Surviving low oil prices in E&P: challenges and solutions

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Technical ● Operations ● Commercial ● Management

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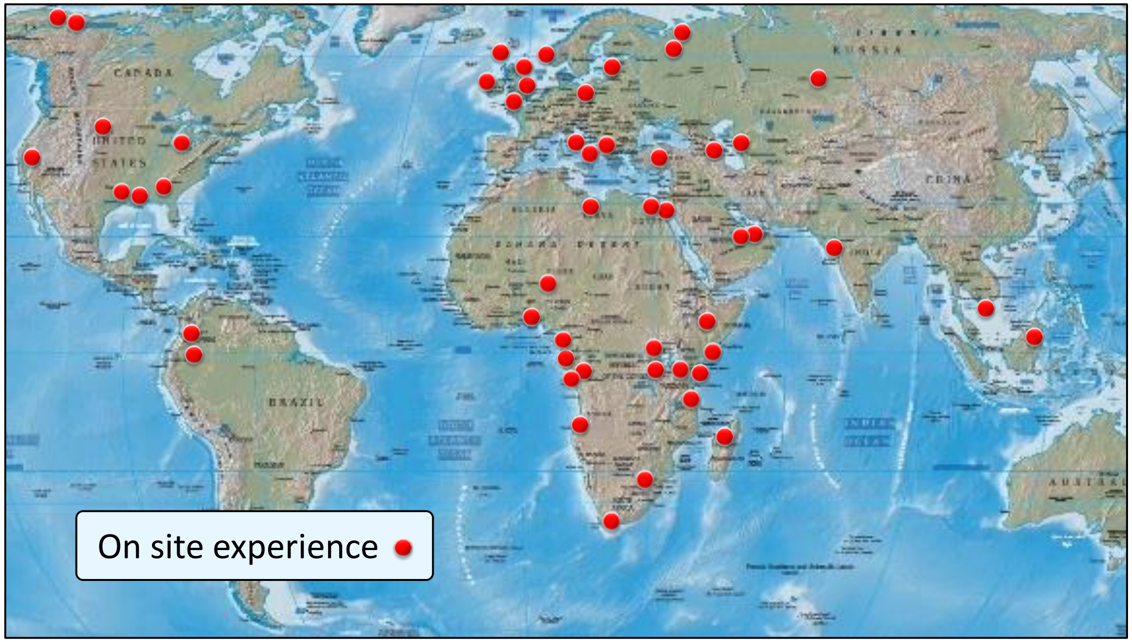
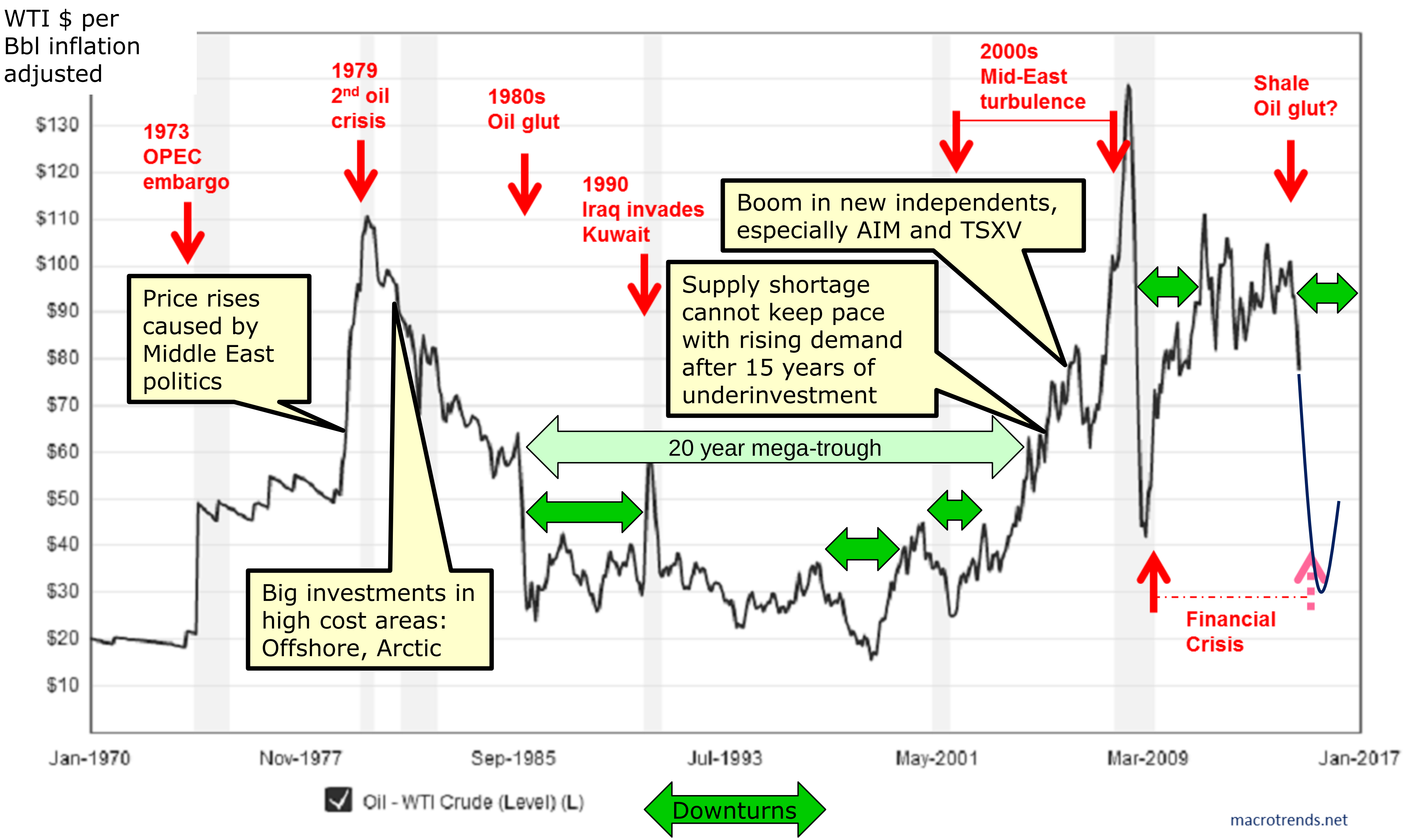
GEC's perspective: based on areas of experience



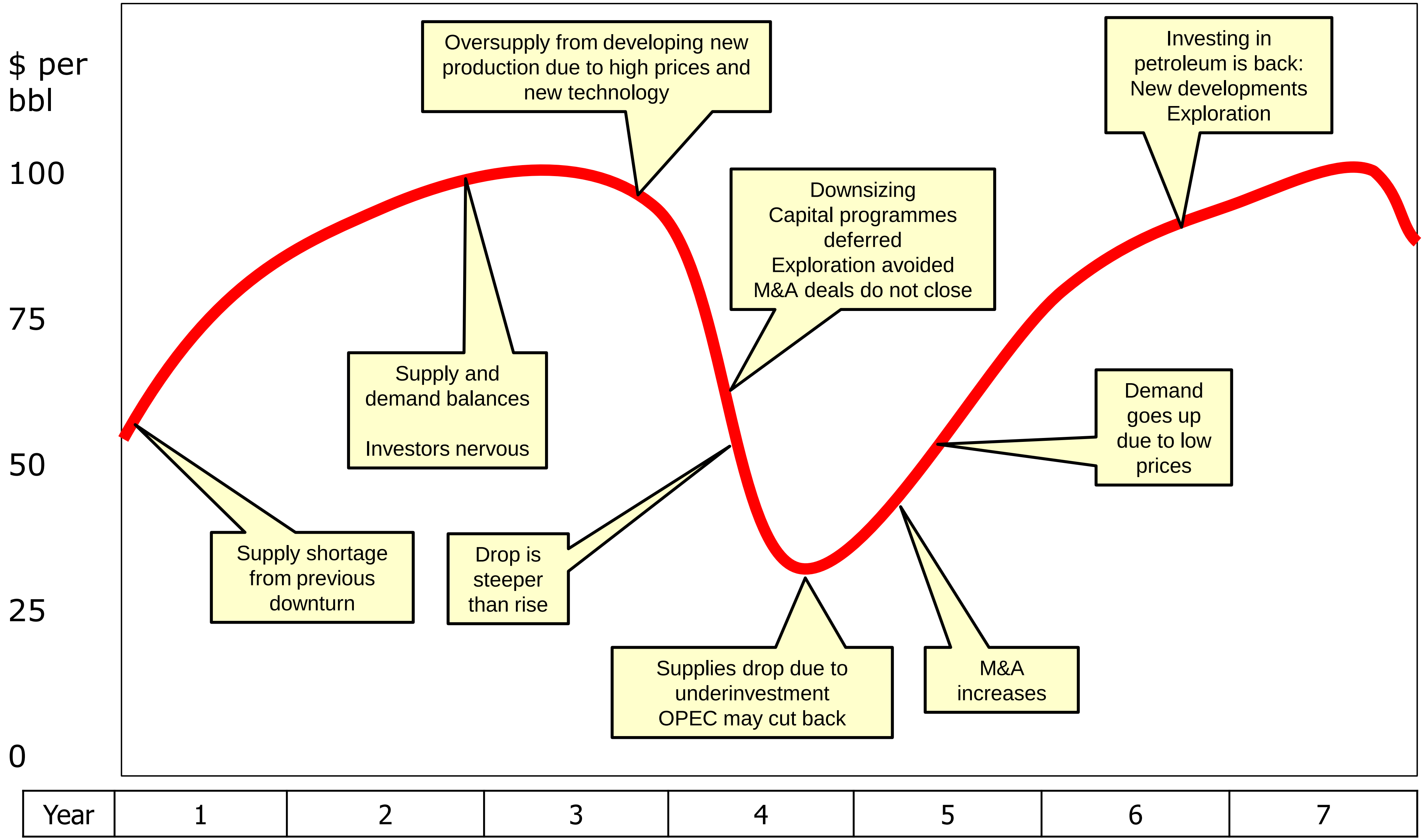
Oil and gas field experience

Africa	North America	South America	Europe	Asia
Songo Songo	Prudhoe Bay	Rubiales	Forties	Bu Hasa
Etame	Kuparuk	Rompida	Magnus	Bab
Obangue	Lisburne		Buchan	Asab
Remboué	East Lake Verret		Ninian	Zhetybay
Tsiengui	Austin Chalk		Vosey	Jarn Yaphour
Tsimiroro	Round Mountain		Tedin	Sahil
			Ombrina Mare	Shah
			Visoka	

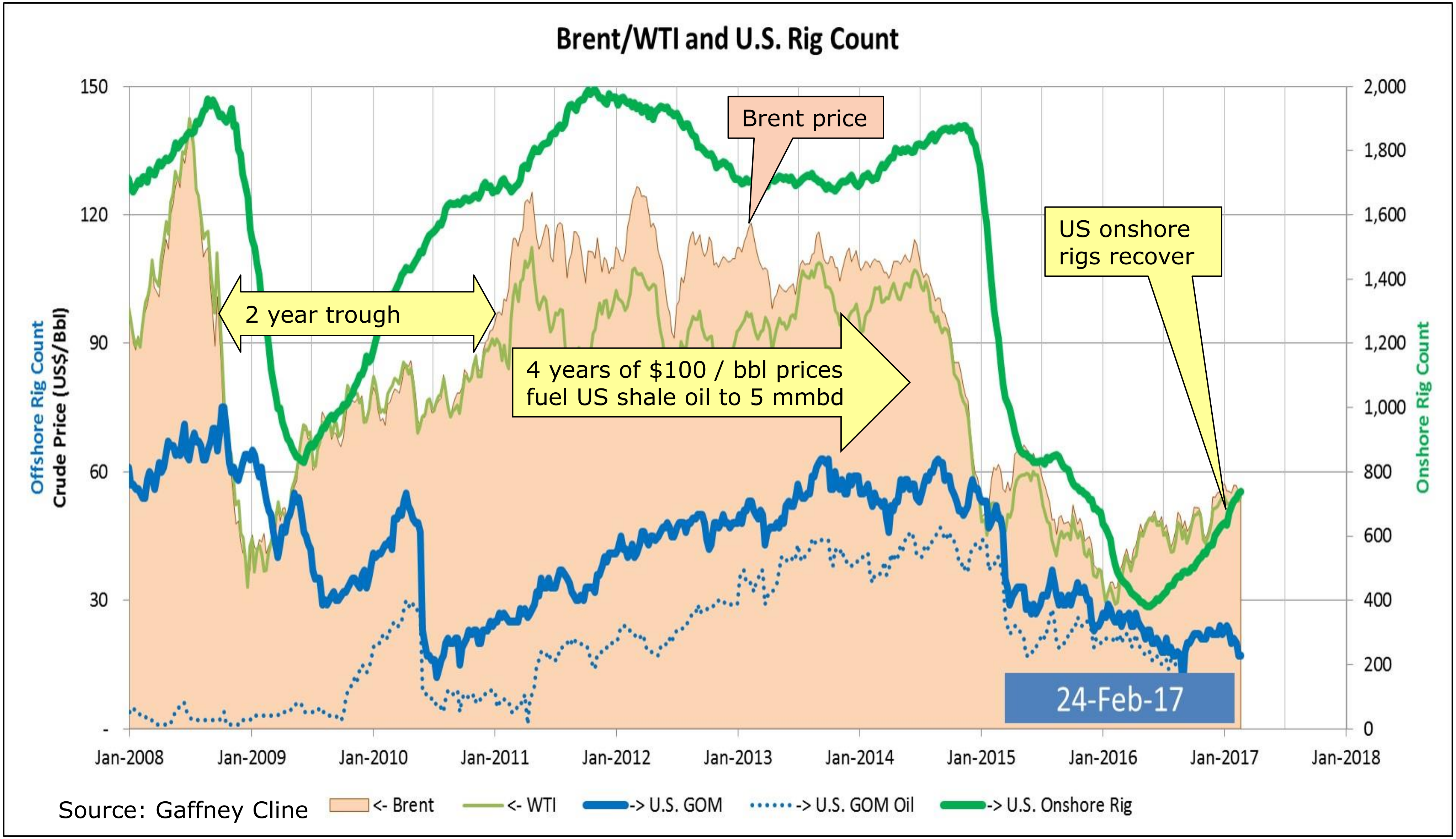
Oil price since 1970: five downturns, mostly unpredicted



Oil price cycles: patterns repeat, but timing and scale varies



Oil price and rig count trends last 10 years



Oil prices collapse and recovery by month: past troughs

How long does it normally take?

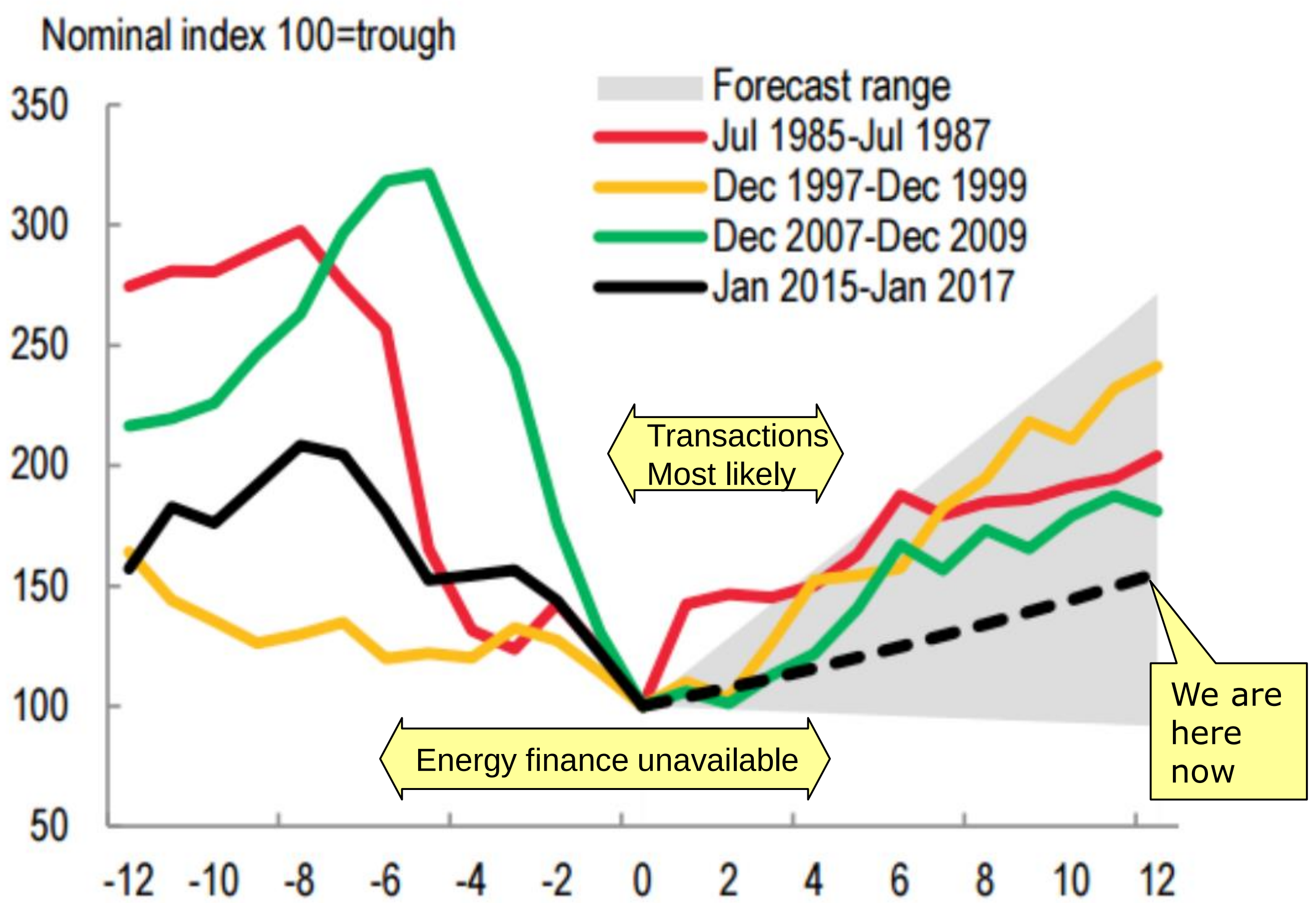
On average 6 months of decline followed by 12 – 18 months of recovery: 2 year trough

Market pricing anticipates supply and demand timing

What are the factors?

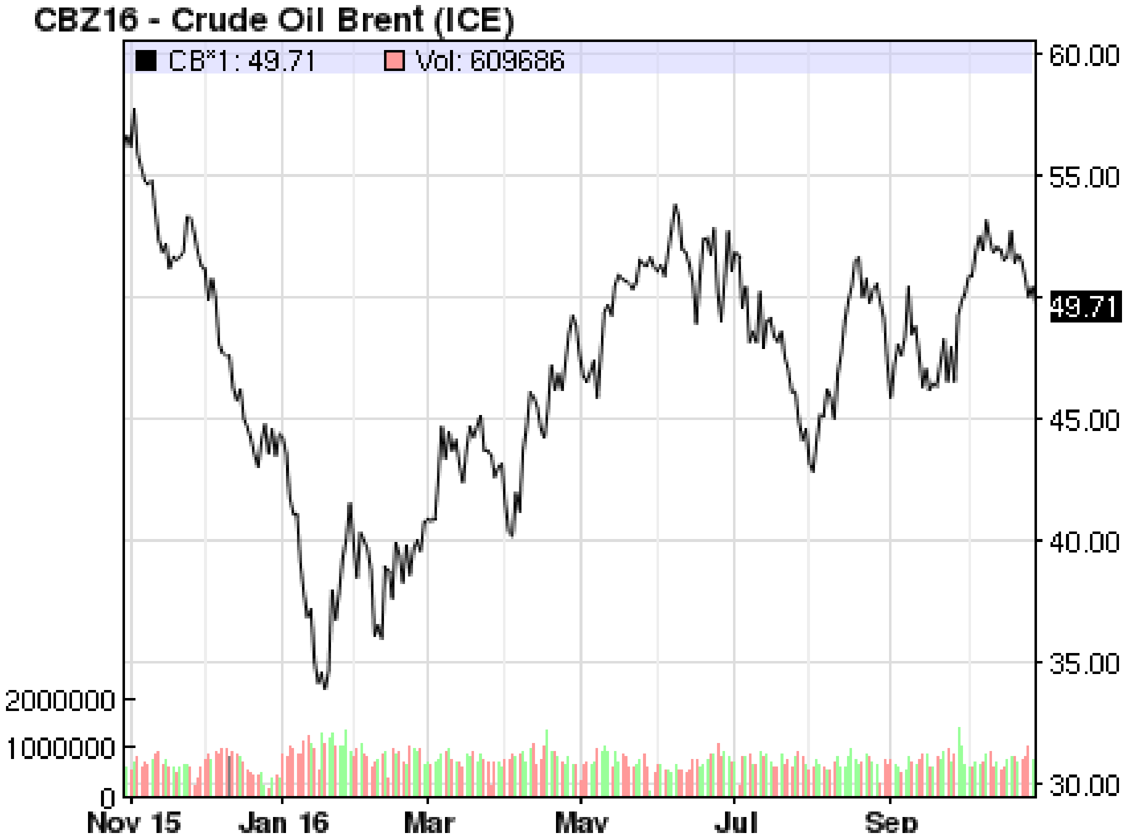
<u>Supply</u>
Natural production decline
OPEC
Shale swing production
Low cost Middle East oil
Sabotage / unrest (Nigeria, Libya)
Deferral of new developments
Sanctions / embargoes (Iran, Syria)

<u>Demand</u>
Strength of national economies
Renewables and climate politics
Nationalism / tariffs vs free trade



Source: World Bank.
Note: Lines indicate oil prices for 12 months before and after the trough, indexed to 100 at the trough. Dashed line indicates forecast. Shaded area denotes range of forecasts by 6 major investment banks, released during January 15-22, 2016.

Oil prices recovery in 2016 and breakeven oil prices



Breakeven oil prices Source KPMG	$/bbl	Lead time years
Existing production	10-25	0-1
New developments		
Onshore	40-70	1-3
Offshore shallow	50-110	2-5
Offshore deep	50-110	3-5
Heavy oil thermal	55-80	1-3
US Light tight oil (LTO)	50-120	1-2

Brent rebound in 2016
$ per bbl, source Nasdaq
65% gain since mid-January
Is it stuck at $55 per bbl?

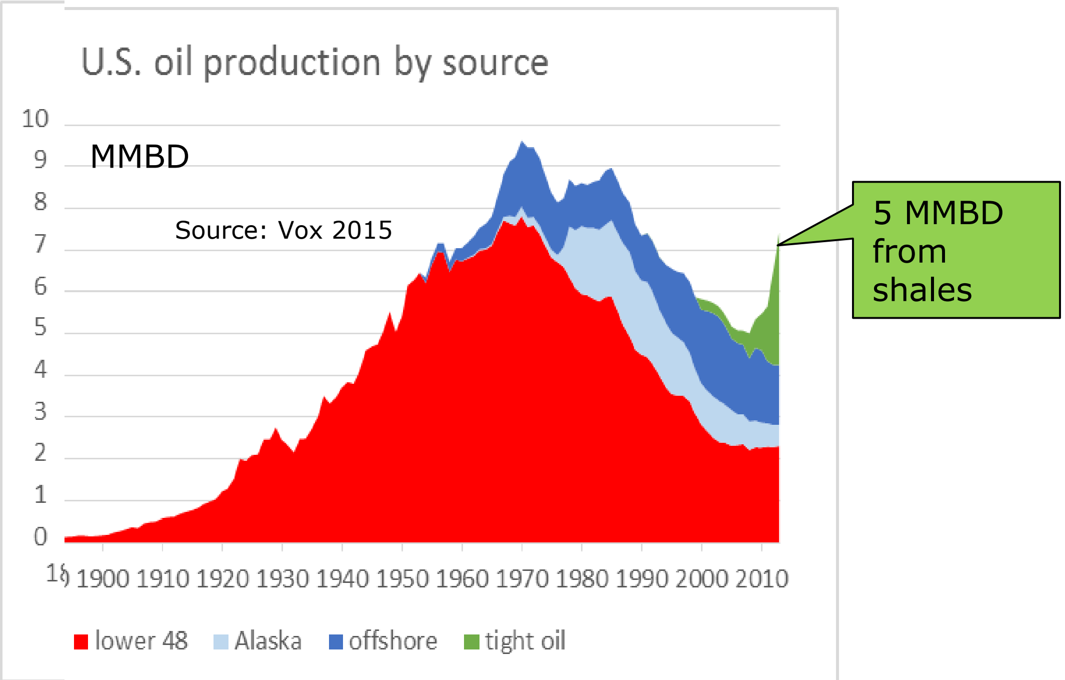
Existing production mostly still economic at $25 / bbl (opex only)

Virtually no new developments economic below $50 / bbl (capex + opex)

Price below $50 / bbl will inhibit most US shale development

Price above $60 / bbl will re-start many new oil investments, but with a lag

How much shale production is economic at various oil prices ?



Shale Basin Source Scotiabank 2014	**Breakeven in 2014 WTI $/bbl**
Bakken N.Dakota	69
Eagleford Texas	50
Niobrara Colorado	59
Permian Texas	68

- About half of US shale production is marginal at $50/bbl
  - However, economics continue to improve:
    Costs reduce and well technology improves
  - Breakevens are now down to $40/bbl in many shale plays
- European economics: gas price 2x higher, costs 2x higher
- Shale and tight oil / gas outside the USA has started to build
  - China, Argentina, Canada so far
  - Global shale / tight rock will eventually be very large, many years away

Strategies for independents to survive low oil prices - 1

Undo what built up during a decade of high oil prices
- Large increases in contractor costs
- Inefficiencies up to 30% from non-value add (NVA)
- High risk exploration and expensive drilling

Increase production revenue: usually better than cutting costs
- Well productivity improvement, interventions
- Debottleneck production, increase uptime

Trim G&A
- Shut down complete areas of NVA, but keep core solid
  - Maintain core staff, converting to part time / as-needed
- Consider delisting
  - Restructuring for long term value, not quarterly focus
  - Private Equity is for the long term, but cautious
  - 95 oil and gas companies on AIM in a sector out of favour

Defer major capital projects
- New developments and exploration

Renegotiate contractor terms
- 30-50% cost reduction, risk / reward sharing
  - Collaborate with other operators to share facilities and contractors

Strategies for independents to survive low oil prices – 2

Renegotiate Government terms

- License extensions, work programmes, Government take

Asset disposal

- Non-core assets: to financed players, or existing partners
- Main hurdle is wide spread of valuation methodology

Debt renegotiation

- Banks prefer solutions to insolvency: last minute deals
- Extension of terms most likely, small chance of new debt

Raise more equity

- Most probably from existing shareholders or bond holders

Sell the company or business

- Acquirer may get it for less than asset based transaction
- Main hurdle is resistance from Board and Management

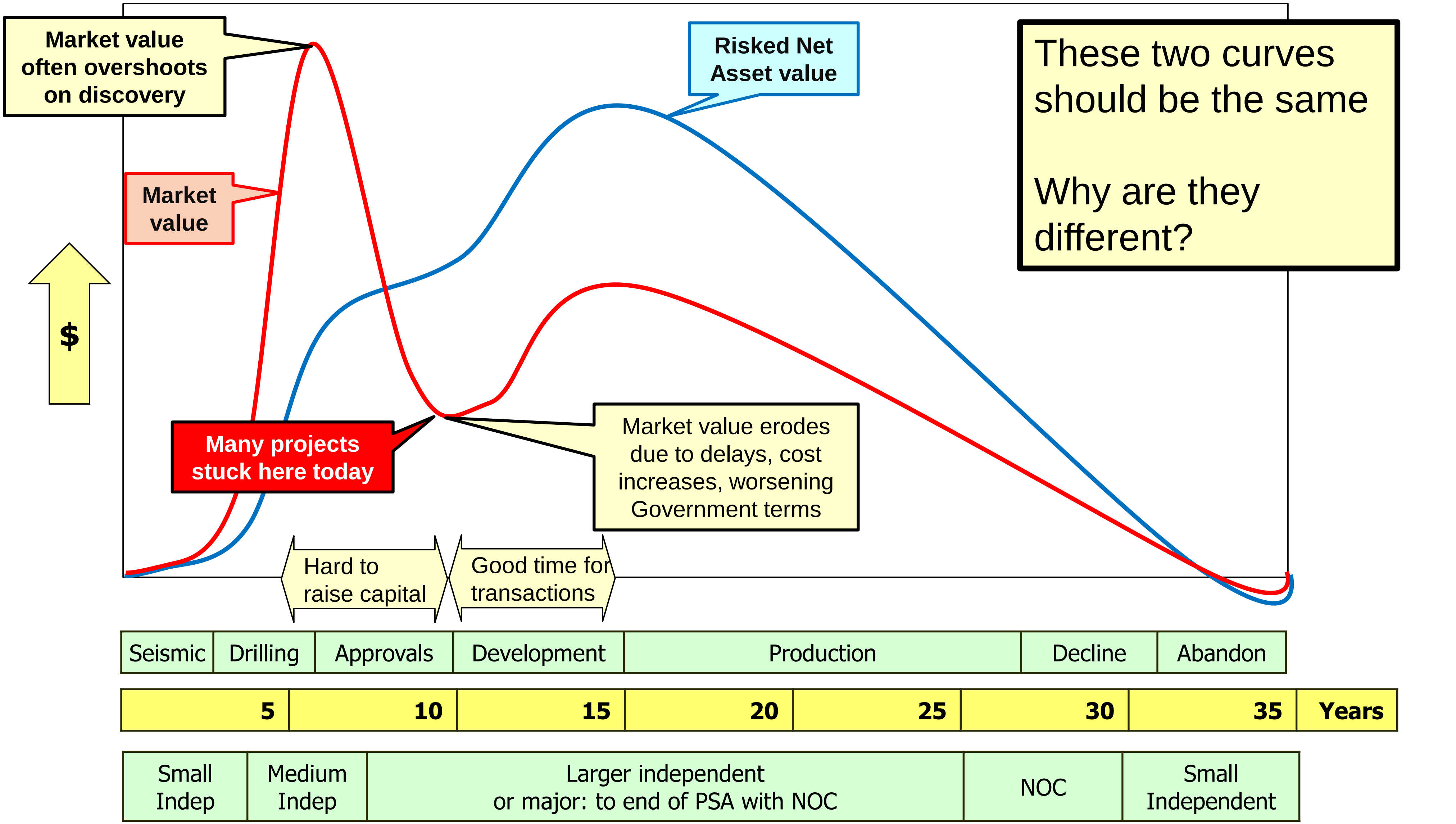
Take advantage of the opportunities

- Expand with asset and corporate deals if financeable
- But only 1% of deals may close: drain on management time

New criteria for investors in E&P companies

What investors looked for before	What investors look for now
Big upside potential	No big financial obligations
Dynamic management	Low cost, cautious management
Access to finance	No debt
NPV growth	Cash in treasury sufficient for near term
Aggressive strategy	Well positioned for recovery

Upstream asset value: perception as against reality



Growth areas and opportunities during the downturn

Low cost production operations

Onshore, shallow reservoirs, easy terrain, developed infrastructure (such as MENA)

Low cost production improvement

- Well stimulation, artificial lift, shallow infill drilling
- Facility debottlenecking, available infrastructure as new developments are deferred

Gas assets

- Gas pricing is often independent of oil markets
- Gas production cannot easily be cut due to contract obligations, gas-to-power needs

Renewables

- Costs often come down, technology continues to improve (as with solar)
- Investors positive, after being burned on fossil fuels
- Political shift to renewables ongoing (Paris Agreement, UNFCCC)

M&A activity

- But not until prices are rising strongly, buyers are cashed up, and sellers capitulate

Disputes

- Renegotiations and other commercial / financial re-alignments
- Arbitration and litigation – with investors, partners, government, contractors

Impact of recent political changes (UK, US, more ?..) : nationalism vs globalisation

- Less trade, more domestic focus, oil and gas demand changes, cost increases

Opportunities after the downturn

- **Buying back in**
  - Share prices still very low, and tend to rise cautiously
  - Retail investors often do not understand the risks
- **Acquisitions**
  - Transactions can close due to access to finance, and willing sellers
- **New developments**
  - Field development planning
  - Corporate finance
  - Application of new game changing technology
    - Viz 3D seismic, deep water, horizontal wells in the 1990s
    - Hydraulic fracturing improvements
    - What will be next?
- **Exploration**
  - Many more opportunities
  - Better Government terms
- **Career development**
  - Skills shortages
  - Less people left in the industry
  - Great opportunity for younger generation to break through

Reducing exploration risk (applicable after the downturn)

Exploration will be hard to finance for some time

- Need stable prices above $60 / bbl
- Legacy of disappointing results prior to the downturn

Exploration failure is the biggest risk for small E&P companies

- Combination of high technical risk and limited finance
- Limited portfolio: unable to diversity and balance risk

Large companies typically focus on lower risk exploration

- Focus on existing core areas, farm-ins / acquisitions

Smaller Independents typically target big upside / high risk

- During high oil prices, investors prefer this to low upside / low risk

Plays now lower technical risk due to

- Improved seismic: 3D, DHIs; low cost airborne FTG
- Lower risk plays in onshore rift valleys, or gas-prone deep water
- However, the low hanging fruit has been taken

Success from:

- Focus on regional technical expertise; credibility from track record
- Window of opportunity is now: for big positions at low entry costs

Will a development be financeable after the downturn ?

To raise major finance, four criteria need to be in place

- Good asset story, with credible management
- Fashionable region and acceptable country
- High, or rising, stable oil / gas prices
- Strong global financial markets

Global equity markets were against small E&Ps prior to the downturn

- Small cap E&Ps were out of favour: Toronto TSXV and London AIM
  - Big upside stories were no longer compelling, many over promoted
  - Lack of exploration success in the last years of high oil prices
- Acquisitions
  - Asset transactions often do not close due to differing perceptions of oil price and value
  - Corporate transactions increasingly attractive at current low market caps
- Low oil and gas price effects
  - Problems: negative NPV, value volatility, capital shortage, debt crises
  - Advantages: lower capex, service company competition, buyer's market for assets

Debt has its problems

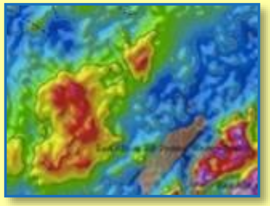
- Debt service can be impossible if the asset value or cash flow drops
- Most readily available debt is Reserve Based Lending for producing assets

What will be most readily financed?

- Expansion of existing production
- Low capex, fast track, smaller scale new developments

Experience and capabilities needed to get to production

Mostly outsourced, but in-house expertise also needed

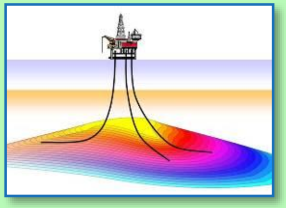


SUBSURFACE

Exploration
FTG
Seismic
Drilling

Reservoir evaluation
Reservoir management

Unconventionals:
Coal bed methane
Thermal / heavy oil



WELLS

Well design
Drilling management
Horizontal wells

Completions
Hydraulic fracturing
Stimulation

Artificial lift
Subsea completions
Offtake management

DEVELOPMENT

Facility design
Pipeline design
Project management

Offshore facilities
FPSOs
Financing

PRODUCTION

Commissioning
Training
Operating systems
Production management
Safety systems
Maintenance

DOWNSTREAM

Infrastructure
Commercial
Oil and gas markets:
Industrial
Gas to power
CNG

COMMUNITY

Environmental
Education
Medical

Local power
Water supply
Adult education
Petroleum training

GEC has experience in all these areas

Is strategy deliverable ?

Deliverable strategy: three components

- What is needed
- What you can do well
- Shortage of competition

Typical strategies for E&Ps during normal oil pricing

- Explore underexplored regions with new technology
- Transfer risk through farmouts, partners, contractors
- Maintain adequate working capital to survive exploration failure or cost over-run

Where things often go wrong

- Over - promoting the company, then disappointing shareholders
- Taking on high subsurface exploration risk
- Managing complex operations better suited to a larger company
- Promising Governments, then not delivering
- Running out of funds

Typical E&P strategies during downturn

- Extend working capital as long as possible
- Build a portfolio of “fire-sale” opportunities
- Be well positioned for when the oil price enables access to finance

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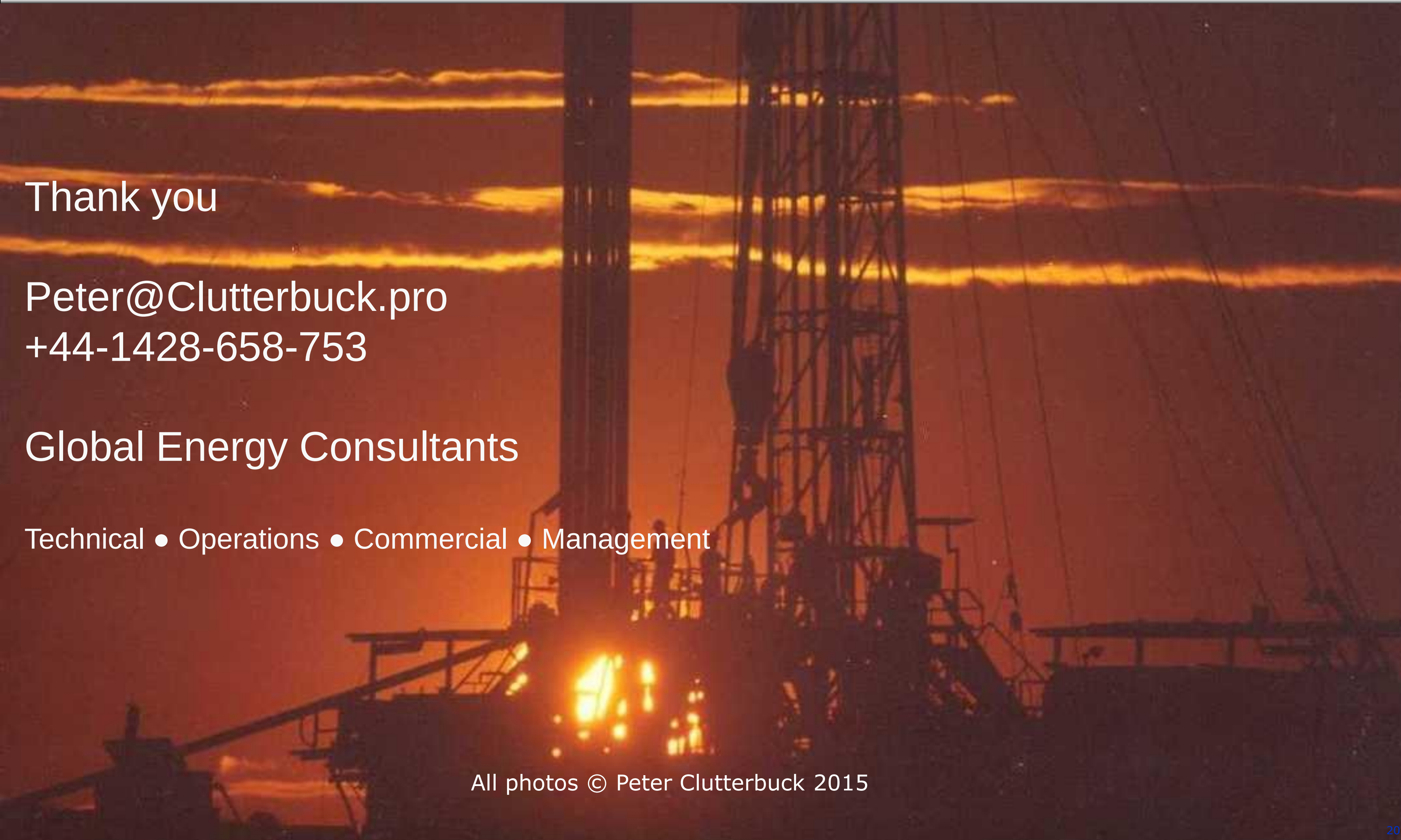

Thank you

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