Challenges and Opportunities for NOCs and IOCs

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2nd IEF NOC-IOC Forum
7-8 April 2011, Paris
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

<table>
<thead>
<tr>
<th>Finance Mechanism</th>
<th>Companies</th>
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<tbody>
<tr>
<td>Government budget allocation</td>
<td>NIOC, PEMEX, SOC &amp; MOC (Iraq), NNPC</td>
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<tr>
<td>Retained earnings</td>
<td>Saudi Aramco, KPC, ADNOC, Sonatrach, KMG EP, CNOOC, Petronas, Sonangol,</td>
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<td>StatoilHydro, Qatar Petroleum</td>
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<td>Equity partners</td>
<td>NNPC, NIOC, ADNOC, Sonatrach, KMG, PDVSA, SOC and MOC, Qatar Petroleum</td>
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<td>Loan and bond markets</td>
<td>Sonatrach, NIOC, PDVSA, CNOOC, PetroChina, PEMEX, Qatar Petroleum</td>
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<tr>
<td>Stock markets</td>
<td>KMG EP, CNOOC, Petrobras, PetroChina, StatoilHydro, PTT</td>
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**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

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<th>Large pool of educated graduates</th>
<th>NOC attractive employer</th>
<th>Country safe and stable</th>
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<tbody>
<tr>
<td>Iraq</td>
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<td>Iran</td>
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<td>Saudi Arabia</td>
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<td>China</td>
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**Education mismatch with industry needs**

- Severe country and industry brain drain.
- Country underdeveloped

**Demand for talent outpaces supply**

**National industry brain drain**

**Poaching will affect supply**
Responding to new geological challenges

Investment in R&D (2006)

R&D expenditure as a share of revenues

Source: Company Annual Reports 2010.
Effect of climate policy on major oil exporters

Positive impacts
- Potential low-cost emissions reductions
- Reduction in high-carbon non-OPEC conventional oil
- Increases in gas demand
- Opportunities to develop low carbon technologies

Negative impacts
- Potential political fallout from energy saving policies
- Effect on energy-intensive industries
- Reductions in oil demand
- Low carbon energy investments offer lower returns

Proactive or reactive strategy?

Source: Valerie Marcel; Robin M. Mills, presentation at Dubai School of Government: Natural Resources and Economic Development, 10th December 2009
**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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R&D spend per BOE produced for select companies

Source: ADL Analysis, Herold