



# Challenges and Opportunities for NOCs and IOCs

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## **NOC Challenges**

- **Accessing capital**
- **Operational and decision-making autonomy**
- **Human resources**
- **Adjusting to low carbon economy**
- **Technology for new geological challenges**

**→ Keeping government's trust**

## IOC Challenges

- Accessing capital
- Operational and decision-making autonomy
- **Human resources**
- **Adjusting to low carbon economy**
- **Technology for new geological challenges**
- ***Competing with NOCs***
- ***Differentiating themselves from service companies***
- ***Reserve growth***

➔ **Reinventing themselves**

# NOCs have different finance mechanisms

Government budget allocation	NIOC, PEMEX, SOC & MOC (Iraq), NNPC
Retained earnings Accumulated cash reserves?	Saudi Aramco, KPC, ADNOC, Sonatrach, KMG EP, CNOOC, Petronas, Sonangol, StatoilHydro, Qatar Petroleum
Equity partners	NNPC, NIOC, ADNOC, Sonatrach, KMG, PDVSA, SOC and MOC, Qatar Petroleum
Loan and bond markets	Sonatrach, NIOC, PDVSA, CNOOC, PetroChina, PEMEX, Qatar Petroleum
Stock markets	KMG EP, CNOOC, Petrobras, Petrochina, StatoilHydro, PTT

## **NOCs need operational and decision-making autonomy**

- NOCs are often smothered by government or parliament interference.
- Clear delineation of roles and responsibilities necessary.

# The human resource challenge

	Large pool of educated graduates	NOC attractive employer	Country safe and stable
Iraq			
Iran	✓		
Saudi Arabia		✓	✓
Angola		✓	
Russia	✓		✓
Brazil	✓	✓	✓
China	✓	✓	✓

Education mismatch with industry needs

Severe country and industry brain drain.

Country under-developed

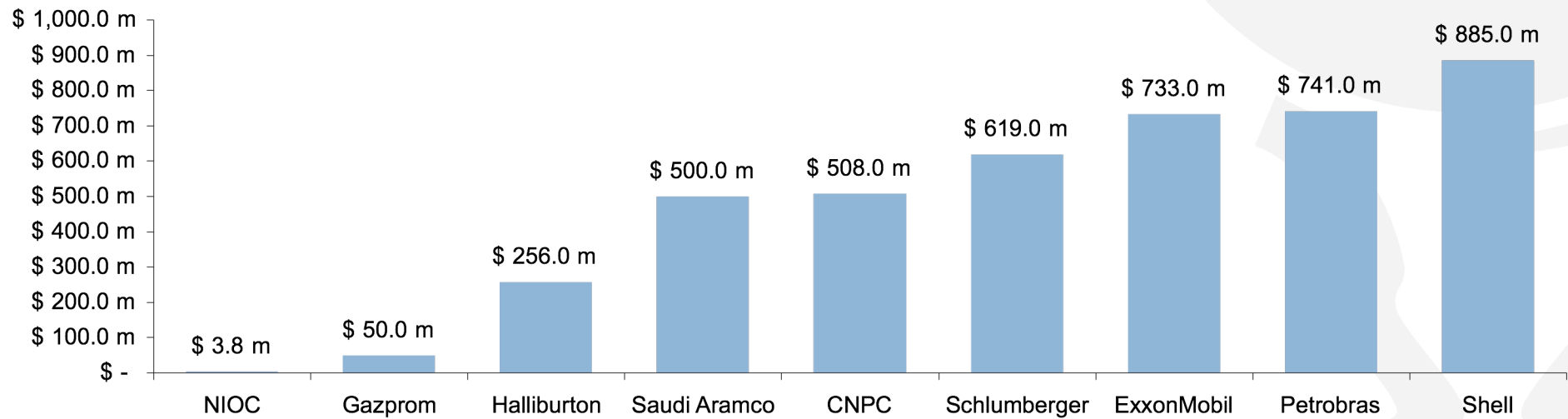
Poaching will affect supply

Demand for talent outpaces supply

National industry brain drain

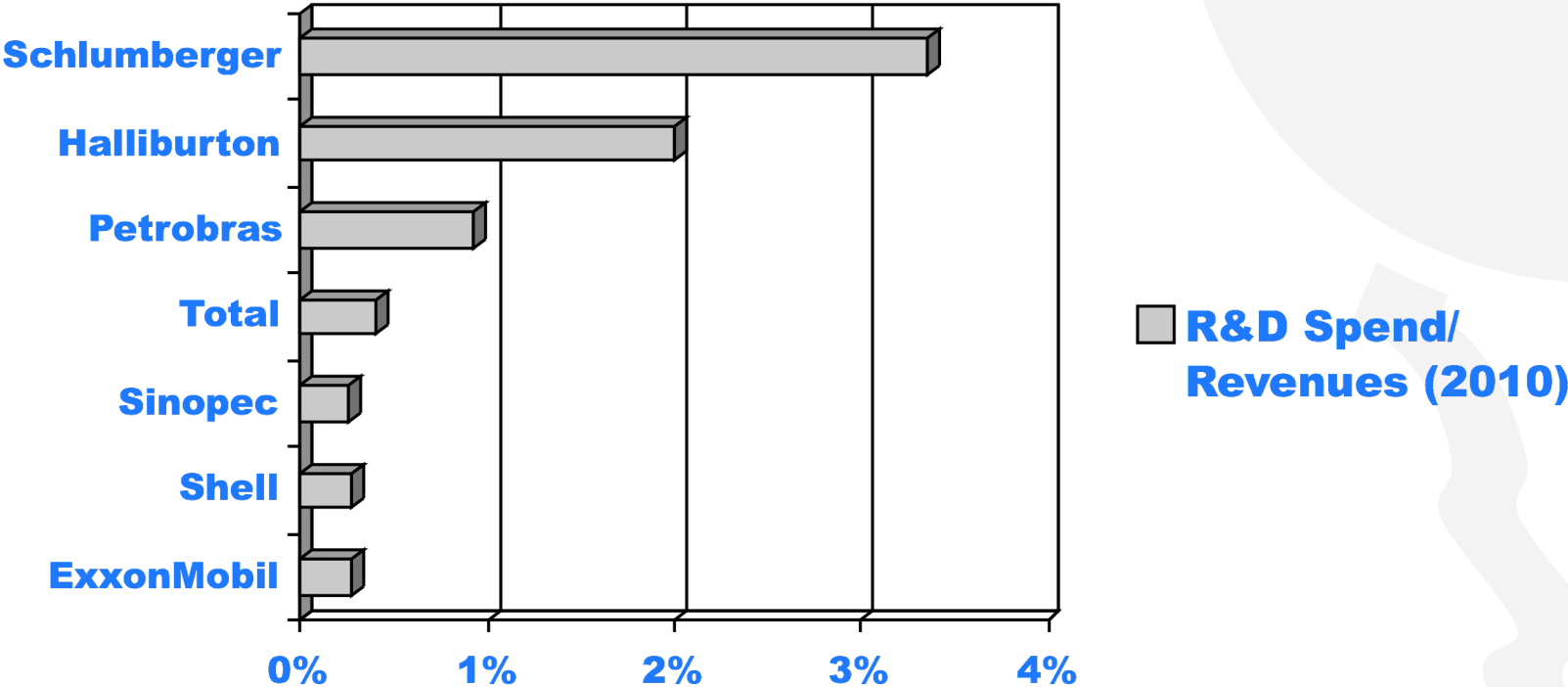
# Responding to new geological challenges

Investment in R&D (2006)



Source: Valérie Marcel, "Key Issues for Rising NOCs", KPMG International, 2008.

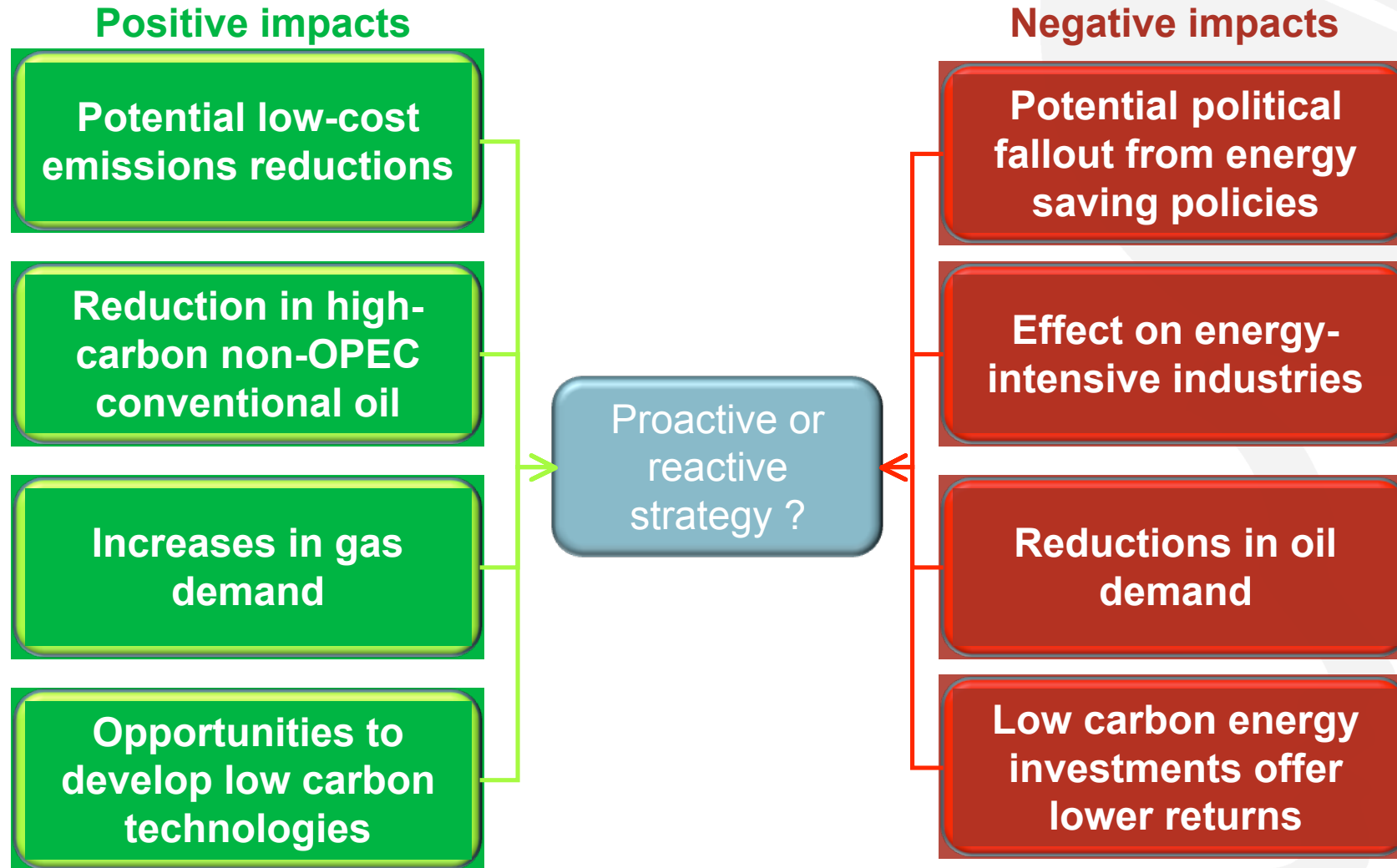
# R&D expenditure as a share of revenues



Source: Company Annual Reports 2010.



# Effect of climate policy on major oil exporters



## Conclusions (1/2)

NOCs will have increased responsibilities:

- Using and finding new technologies to maintain production capacity
- Going into new types of oil and gas
- Developing national capacity (people, businesses, industries)
- Preparing their countries for a low carbon economy
- Reducing pollution

Complex problems which will require:

- Sound strategic thinking
- Major R&D investments
- Long-term HR investments
  - Bold decisions

IOCs will find opportunities where specific NOCs have weaknesses...

## Conclusions (2/2)

IOCs face their own set of challenges:

- Higher costs, fewer 'open' reserves, more players

What will be their strategic response:

- Efficiency and marginal cost gains?
- Or big investments in people and technology?
  - More service contracts with lower returns?
  - Or risk contracts for unconventional reserves?
- New alliances with strange bedfellows?
  - Or go it alone and trail blaze?



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Presenter's contact details

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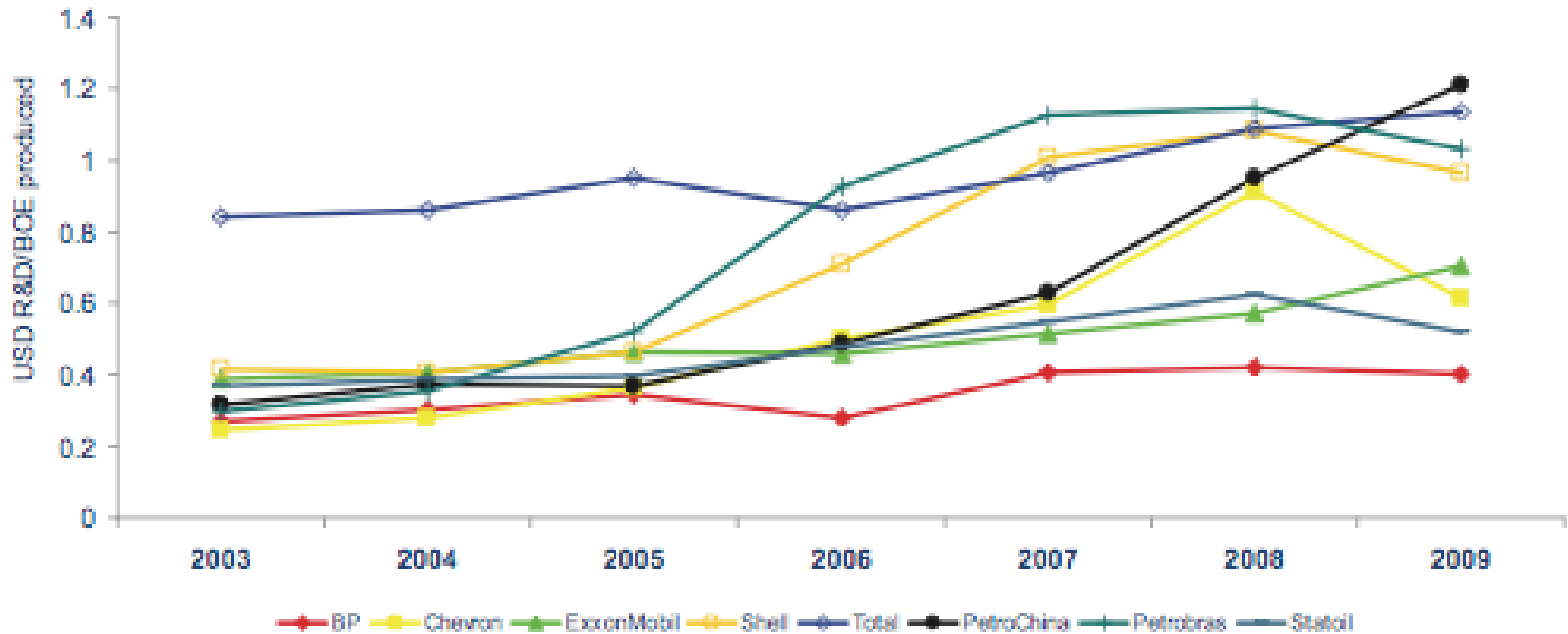
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# R&D spend per BOE produced for select companies



Source: ADL Analysis, Herold