Introduction to Oil and Gas Sector Governance

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Acknowledgement and Disclaimer

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Agenda

Part 1:

- Dynamics of the oil and gas industry
- Good governance principles
- Managing the discovery process
- Licensing and contracts

Part 2:

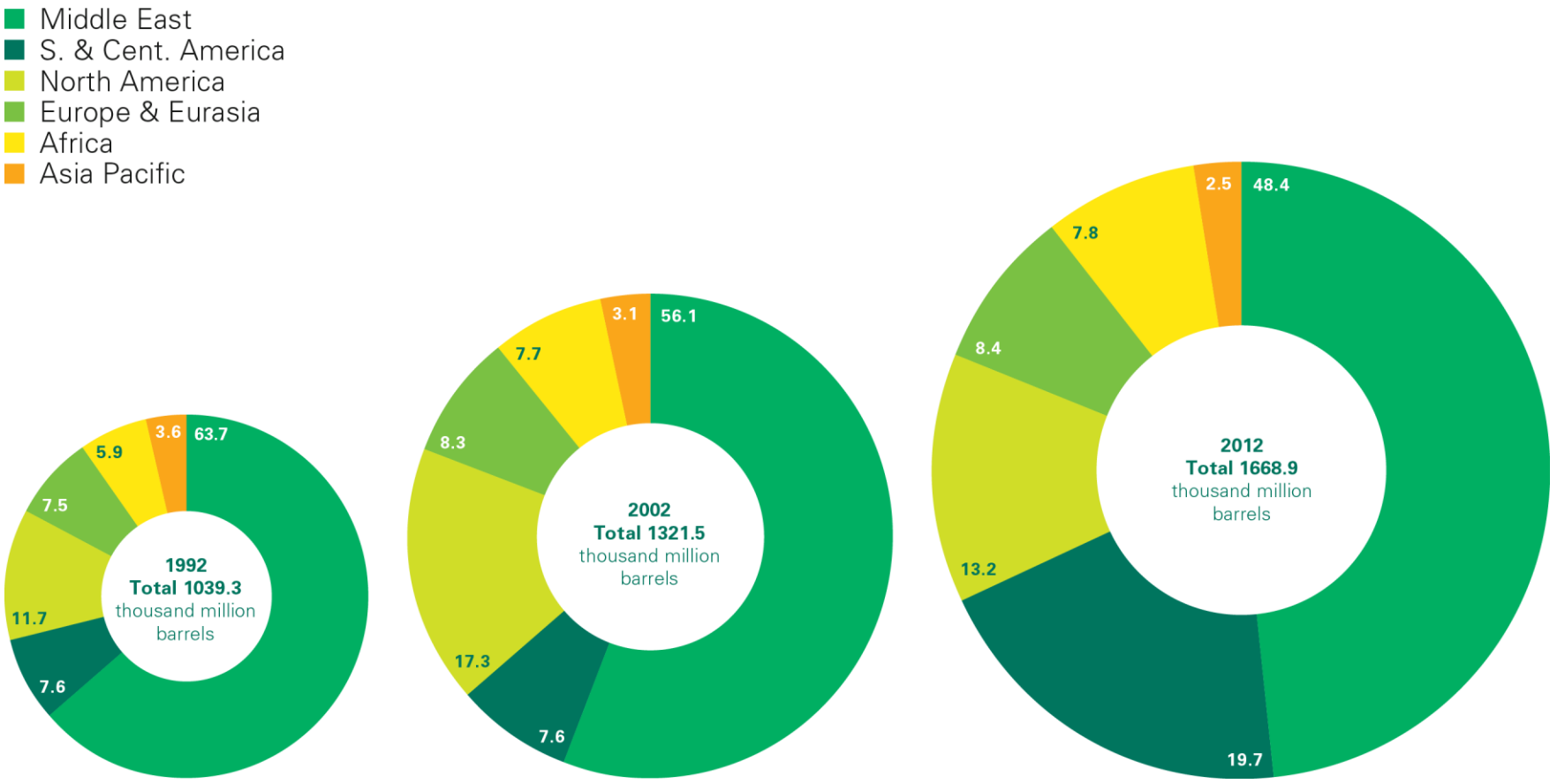
- State participation and regulation
- Revenue management/sharing
- Local content

DYNAMICS OF THE OIL AND GAS INDUSTRY

January 31, 2014

Distribution of proved oil reserves in 1992, 2002 and 2012

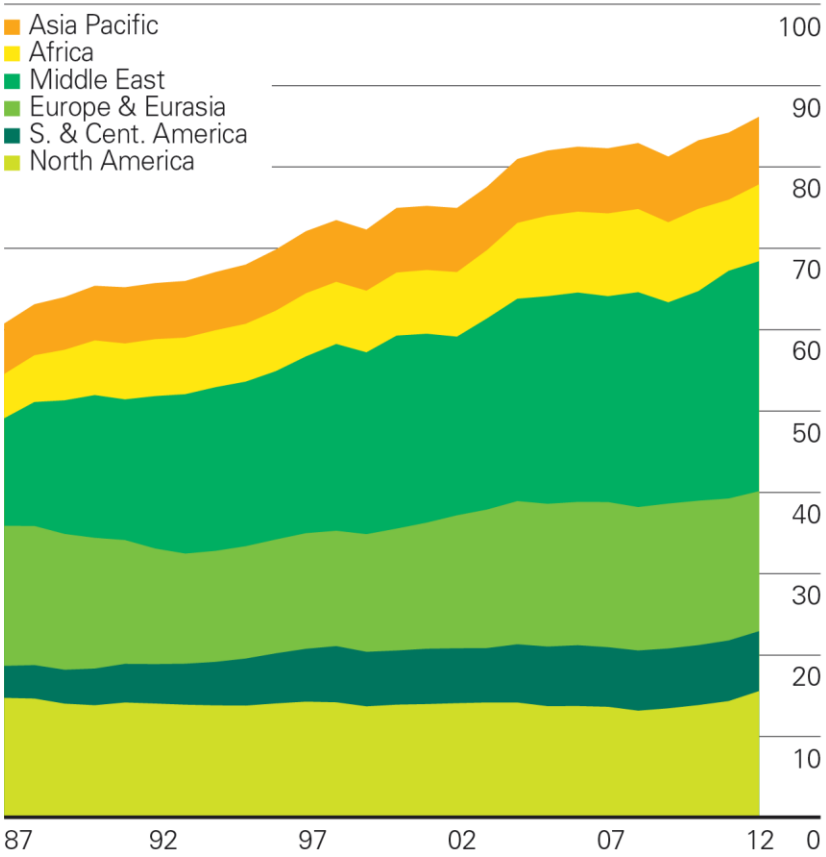
Percentage



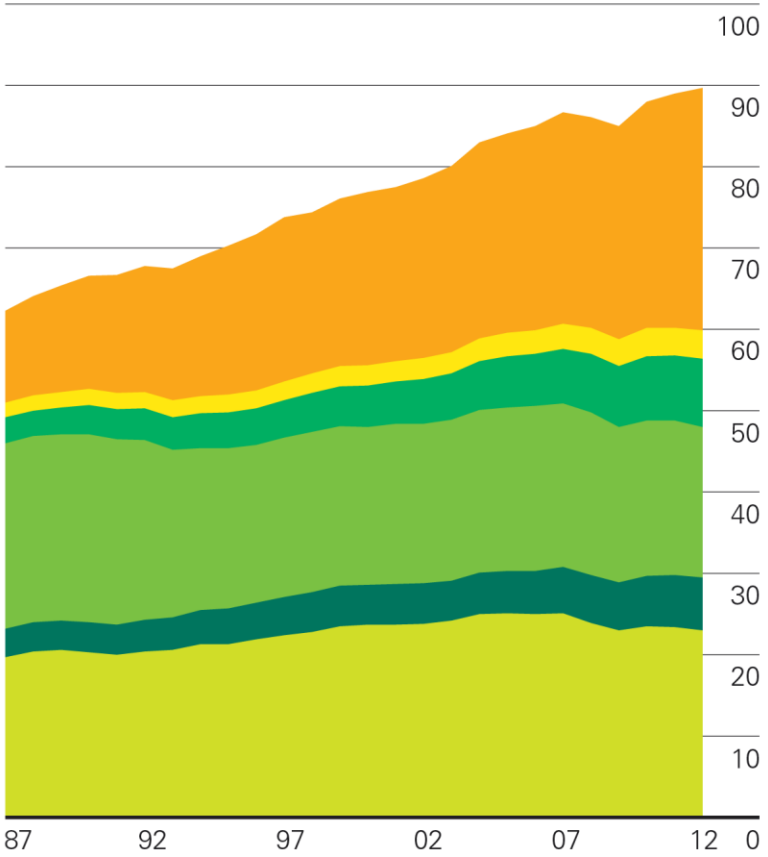
BP Statistical Review of World Energy 2013

The geopolitics of oil - production/consumption by region

Production by region

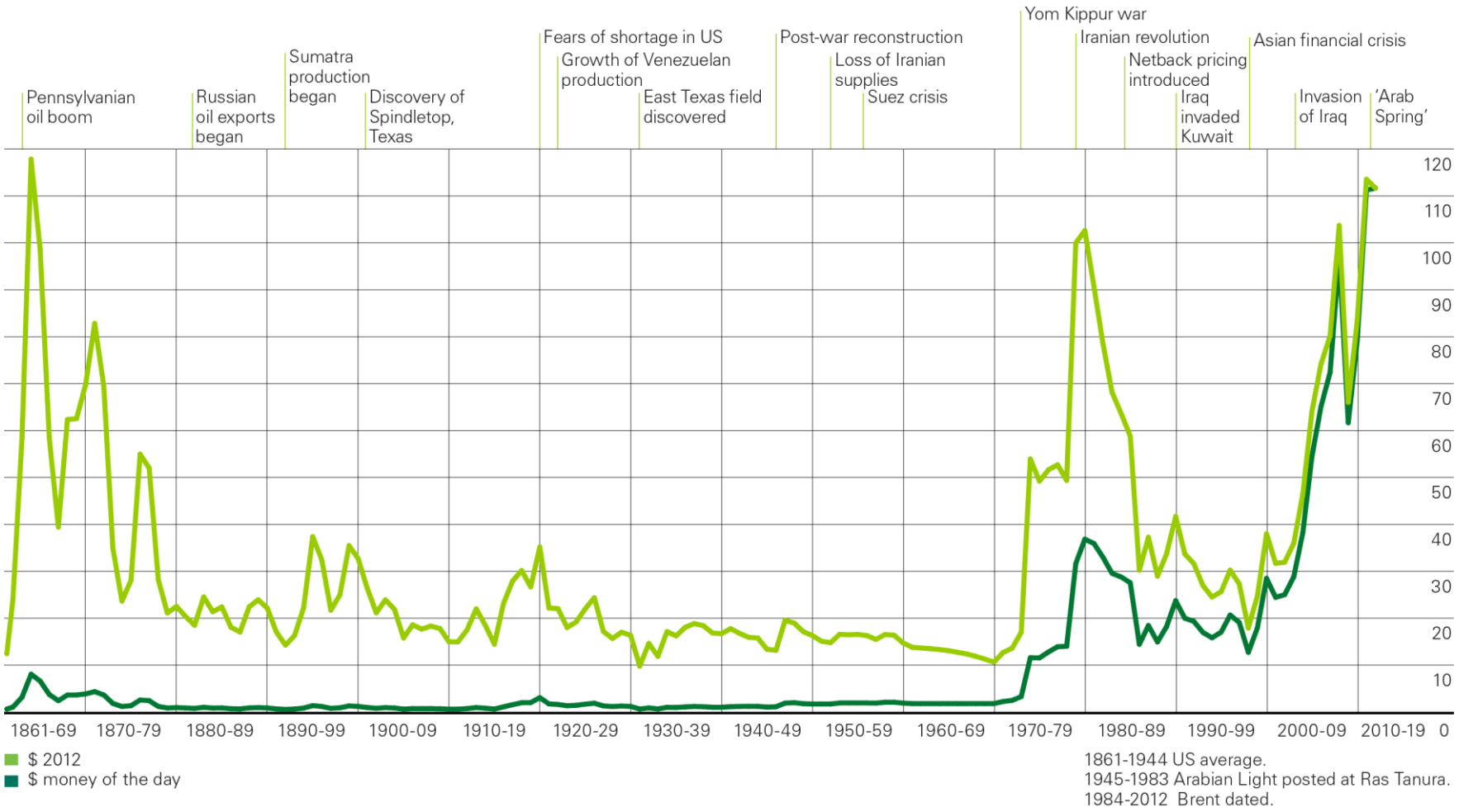


Consumption by region



BP Statistical Review of World Energy 2013

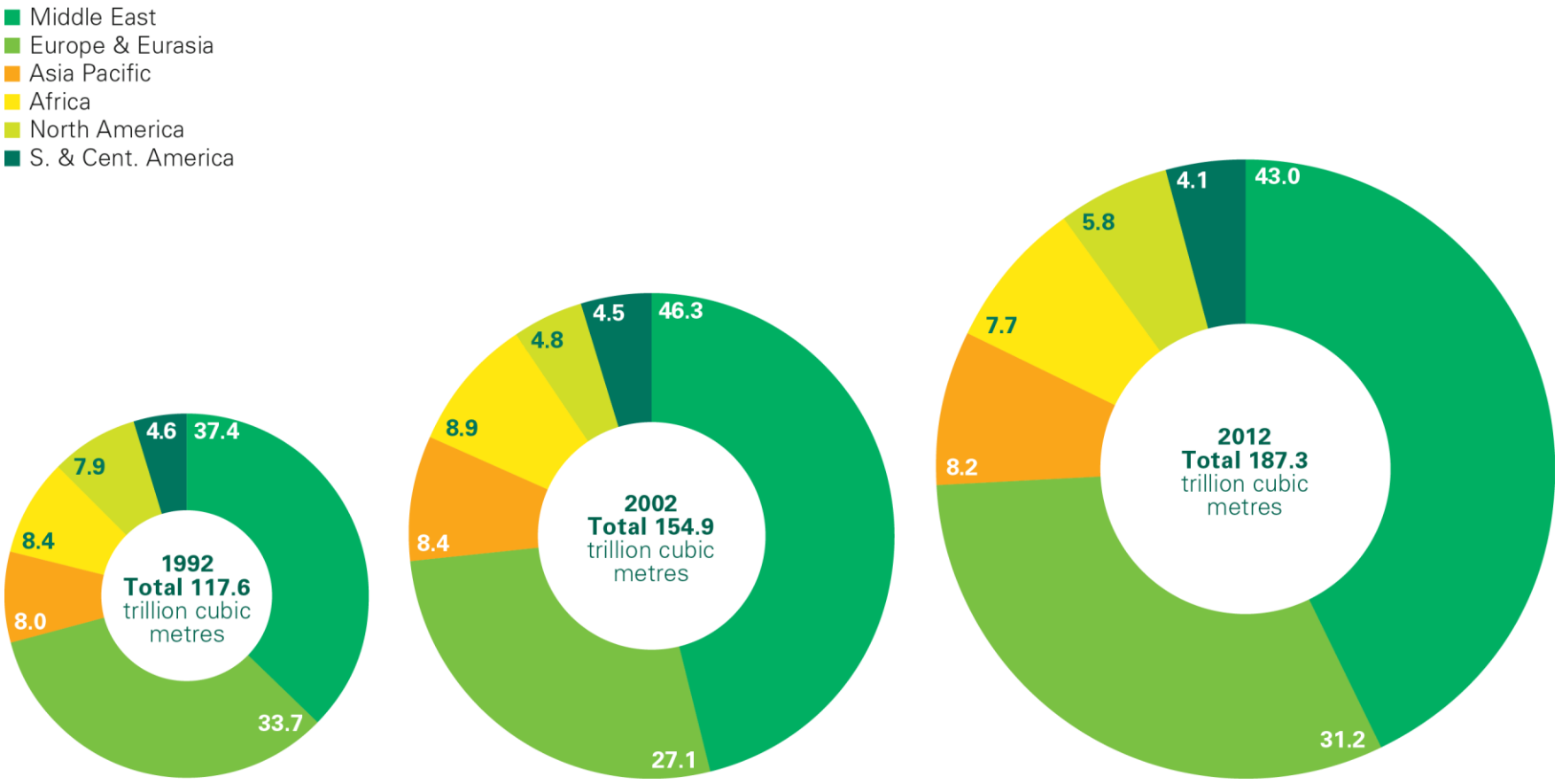
Crude oil prices 1861-2012
US dollars per barrel, world events



BP Statistical Review of World Energy 2013

Distribution of proved gas reserves in 1992, 2002 and 2012

Percentage

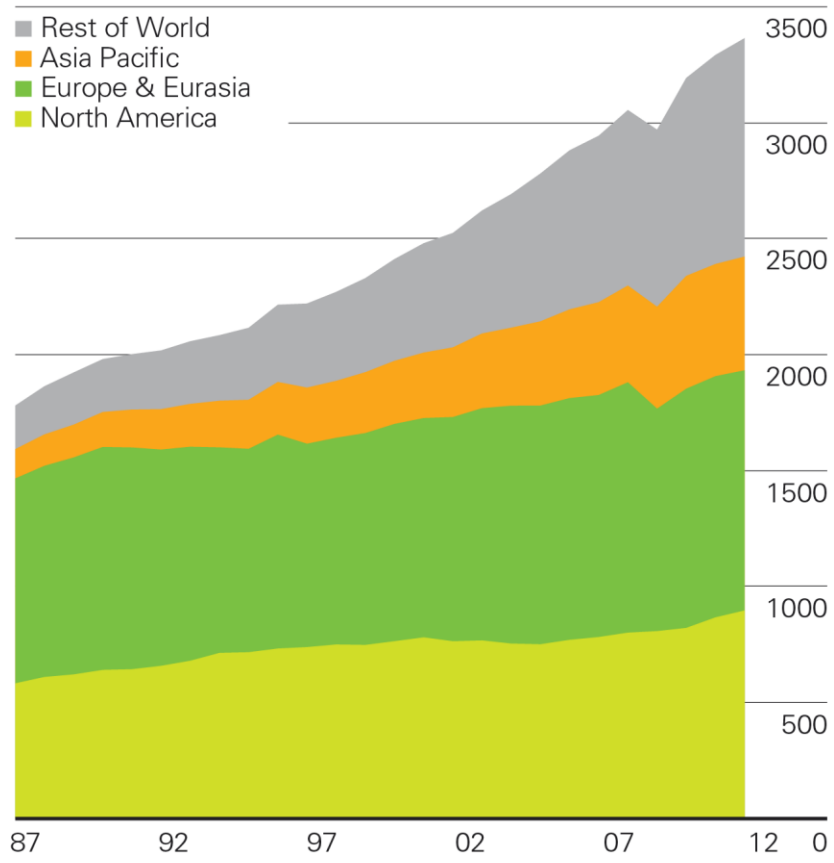


BP Statistical Review of World Energy 2013

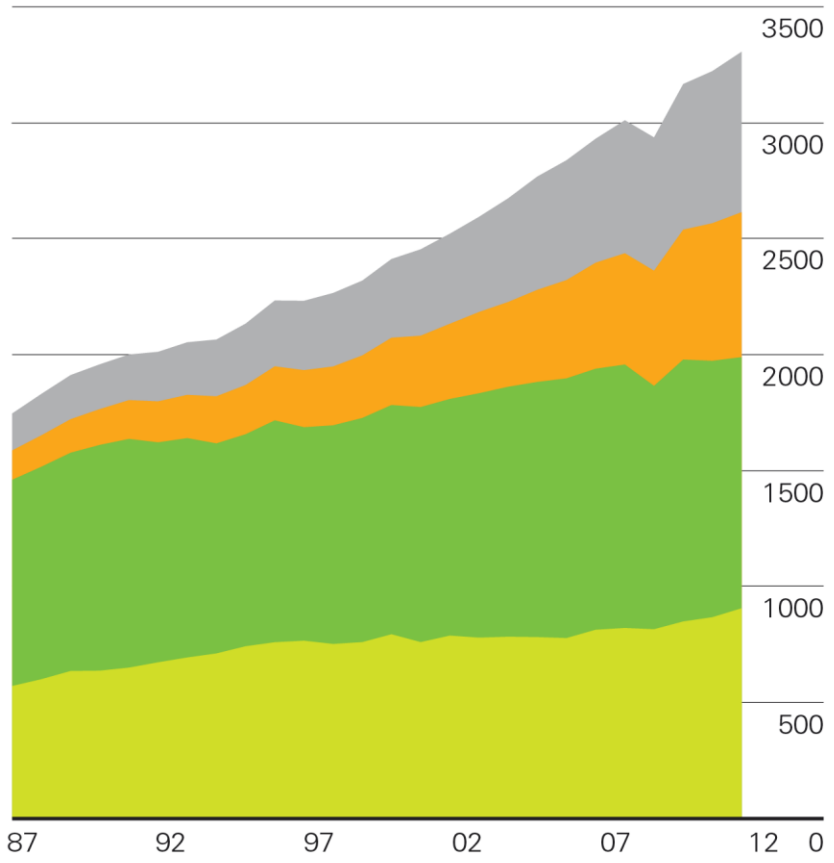
Gas production/consumption by region

Billion cubic metres

Production by region



Consumption by region



BP Statistical Review of World Energy 2013

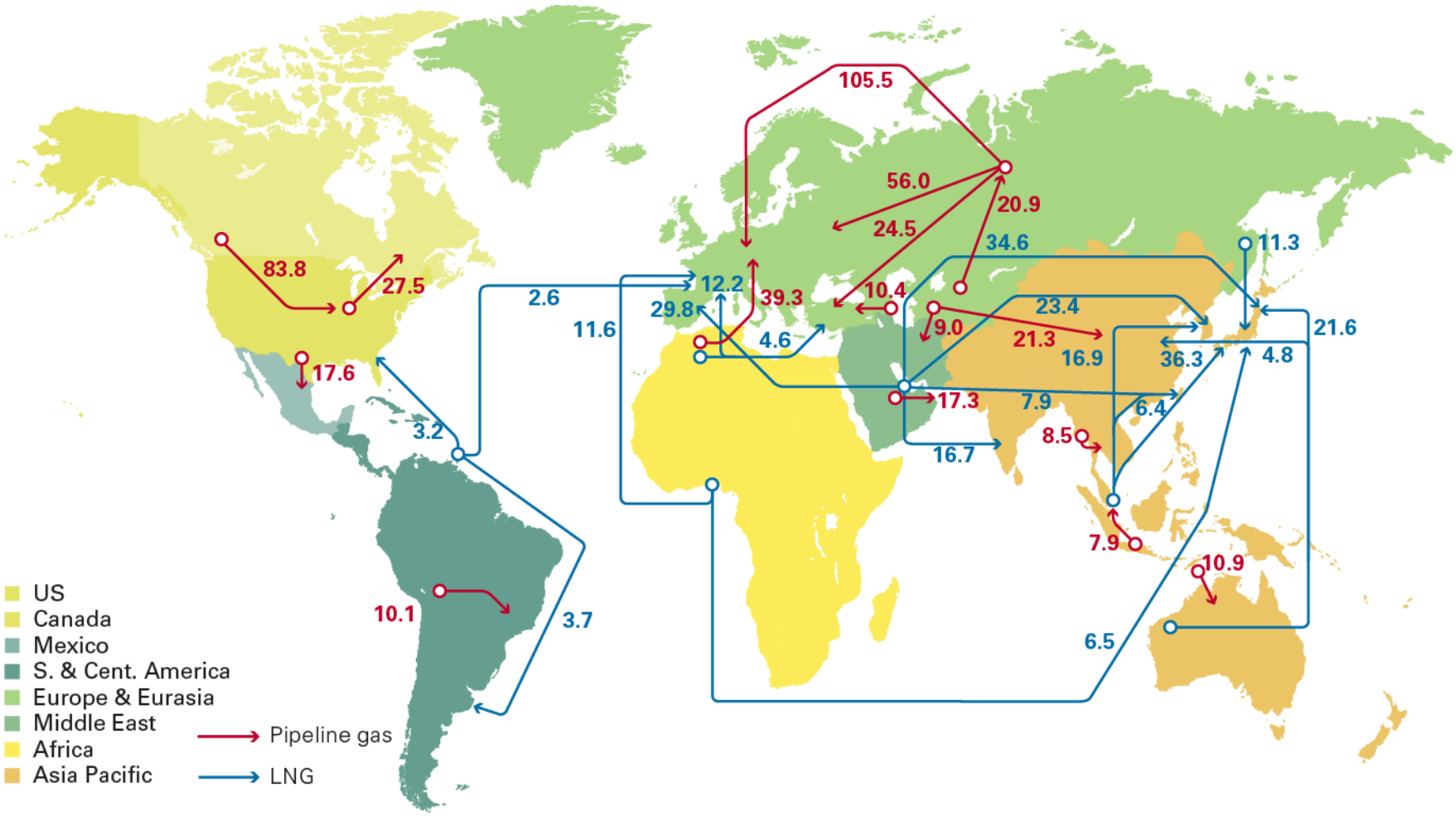
Gas prices

$/Mmbtu ($/barrel of oil equivalent)

BP Statistical Review of World Energy 2013

Major gas trade movements 2012

Trade flows worldwide (billion cubic metres)



Source: Includes data from Cedigaz, CISStat, GIIGNL, IHS CERA, Poten, Waterborne.

BP Statistical Review of World Energy 2013

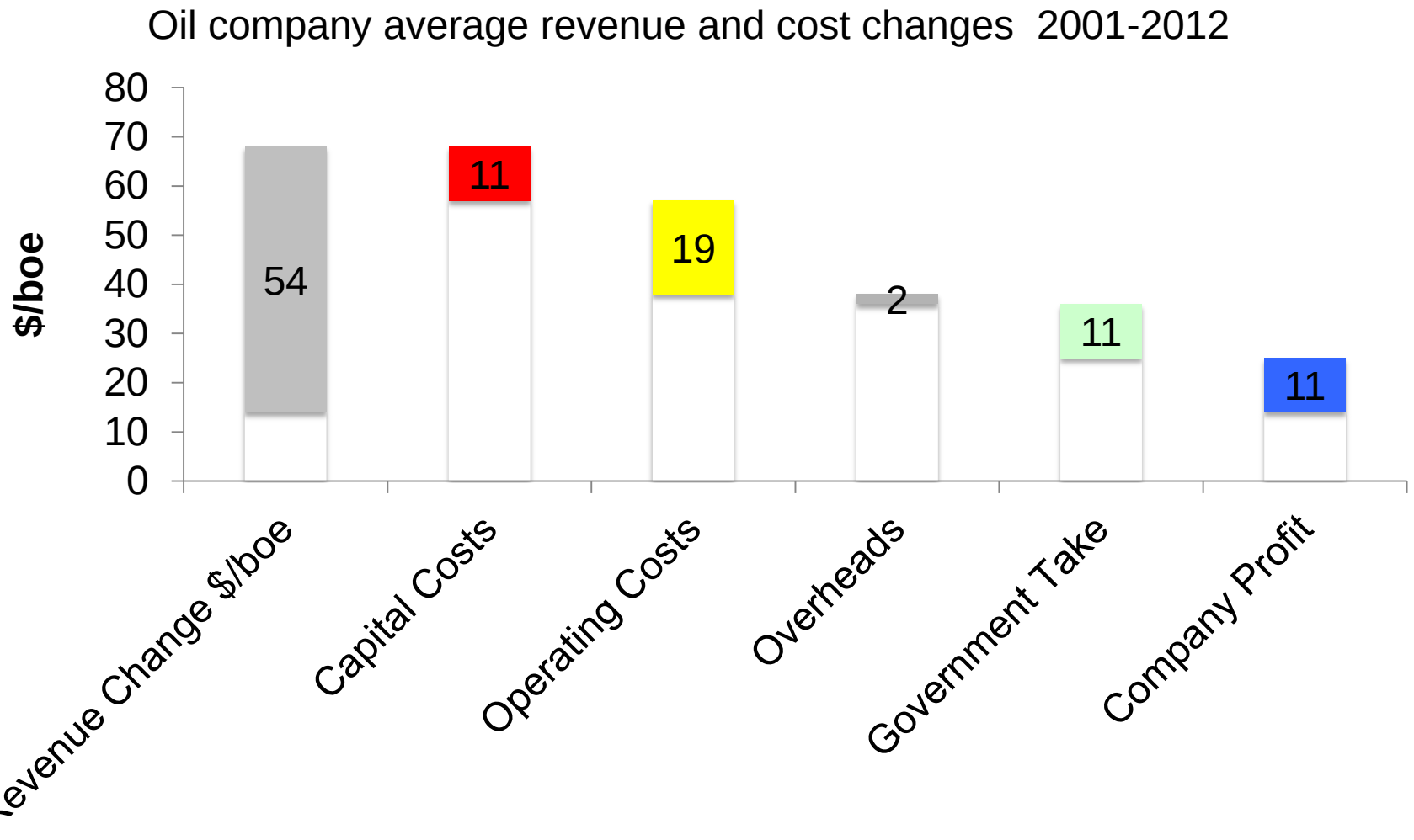
OIL COMPANIES

Global trends in exploration – the competition for capital and opportunities

- Unconventionals have revolutionised US upstream but global impact remains uncertain
- Conventional exploration continues to perform well on a boe basis, but discovered volumes mainly gas in recent years, particularly in deep water and success is concentrated in a few basins and companies
- Conventional oil discoveries decline as existing plays continue to mature
- Supermajors regain appetite for frontier exploration and competition for opportunities increases
- Cost pressures squeeze returns to investors

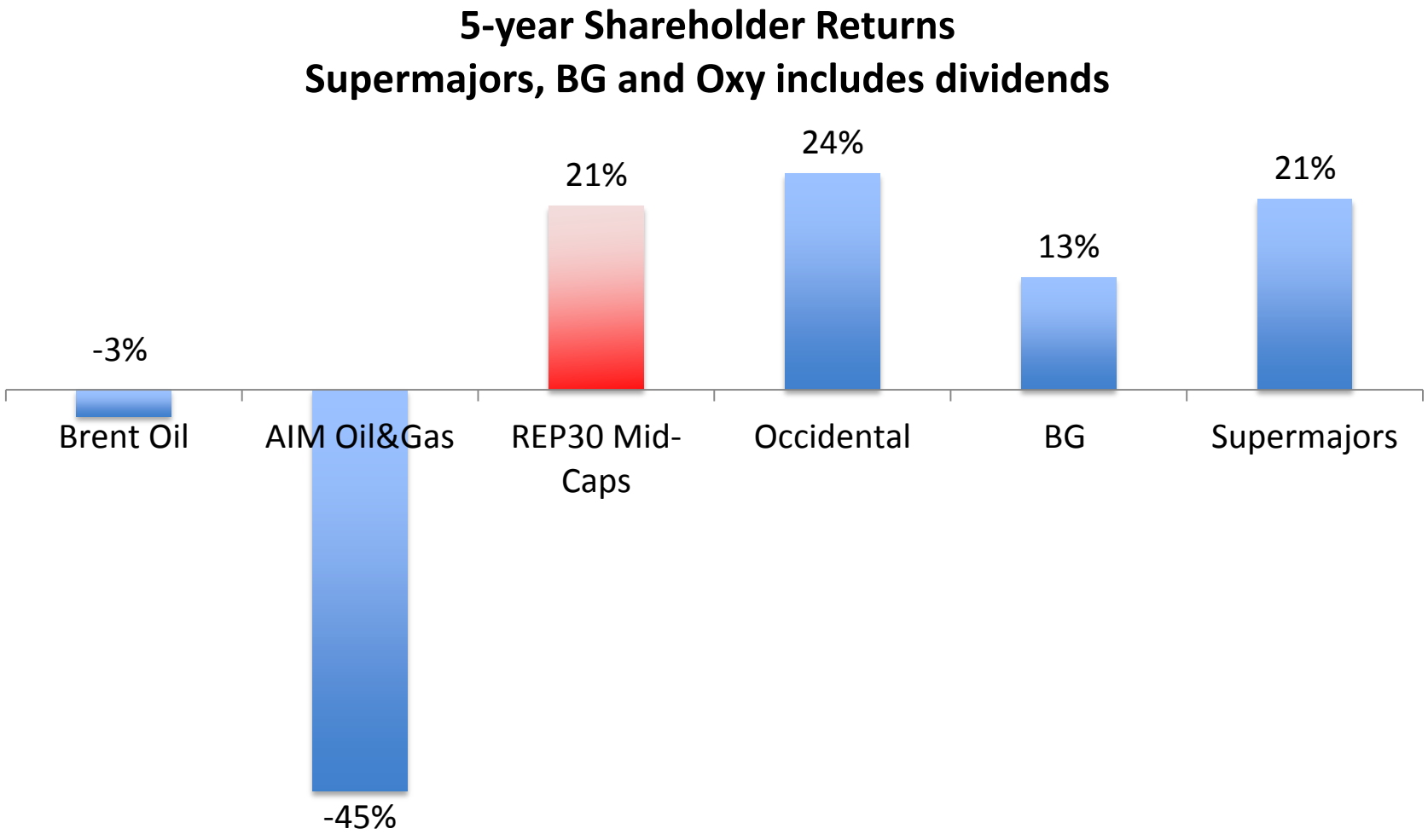
Source Richmond Energy Partners 2013

60% of the potential increase in rent from higher oil & gas prices went in higher costs



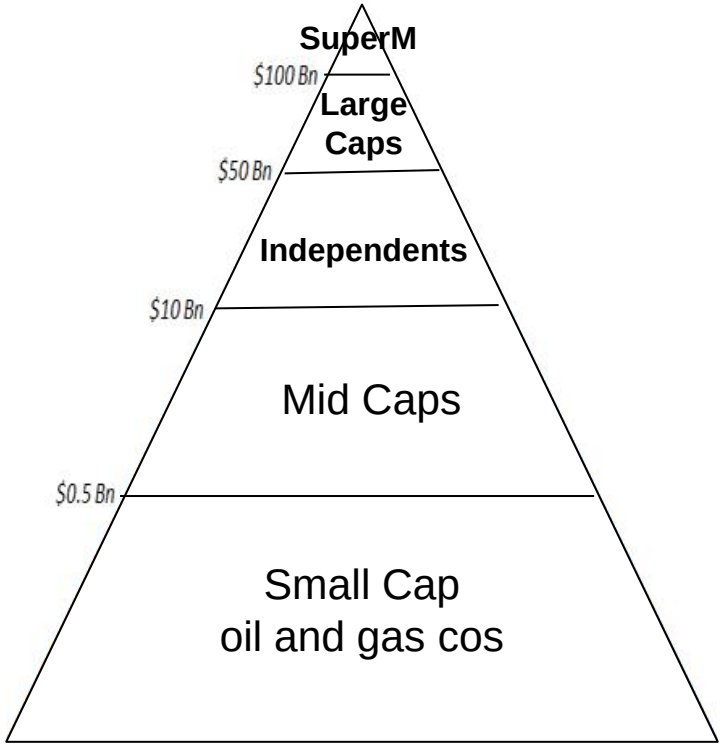
Source Bernstein analysis

E&P Equity Value Changes
Jan 2008 – June 2013



1000's of potential oil companies to choose each with different drivers

Size



Ownership

Listed

State

Private

Focus

Integrated Cos

E&P's

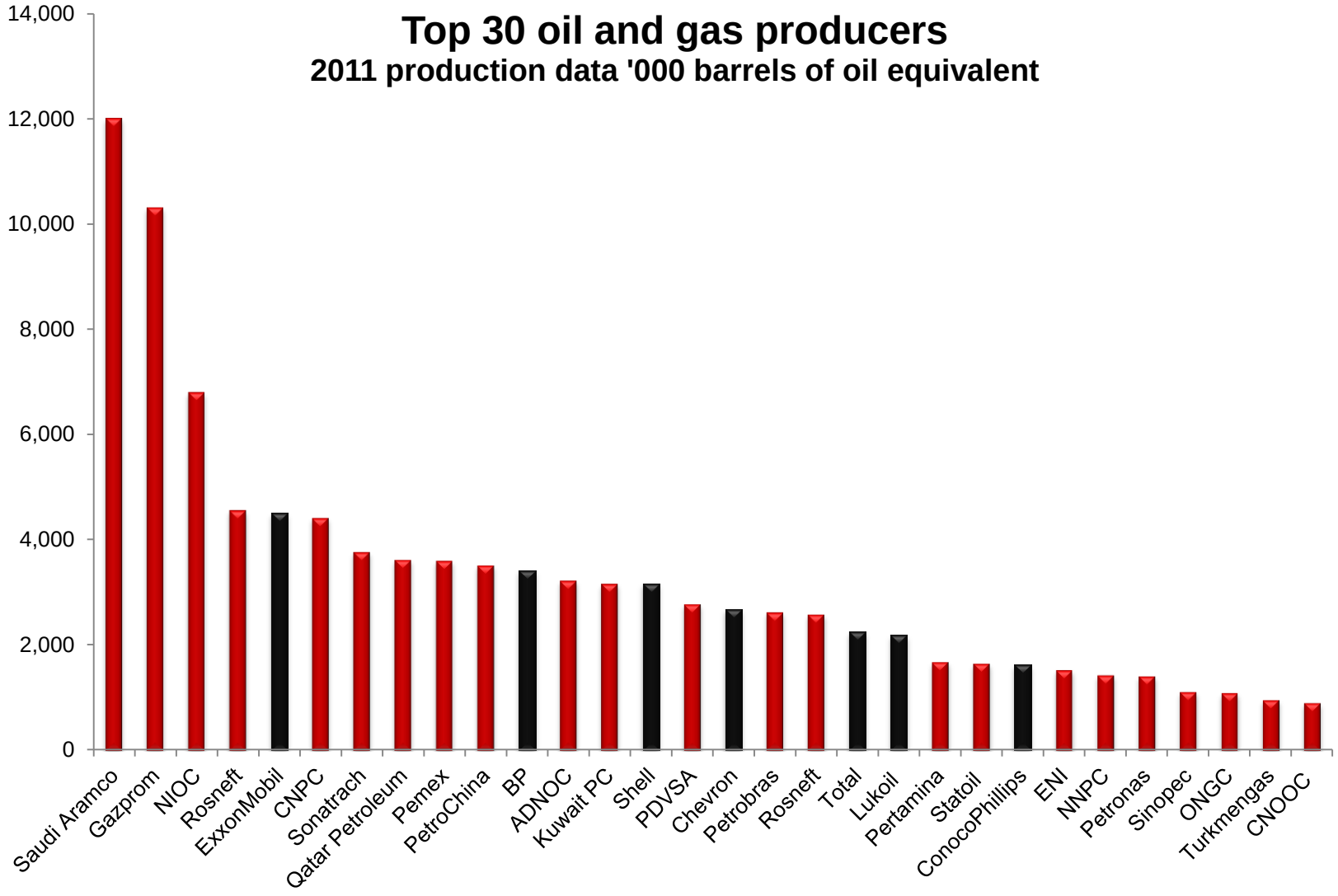
Explorers

Promoters

Service Co's

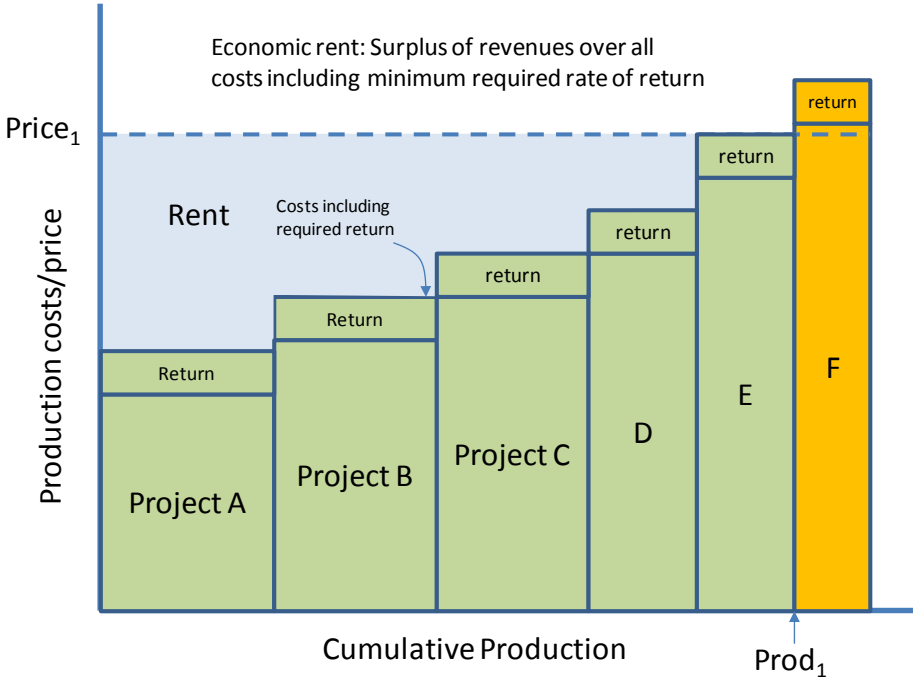
Each type has different motives/drivers

Oil and Gas Companies
75% of top 30 companies are state owned



KEY CONCEPTS

Key Concept - Resource Rent



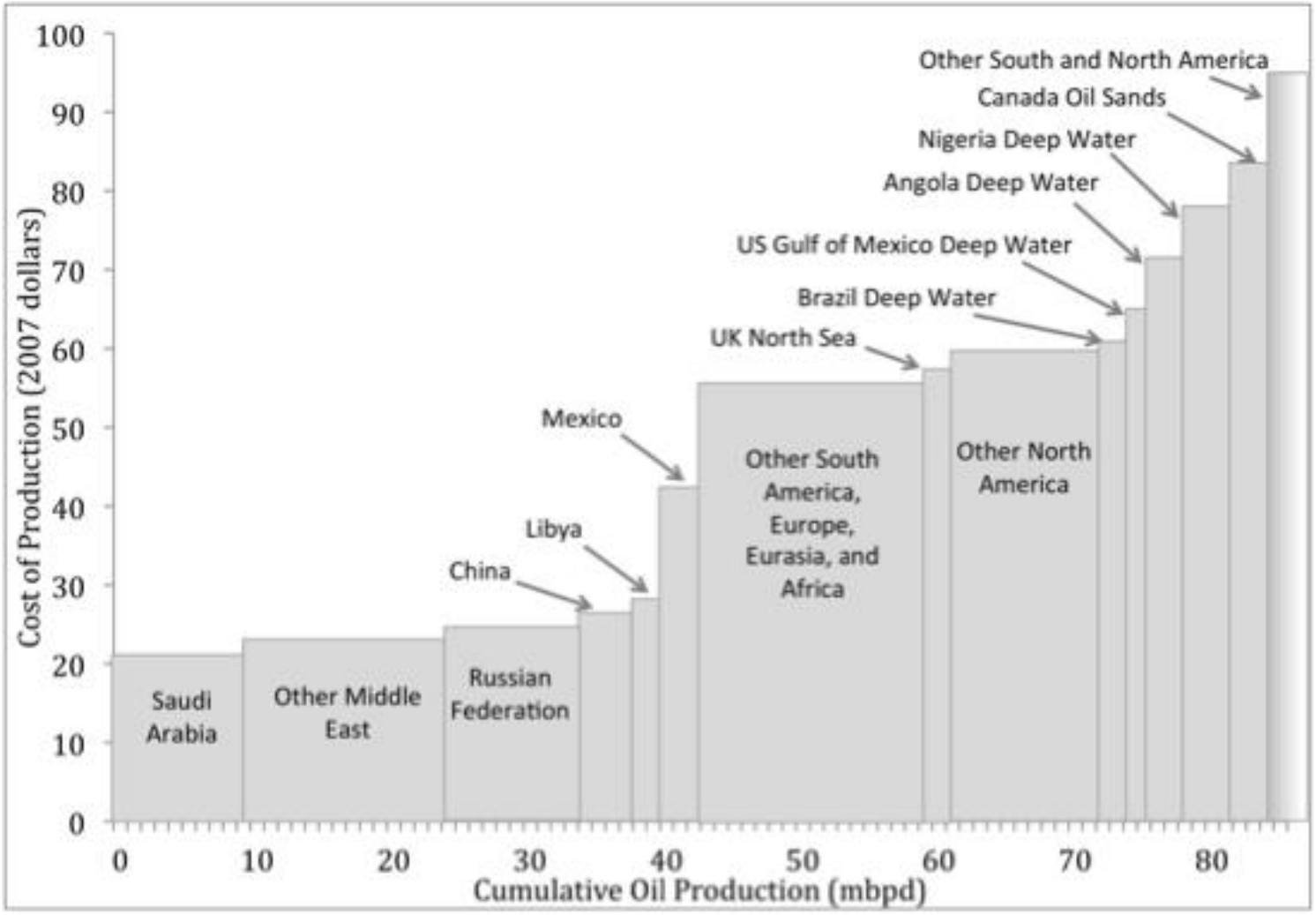
Cost/Cumulative production curve can be analyzed:

1. Across countries,
2. Within a single country
3. Within a single project

- Surplus of revenues net of all costs of production, including required rate of return ("hurdle" rate)
- Ideal base for taxation:
  - Satisfies neutrality
  - Government owns the resource that generates the rent
- But, highly uncertain:
  - Resource existence
  - Resource quality and size
  - Extraction costs
  - Commodity price
  - Required rate of return

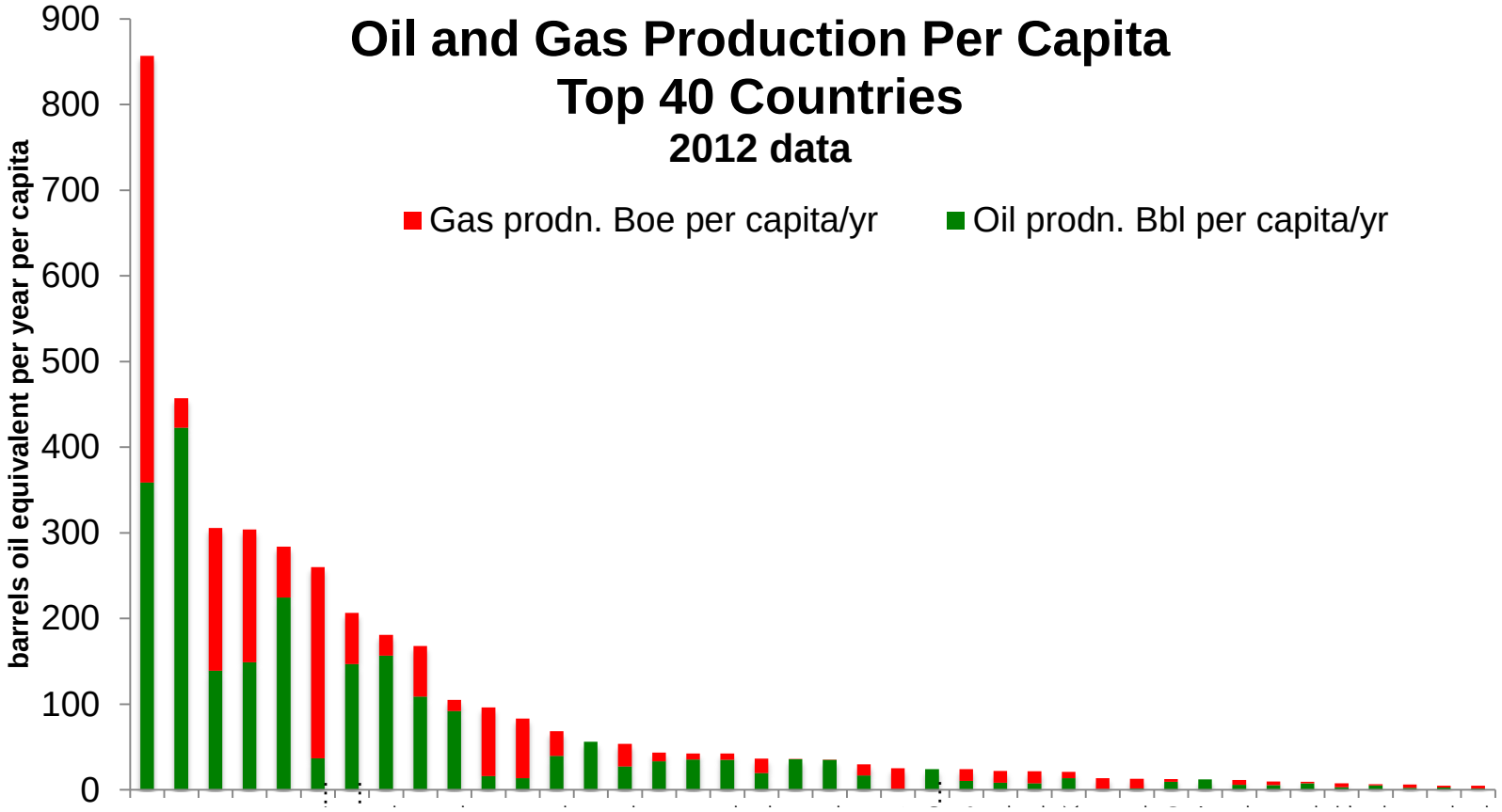
Source – IMF Fiscal Affairs Dept

The global production cost curve guides global price and rent distribution

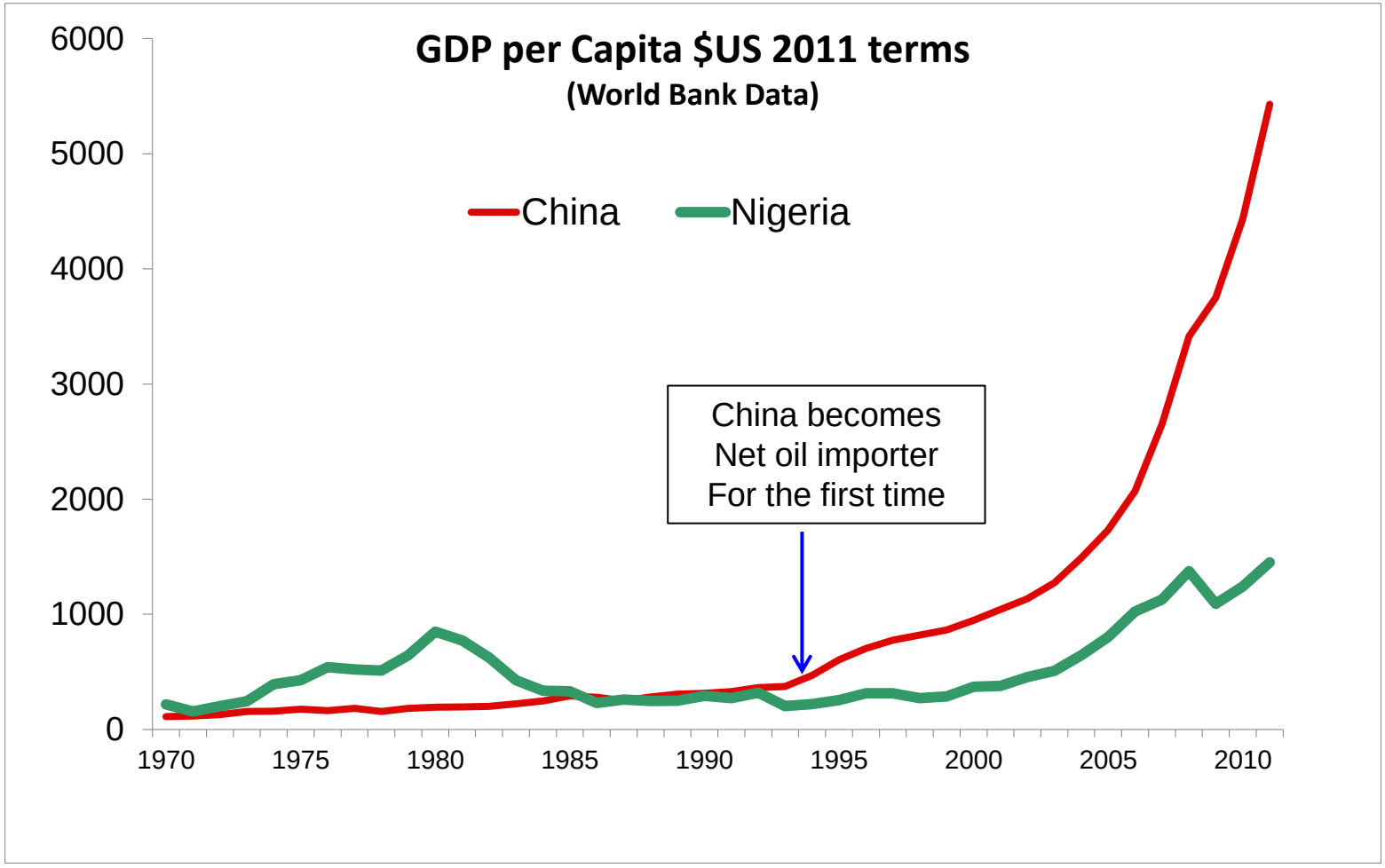


Source - Murphy, The Oil Drum 2010

Key concept - resource flows per capita govern economic impact of production



If Nigeria had succeeded economically it would not be an oil and gas exporter



Key concepts – Oil and gas sector and its role in national development

Fiscal
- Government Revenue
- Price Volatility

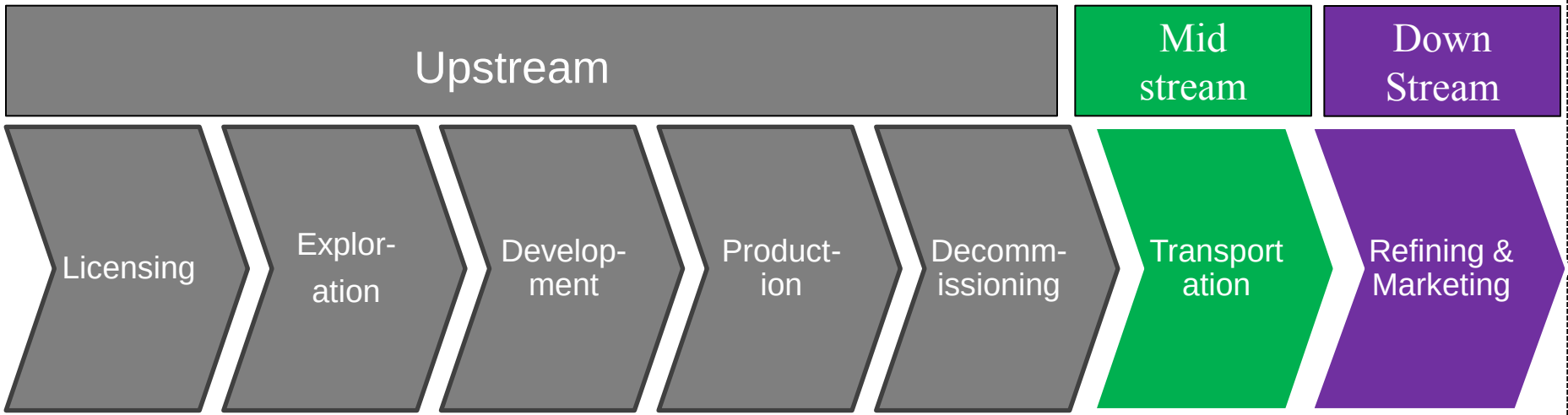
Procurement
- Supply Chain
- Labour
- Capital
- Equipment

Energy and Feedstock
- Energy Pricing
- Petrochemicals

Social, Environmental, Political & Cultural
- Impact on local communities
- Environment
- Geopolitics
- Instability & Conflict

GOOD GOVERNANCE PRINCIPLES

What needs to be governed – The Petroleum Value Chain



Industry 'Value Chain'

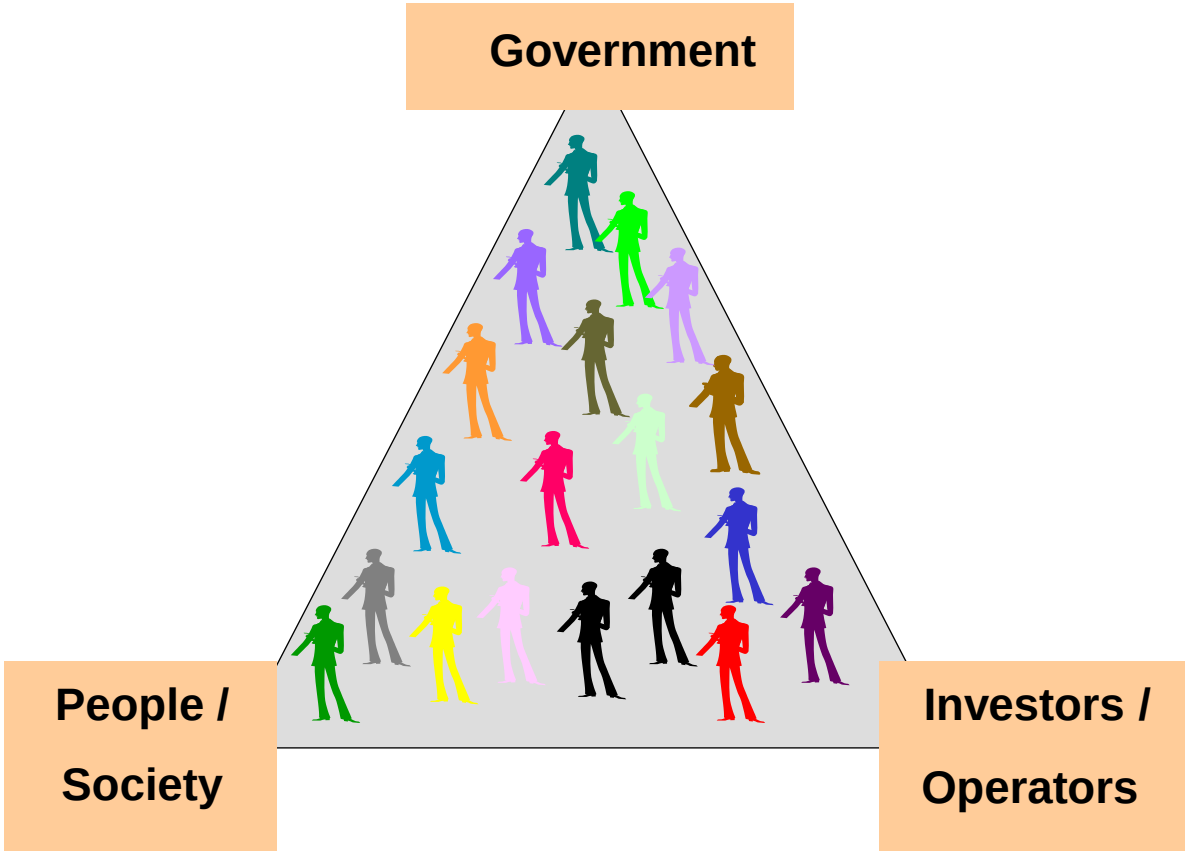
Regulatory 'Value Chain' (World Bank)

IMF's explanations for economic under performance of some oil exporters

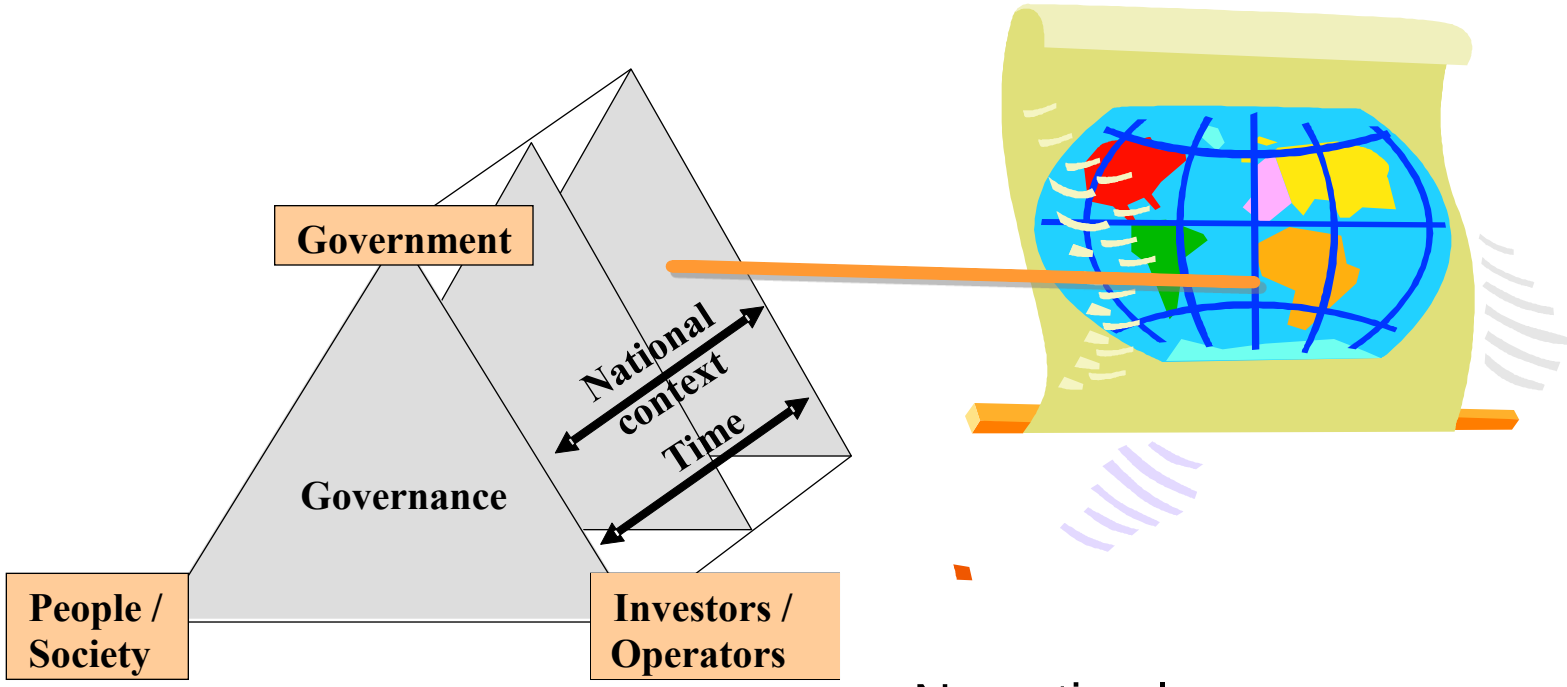
- Weak fiscal and monetary policies to manage oil revenue volatility.
- Exchange rate appreciation allowed to weaken the non-oil sector.
- No accumulation of income generating assets to benefit future generations.
- Weak institutions and administration have created an opaque environment less conducive to the effective use of oil revenue for the benefit of the population.

Source IMF – Lifting the oil curse 2004

Good governance principles – The stakeholders



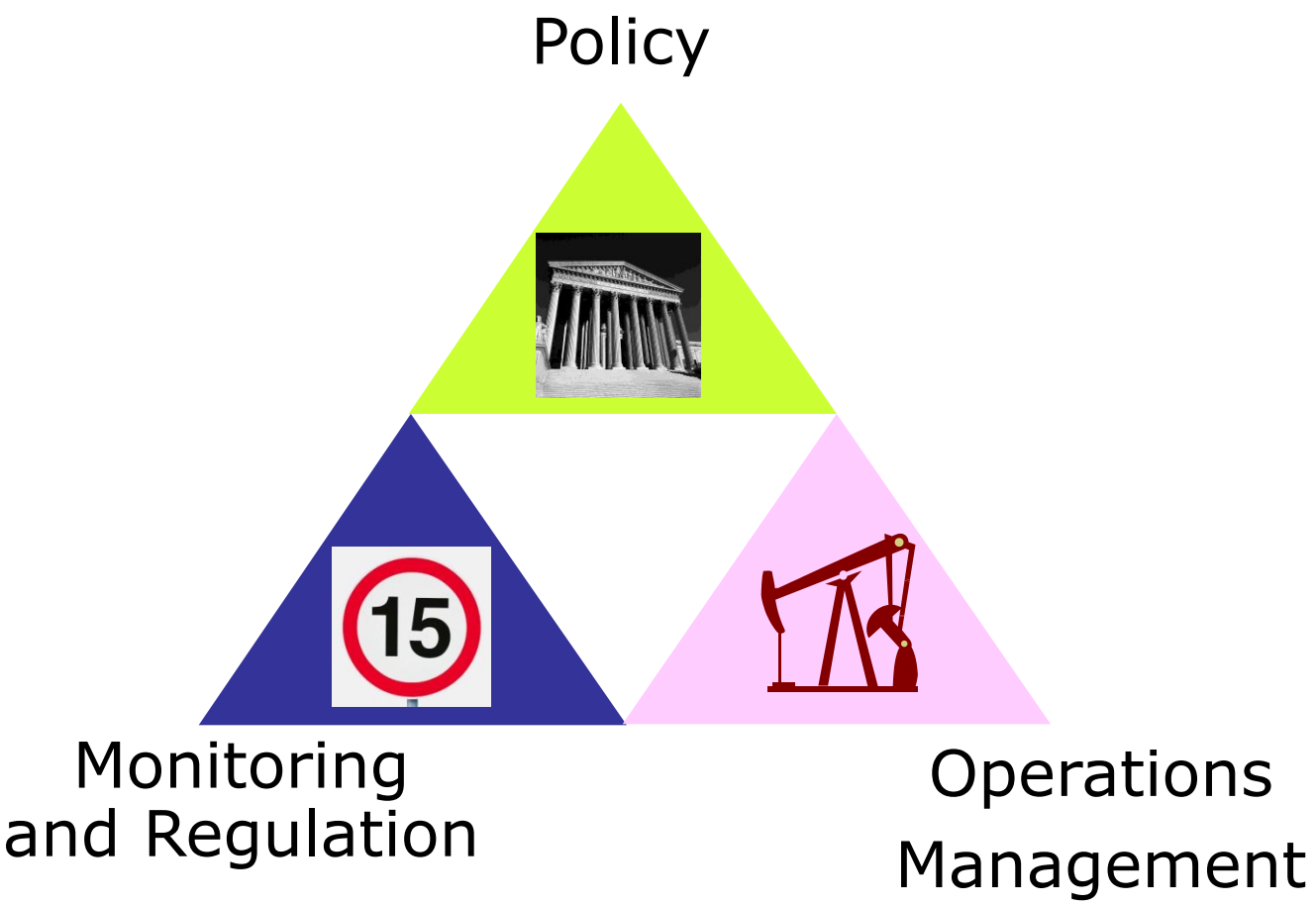
The National Context
One size does not fit all



No optimal governance model. It depends on political and economic context

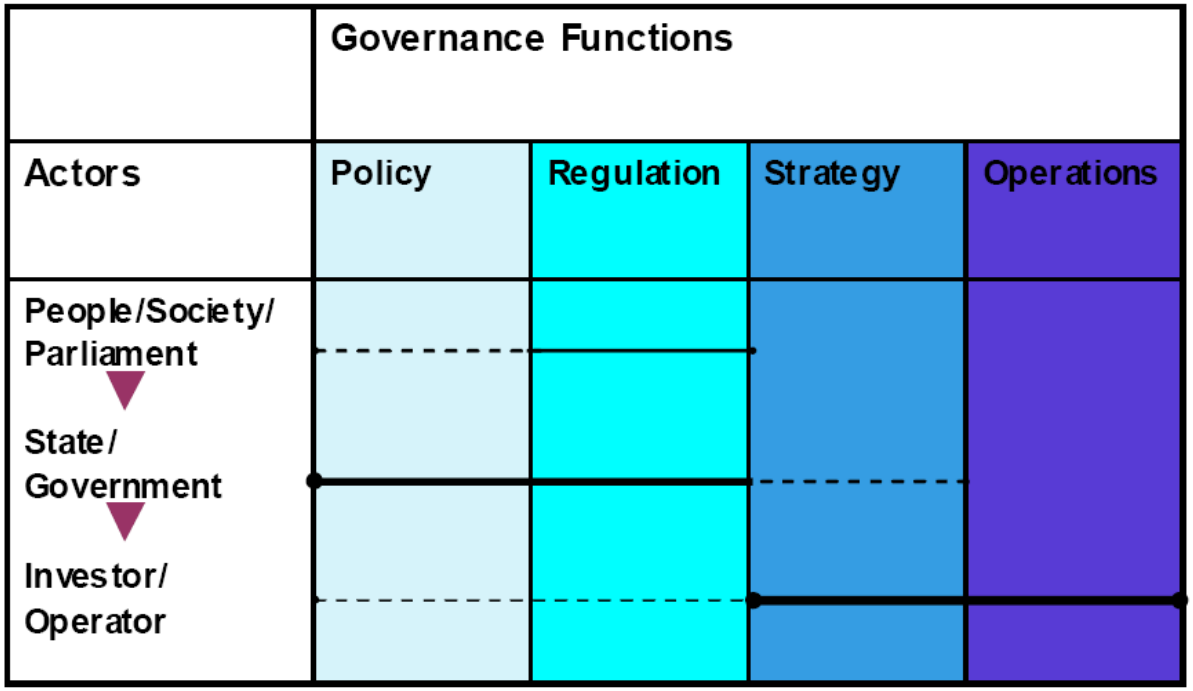
Source Chatham House Good Governance Project

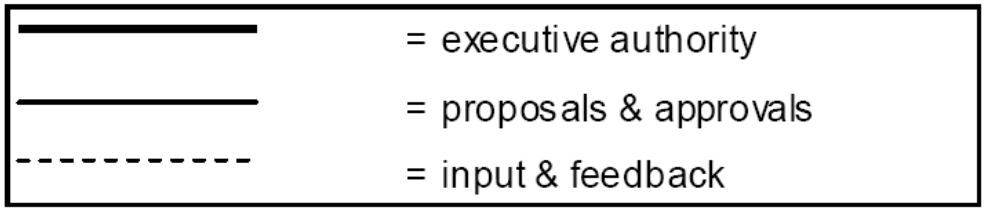
Key governance functions



Source: Chatham House Good Governance Project

Demarcation of governance functions





Source: Chatham House Good Governance Project

Five Governance Principles

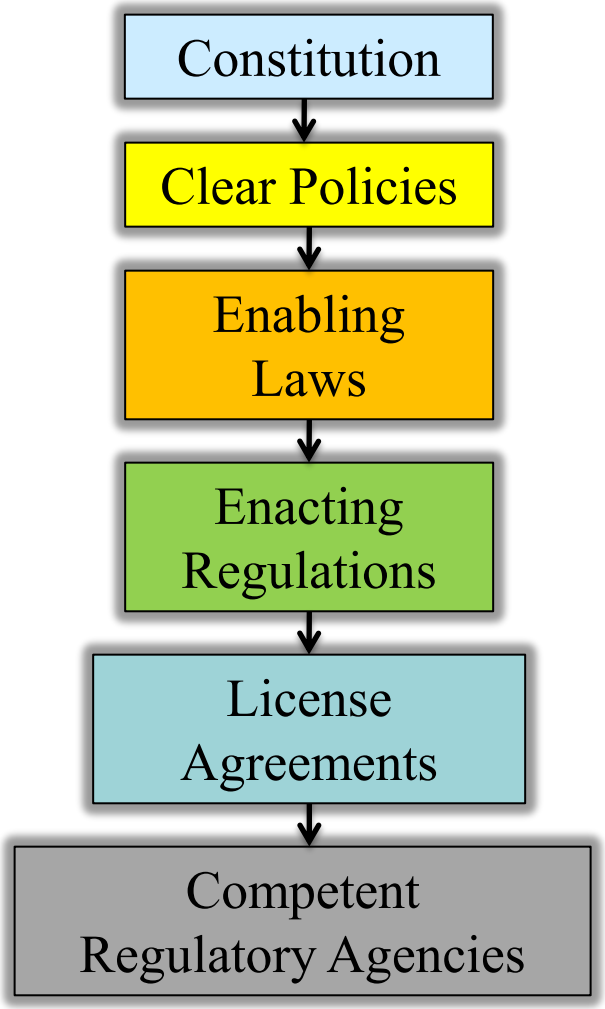
1. Clarity of Goals, Roles and Responsibility
2. Sustainable development for the benefit of future generations
3. Enablement to carry out the role assigned
4. Accountability for decision-making and performance
5. Transparency and accuracy of information

Source : Chatham House Good Governance Project

5 key governance risks

1. Unclear goals, roles and responsibilities between the NOC, Ministries, and other Agencies leads to inefficient and ineffective governance
2. Poor policy choices lead unsustainable corporate and national development
3. Policy goals are not achieved as governance actors have insufficient means to carry out the role assigned to them
4. Lack of accountability for decision-making and performance leads to inefficiency, mismanagement mistrust and conflict
5. Lack of transparent information masks non-compliance with policies, laws and regulations

Legal and regulatory checklist



Does the constitution provide guidance on Petroleum Governance?

Are Government policies for the sector clear and consistent with the good governance principles?

Are the necessary laws in place to enable policy objectives to be achieved?

Has the law been enacted into effective regulation?

Are individual license agreements enforceable and consistent with policy, law and regulations?

Are the systems and institutions in place to monitor and ensure compliance and to achieve policy objectives?

Petroleum and Constitutions

- Ownership and jurisdiction
- Institutions
- Distribution of power
- Checks and balances

National Petroleum Policy

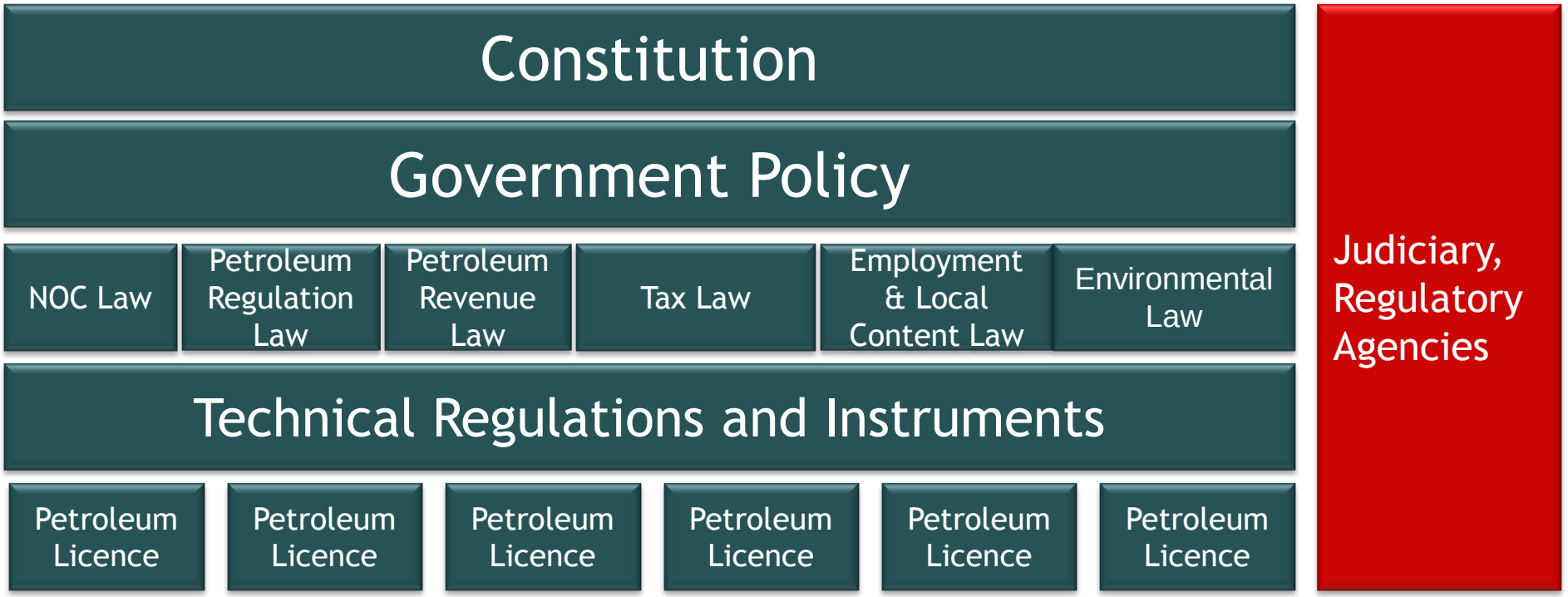
- Ideally a stand alone document
- As wide a political backing as possible
- Designed to form a stable platform for long term decision-making
- Covers the whole petroleum value chain
- Covers both policy objectives and shared principles/values to guide decision-making

Key topics for a national petroleum policy

1. **Resource ownership and jurisdiction.**
2. **Institutional framework and the demarcation of roles and responsibilities.**
3. **Guiding governance principles, e.g. *Transparency*, *Accountability* and *Sustainability*.**
4. **State and national participation in the sector.**
5. **Resource depletion, i.e. the rate of depletion of petroleum**
6. **Licensing Policy**
7. **Revenue Management and Revenue Sharing**
8. **Gas utilisation and domestic energy supply**
9. **Local content in the supply chain and development of national expertise**
10. **International relationships**
11. **Managing social and environmental impacts**

Adapted from Farouk Al-Kasim,
Elements of Petroleum Policy www.norad.no

Is legislative and regulatory framework fit for purpose?



- Are petroleum licenses consistent with policies, laws and regulation?
- Are roles and responsibilities in awarding , implementing, monitoring and enforcing contracts clear?

MANAGING THE DISCOVERY PROCESS - KEY EXPLORATION CONCEPTS

Exploration Decision-making

Exploration investment decisions are a function of the perceived value of a discovery balanced against the perceived chance of successfully realising the value

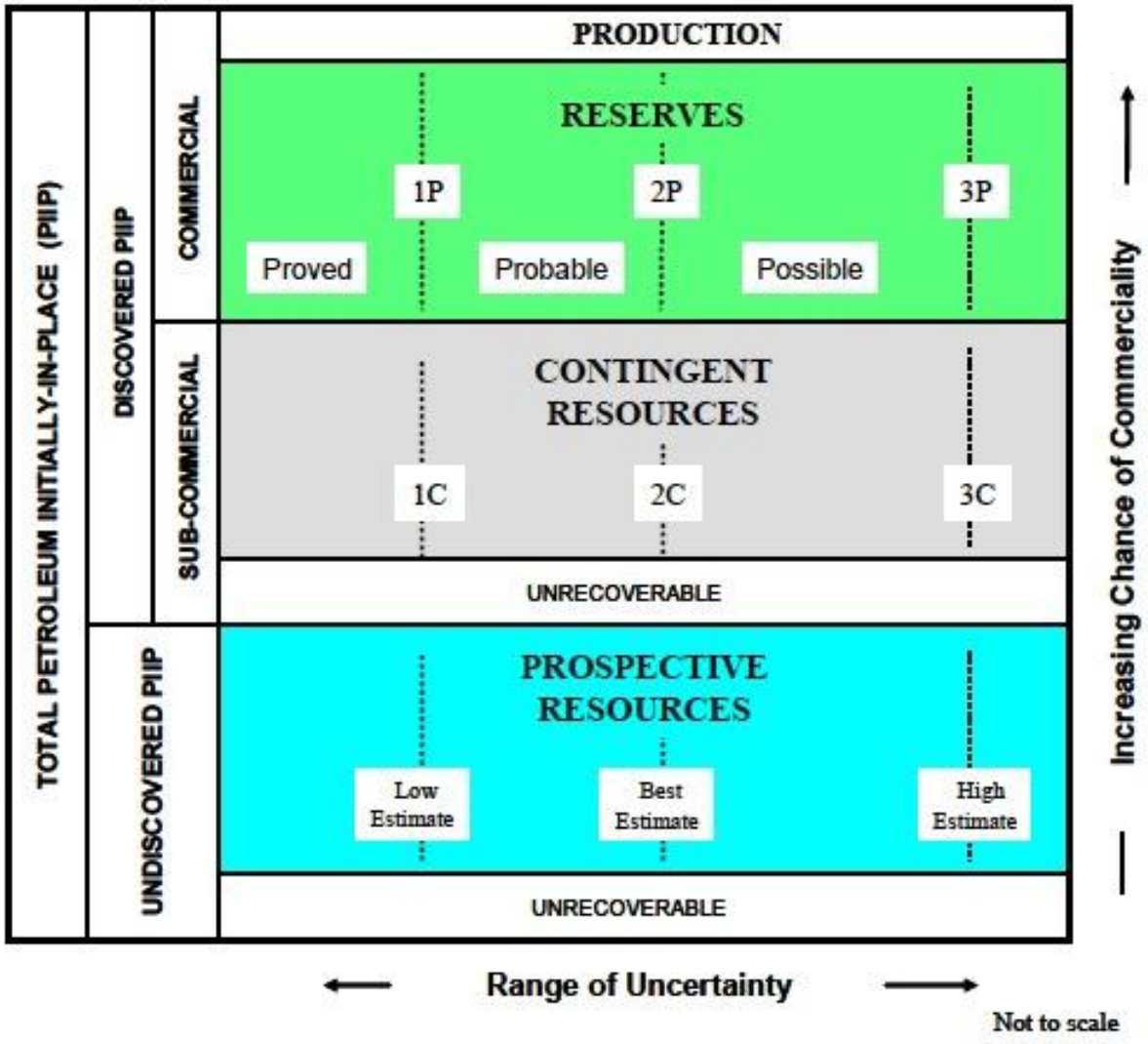
- **Perceived Value** is a function of the size of discovery and its unit value - a function of the commodity price, cost and time to produce, and profit share
- **Perceived Risk** is a function of the exploration cost and the technical and commercial chance of success (CCoS)

Explorers use the expected monetary value (EMV) equation to screen opportunities

EMV = (**Discovery size x $value per unit x CCoS**)- (**Exploration Cost***(**1- CCoS**))

How can Government impact this equation?

Key concepts - risk versus uncertainty



SPE/WPC/AAPG/SPEE resources classification system

Exploration economics examples
Government levers

Reduced tax take

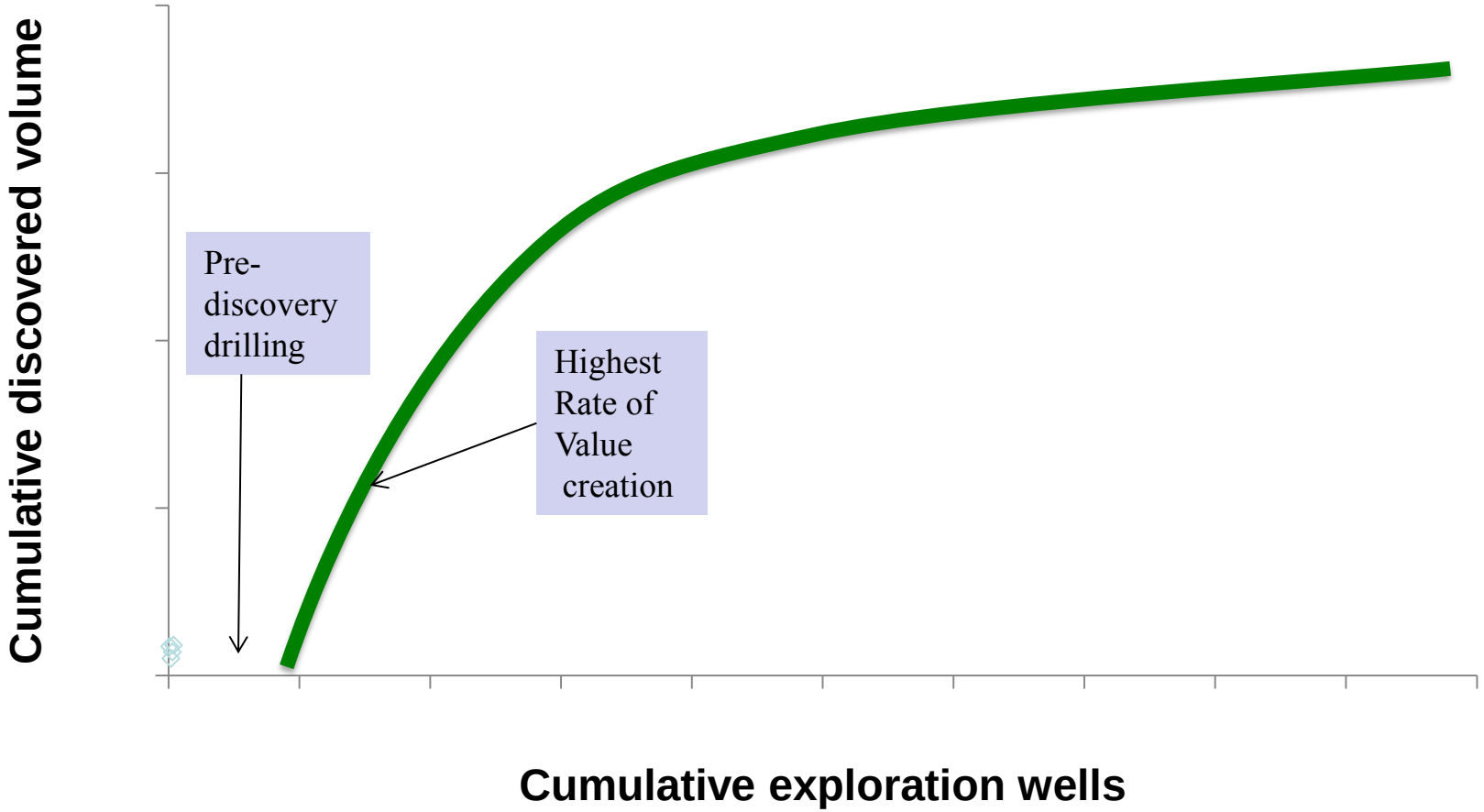
Exploration Cost $m	Discovery size	CoS	Finding Cost $/unit	NPV/unit	Value added	Return
25	25	0.25	4	4	0	0%
25	25	0.25	4	5	1	25%
25	25	0.25	4	6	2	50%
10	25	0.25	1.6	4	2.4	150%
5	25	0.25	0.8	4	3.2	400%
100	50	0.25	8	4	-4	-50%
100	200	0.25	2	4	2	100%
100	300	0.25	1.3	4	2.7	200%
100	150	0.1	7	4	-2.7	-40%
100	150	0.75	1	4	3.1	350%

Tax incentives to reduce Costs, e.g. Norway

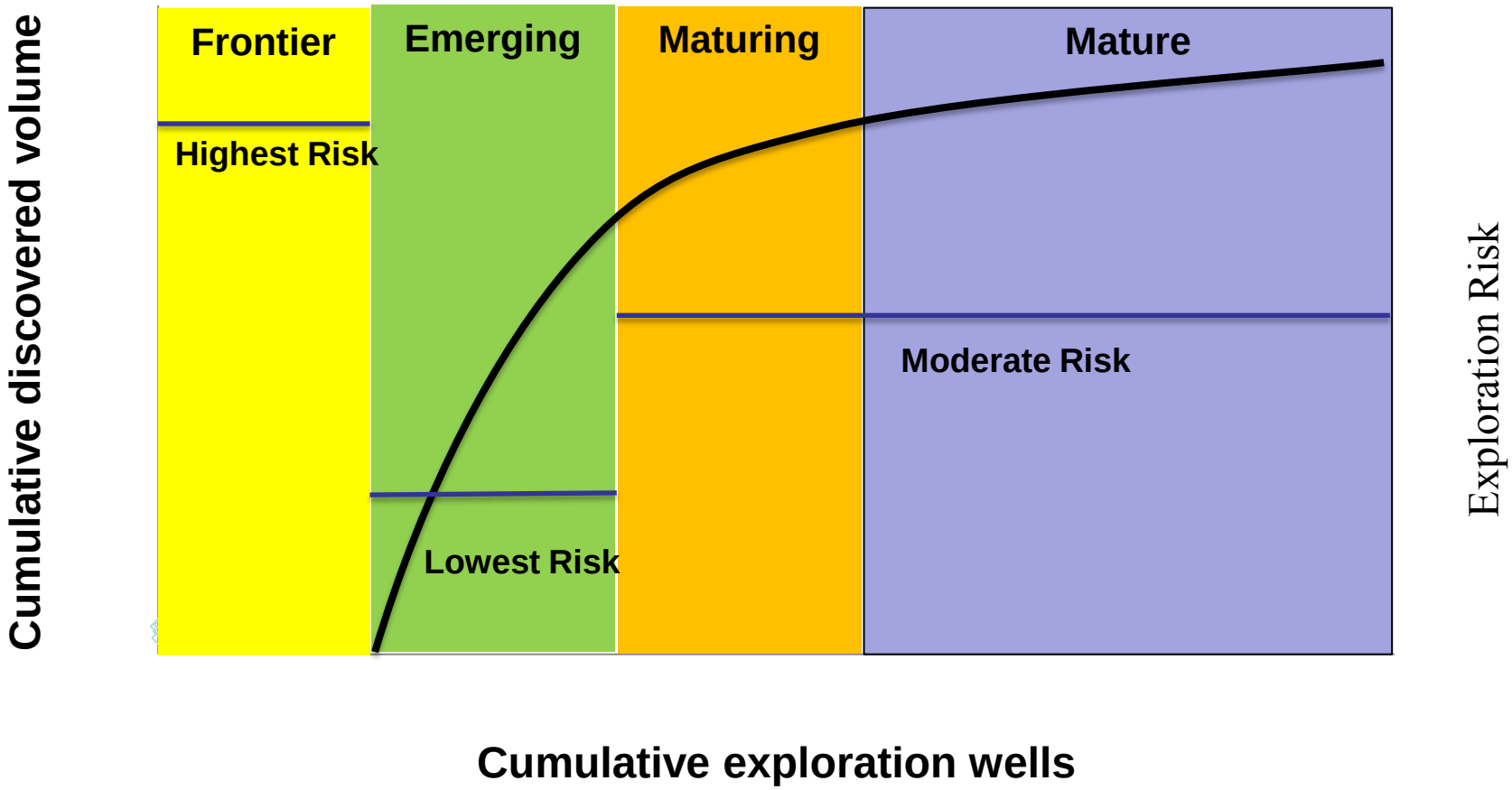
Tax rates Not key Factor in Frontier Economics

Managing the discovery process - the exploration creaming curve

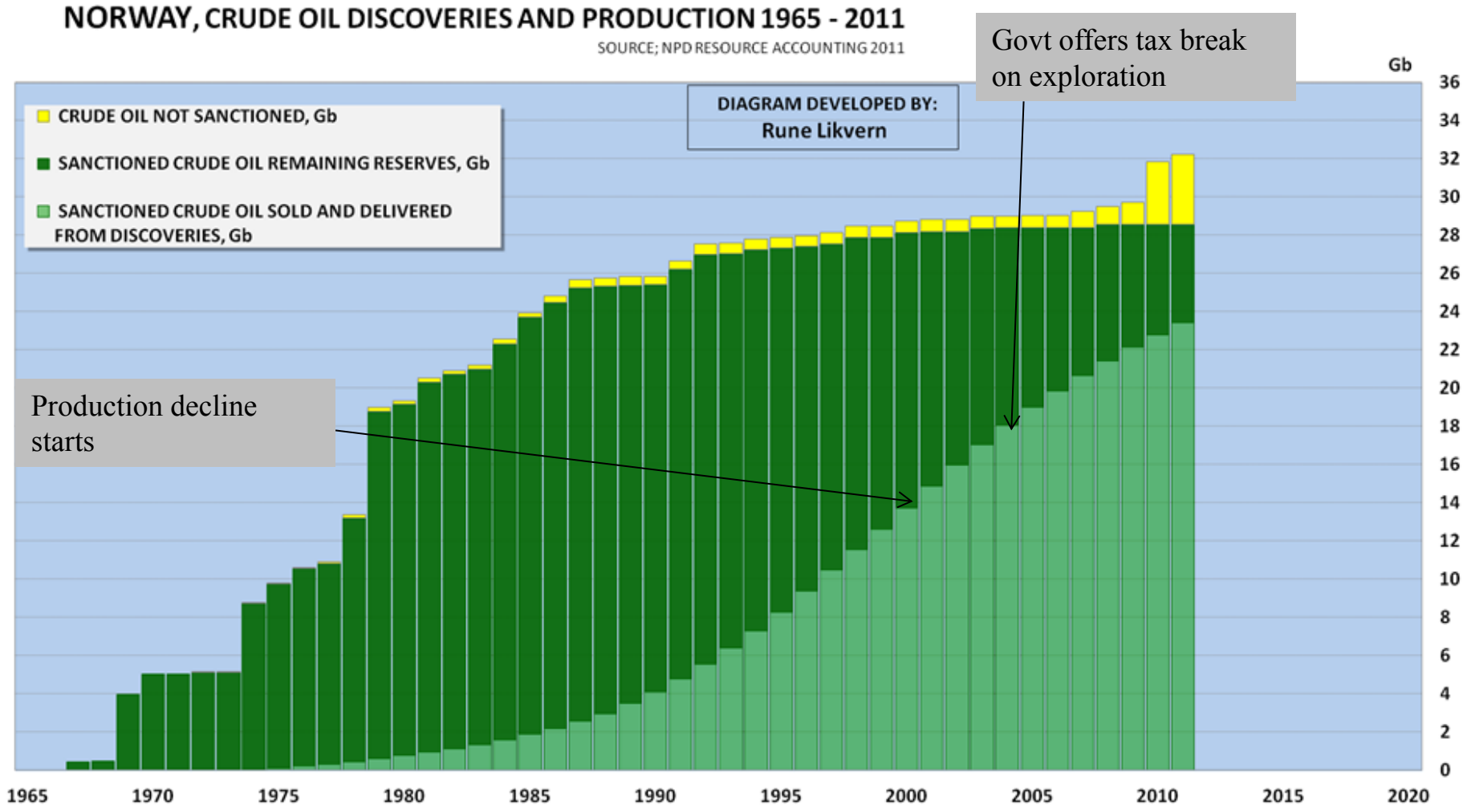
The biggest fields/deposits tend to be found first –
Discovery size and rate of value creation decreases through time



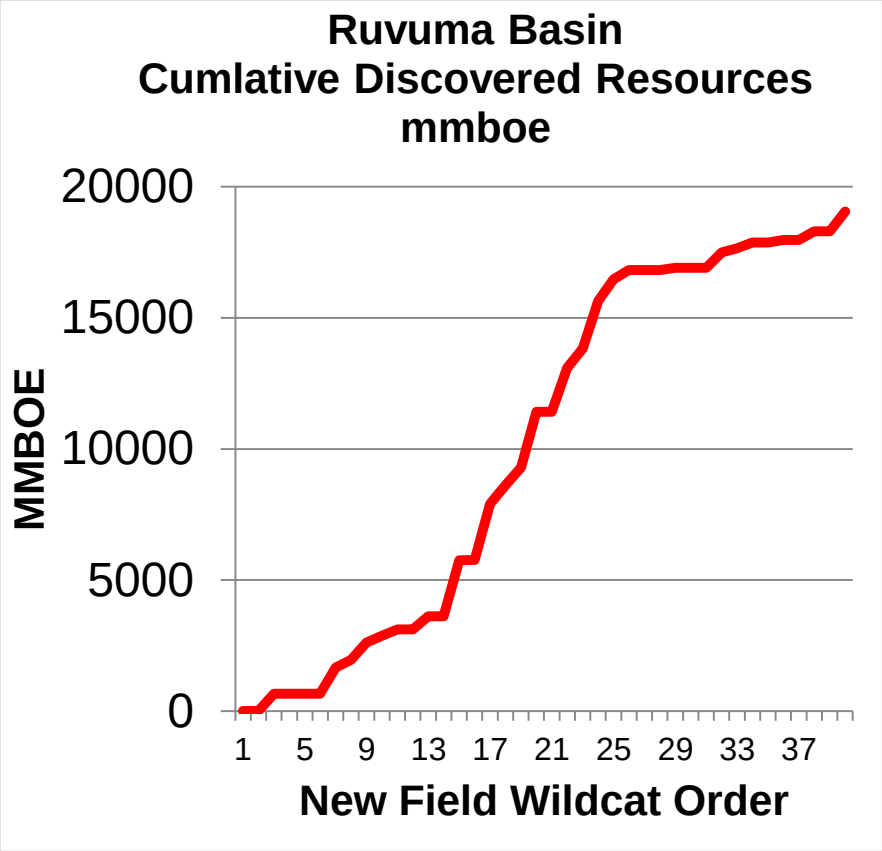
Managing through the exploration play lifecycle

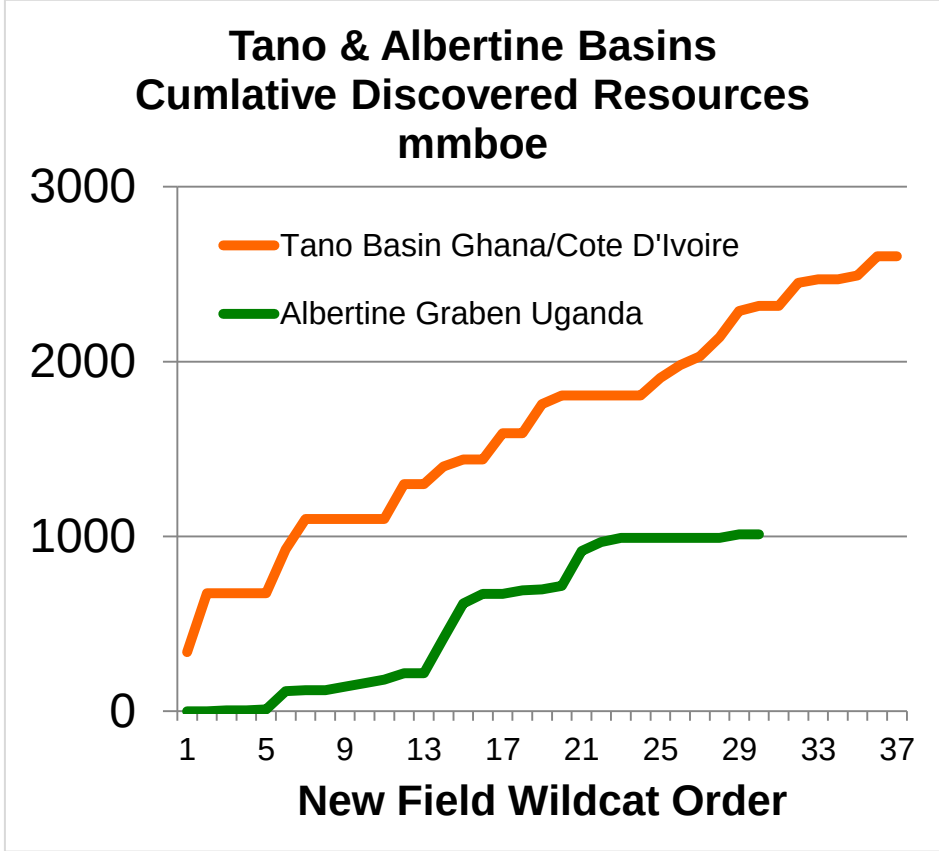


The creaming curve for Norway



Creaming Curves – recent African plays





Source Richmond Energy Partners Wildcat Database 2013

Drilling success rates and discovery sizes 2008-2012

	Frontier	Emerging	Maturing	Mature
Commercial Success Rate	9%	55%	36%	36%
Average Discovery Size mmboe	384	183	52	23
Drilling Cost $/boe	2.1	0.4	0.9	2.3

Based on drilling results of 40 mid and large cap E&P companies, does not include Appraisal costs of pre-drilling seismic and studies

Source Richmond Energy Partners 2013

Frontier Stage Challenges

Technical

- How to encourage and promote high risk exploration activity without giving away too much rent in the event of success?
  - Legal and regulatory framework
  - Investing in geological and geophysical data
  - Dealing with ‘pioneer’ explorer/promoters

Political

- Getting a ‘social license’ for exploration operations
- Managing expectations

Investing in geological and geophysical data

Objectives

- Reduce perceived geological risks ahead of licensing
- Optimise license boundaries and release of licenses
- Understand the potential value of discoveries better

Options

- Invest in data and studies as Government
- Allow 3rd party to invest in new data and sell to interested companies
- Access grants from IFIs to fund geological data

Managing expectations - Dealing with company press releases

Significant Oil Discovery at Narina-1

African Petroleum Corporation Limited (NSX: AOQ) ("African Petroleum" or the "Company") announces that the Narina-1 well, offshore Block LB--09 Liberia, has made a significant oil discovery. The Company has found a total of 32 metres (105 feet) of net oil pay in two zones: 21 metres (69 feet) in the Turonian; and 11 metres (36 feet) in the Albian. Good quality oil was found in each of the Turonian and Albian reservoirs of 37 degrees API and 44 degrees API, respectively. Hydrocarbon shows were encountered over a 170 metre interval in the Turonian and no oil water contact was found.

Is this a commercial discovery – does it have any value?

Investing in geological data - Nova Scotia Case Study

- Nova Scotia wants to promote exploration deep water, previously viewed as too high risk by industry
- Government spends $15m on geological data and studies hiring respected international consultants to provide geological analysis
  - Seismic reprocessing $3m, New seismic $2m, Seismic interpretation and modelling $5m, geological studies $5m
- Generated $2bn of exploration work commitments from BP and Shell

Emerging Stage Challenges

Technical

- Monitoring exploration and appraisal activity
- Technical data access and storage
- Assuring the integrity of operations
- Agreeing initial development plans - scope, timing, technology, costs, local content
- Managing first production revenues
- Adjusting the licensing regime to optimise rent capture
- Change of ownership

Political/Regulatory

- Managing expectations!
- Maintaining a social license to operate
- Regulatory capacity building
- Pressure for local content and rent capture

Maturing

Technical

- Pacing the ramp up in production and reserve depletion rates
- Ensuring export infrastructure is optimised
- Pacing exploration activity to maintain reserves
- Managing peak production revenues
- Monitoring and assuring integrity of operations

Political

- Sustainability of revenue flows into budget
- Continued pressure for rent capture

Mature Stage Challenges

Technical

- Increase reserve recovery and optimise depletion in mature fields
- Adjusting license regime to incentivise exploration and brown-field investment
- Relicense fallow acreage
- Introduce smaller companies and encourage incumbents to invest or leave
- Ensure access to export infrastructure

Political

- Support for tax incentives

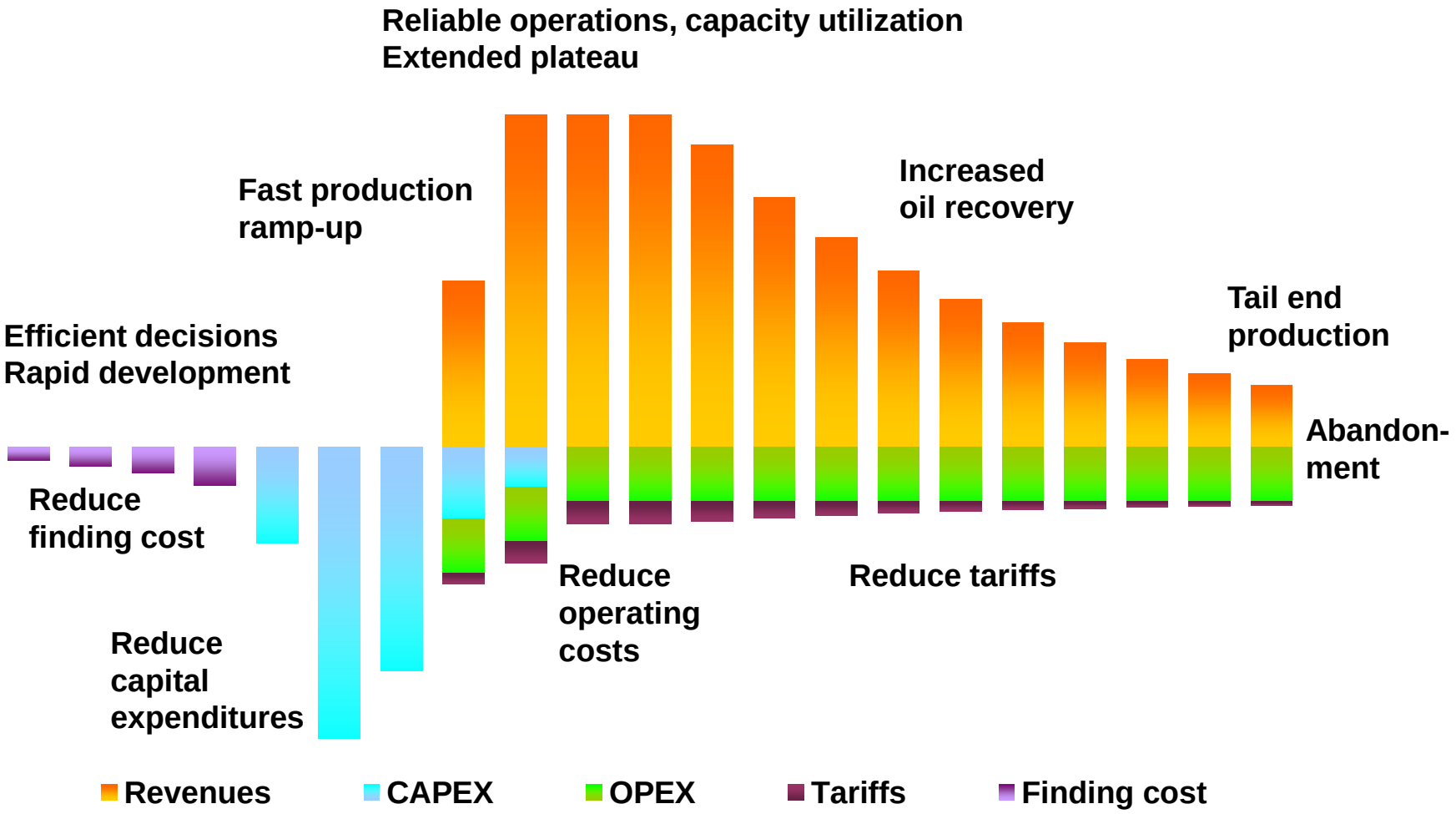
Information management – Best practices

- The Norwegian Petroleum Directorate website and Mobile app

Decision-making through the project life cycle

	1-5 years Exploration	1-5 years Appraisal	3-6 years Development	20+ years Production
Project	• Fieldwork • Seismic • Drilling	• Seismic • Drilling • Development Planning	• Contracting • Production Well Drilling • Facilities construction • Export infrastructure	• Oil and Gas Sales • Field Operations • Infill drilling
Regulatory	• License awards • Seismic & Well permitting • Cost monitoring	• Appraisal plan approval • Seismic & well permitting • Development plan approval • Cost monitoring	• Land permitting • Environment permitting • Procurement approvals • Cost monitoring	• Production Metering • Profit oil liftings • Cost and tax audits • Safety audits

Monitoring Project Costs & Increasing Revenues



Adapted from Willy Olsen

LICENSING

The basics - who owns the subsoil resources?

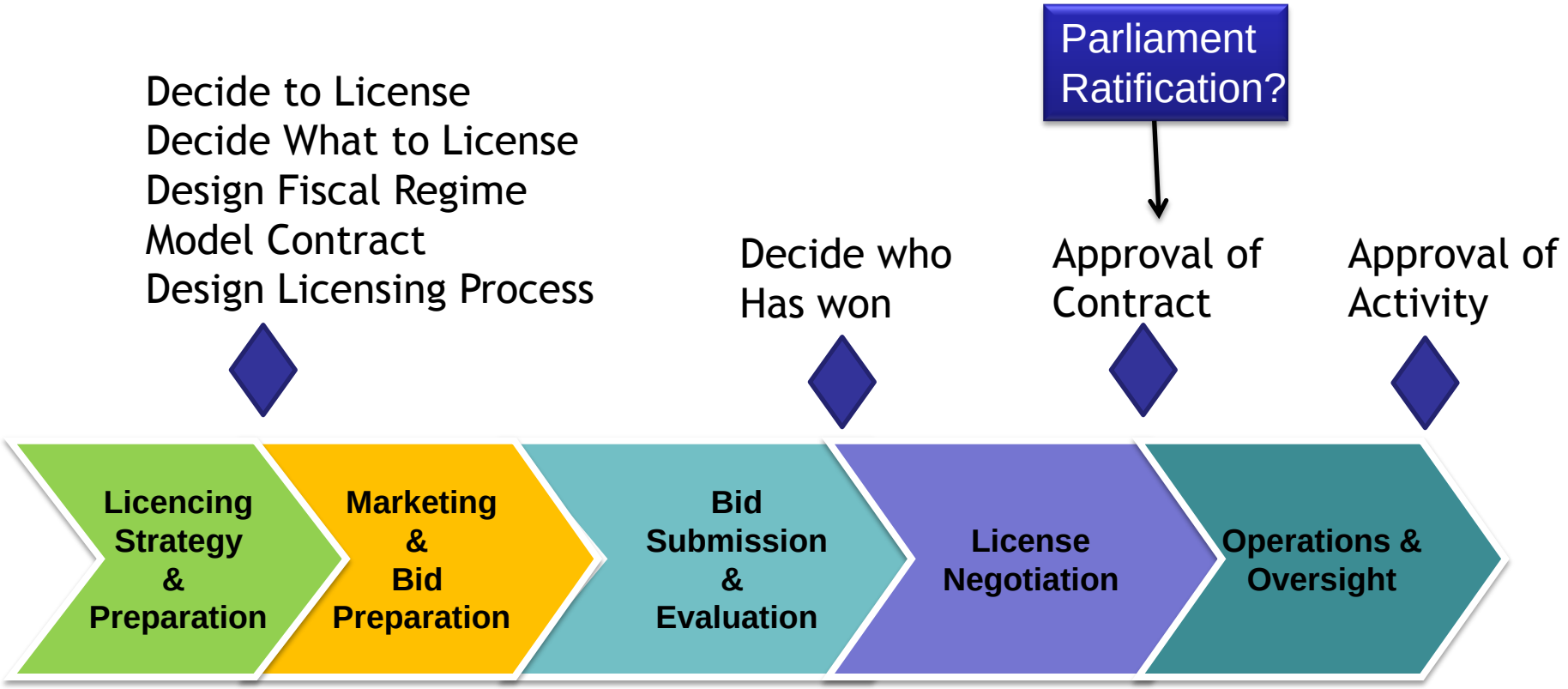
- Typically addressed at constitutional level.
- Petroleum and minerals typically belong to the State, implicitly (and sometimes explicitly) on behalf of the people.
- In some federal states ownership can be with the region or state.
- US an exception where mineral rights with the landowners
- International boundaries disputes

Beware if not clear – witness Iraq

Land ownership and property rights

- Where exploration is to take place, land ownership should be documented and mapped showing the boundaries of land parcels
- The rights of landowners and customary users of land should be defined.

Licensing Decisions



Key questions companies ask before entering a petroleum license

1. What is the geological risk and reward?
   - What are the chances of making a discovery large enough to be commercially exploited
2. What are the technical challenges?
   - Do I have access to the technology needed to discover, evaluate and produce the resource economically?
3. What are the political risks?
   - Expropriation risk, disruption to operations, security and safety, corruption
4. Do the fiscal terms give an adequate return on capital in a success case?
   - Development and operating costs
   - License terms and commitments
   - Stability of the contract

The decision to explore – a checklist for Government

- That exploration and discovery fits in national development goals.
- That the impact on other natural and social assets are accounted for and affected communities consulted.
- The risks associated with exploration, including uncertainty over geology, and tax and regulation have been minimized.
- Exploration and the allocation of rights are coordinated with the fiscal regime – to secure the greatest value from extraction.
- Operators should have the necessary means (financial, technical, and operational) to fulfill the license obligations efficiently and safely.

5 means of collecting money…

- Impose charges on the **inputs**
  - Import duties, VAT
- Collect a share of the **output**
  - Royalties (including in kind)
- Collect a share of the **profits**
  - Corporate Income Tax, Excess Profits Taxes, Production Share ("profit oil")
- Participate in the **ownership** of the venture
  - State Equity (in a few different flavors)
- Other: **fees** and **bonuses**

And finally - So What Constitutes a Good Deal?

- Contributes to achieving national policy objectives and is achievable and practical
- Delivers a fair economic outcome to the signatories to the agreement
- Robust to changing circumstances
- Laws, regulations and standards governing the contract facilitate prevention, mitigation and remediation of negative social and environmental impacts

BACK UPS DEPENDING ON TIME

Licensing Process – Key Questions

Pre-licensing Questions

- Has Government demonstrated a good understanding of the petroleum potential and technical risks?
- Has the Government gathered sufficient geological information prior to licensing so that it is not at an informational disadvantage compared to industry?
- Are the license areas clearly defined, of appropriate size within national land and sea boundaries?
- Does the Government have a licensing policy that sets out the desired pace of exploration and depletion of petroleum resources though relinquishment and staging of licensing?
- Do the fiscal terms provide a fair return for the investor for the risks being taken and will the Government share of revenues be seen as fair in the case of a significant discovery?
- Has an appropriate petroleum law been enacted with associated technical regulations defining fixed and negotiable terms?
- Is there a regulatory agency in place capable of monitoring and enforcing laws, regulations and licensing agreements?

Designing the Licensing Process

Pre-licensing Questions continued

- Are licenses to be awarded by competitive bidding? – this is typically the best way to maximise the value of a license provided there is a market for the license area. If not by competitive bidding how will the value of the license be discovered?
- Are the bidding criteria by which bids are evaluated clear?
  - e.g signature bonus, work programme, royalty rates, local content etc
- Do bidding companies have to pass pre-qualification tests?
  - Operators, non-operators
- Is there an efficient process to allow for the transfer of assets from one company to another and how will capital gains be treated for tax purposes if a company decides to sell a license before production starts?

Evaluating the Contract

- Is the proposed technical work programme appropriate for evaluating the resource potential of the license area?
- Do the participating companies in the license have the technical and financial capacity to execute the work programme effectively?
- If a multi-company joint venture, are the parties sufficiently aligned to allow for efficient operations?
- Is the duration of the license periods sufficient to execute the work programme and provide for relinquishment and relicensing

Evaluating the contract cont.

- Have performance bonds been put in place – e.g. a bank guarantee or parent company guarantee to cover the cost of the minimum work programme?
- Do the proposed fiscal terms provide for a fair return under a range of conceivable success scenarios?
- Is the contract consistent with National laws and regulations and are any legal and economic stability clauses appropriate or necessary?
- Has the impact of operations on local communities been evaluated together with protection and mitigation mechanisms
- How will the contract be monitored and is regulatory capacity in place to do so?

License Agreements – Key Elements vary depending on local laws and regulations

- Duration and extensions
- Work programme obligations
- Contract area and relinquishments
- Contractor rights, obligations and liabilities
- Discovery and appraisal
- Development and production
- Cost recovery, Fiscal terms/production sharing
- Measurement and valuation of petroleum
- Natural gas
- Management of Operations
- Approval of work programmes
- Confidentiality
- Change of ownership
- Termination
- Governing law and arbitration
- Stabilisation
- Environmental protection and safety
- Training
- Local content
- Bonus payments
- Abandonment of wells and installations
- Accounting procedures
- Company Guarantees

Best practice is to include as much as possible in statutory regulation that apply across a licenses

Types of Agreement

- **Concession** – Right to produce and sell petroleum from a license area with a fixed royalty on production and tax on profit
- **Production Sharing Contract** – Right to produce and sell sufficient petroleum to recover costs and an agreed share of ‘profit oil’. Government has right to lift and sell its own share of production
- **Service contract** – Companies are fixed a fixed fee per barrel to cover costs and an agreed margin