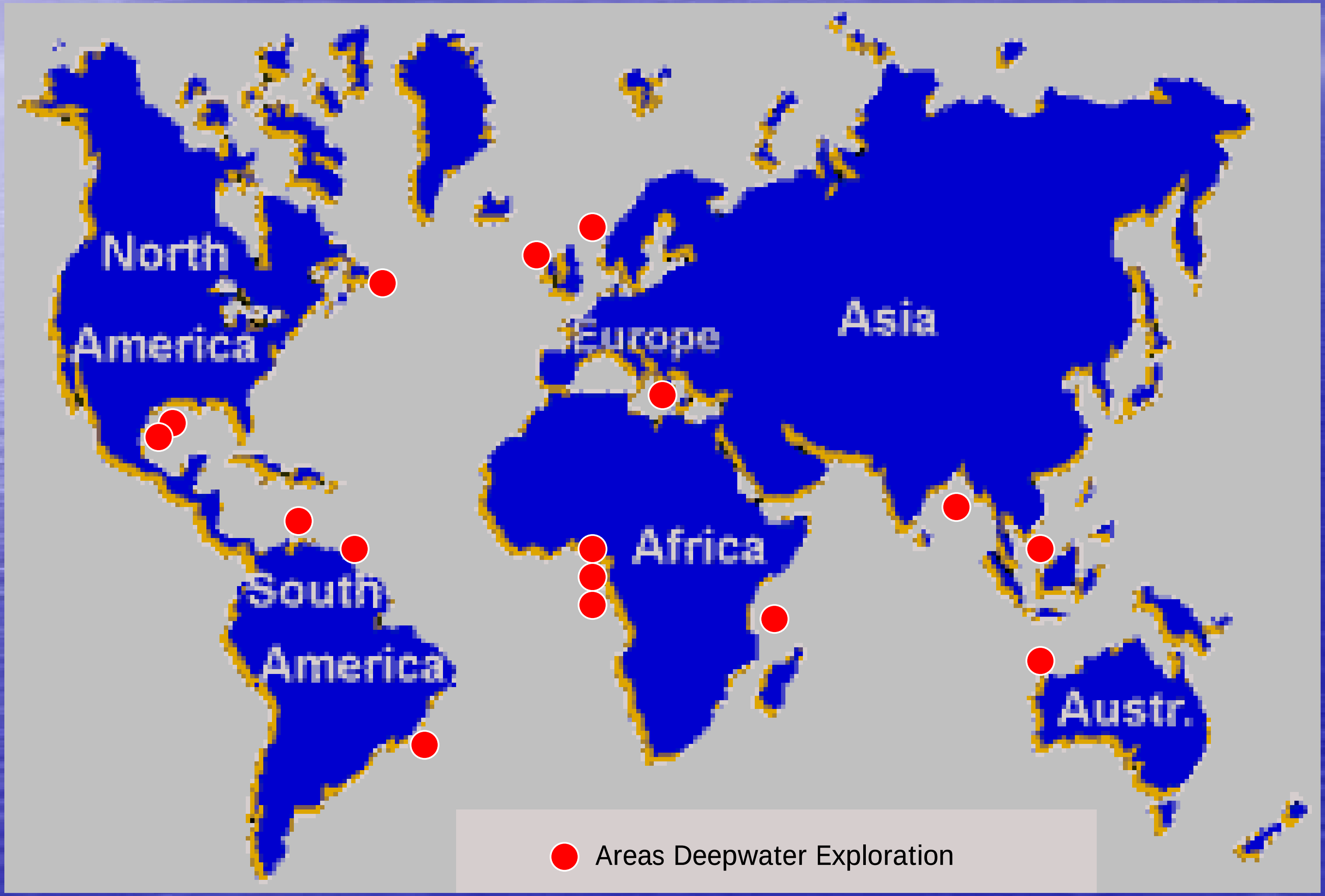
Reserves

- Group must replace 7 Billion BOE/ 2006 to stay even and another 300 mmboe to achieve a 4% growth rate
- IHS estimates in 2005, 10.0 Billion barrels worldwide were added

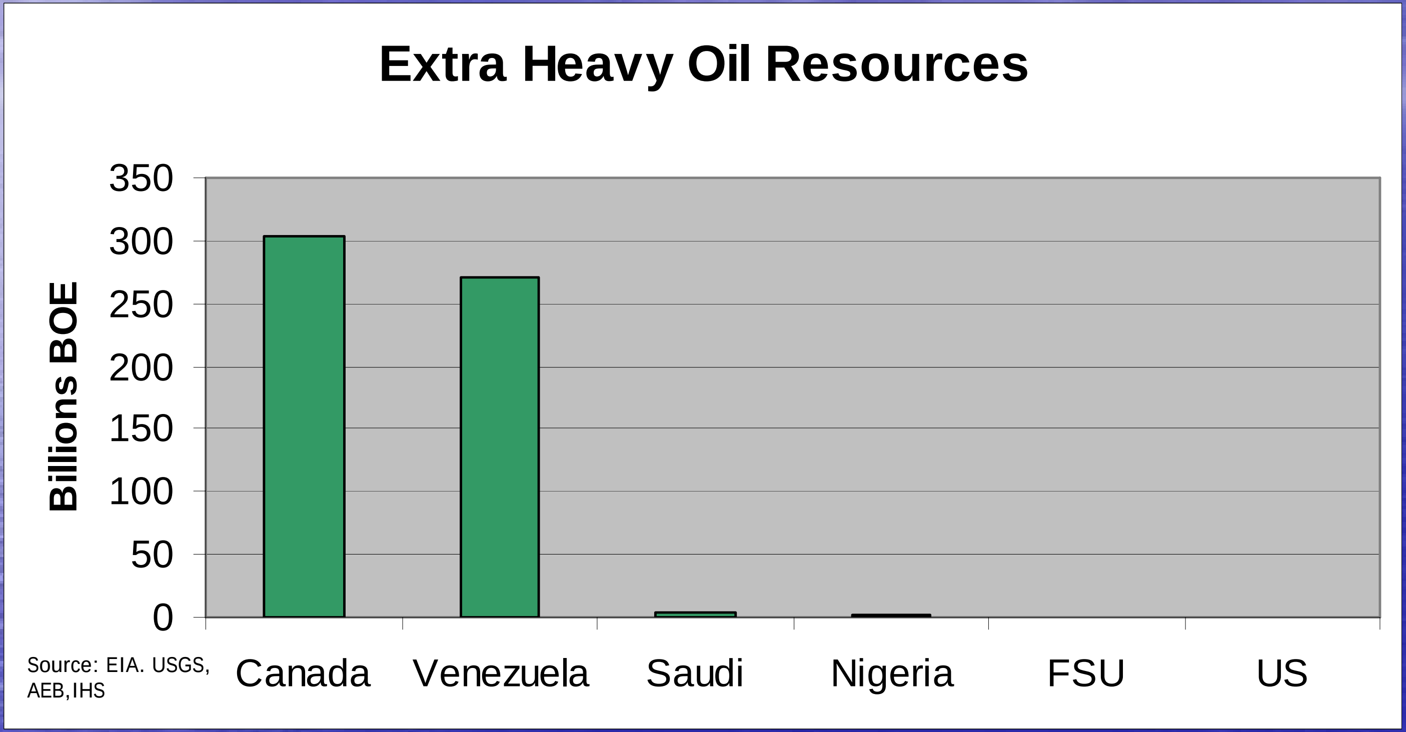
Super Major Strategies - Hunting where reserves are



Super Major Strategies – Targeting Deepwater



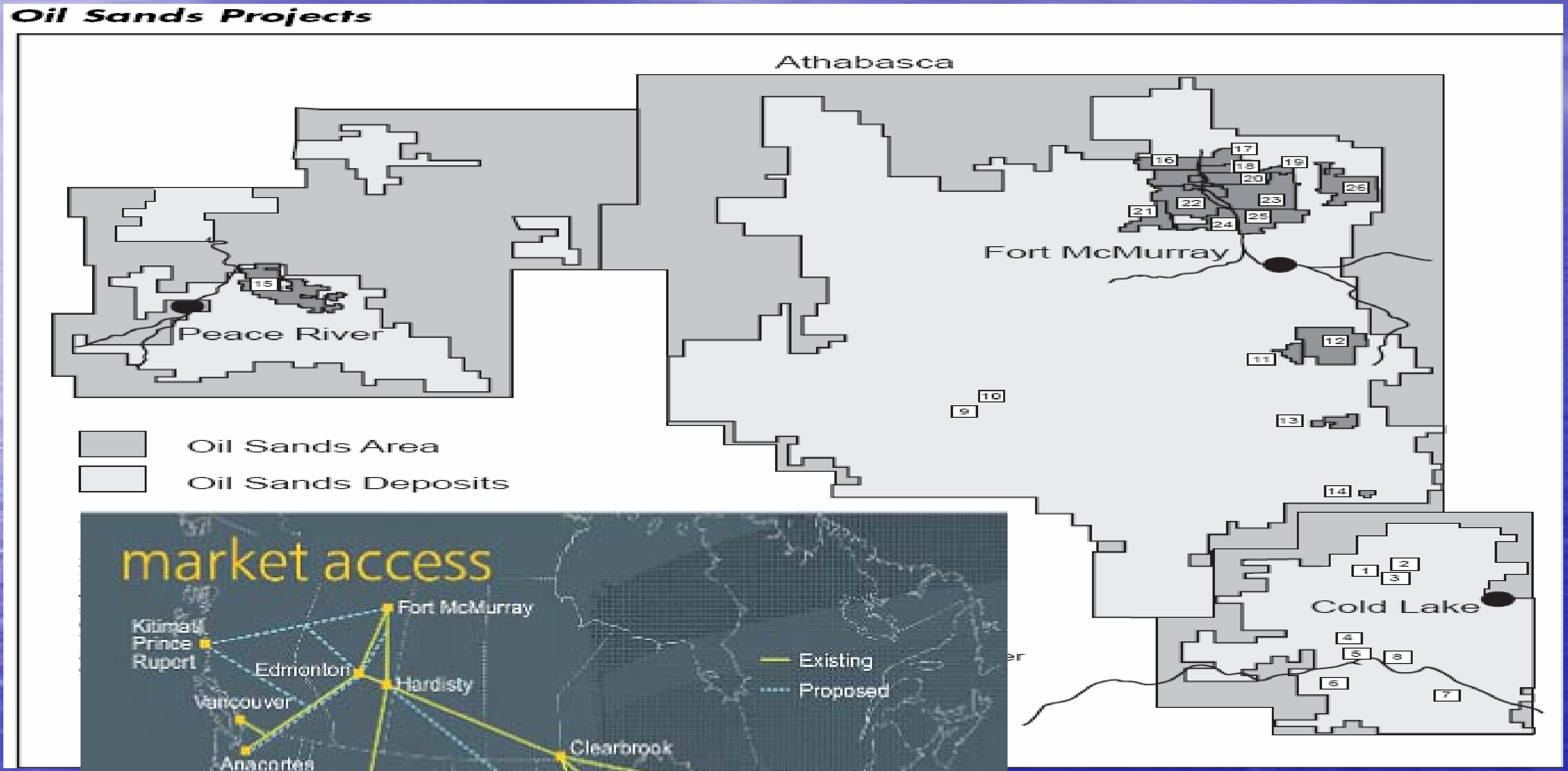
Super Major Strategies
Building Positions in Non-conventional Resources

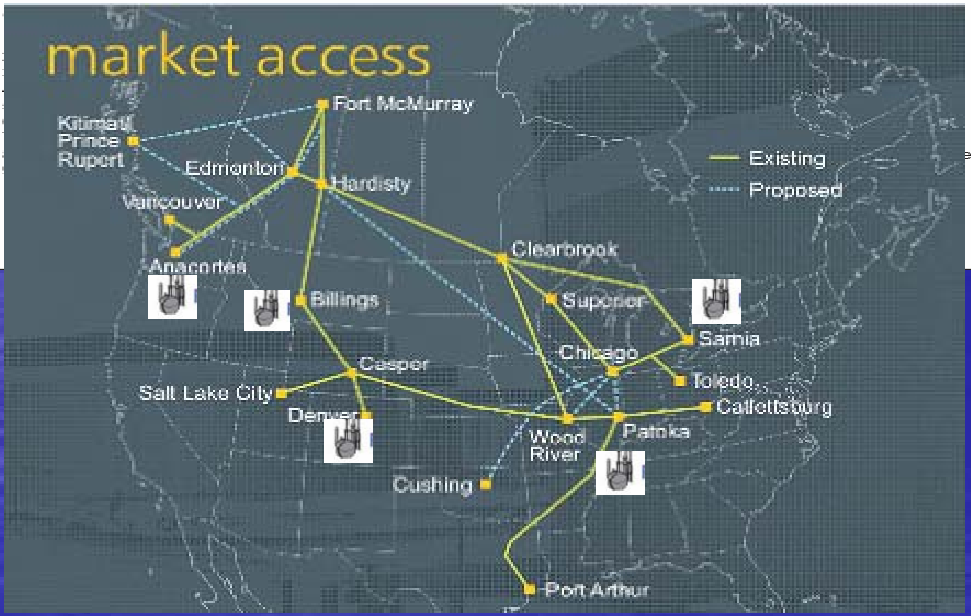


Capture significant footholds in non-conventional resources:

- **Oil sands:**
  - Alberta tar sands
  - Saudi heavy
  - Urals
  - Faja heavy oil belt... Venezuela to Peru

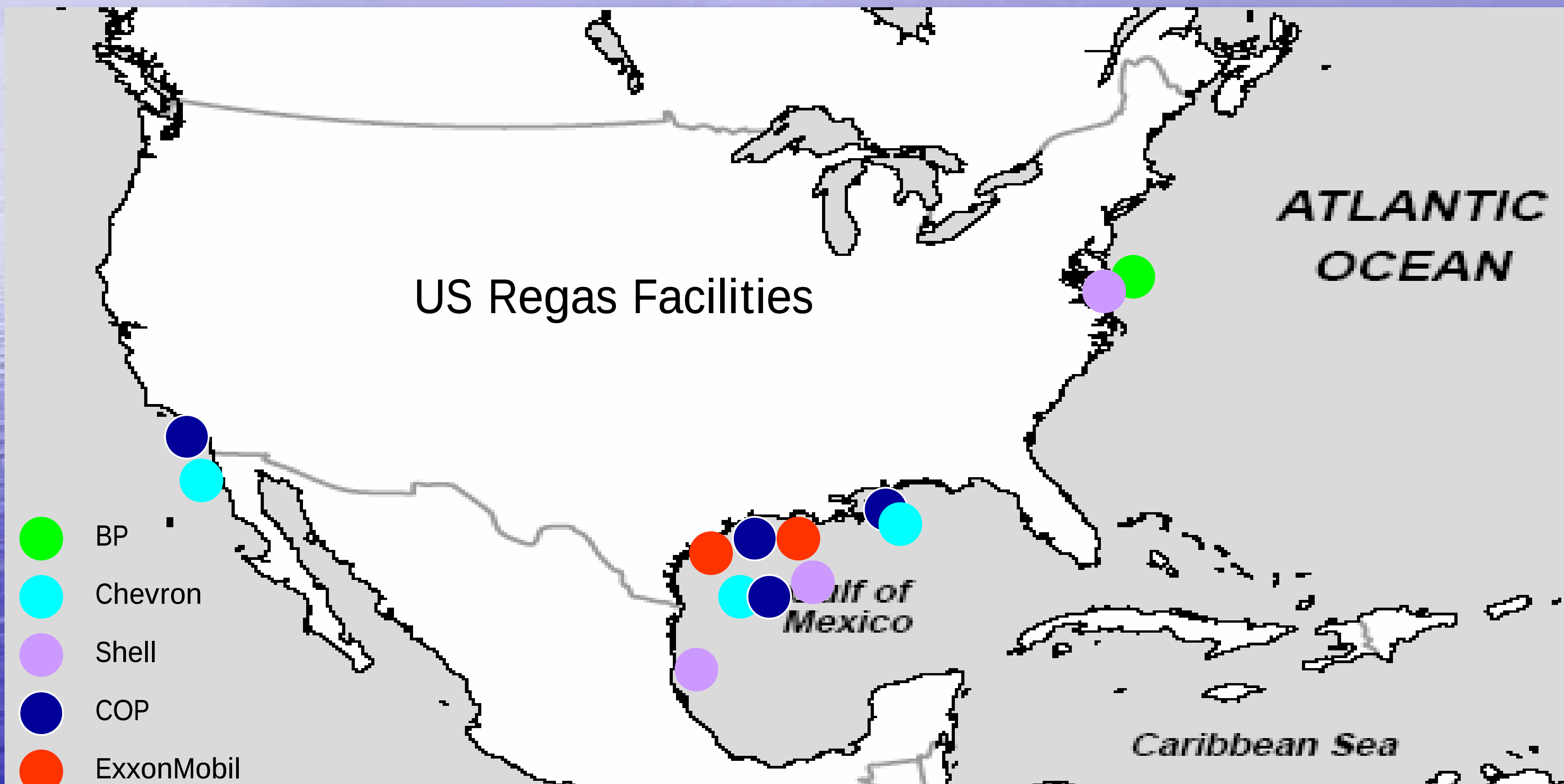
Super Major Strategies - Oil Sands Integration





Source Suncor,
AEB 2006

Super Major Strategies - Leveraging Gas Market Access



Source FERC 2006

Super Majors Strategies - Leveraging Technology and Experience

- Leverage technology – Arctic, deepwater, heavy oil
  - Arctic and subsea to access Shtokman
  - GTL/LNG to access Qatar
  - Deepwater to access Mexico: Petrobras, Shell, BP
  - Heavy oil to access sub-Andean belt

Super Major Strategies - Mega projects

Leverage size, project management and full value chain know-how (Downstream/Midstream) to capture large integrated projects:

- Spreads the risk
- Generates long term large cash flow/profit
- Demonstrates partnership and world class project management skills
- Provides access to upstream via willingness to do other less profitable downstream, midstream and infrastructure projects
    - Saudi Core ventures
    - Sakhalin Island
    - Qatar Gas
    - Saudi new refineries
    - Kuwait

Super Major Strategies - Acquisitions

- Active in acquiring upstream assets in key areas using two approaches:
  1. Selected Company or large asset acquisitions
     - Chevron– Unocal (SE Asia and GOM deepwater)
     - COP– Burlington (Lw 48 Gas)
     - Shell- Canadian Tar sands
     - Total- Surmont Canadian tar sands

  2. NOC Equity Ownerships
     - FSU
       - BP/ TNK
       - COP/Lukoil
     - India
       - Chevron/ Reliance

Independents Strategies

Resources

- Face same challenges as super majors
- Leverage their smaller size to advantage
- Generally are niche players or skill exploiters
- Still some are merely following super majors

Independents Strategies

Operations Driven – Oxy, Apache, Devon

- Field exploitation/enhancement specialists
- Use acquisitions to provide growth
- Heavily weighted in North America
- Future lies in expanding selectively overseas

Independents Strategies - Acquisitions

Mod. Oxy

- Apache and Oxy are acquisitions driven but with different strategies:
- **Oxy**– Acquired Vintage for oil and saw it as a good place for it to utilize its exploitation skills
- **Apache**- Acquired Pioneers assets for the gas, which also was a good place for utilizing its exploitation skills. It also has gas price upside.

Independents Strategies

Product Focused

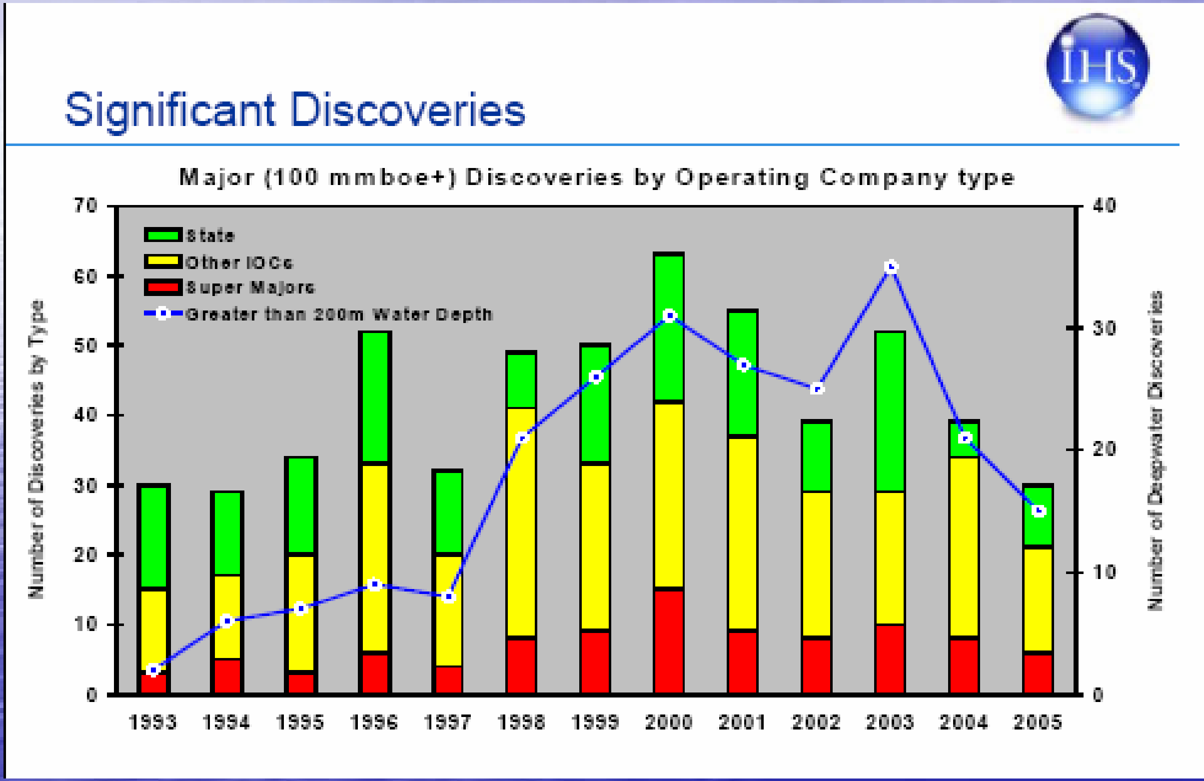
- Gas – BG, EOG, El Paso
- Oil – Oxy
- Heavy Oil – Suncor
- Shale Gas – Devon, Dominion, Burlington (COP)

Independents Strategies

Exploration Oriented

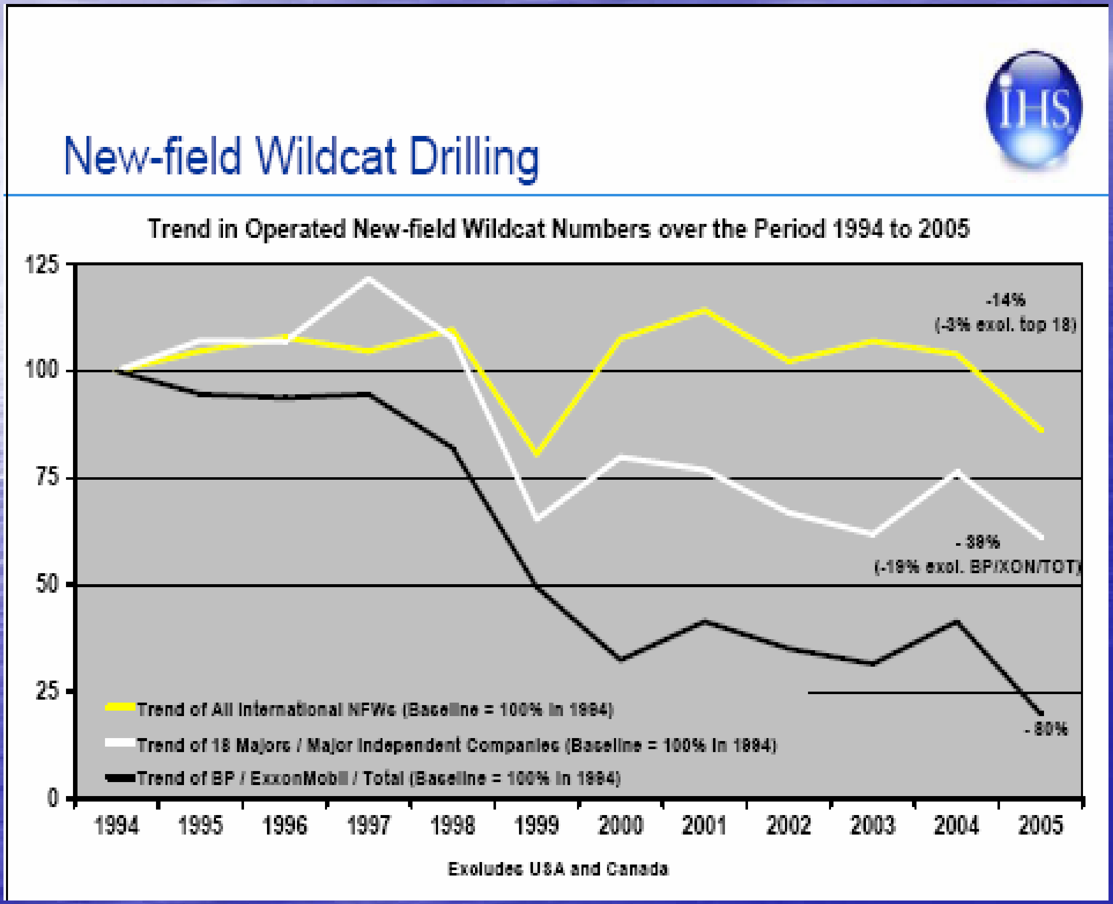
- Hess, Talisman, Houston Exploration, Woodside, Kerr McGee, Murphy
  - Deepwater focus: Kerr McGee, Murphy, Vanco
  - Geographically focused: Vanco (Africa)

Trends in Exploration Reserves Replacement



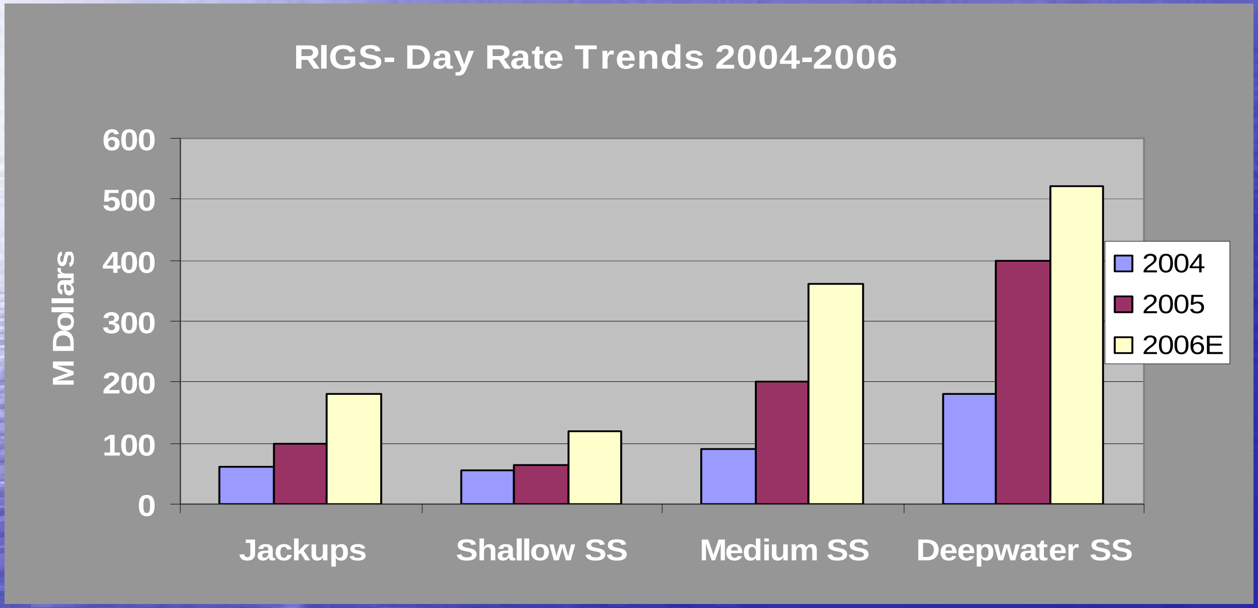
- IOC's are not replacing reserves via the exploration drill bit
  - No of discoveries is declining
  - Size is decreasing
- Production spend is still disproportionate over exploration
  - Super majors 8:1
  - Independents 5:1

Trends in Exploration Drilling



- NFW drilling is down; super majors show biggest drop
- Success rates, however, are up slightly

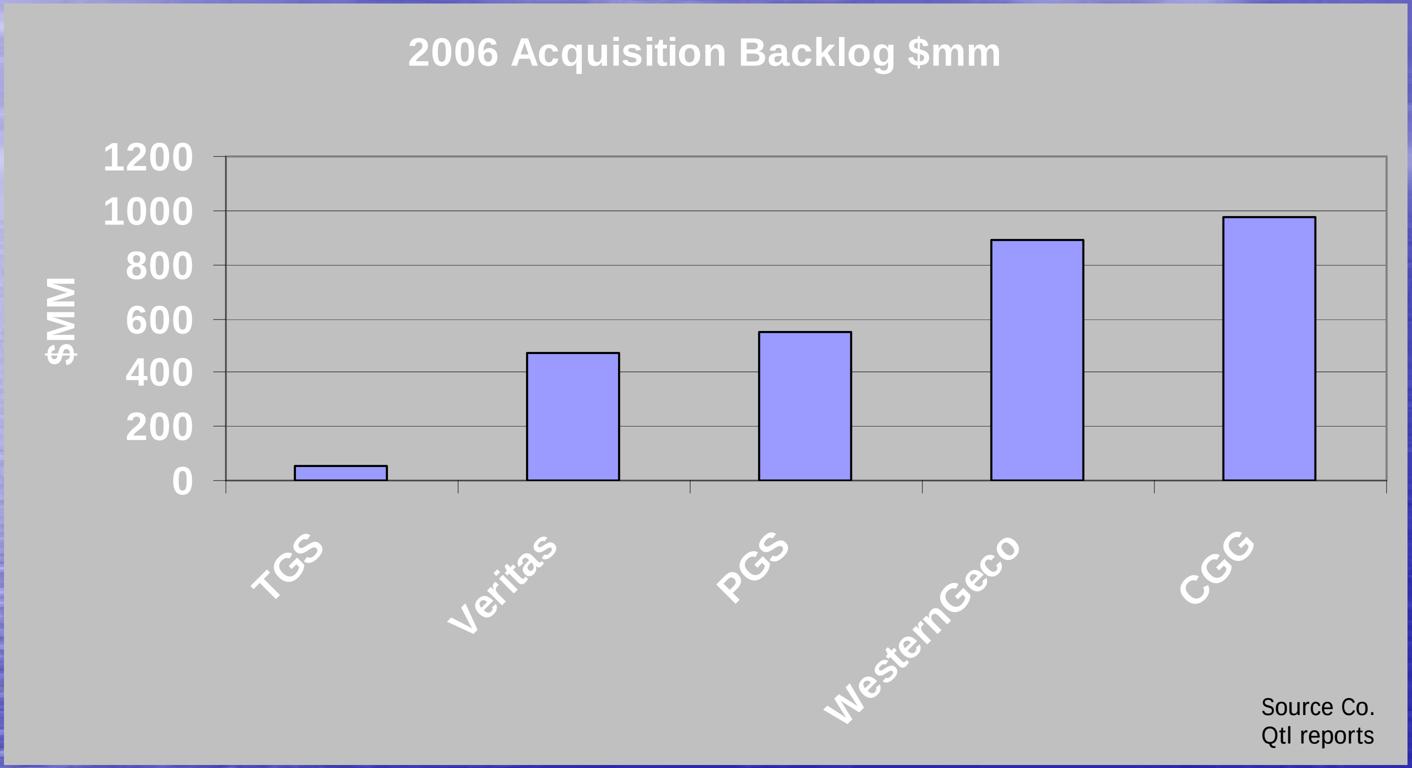
Rising Costs - Rigs



Source Co. Reports

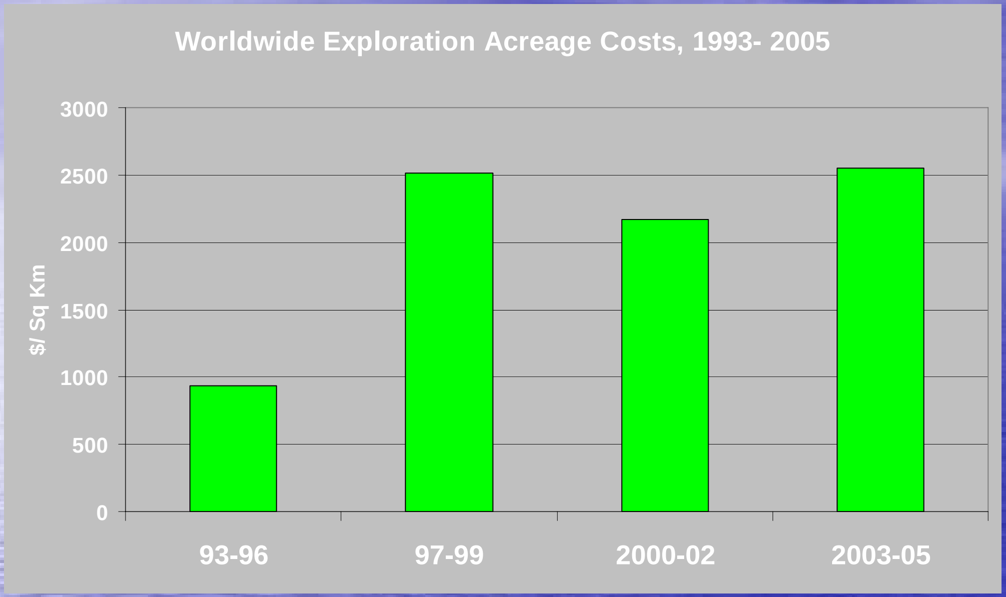
- Rig utilization at 93% with few windows until 2009
- Rig costs have skyrocketed
  - Two-fold day rate increases 2005 to 2006

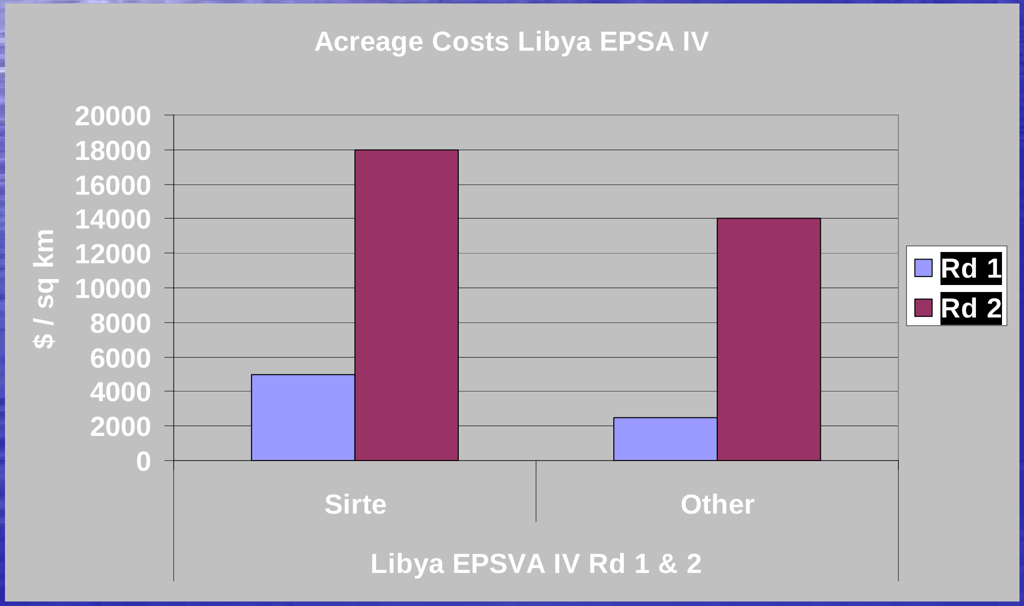
Rising Cost - Seismic



- Backlogs are up 100% or more in 2004-2006
- Seismic utilization 97% capacity with healthy backlogs for 2-3 years
- Rates up 60% from 2005. Average marine rates now $11K-12K/sq km
- Library sales are up 100%

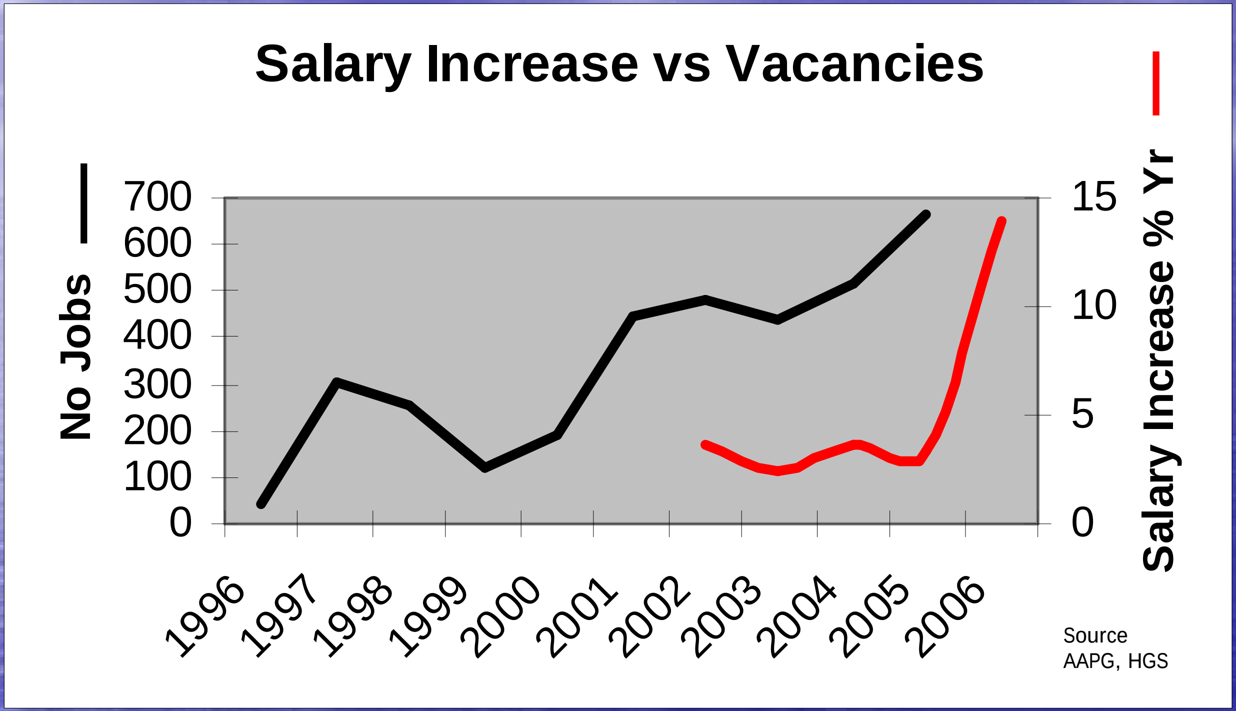
Exploration Acreage Costs





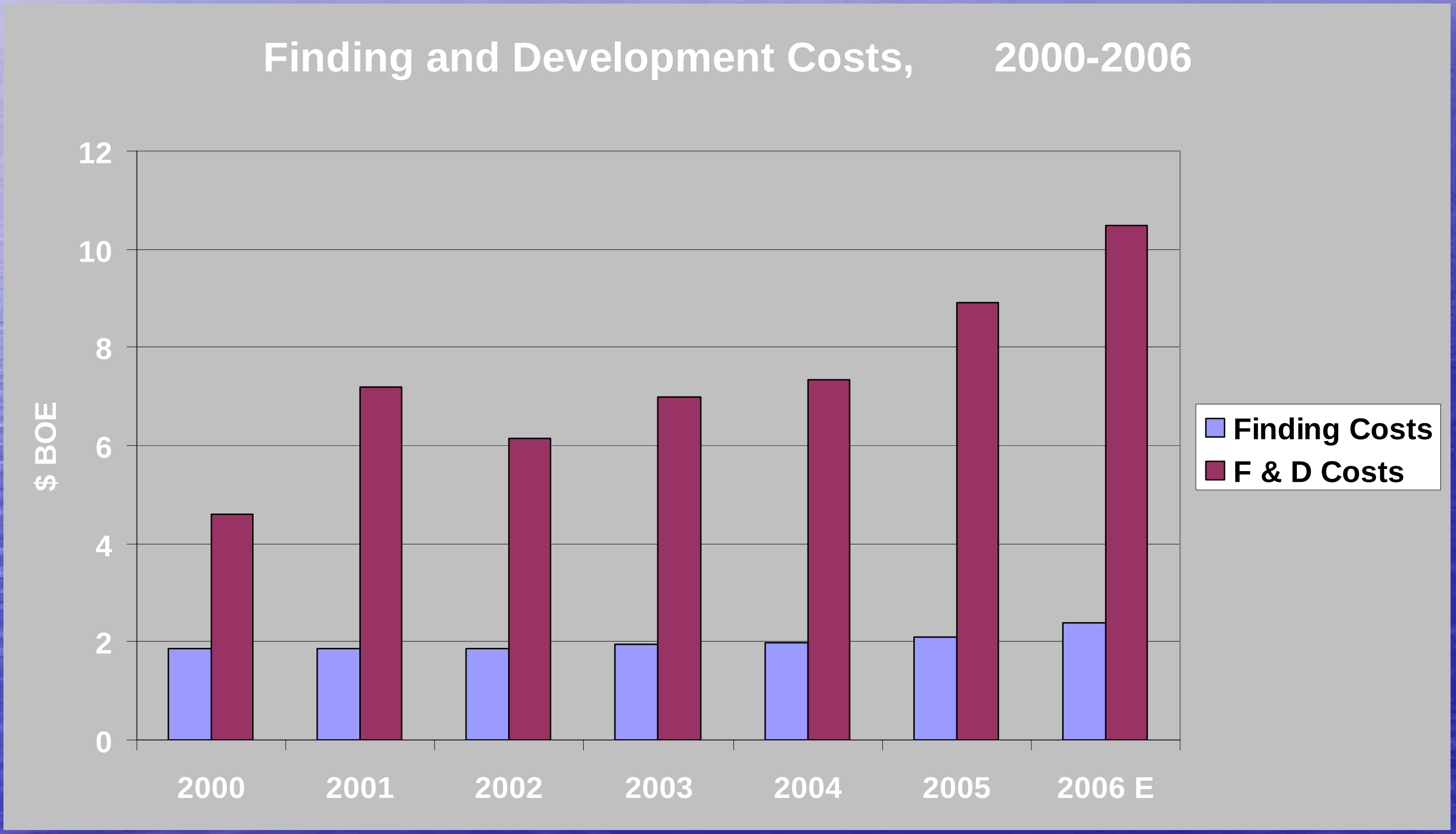
- Strong upward pressure
- Frontier Acreage now approaching historical costs of mature basin costs
  – Libya EPSA IV

Manpower Costs



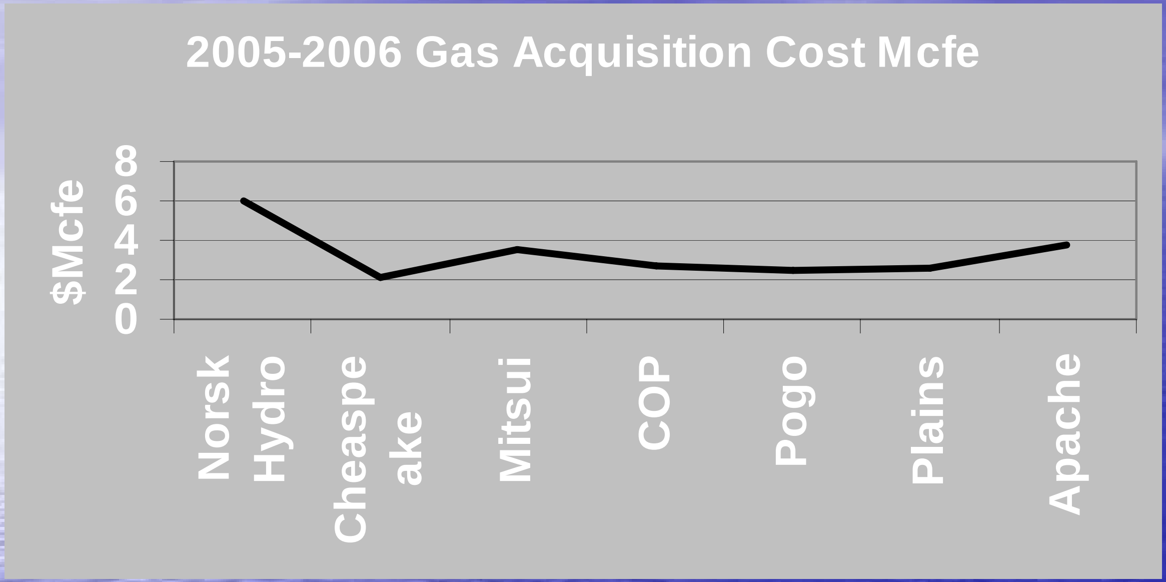
- 2005-2006 salaries rose 15-20%, poised to rise more in 2006-07
- Vacancies are up 30% with majors/service companies each looking for hundreds of engineers, geoscientists

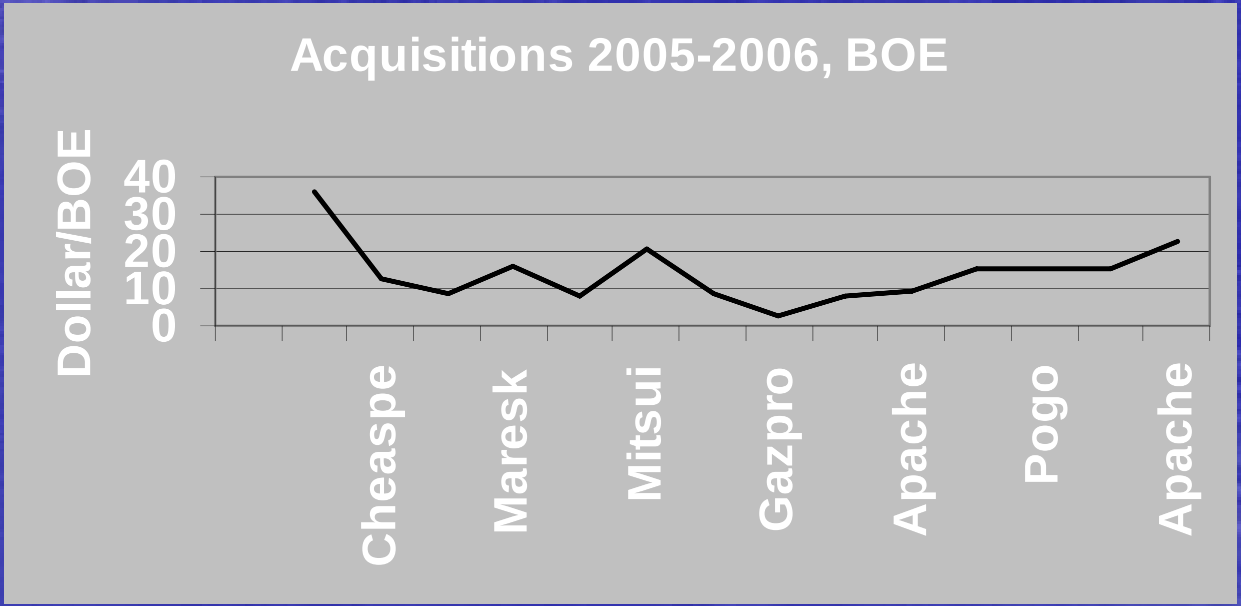
Finding and Development Costs



Source: Co Reports, J.S. Herold, IHS

Acquisition Prices





Source: Co Reports

Scorecard

	Reserve Replacement 2003-2005 %	Exploration Activity	Mega Projects No.	Unconventional Plays	2005 ROCE	F &D Costs $/boe	Acquisitions
Super majors	Less than 100%	Exploration. NFW's low. Prod. Spend 8:1.	Focus. Leaders in Execution. Most over $2 billion Capex	Strong Integrated approach	Av. 25%	$6- 8/ BOE. Strong upward pressure 2006. $10 forecast	Selected buying to strengthen gas, heavy oil positions.
Independents	Closer to 100% but still many struggling	More NFW'S. Spread Prod. 5:1	Ldted capacity 4-5 projects $ 1bn<	Only niche players. Not focus.	Av. 23%	$6-17/BOE Strong Upward pressure	Bought to gain mass. And access to growth areas.

Observations

Access

- Super majors once dominated the partnerships with NOC's, but some independents are challenging this along.

- Reserve Replacement pressure will force Super majors in the next 3-5 yrs to become more aggressive drillers of NFW's and greenfield play entrants.

- NOC's will need to show clear ability to deliver some success/ value with their forays into International Exploration

- Increased Need by IOC'S and Wall Street to find an alternate solution for relationships between reserves ownership and company valuation, as continuation of current popular trends in many regions leads to little ownership by private companies of reserves. After all it is profit that drives IOC's share value and not ownership of acreage or reserves.

Observations

Acquisitions

- Continued consolidation amongst Independents, particularly for gas and oil sands.
  - Great danger for failure as valuations are getting costly in North America, as they approach $10 barrel equivalent and $4mcfe.
  - More International bargains.
- Independents need to stay focused, those who have not, are merely imitating majors, or have poor metrics (F &D) are in danger of acquisition.

Spending

- Clear one year lag between the 2004 Oil and Gas price jumps and increase exploration spending.
- Large supply/ demand imbalance exists for goods and services, resulting in upward spiraling prices. This may be short lived as more rigs and seismic boats etc are being added.
- Also some companies are already backing off plans due to costs.

Acknowledgements

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