

Energy transitions

Managing hydrocarbon assets

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Managing hydrocarbon assets

My angle

- IOCs and capital markets
- Divestment Norway style
- Carbon risk management
- Resource policy design
- Limits to growth



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What do IOCs want from investors?

License to operate - "freedom to ride"



- Capital for execution
- Equity & debt at fair prices

$$r_{WACC} = \frac{E}{E+D} r_E + \frac{D}{E+D} r_D \times (1 - \tau_C)$$

- Liquidity implies flexibility
- Principal-agent challenges

What do investors want from IOCs?

Attractive risk-adjusted investment returns

- Investors chase returns
- Perfect markets offer no "free lunch"
 - No returns without risk

$$r_i = r_f + \beta_i (E[r_{Mkt}] - r_f)$$

- Imperfections and anomalies
 - Pricing errors that can be corrected
 - Source of abnormal returns

Major oils in the stock market
USD returns ex dividend (15.12.2006 = 100)



The Norwegian divestment debate

A tale of two stories

- Diversification
 - Oil and gas exposure
 - National wealth perspective
- Climate concerns
 - Asset management guided by climate policies



Asset management and climate policies

Some thoughts on effectiveness and efficiency

- Active vs passive strategies
 - Green venture investments
- Carbon footprint reporting
 - Development of data
 - Get the incentives right
 - Challenges: reporting and restructuring
- Total restraint on climate risk
 - Let NBIM work out implications
 - Industry-neutral framework

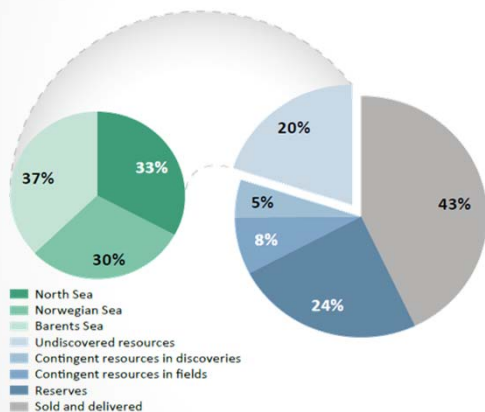


The purpose of these expectations is to express how Norges Bank Investment Management, as a financial investor expects companies to approach the challenges and opportunities associated with climate change. Our expectations are primarily directed at company boards. The expectations serve as a starting point for our interaction with companies on the topic of climate change.

Boards should integrate relevant climate change challenges and opportunities in their business management, such as investment planning, risk management, and reporting. They should ensure that responsibilities are clearly defined within the organisation and effectively guide, monitor, and review the company's management in these efforts.

Hydrocarbon assets in national wealth

National resource management and policy implications



Source: Norwegian Petroleum Directorate.

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Climate concerns vs industry activity

North Sea and Norwegian Sea: Business as usual

- Barents Sea
 - Business economics decides
- Lofoten/Vesterålen
 - All about politics



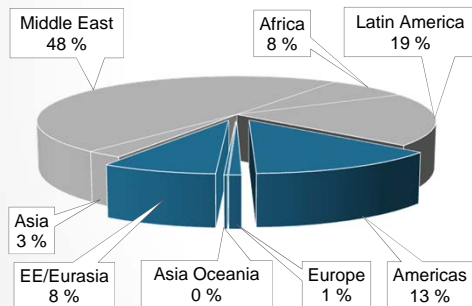
Source: Norwegian Petroleum Directorate.

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Headwinds building for oil and gas

Short-term profitability vs long-term growth

Constraints on access and supply
Proven oil and gas reserves by global region



Source: IEA (2014), *World Energy Outlook*.

Constraints on demand
Policies, preferences, and prices



Managing hydrocarbon assets

Takeaways

- Capital is abundant
- Resources are scarce
- Efficiency breeds returns
- Voters direct policies
- Constraints are looming

