



Weatherford[®]

High Cost High Price

Service Industry Perspective

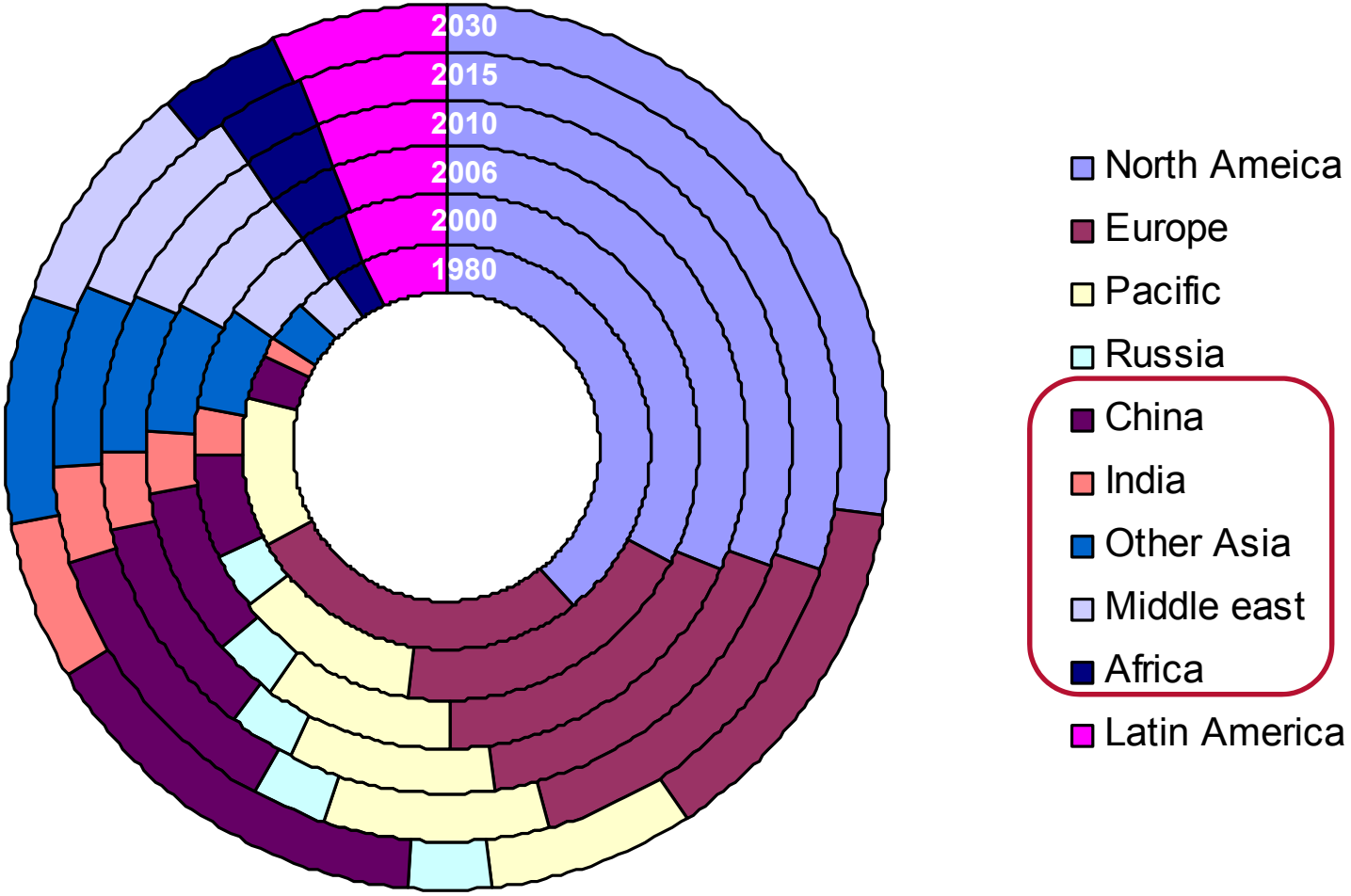


Mrinal Vohra, Region Commercial Manager, Asia Pacific

22 October, 2008

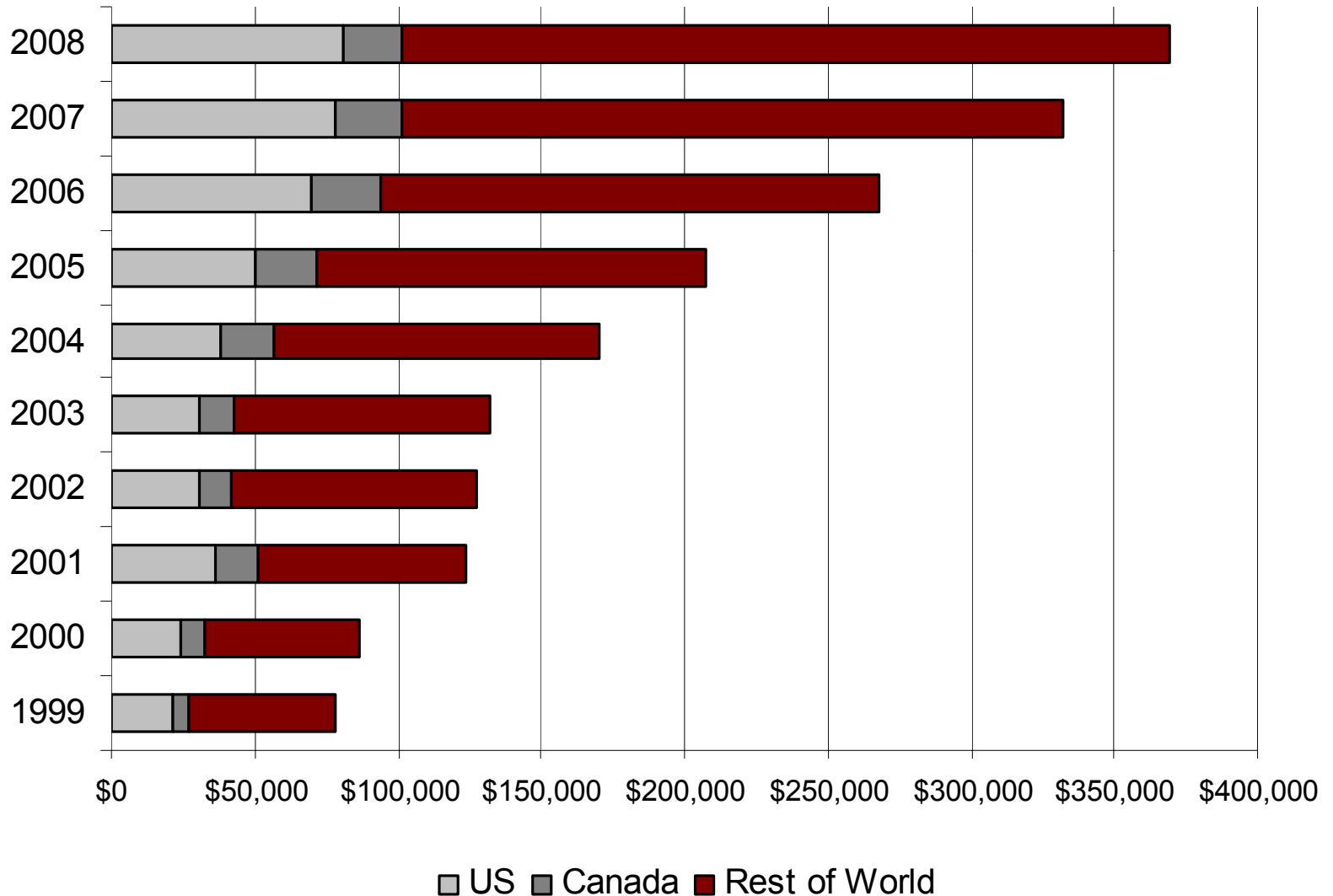
World Oil Demand Distribution

million barrels/day



Oil & Gas E&P Expenditures

\$ millions



Investment in Energy Infrastructure

\$ billion in year-2006 dollars

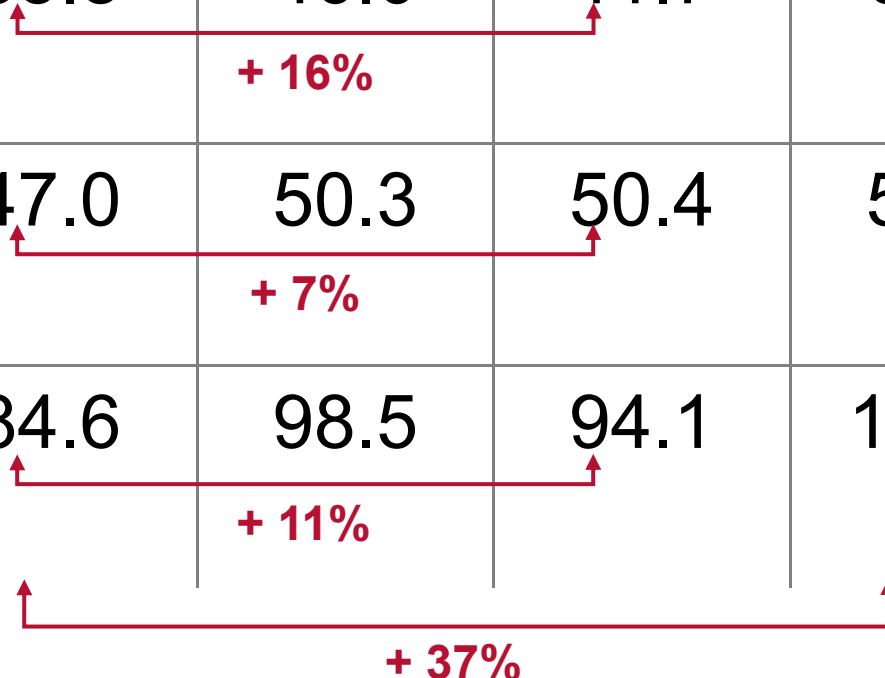
Cumulative investment in energy-supply infrastructure from the IEA World Energy Outlook reference scenario, 2006-2030

	Coal	Oil	Gas	Power	Total
OECD	146	1,377	1,774	4,661	8,082
Transition economies	40	769	657	681	2,148
Developing countries	369	2,968	1,716	6,220	11,338
World	597	5,360	4,229	11,562	21,936

World Oil Production

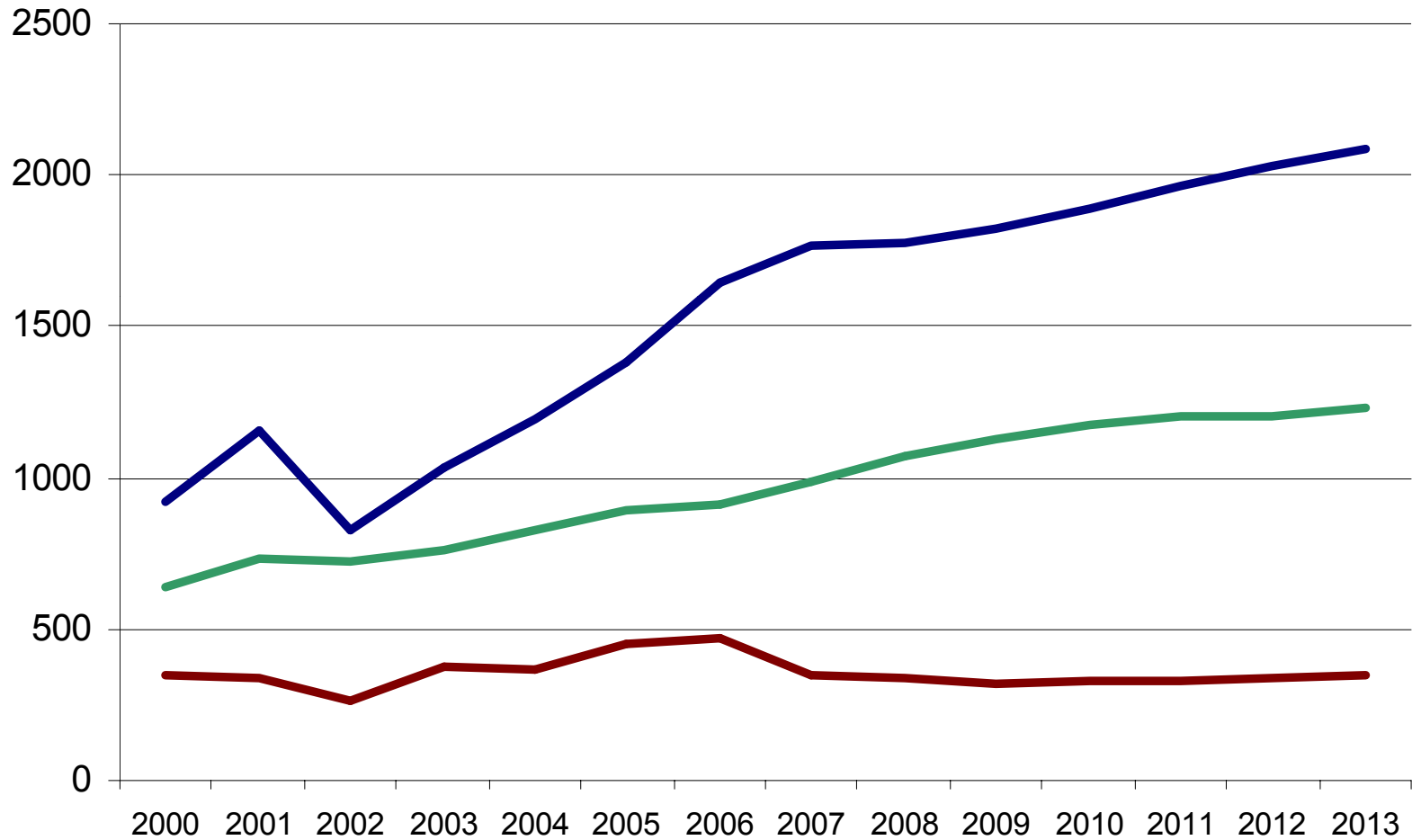
million b/d

	2006	2015		2030	
		Reference	Alternative Policy	Reference	Alternative Policy
OPEC	35.8	46.0	41.7	60.6	46.6
Non-OPEC	47.0	50.3	50.4	53.2	53.4
World	84.6	98.5	94.1	116.3	102.3



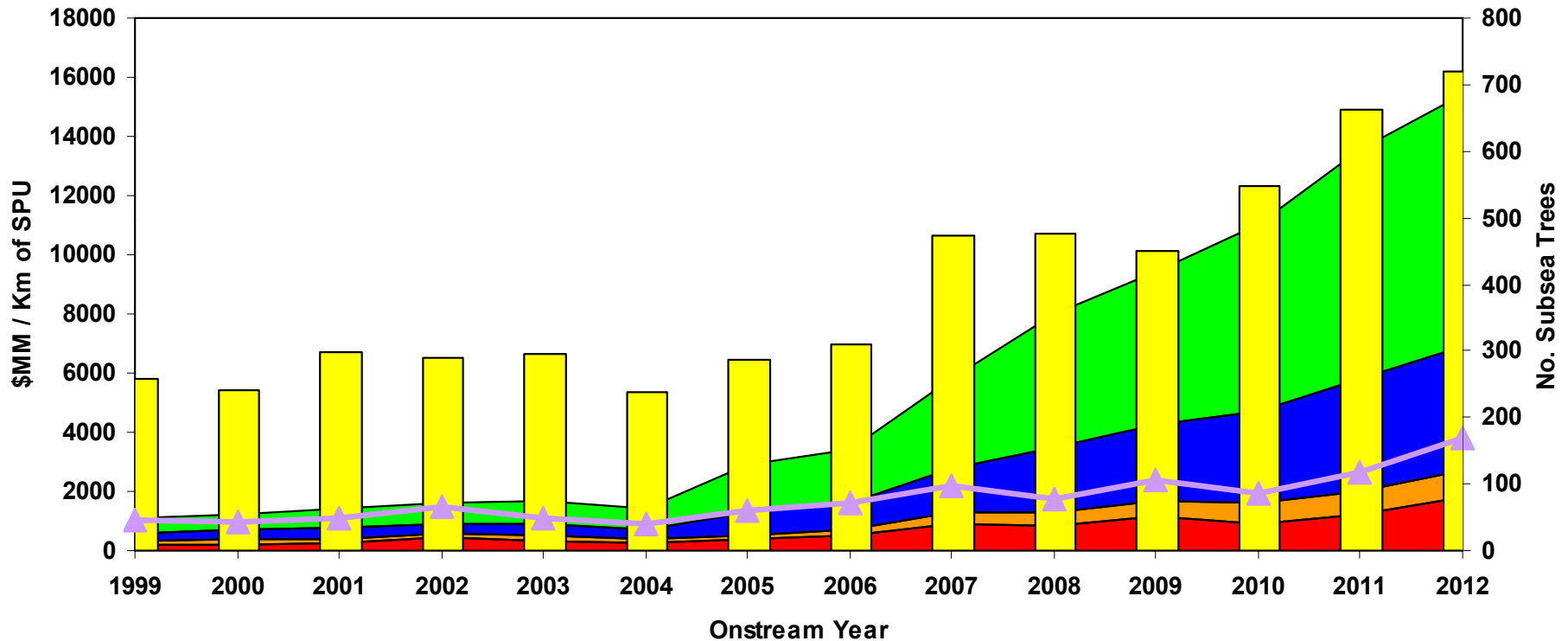
Forecast Rig Activity

Source: Spears & Associates



— US Active Rigs — Canada Active Rigs — Rest of World Active Rigs

Subsea Activity Forecast



■ \$MM - subsea production umbilicals installed

■ \$MM - subsea manifolds

■ \$MM - tree control pkg (flying leads, jumper, MCS, HPU, UTA, J-Plate)

■ \$MM - subsea trees & control pod: (chokes, sensor pkg.)

■ No. subsea trees (well completions) by onstream year

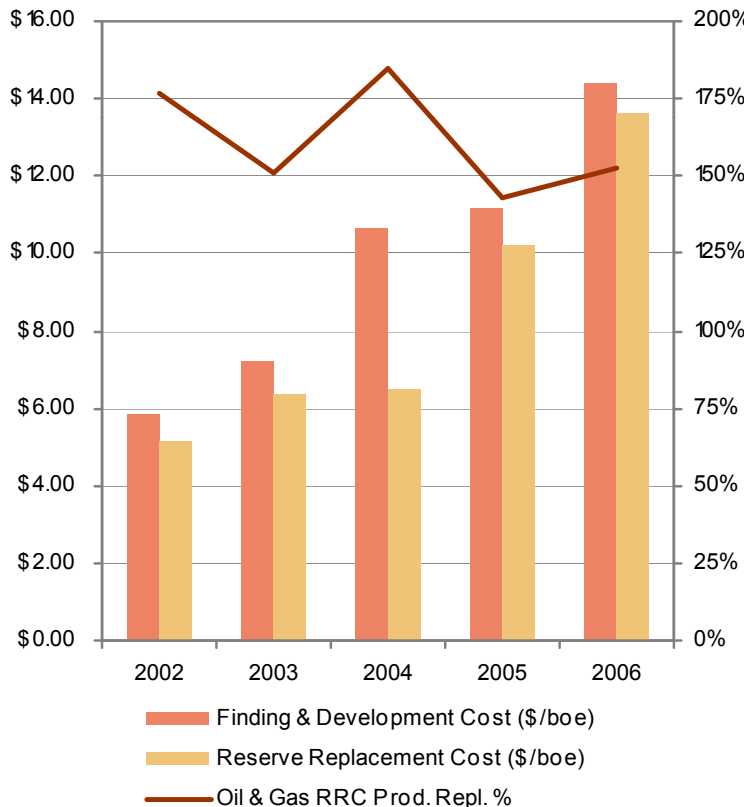
—▲ Km - subsea production umbilicals installed

Upstream Cost Inflation :

Evidence in Display

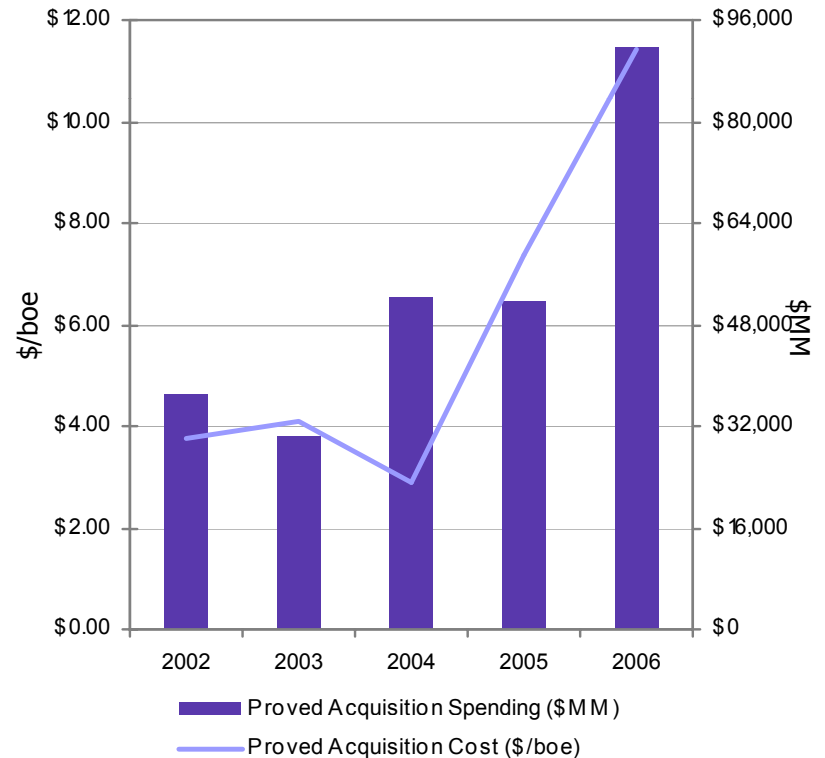
Flat Reserve Replacement

Replacement Rates Flat Despite Capex Surge



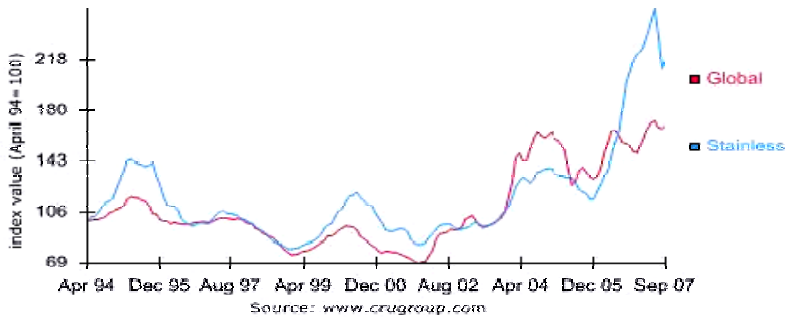
Spiraling Acquisition Costs

Proved Acquisition Costs Spiral Higher



Unavoidable Cost Factors

Stainless Steel



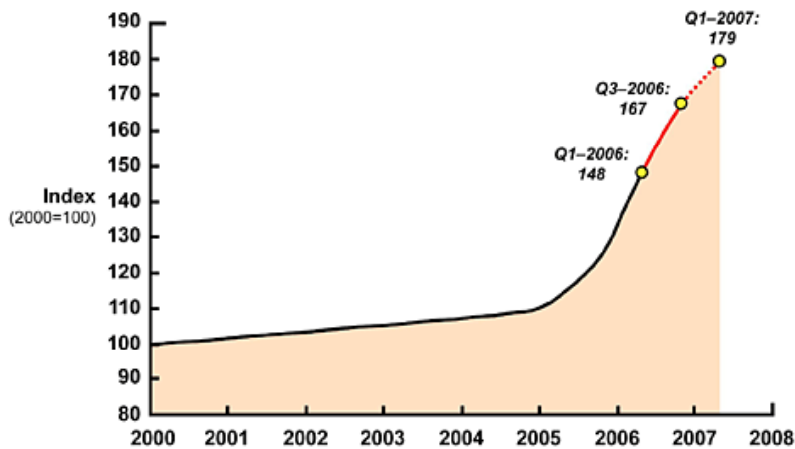
Source : CRU Group

Non-ferrous Metals



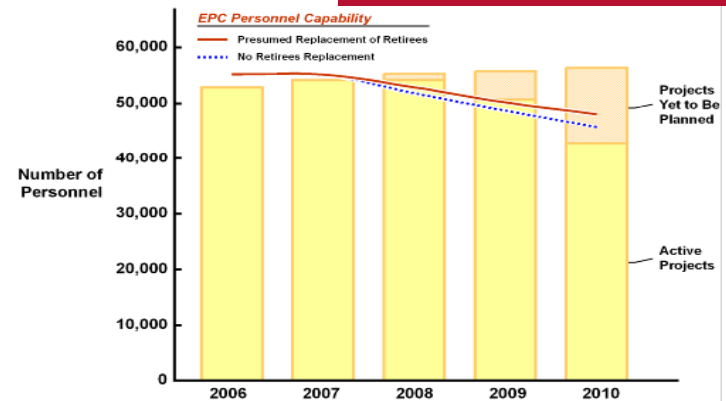
Source : London Metal Exchange

Increasing Cost of Capital



Source: Cambridge Energy Research Associates

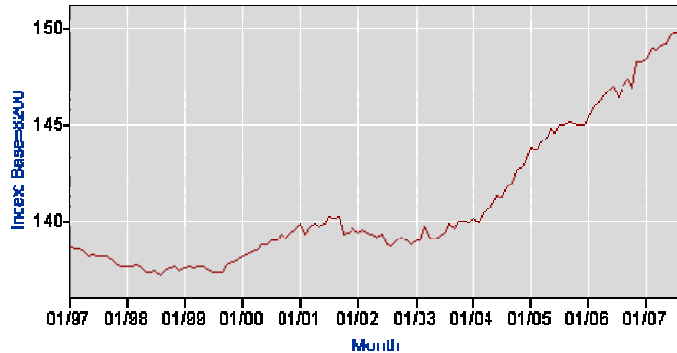
Demography Crunch



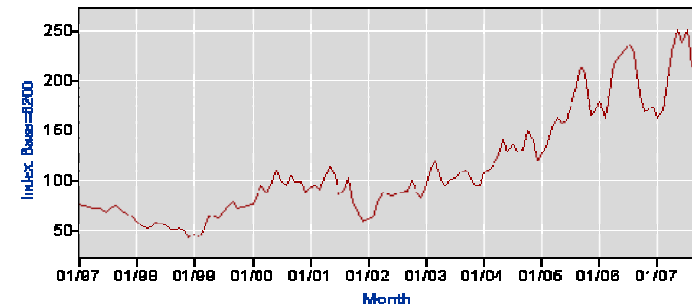
Source: Cambridge Energy Research Associates

Unavoidable Cost Factors

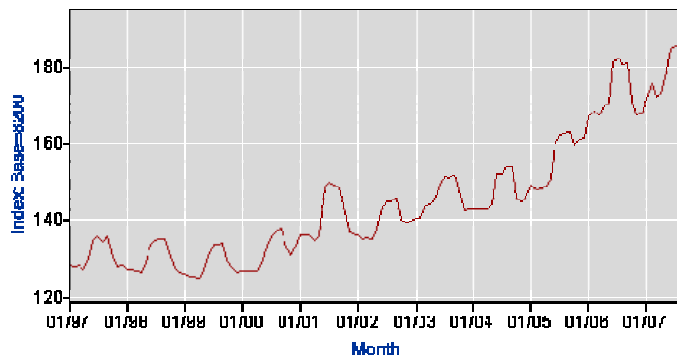
Capital Equipment



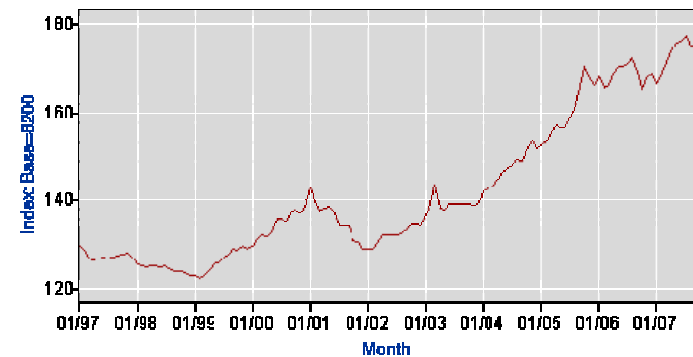
Gasoline



Industrial Electric Power



Industrial Commodities



Our Situation

- Strong demand drives prices up
- Strong prices improve field development economics..... even in a mature market
- Mature, extreme and unconventional reservoirs become more attractive...
...
- But technology is an **imperative**.

Technology Imperative :

Broad / Deep / Underutilized

Well
Architecture

Maximize Reservoir Contact:

Design a well that is easy to drill and complete at an optimized cost

Drilling
Efficiency

Optimize Well Costs:

Drill faster and mitigate hazards to deliver cost certainty

Well
Productivity

Boost Well Productivity:

Assure better placed wells and minimize formation damage

Reservoir
Recovery

Maximize Reservoir Recovery:

Couple data with action enabling controls and techniques to inform reservoir management

Drilling with casing

Expandable Casing

Controlled Pressure
Drilling®

Rig mechanization

Multilaterals

Expandable Screens

Rotary steerable
systems

LWD/MWD

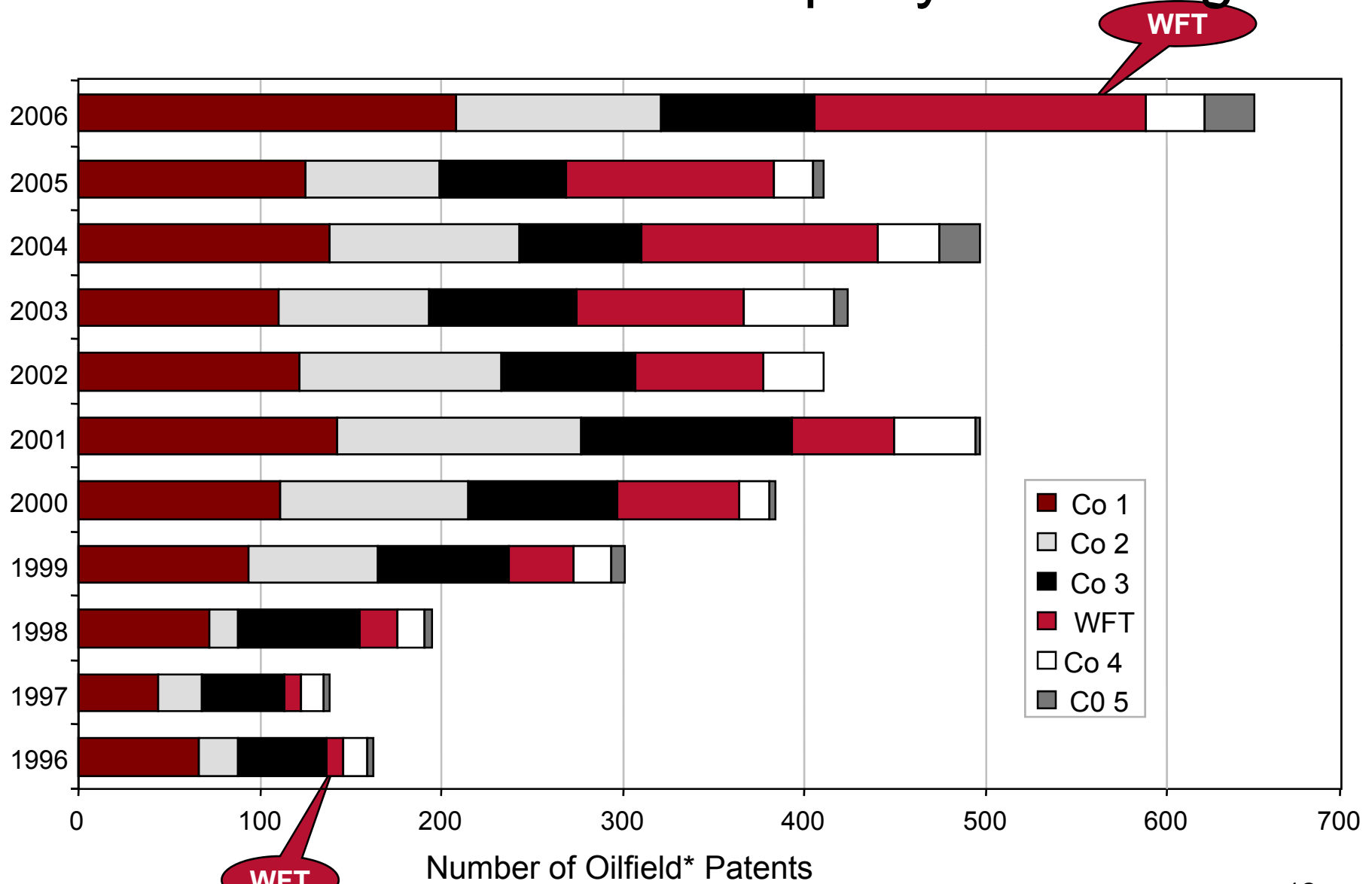
Optical sensing

Production optimization

Formation Evaluation

Geo Sciences

Pursuit of Intellectual Property Advantage



* WIPO IPC E21B

All Types of Technology Matters

Incremental change

Top drive casing make-up enables drilling with casing

Complete step change

In-well expansion of solid and slotted tubulars

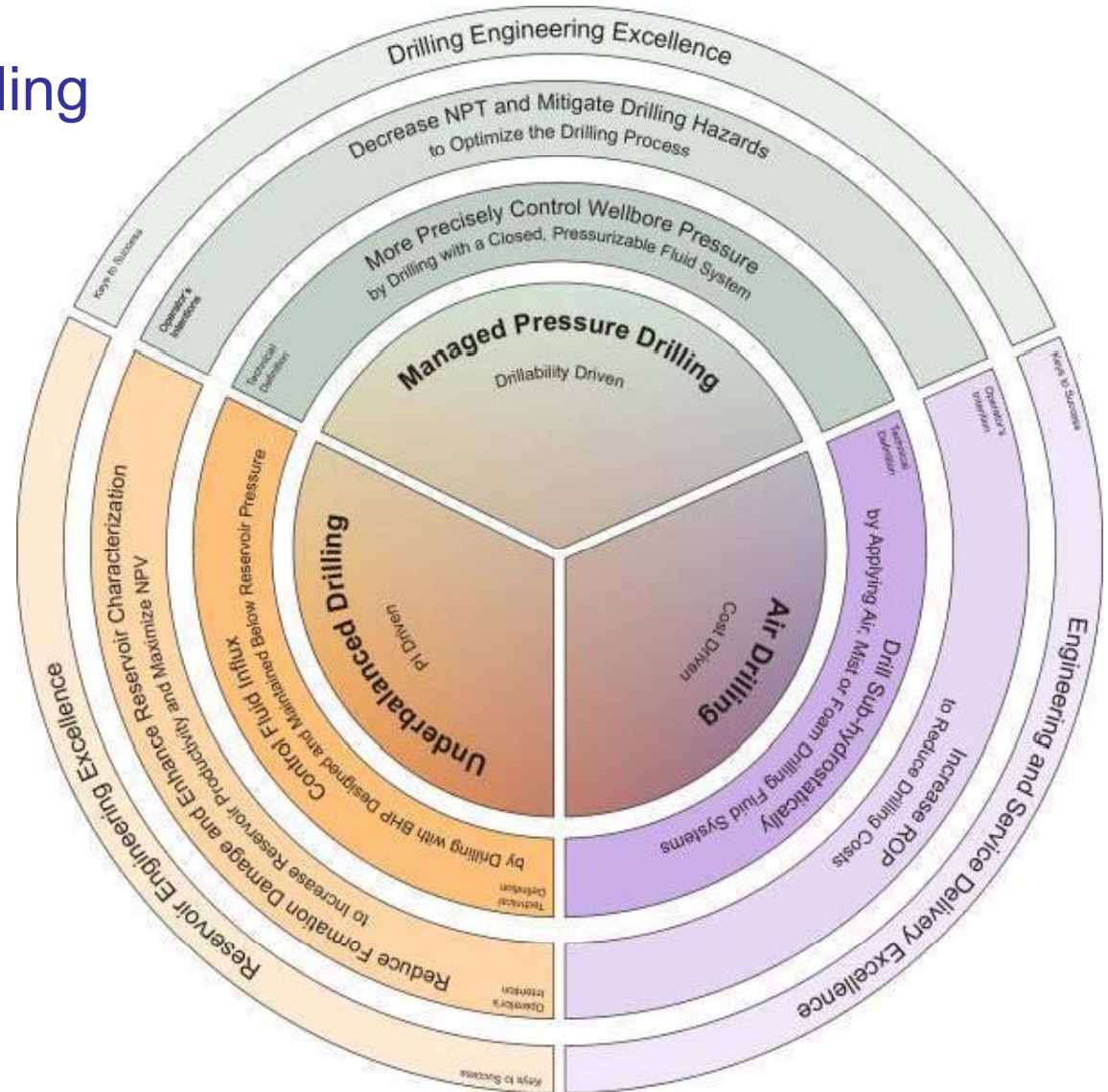
Old idea made new

Extended application of air drilling technology

Technology Traction : Deliver a Technique

Controlled Pressure Drilling

- Candidate Screening
- Well Engineering
- Pressure Control
 - Rotating Control Device
 - Downhole Deployment Valve
- Data acquisition
- Fluids
- Surface systems



Technology Imperative : Age of Drainage

- Optimized well construction
- Directional drilling
- Controlled pressure drilling
- Flexible formation evaluation
- Multilaterals
- Expandables
- Subsurface monitoring
- Subsurface control systems

