

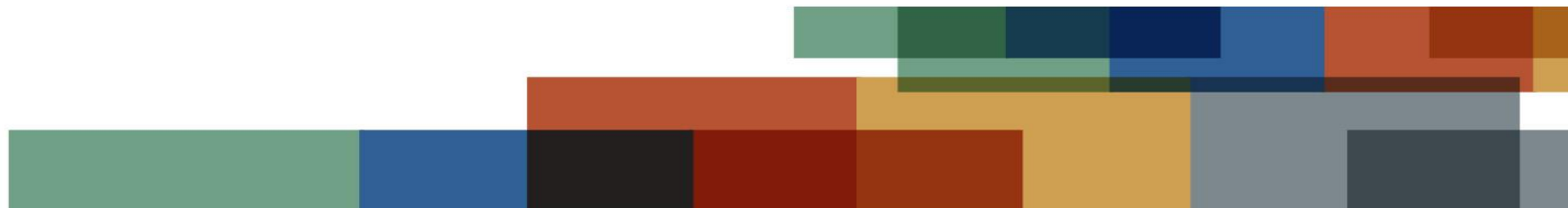


decisions with confidence

Critical Factors in Acquisition Case Histories

Gavin Ward, RISC Partner & London Office General Manager

Institute of Directors, London, 2 October 2018



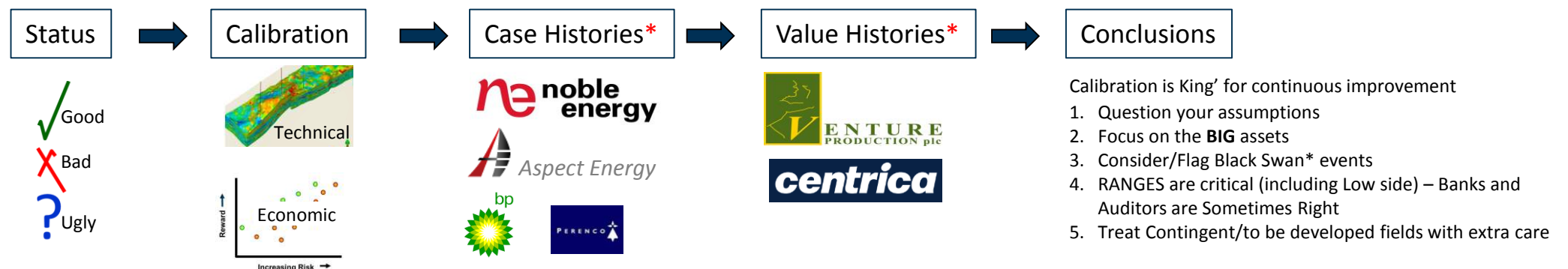
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2018 Analysis using Public Data

- | | | |
|--------------------|---|------------------------------|
| • 16 August 2017 | Project Performance: Outcomes, Why? and How to Improve ? | Simon Whitaker |
| • 1 November 2017 | Regulatory changes to reserves booking guidelines. | Geoff Salter & Adam Borushek |
| • 26 February 2018 | Latest LNG issues from an “AustralAsian” perspective: Qatar, Australia, USA...where next? | Martin Wilkes |
| • 6 June 2018 | Acquisition Due Diligence. Is it as good as it seems? | Peter Stephenson |
| • 2 October 2018 | Critical Factors in Acquisition Due Diligence | Gavin Ward |

Introduction to new Commercial Advisor - Terry Wells

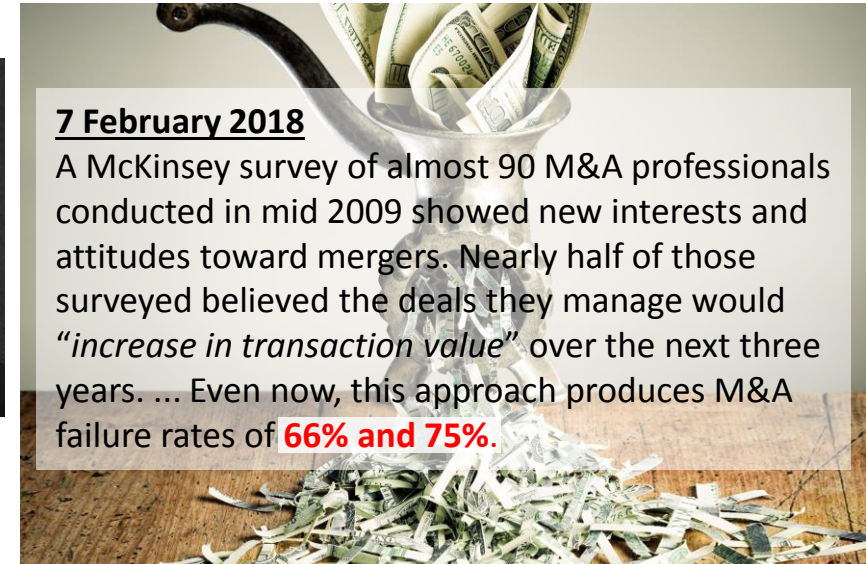
PRMS 2018 introduction - Adam Borushek



-
- Net Book Value
 - EBITDA multiple
 - Earnings per share
 - Benchmarked \$/Boe
 - Discounted Cash Flow & WACC

IMPORTANT: Valuation is not the same as the price paid through negotiation

Status: M&A and Project Failures



- Larger deals involve many more moving parts, and therefore scope for breakdown
- Including internal issues and external difficulties such as a regulatory hitch or a failure to secure financing.
- **The only way to address these problems is for companies to prepare early and thoroughly.**

Status: Pre FID schedule performance

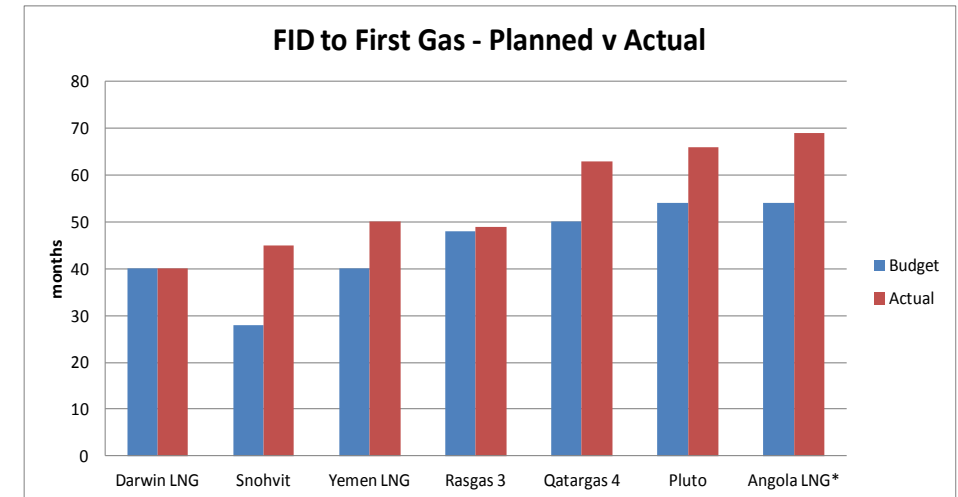


16 August 2017 Project Performance: Outcomes, Why? and How to Improve ?

Simon Whitaker

Operators are overly optimistic about how long it will take to mature the project.

Project	Target FID	Actual FID
Pluto 1, Woodside	2007	August 2007
Gorgon 1-3, Chevron/Exxon/Shell	2004/2008	September 2009
QC LNG, BG Group	Early 2010	November 2010
GLNG, Santos/Petronas	Mid 2010	January 2011
APLNG, Origin/CoP (Train 1)	End 2010	July 2011
Wheatstone, Chevron	End 2011	September 2011
Ichthys, Inpex/Total	End 2010	January 2012
APLNG, Origin/CoP (Train 2)	End 2011/Early 2012	July 2012
Browse	Mid 2012	TBA



Schedule performance – FID to RFSU

Is execution schedule performance any better?

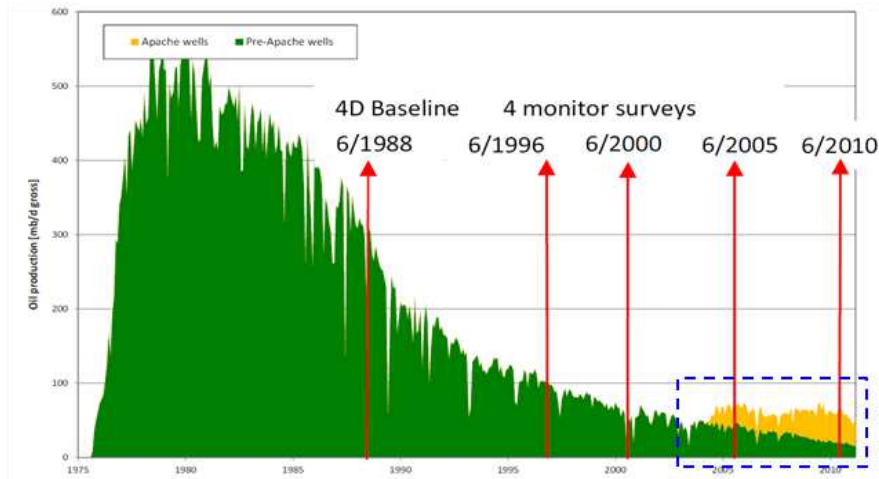
Analysis shows that 10 months schedule overrun is the mean (23%)

Publicly announced targeted FID for recent LNG projects and when FID actually occurred. Australian projects only
 Almost everyone misses their target FID date and this is not just restricted to Australian projects
 Only Wheatstone & Pluto met targets

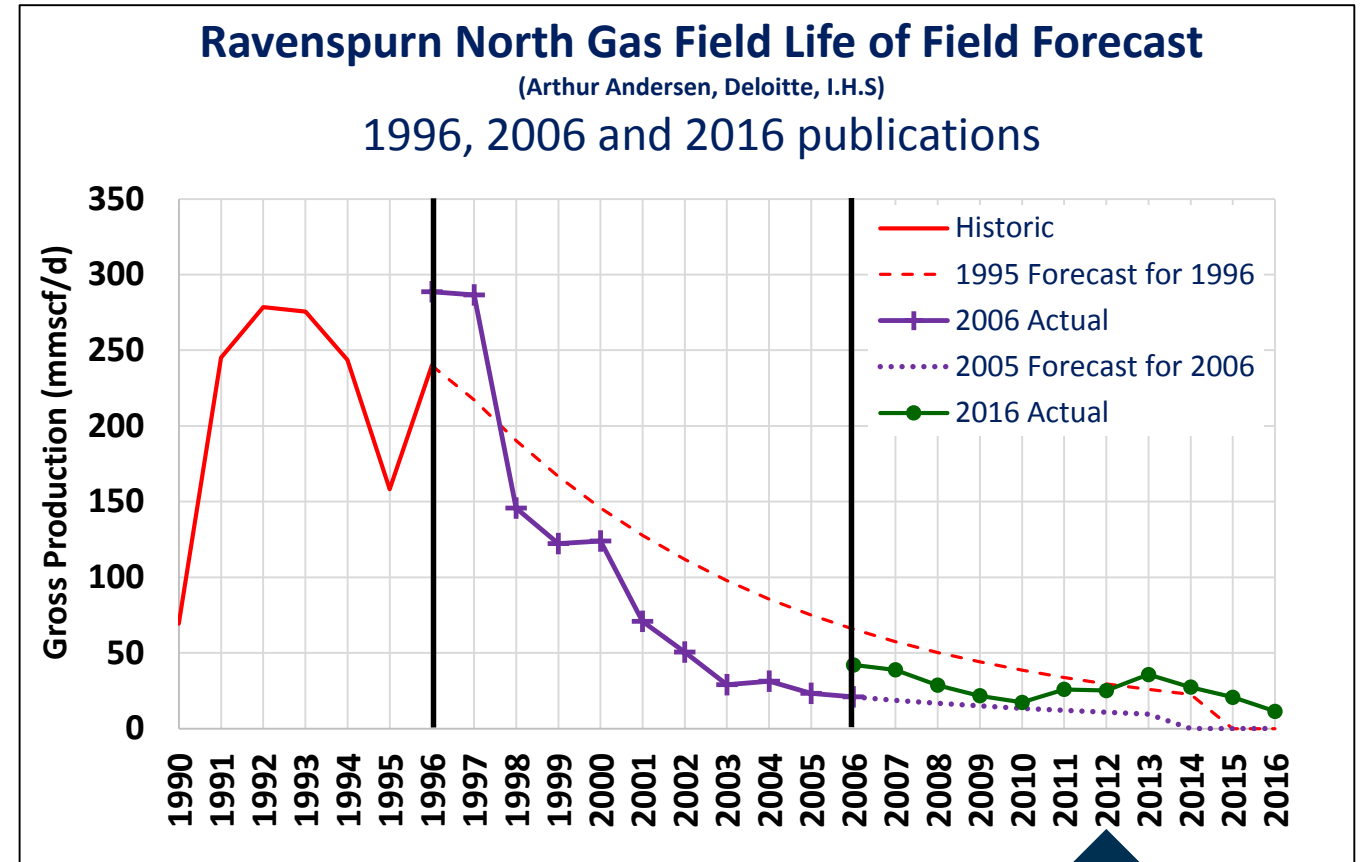


Ref: <http://riscadvisory.com/conference-papers/>

Status: M&A Success, and Practicalities of Prediction



Change of operator
2003



Change of operator
2012



Calibration: Technical & Cost Estimation

6 June 2018

Acquisition Due Diligence. Is it as good as it seems?

Peter Stephenson



How to get the most from the process: Frame it

Ensure the opportunity is of interest and decide what you need to know

Carefully frame the assignment

- Does the opportunity meet your corporate strategy / targets?
 - Production, remaining costs, cash flow profile, corporate image, risk profile
 - Sovereign reliability and risk?
 - Operatorship or non-operator?
- What will effect your decision to bid and amount apart from economics?
 - Operator and JV capability, reputation, synergies?
 - Reputation: gas flaring, discharge at sea, HSE record and management processes, greenhouse gas emissions?
 - Phased payment with milestones?
- What deliverables do you require from due diligence?
 - Annual, monthly, well-by-well forecasts?
 - Low, base and high case forecasts? By field or portfolio?
- Who is delivering what?
 - Often separate technical, legal, accounting, finance teams
 - Who is doing economics?
 - Who is looking at potential legal or contractual liabilities / claims?
 - Who is looking at contracts?

If it doesn't fit your strategy why evaluate it?

If it won't effect your bid why review it?

However, you may not be able to go back to get additional deliverables

A low case outcome on every field is highly unlikely and cannot be the basis of a competitive bid. Will a low case on key field(s) suffice?

1. Be prepared

- Where to focus, what can be left unaudited?

2. Select the best evaluation methodology

- Thorough G&G review for undeveloped fields

3. Challenge the key results

- What are the key risks/opportunities and have they been adequately captured?

CONCLUSIONS

How to get the most from the process: Static Volume Evaluation

Static volume evaluation and reservoir connectivity are critical in undeveloped fields with no supporting production history

- Doubles due diligence effort and cost

Structural Interpretation:

- Have all the key uncertainties been incorporated?
 - Fluid contact uncertainty, pick uncertainty, velocity model uncertainty
- Is the GRV uncertainty range consistent with project maturity, analogue fields?

Reservoir properties:

- Does the model match the wells?
- Are the model averages consistent with the well averages? Or is there a legitimate reason why not?
- Could a different geological model fit the data?
- Conduct an independent check of in-place volumes

Has potential compartmentalization been captured?

- Consistent with wireline pressure data?
- Consistent with welltest and production data?
- Consistent with analogues

Prepare the right team:

- Do you need specialists in structural interpretation, fractured reservoirs, specialist petrophysics?
- What are the key risks and opportunities?

GRV is often the largest uncertainty

Parameter ranges and hence resource uncertainty are consistently under-estimated. THINK OUTSIDE THE BOX

The one thing you know about a single model is it's WRONG. Work with uncertainty ranges



Ref: <http://riscadvisory.com/conference-papers/>

How to get the most from the process: Dynamic Evaluation

For mature assets the Operator is likely to present a complex, sophisticated model that has considered numerous uncertainties and options; millions of grid blocks, automated history matching, experimental design

Beware: DETAIL / ACCURACY

- The supporting audit trail is often inadequate and a full review not possible due to data or time limits
- However, in mature fields basic analysis can be used effectively to audit the production forecasts:
 - Production Decline Curve Analysis will support the range of developed oil reserve estimates
 - Flowing or static (P/Z) material balance plots will support the range of GIP estimates
 - Creeping curves will show the (diminishing) value of infill drilling
- Decline curve example:

If the next well planned is forecast to be the best well in the field don't believe it

Base production is supported by DCA

- The forecast production from a planned infill wells looks optimistic compared to the last infill?
 - Or can better performance be supported?
- Various wellwork (stimulation, re-perforating) is forecast to provide incremental production
 - Has wellwork not being conducted in the past 3 years?
 - If so it's benefit is included in the DCA
 - If not why not?

How to get the most from the process: Prepare

Prepare and optimise the process

Optimise the process

- Can due diligence be broken into phases with go / no-go decision points
 - Initial red flag review (from VDR or Public Domain data)
 - Physical data room visit. Second visit if required
 - Site visit, Legal DD
- Which parts / characteristics of the acquisition are most important?
 - Hydrocarbon production?
 - Facility integrity and risk?
 - Operator reputation, HSE record and management processes?
 - Exploration upside?
 - The low case, mid case or potential high case outcome?
- Ensure the DD team know what the deliverables are

Focus on the more important aspect

- Typically 20% of the assets provide 80% of the value.
 - Do you need to look at the remaining 80%?
 - Analyse the sellers Information Memorandum forecasts to identify and rank focus areas. Identify what does not need review.
- Get information before you start
 - Review company and JV annual reports, press releases, investor presentations
 - Have reserves been reviewed or certified
 - Are papers or presentations on the asset available?

A good review of key assets is better than a cursory review of all

Time is limited, maximise knowledge before you start

Cooper Basin 2P Oil

Cooper basin Oil Portfolio:

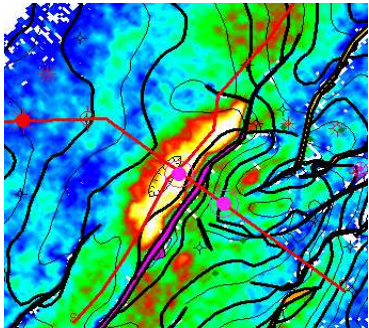
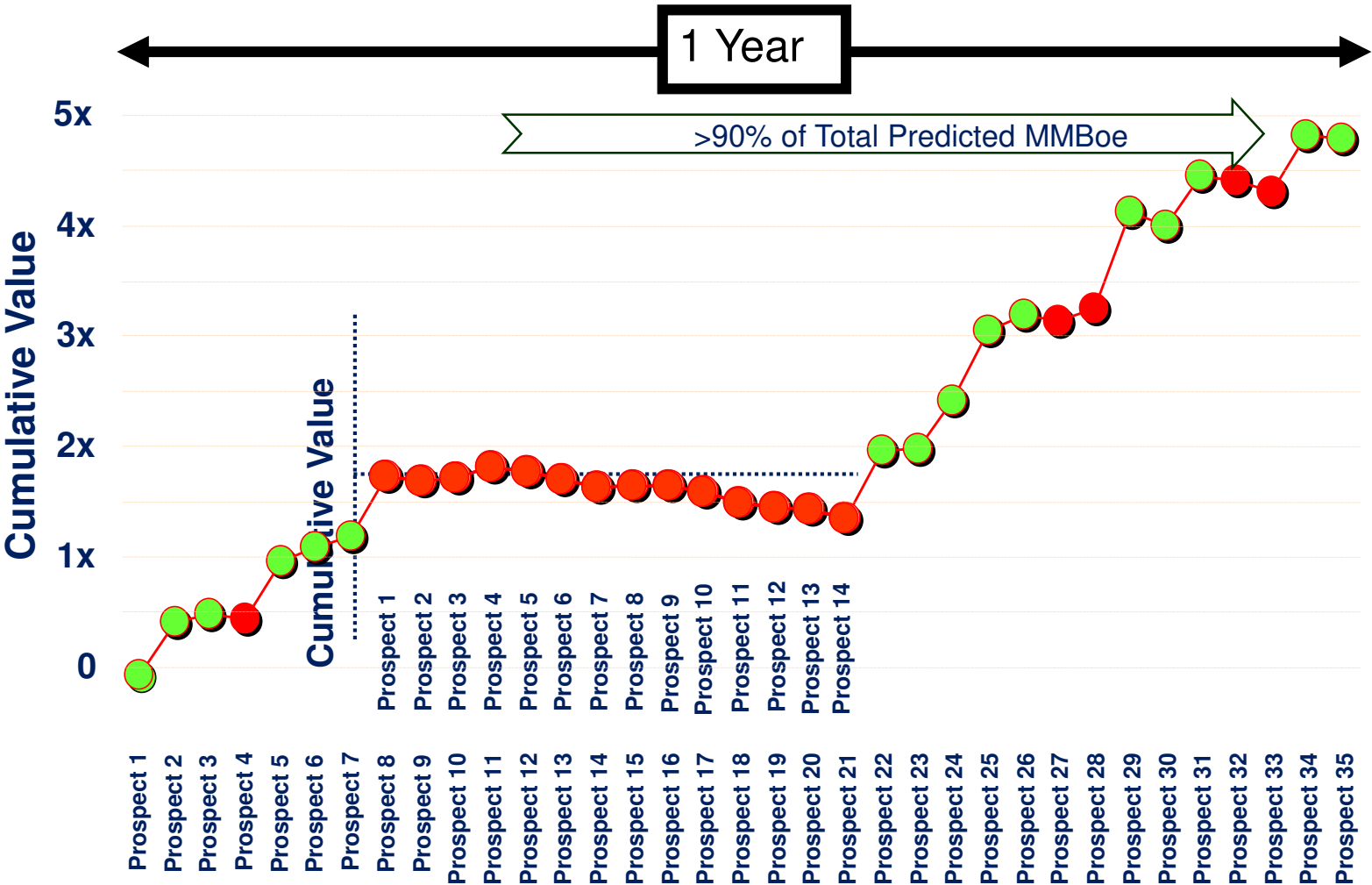
- 2P Reserves in 60 fields
- 27% in 3 fields, 50% in 7 fields

Calibration: Volume Prediction & Exploration Portfolio Valuation (35 wells)



Onshore, Gulf of Mexico, USA

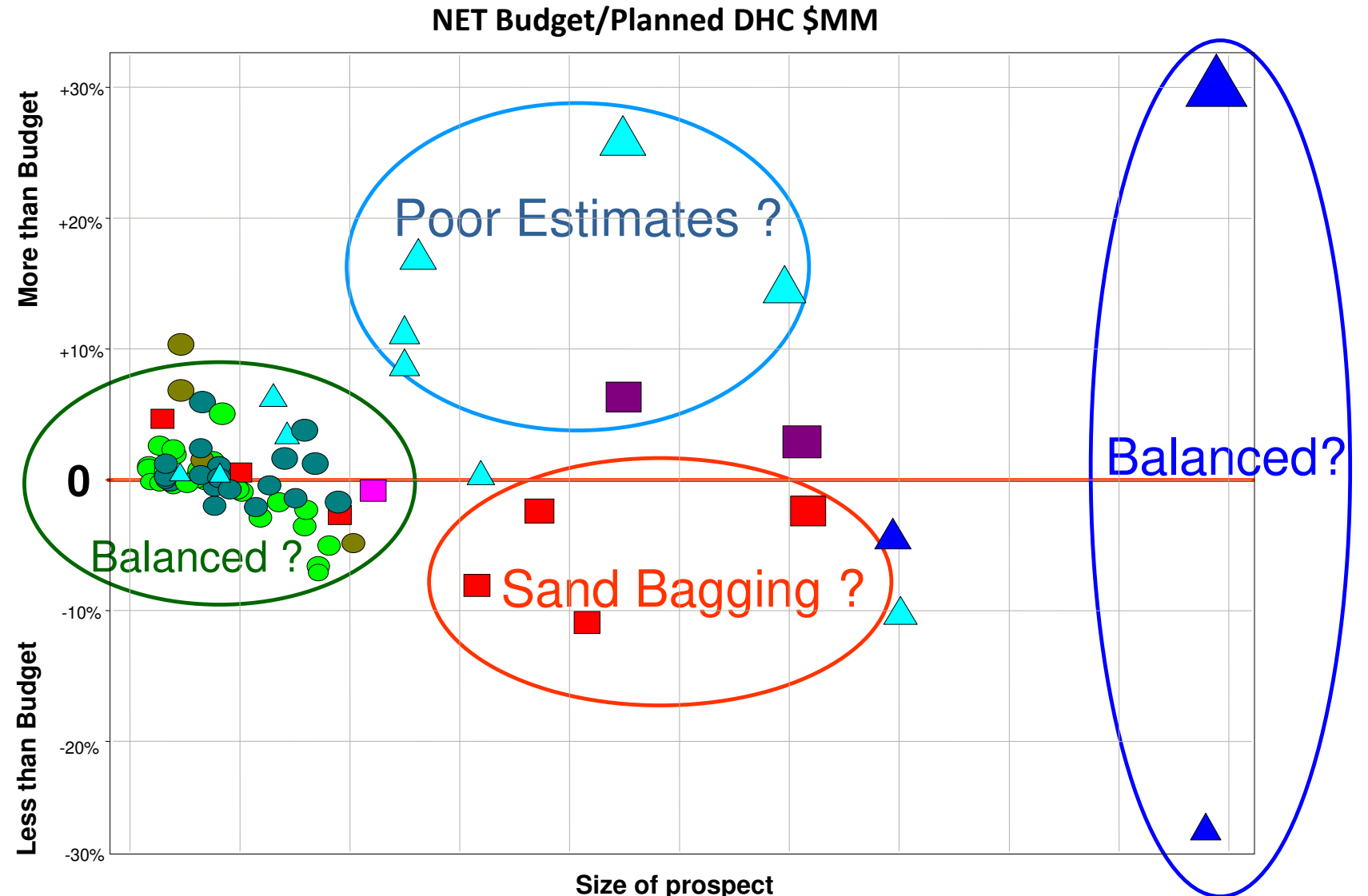
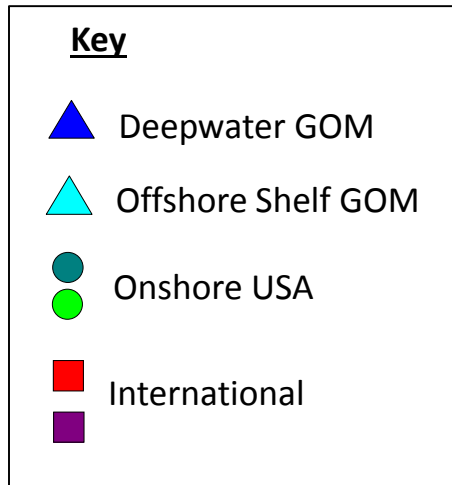
'Expect' approximately four to seven 6's with thirty five rolls of the die



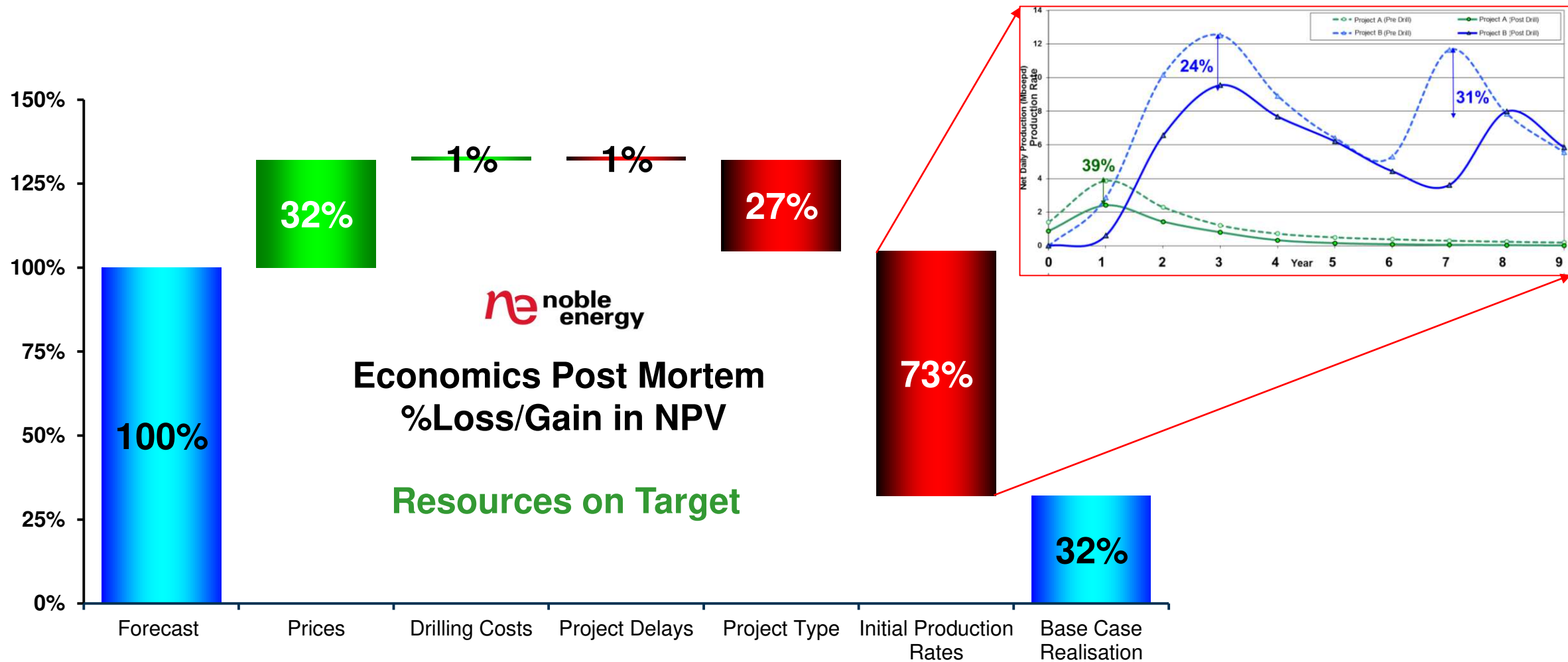
Calibration: Sum of the Parts & Know Your Assumptions



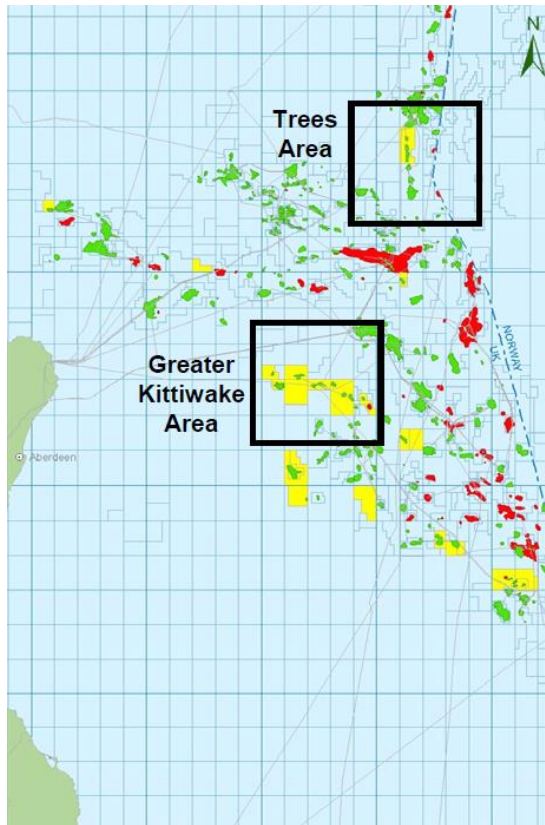
Test assumptions: On budget for portfolio but not individual business units



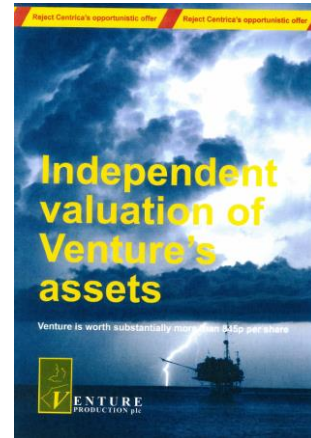
Case History: Test Assumptions & Know Your Process



Value Histories: Venture Production 2009 Portfolio in 2018

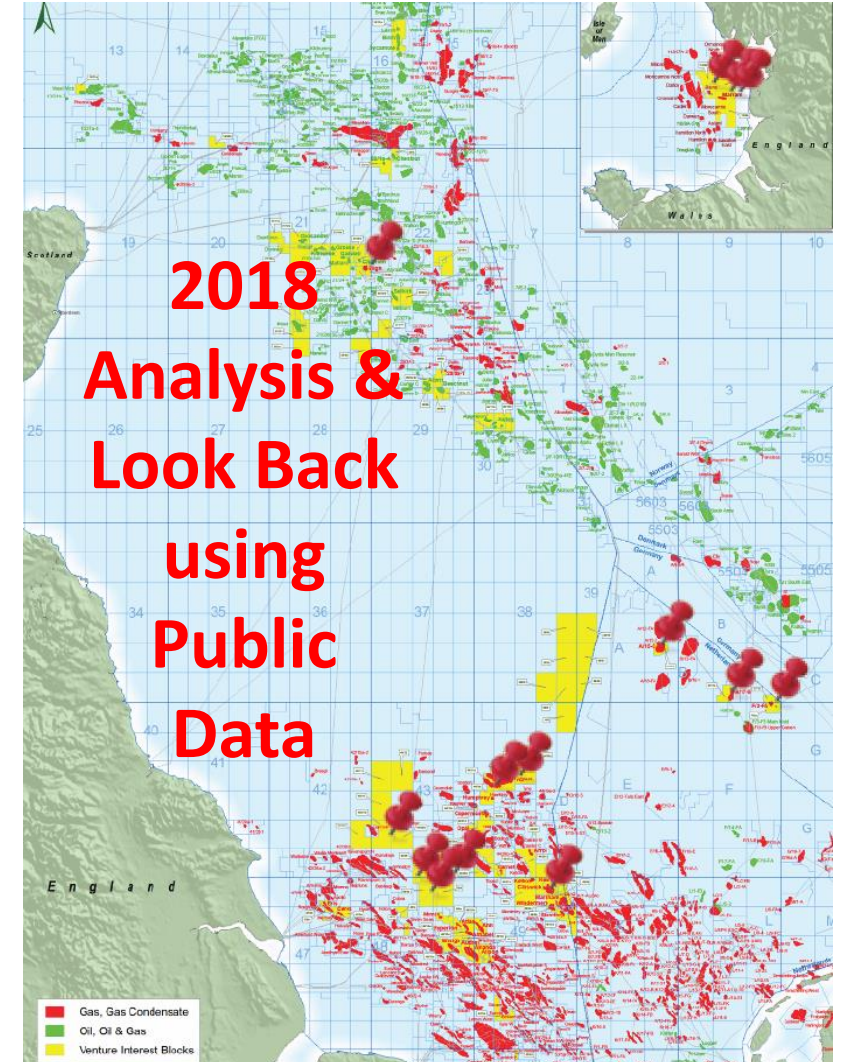
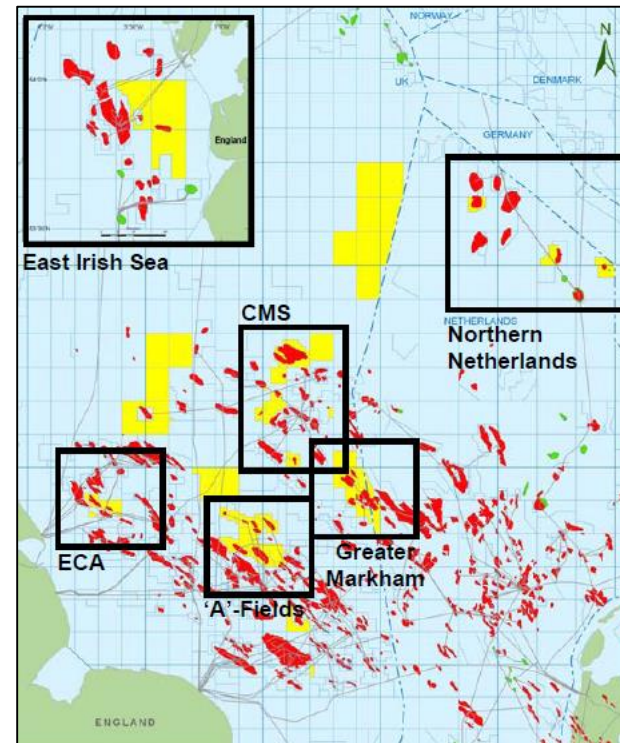


- 20 Producing Fields
- 26 Discovered Non-Producing
- > 50 Prospects & Leads



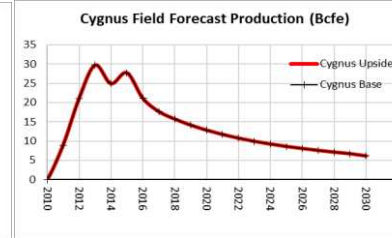
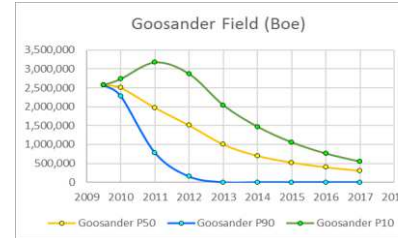
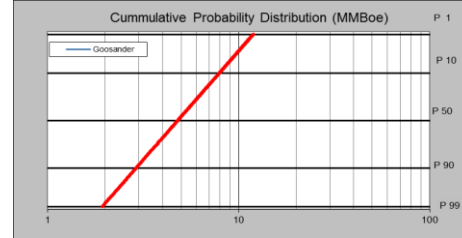
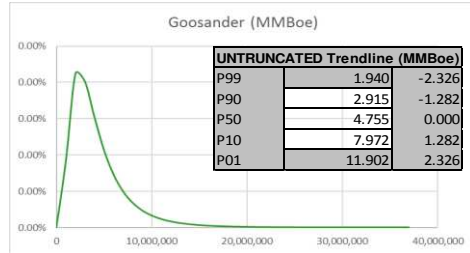
Centrica plc paid £1.3 bill

Venture Petroleum	Lowside Scenario (£ mill)	Base Scenario (£ mill)	Upside Scenario (£ mill)
Reserves	-	1,742	2,209
Contingent & Prospective	-	160	225
Other assets	-	8	8
Total	-	1,910	2,442



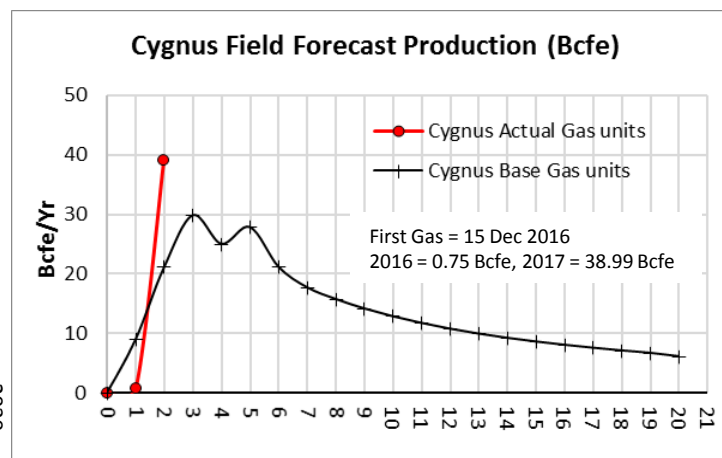
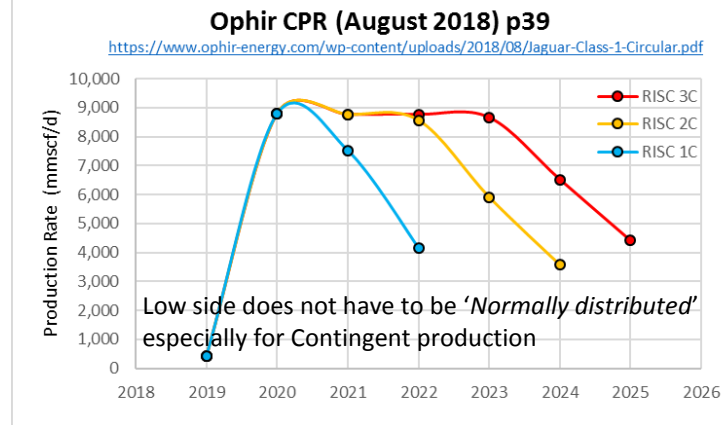
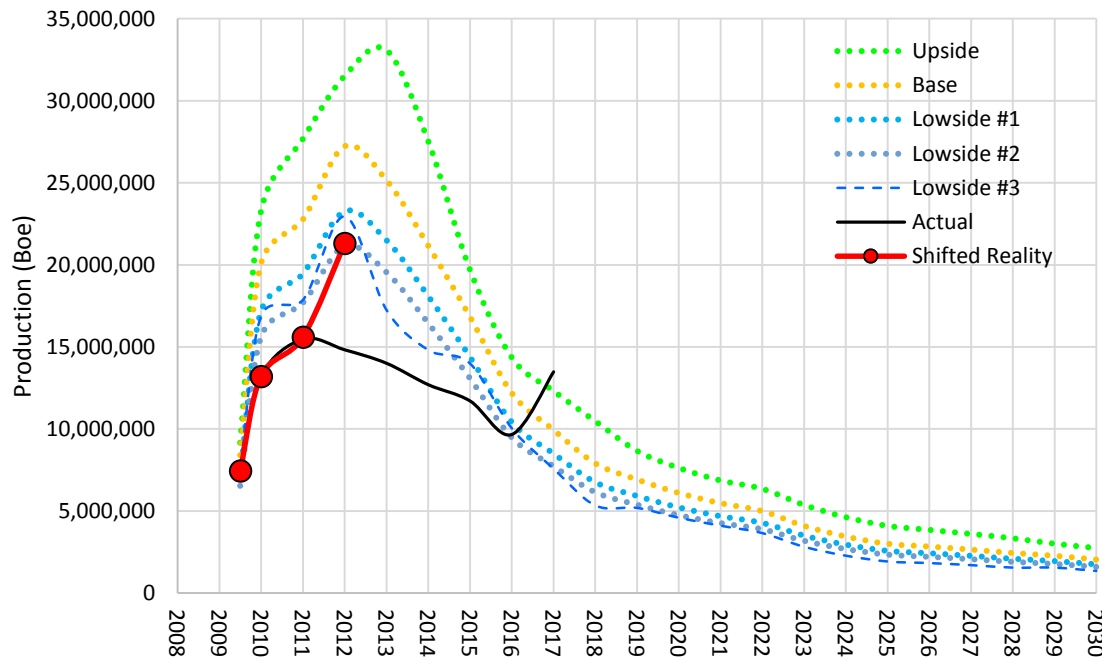
Value Histories: £1.3 Billion Acquisition 2009

2018 Analysis & Look Back using Public Data

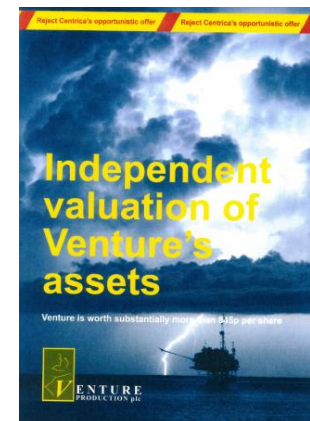
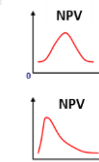


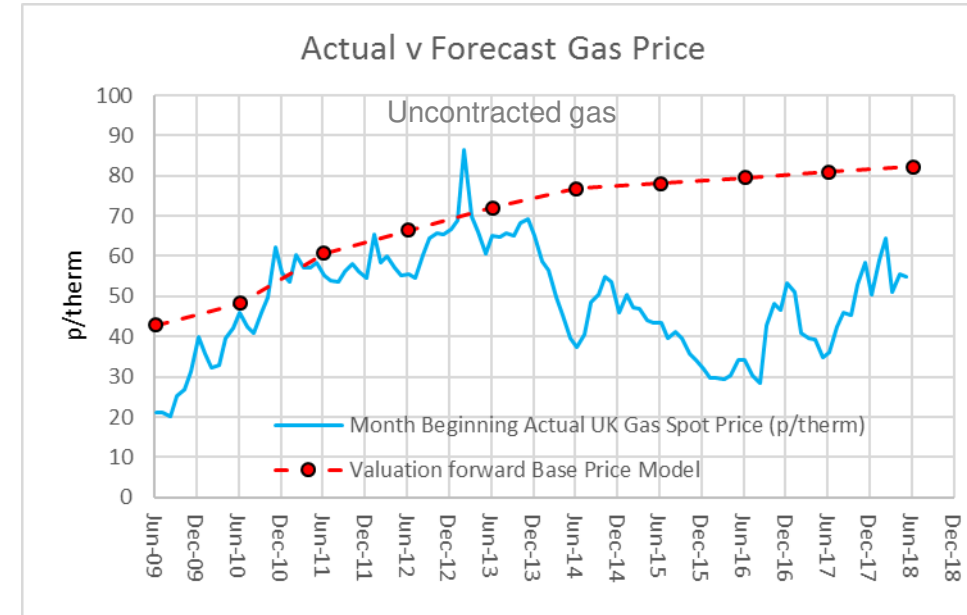
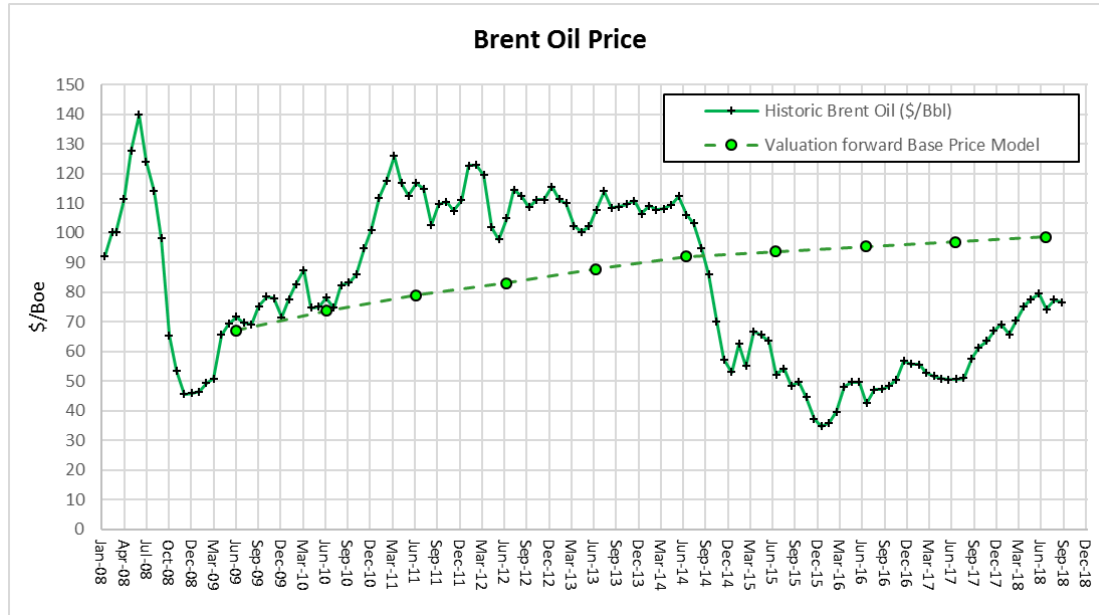
- RISC reviewed over 80% of Ventures assets on a 2P reserves basis.
- Contingent & Prospective resources valued using a unit value method (\$/Boe).
- Effective date = 1 July 2009
- No Lowside: only Base & Upside requested*

Total Portfolio - Calculated from Profiles

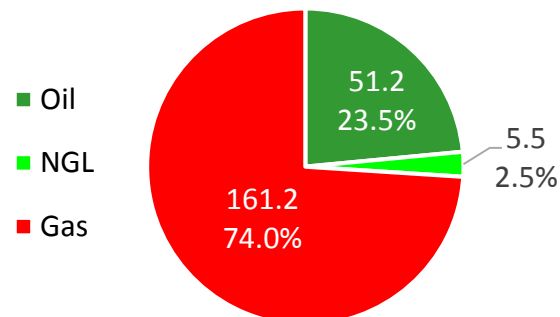


Venture Petroleum	Lowside Scenario (£ mill) ?	Base Scenario (£ mill)	Upside Scenario (£ mill)
Reserves	1,275 ?	1,742	2,209
Contingent & Prospective	95 ?	160	225
Other assets	8	8	8
Total	1,378 ?	1,910	2,442





Reserves Portfolio (218 MMMBoe)



Value Histories: £1.3 Billion Acquisition 2009 (Base Valuation = £ 1.9 Bill)

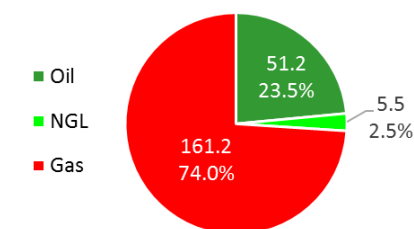


	Base Forecast 2009 - 2017	Actual 2009 - 2017	Variance 2009 - 2017	%Variance
Cygnus Delay	£1,910 mill	£1,750 mill	(£-160) mill	-8.3%
Oil Price Change	£1,910 mill	£1,985 mill	£75 mill	3.9%
Uncontracted Gas Price Change	£1,910 mill	£1,469 mill	(£-441) mill	-23.1%
FX £:\$	£1,910 mill	£1,935 mill	£25 mill	1.3%
Volume	TBA	TBA	TBA	TBA
TOTAL	£1,910 mill	£1,409	(£-501) mill	-26.4%

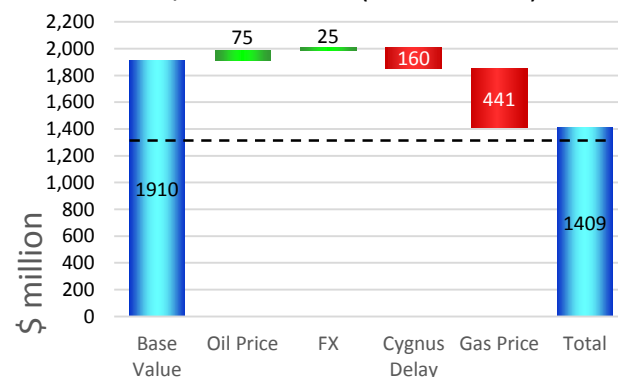
Area	Gain/(Shortfall) Actual Produced Volume 2009 – 2017 (MMBoe)
UK Gas	(-32.3)
Trees (CNS)	(-11.7)
CNS	(-8.5)
NL	(-0.5)
GKA	(-0.3)
GMA	1.9
Total	(-51.4)

FINANCIAL TIMES	
Venture concedes and accepts Centrica bid	
<p>Carda Hoyos AUGUST 25, 2009</p> <p>Venture Production has grudgingly accepted defeat in its battle to thwart a £1.3bn takeover by Centrica, the UK's biggest utility.</p> <p>Venture's board on Tuesday at last recommended that investors accept Centrica's 84.5p offer. Even so, the board, which holds 12.5 per cent of the stock, reiterated its belief that the price undervalued the company.</p> <p>Larry Kinch, one of Venture's founders, and ArcLight Capital Partners, the investment group, together own 12.8 per cent of Venture. For more than a month they had insisted the shares were worth at least £10. But after Centrica had managed to secure more than 50 per cent of Venture's shares, they told Venture's board on Tuesday they would accept the bid.</p>	

Reserves Portfolio
(218 MMBoe)



Gain/Loss in Value (2009 – 2017)



centrica

Venture Petroleum	Lowside Scenario (£ mill) ?	Base Scenario (£ mill)	Upside Scenario (£ mill)
Reserves	1,275 ?	1,742	2,209
Contingent & Prospective	95 ?	160	225
Other assets	8	8	8
Total	1,378 ?	1,910	2,442



'Calibration is King' for continuous improvement

- 1. Question your assumptions (eg: New owner/acquirer uses same investment plan)**
- 2. Focus on the BIG assets**
- 3. Consider/Flag Black Swan* events**
- 4. RANGES are critical (including Low side) – Banks and Auditors are Sometimes Right**
- 5. and.....Treat Contingent/to be developed fields with extra care**



*Black Swan event is a metaphor that describes an event that comes as a surprise, has a major effect, and is often inappropriately rationalized after the fact with the benefit of hindsight. (Cygnus field?)



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