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## **Energy Futures & Future Players**

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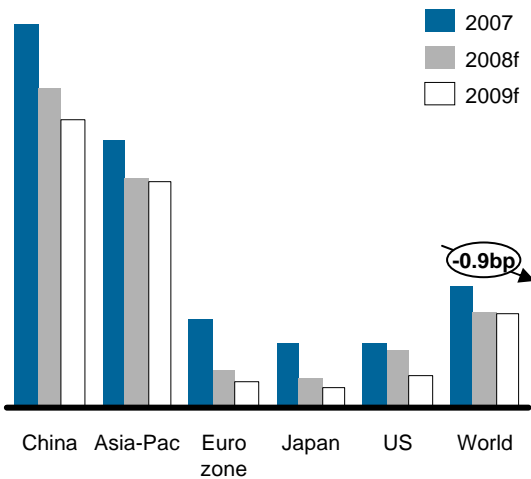


**ENERGY FORUM**  
JAMES A. BAKER III  
INSTITUTE FOR  
PUBLIC POLICY  
RICE UNIVERSITY

October 27<sup>th</sup> 2008

## Slowing growth

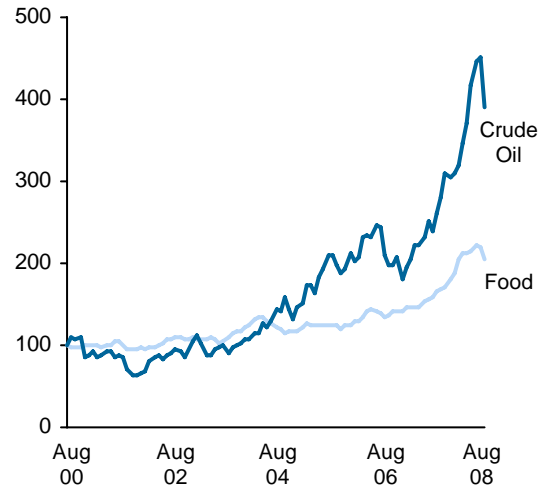
**GDP Growth Rates**  
(real annual percentage change)



Source: Accenture P&CA Analysis

## Volatile commodity prices

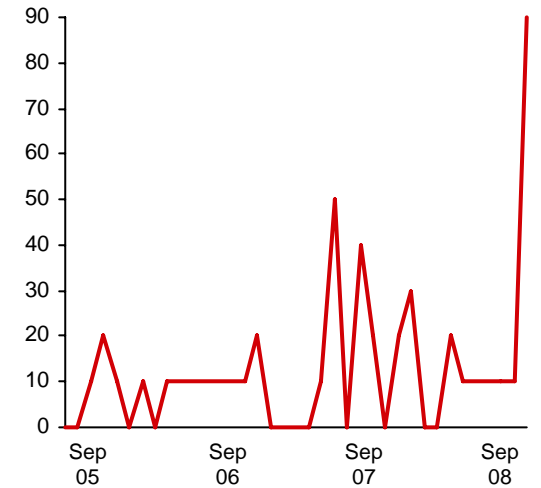
**Oil & Food prices**  
(Indexed, August 2000 = 100)



Source: EIU, Accenture P&CA Analysis

## Tighter credit

**Cost of borrowing in wholesale money markets**  
(Basis point spread of 1-week LIBOR against BoE)

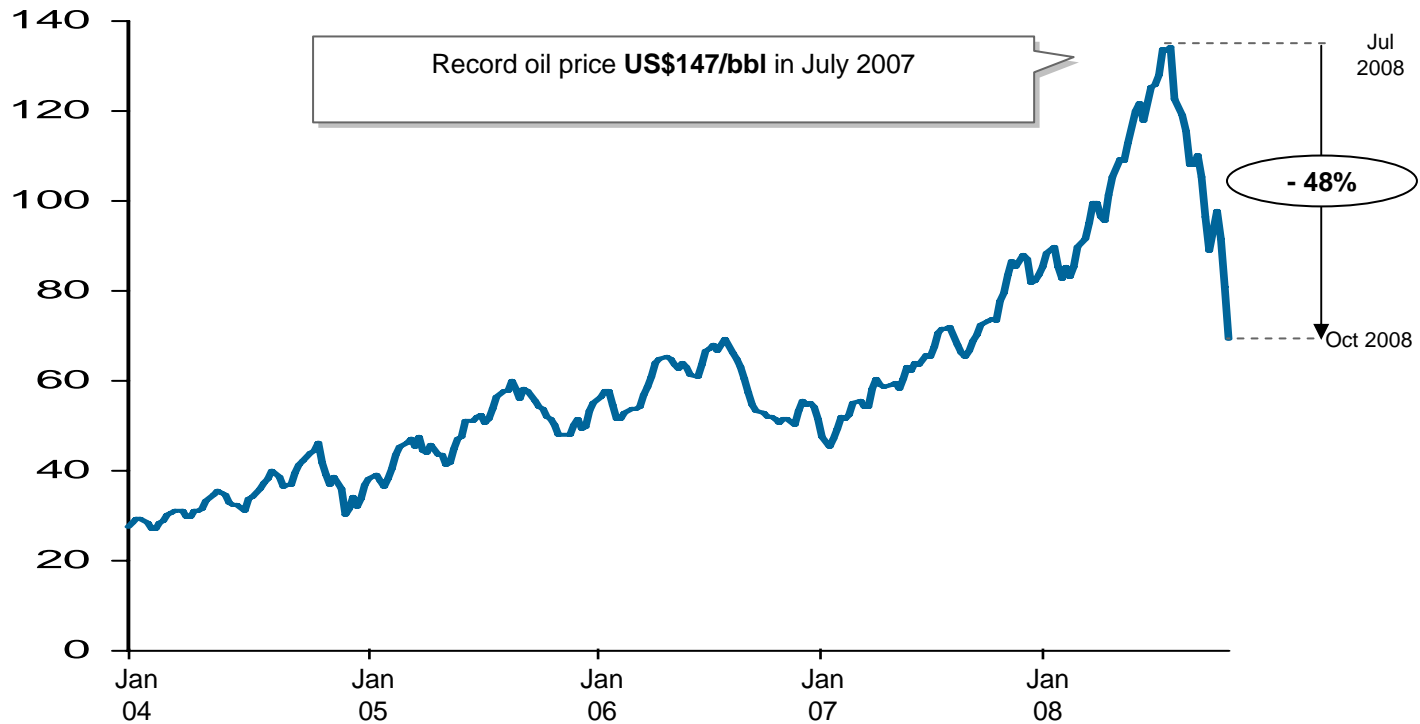


Source: Bank of England, Accenture P&CA Analysis

# Oil price halves in 4 months

Crude oil price plummets:  
*Oil price has halved in 4 months*

Weekly US spot crude price\*  
(US\$/bbl)



\*Weekly US spot price FOB weighted by Estimated Import Volume  
Source: Energy Information Administration, Accenture Analysis

# The fundamental long-term drivers remain the same

## Upstream

## Midstream & Downstream

## Renewables

### Key Drivers

- |  |   |   |
|--|---|---|
| <ul style="list-style-type: none"> <li>• Demand continues to rise particularly from developing countries</li> <li>• Era of easy-oil is over, fields are increasingly more complex or difficult to access</li> <li>• A structural, upward cost shift and more areas open up and are economically feasible</li> <li>• Players battle to strengthen position</li> <li>• Increasing role of gas</li> </ul> | <ul style="list-style-type: none"> <li>• Demand shifting increasingly to emerging economies</li> <li>• Crude feedstock becoming heavier. Demand for light, medium and more complex petrochemical products increasing</li> <li>• Downstream has been squeezed in 2008 by high oil prices, though this will ease given a low</li> <li>• Current underinvestment in new refineries is likely to result in capacity constraints as demand outstrips supply between 2010-2015</li> </ul> | <ul style="list-style-type: none"> <li>• Growing policy support and consumer demand for action on climate change and switching energy source</li> <li>• Stricter government targets on carbon emissions</li> <li>• 1st generation biofuels are set to play a much larger role in meeting world road-transport fuel demand</li> <li>• Increasing importance of green business credentials and reduction of carbon footprint</li> </ul> |
|--|---|---|

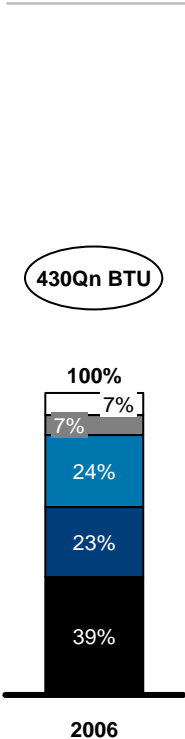
### Cross Segment Drivers

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Increasing M&amp;A and alliances</li> <li>• Internationalisation of NOCs and resource nationalism</li> </ul> | <ul style="list-style-type: none"> <li>• Technologies to convert heavy oil to lighter oil in great demand</li> <li>• Increasing skills shortage</li> </ul> |
|---|--|

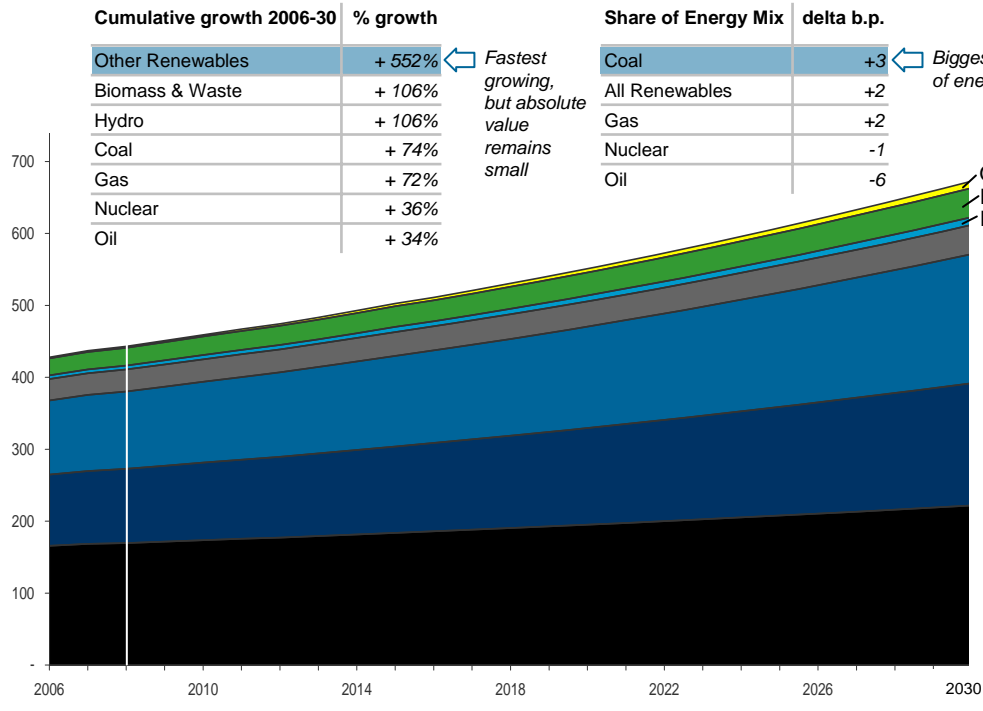
# Oil, coal and gas dominate in 2030, but renewables are the fastest growing, and coal gains the biggest increase in share of energy mix

## Growth by energy type

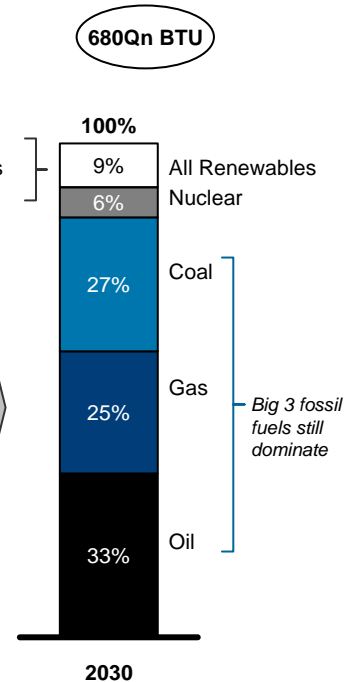
2006 Energy Mix (% share)



Projected Primary Energy Demand 2006 – 2030 (Quadrillion BTU)



2030 Energy Mix (% share)

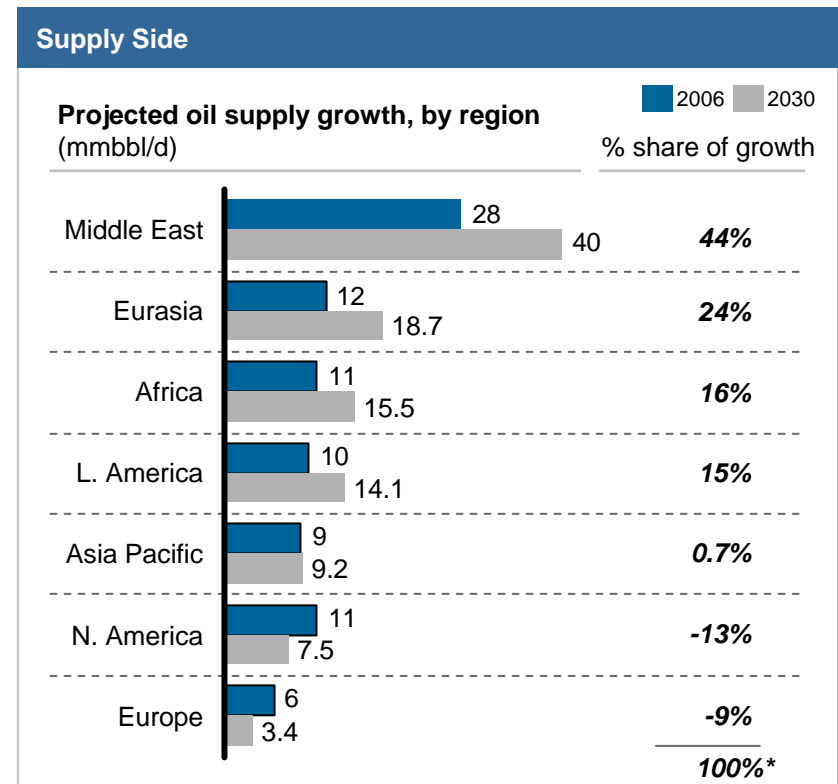
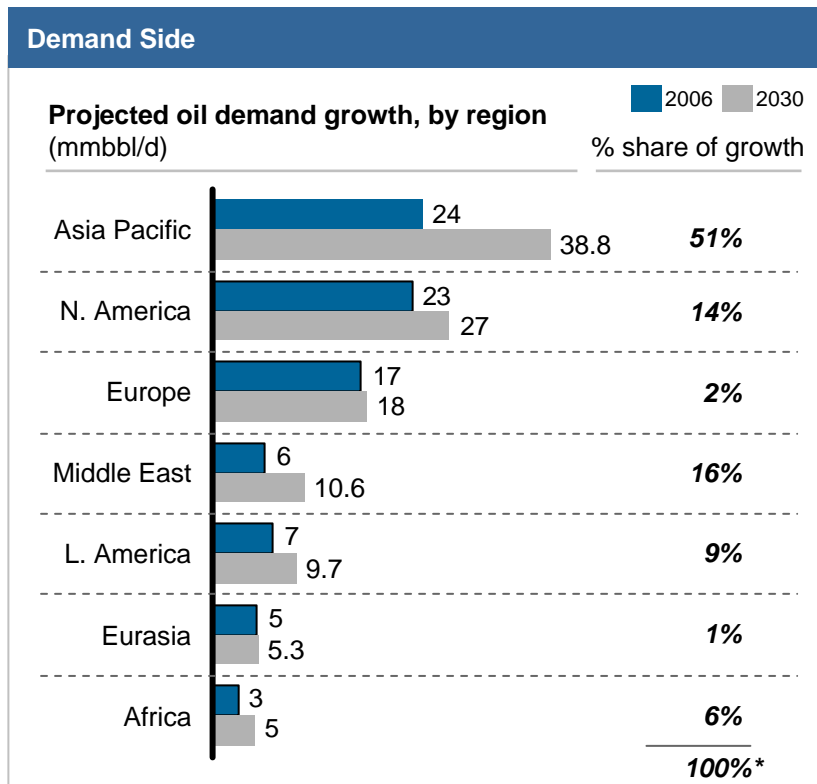


Share of Energy Mix	delta b.p.
Coal	+3
All Renewables	+2
Gas	+2
Nuclear	-1
Oil	-6

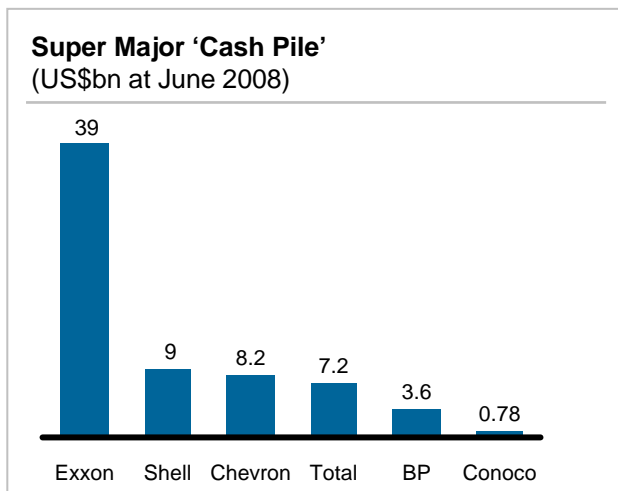
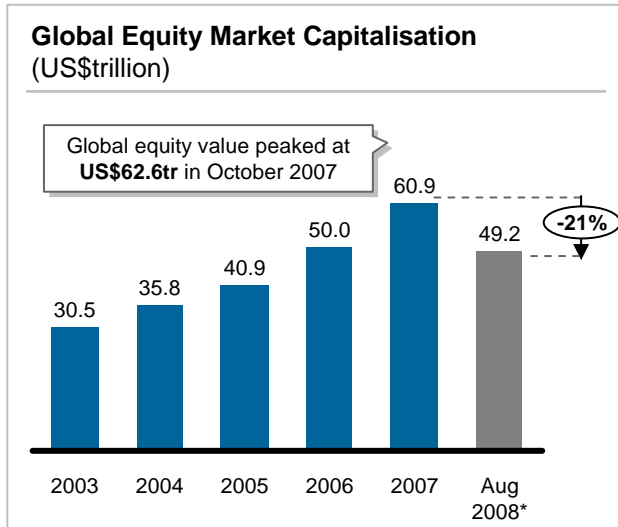
Biggest gainer of energy mix

Source: CERA, Accenture analysis  
 \* Includes all renewables (Hydro, Biomass & Waste and Other)  
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# Asia drives 50% of demand growth to 2030, the Middle East will dominate supply, but in the short term, demand dampens and supply is restricted accenture



Source: CERA, Accenture analysis  
 \* May not sum to 100% due to rounding and negative values  
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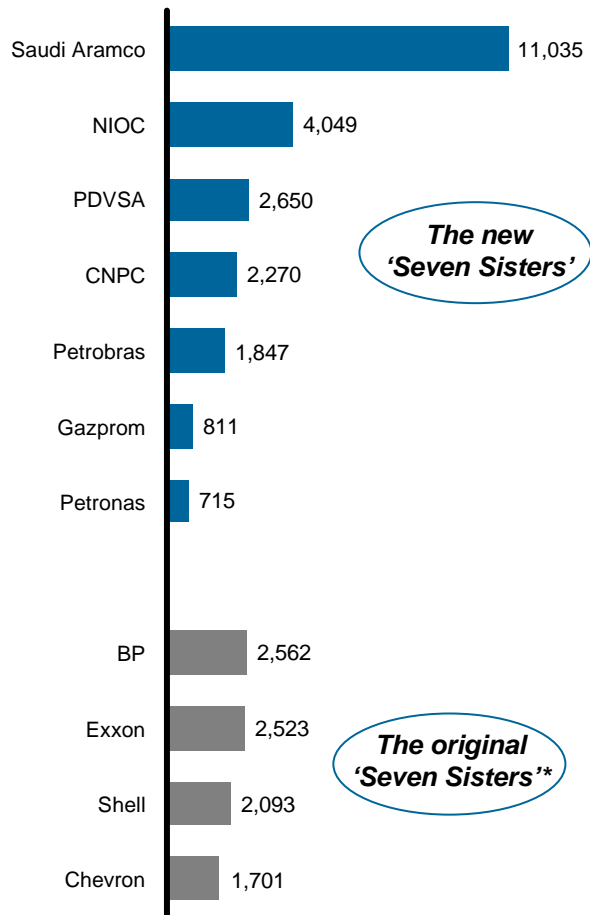
## Impact of the credit crunch

- Supermajors largely unaffected from a cash perspective
- M&A activity likely to increase
- Independents, Mid Caps and Oil Services first to feel the pinch
- Unconventionals at risk, renewables temporarily marginalised
- Refining future remains uncertain
- Lower capex budgets, and large projects on hold

\*Current value likely to be larger given the continued fall in equity value  
Source: Bloomberg, Capital Markets Report, Accenture Analysis  
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# Impact on players – the longer run

## Oil production (mboe/d)



- Major inflexion point in the distribution of power between NOC's, IOC's and oil service companies
  - NOC's are internationalising
  - NOC deal activity is increasing, particularly with each other
  - NOC's benefit from strong balance sheets and use of sovereign funds
  - NOC's are better now at leveraging governmental relationships
  - Oil service companies have invested heavily in their capabilities and trying to position themselves as partners to NOC's
- But, the primary energy demand curve, required investment and needs capabilities means that no group can go it alone

\*After mergers

Source: Financial Times, March 12, 2007

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## Key trends

Return to market fundamentals

Relationships

Capability

Technology

Diversification

## What will be the recipe for success?

- Robust balance sheets
- Taking advantage of market dynamics e.g. low asset prices
  
- NOCs and IOC partnerships
- Exploit a new wave of M&A
- IOCs that develop differentiated value propositions
  
- Attract and retain the best talent
  
- Invest heavily in efficient technology in the short term such as refining efficiency, and enhanced oil recovery
  
- Build economically viable renewable projects
- Secure government subsidies in alternative energy
- Reputation for security of supply



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## **Additional Information**

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