

UKCS Exploration review

- ✓ Comparison of 2000-04 exploration performance with 1999 Task Force predictions
- ✓ Wood Mac Benchmarking findings

Exploration Programme Methodology

- Twin Track Approach
 - Fast Track : BP Amoco database
 - Detailed Track: Statistical sampling of DTI YTF database
- Detailed Track
 - Determine the YTF by basin and generate a field size distribution
 - Sample the database probabilistically to generate the size of each discovery in each year in each basin

YTF = Yet to Find

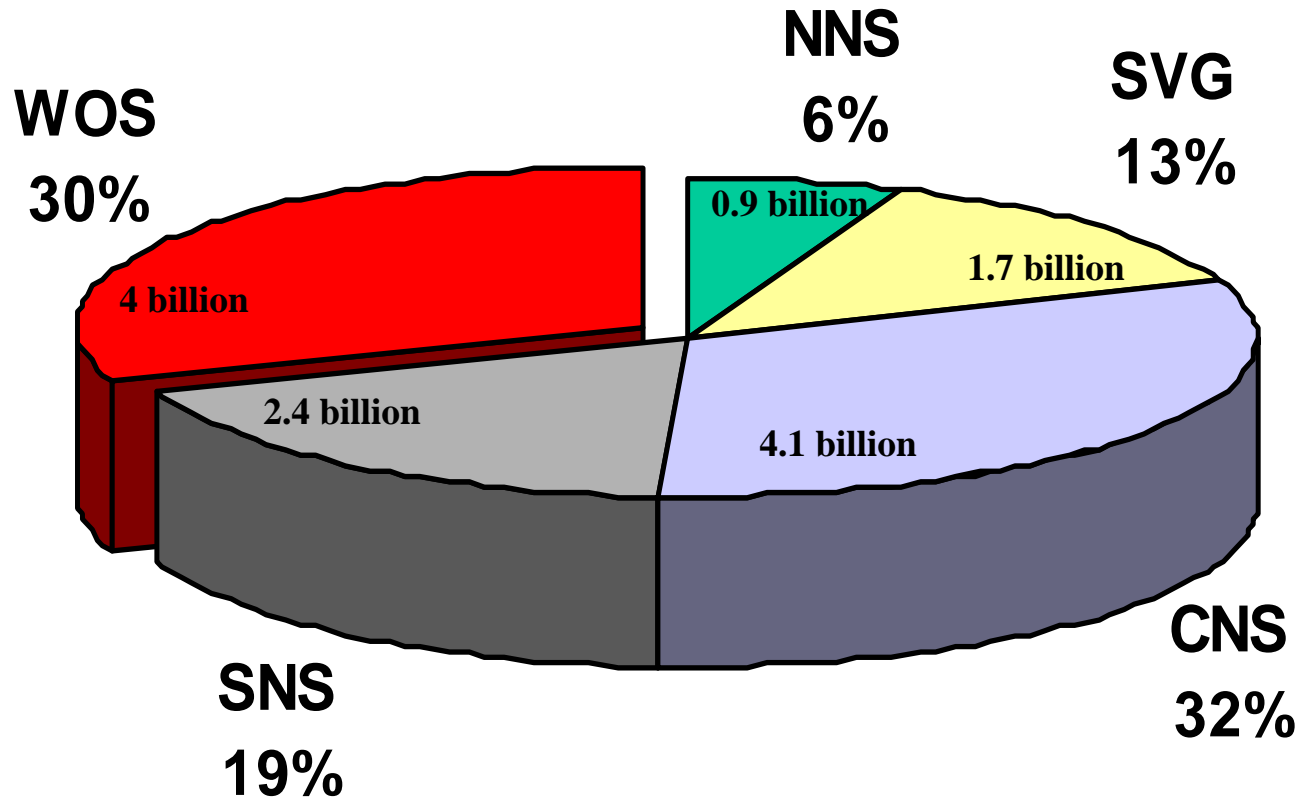
Exploration Programme (Cont'd)

- 30% 'haircut' applied to discoveries to reflect commerciality constraints & infrastructure availability
- For commercial developments:
 - Construct generic production and cost profiles by basin
 - For discovery in year x assume:
 - Sanction in year $x+3$
 - First production in year $x+5$
 - Assume development cost of \$4/bbl
 - Assume opex of \$6/bbl

Suggested exploration well split by province

Province	Low Price (25wells p.a.)	High Price (50 wells p.a.)
Northern North Sea	2	3
South Viking Graben	5	10
Central North Sea	10	17
Southern North Sea	5	10
West of Shetland/Scotland	3	10

UKCS Yet to Find (YTF) : P50 =13 billion boe



Source BP Amoco

Note 1999 Brown Book Range (P90 to P10) = 5 to 30 billion boe

21st June 1999

Exploration Programme statistics

High Activity Case : 50 wells p.a

Basin	YTF mmboe	Pools	Wells	Discoveries	Discovered		Developed Reserves	Percent Dev
					Res mmboe	Developments		
NNS	905	21	60	13	453	6	318	70%
SVG	1712	38	200	30	1360	23	1067	78%
CNS	4114	71	340	51	2967	36	2312	78%
SNS	2446	160	200	50	576	45	511	89%
WOS	3980	68	200	26	1498	7	491	33%
Total	13157	358	1000	170	6854	117	4699	69%

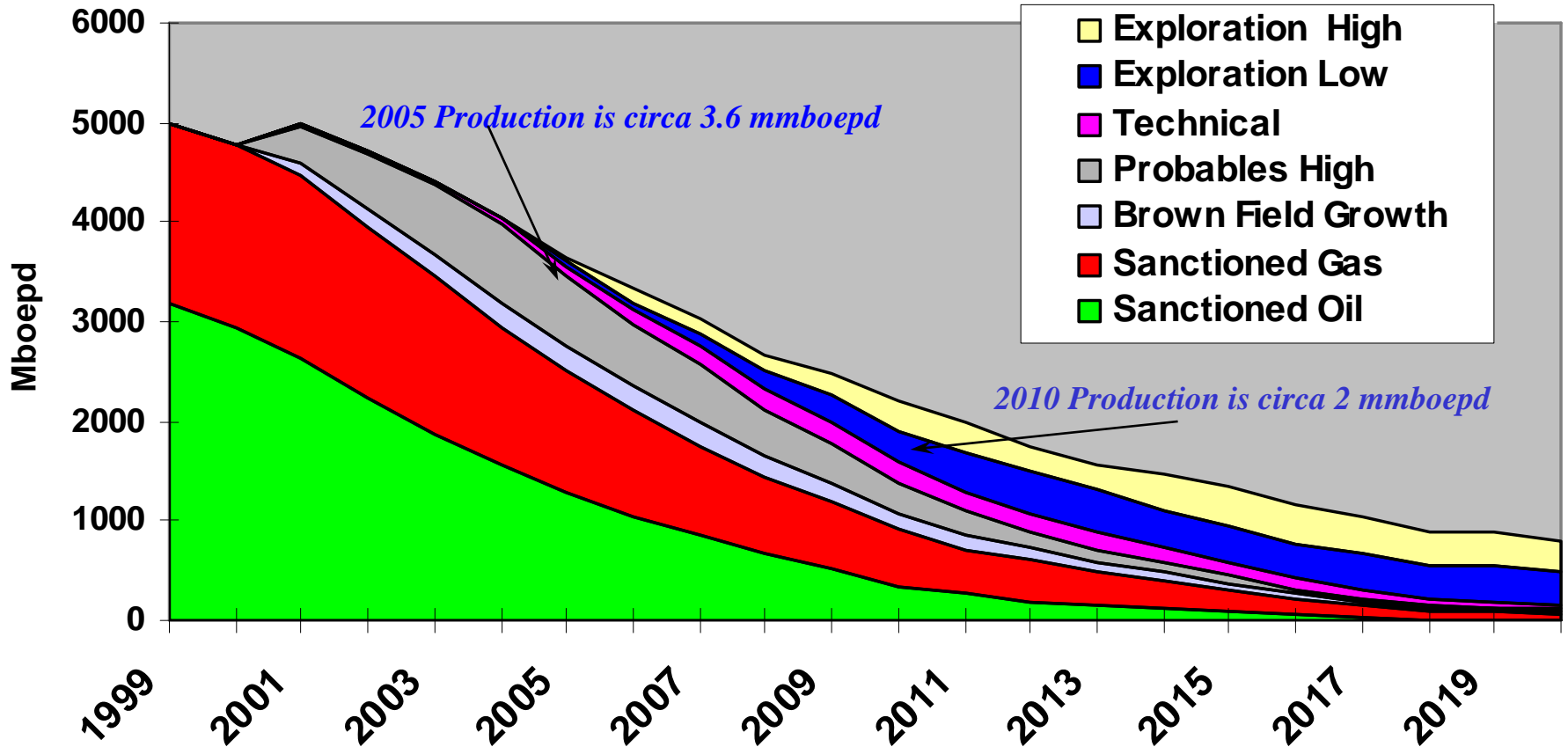
Note finding cost =\$3.4/bbl

Low Activity Case : 25 wells p.a

Basin	YTF mmboe	Pools	Wells	Discoveries	Discovered Res		Developed Reserves	Percent Dev
					mmboe	Developments		
NNS	905	21	40	8	330	6	210	64%
SVG	1712	38	100	15	660	11	512	78%
CNS	4114	71	200	30	1762	21	1341	76%
SNS	2446	160	100	25	300	22	270	90%
WOS	3980	68	60	8	463	3	198	43%
Total	13157	358	500	86	3515	63	2531	72%

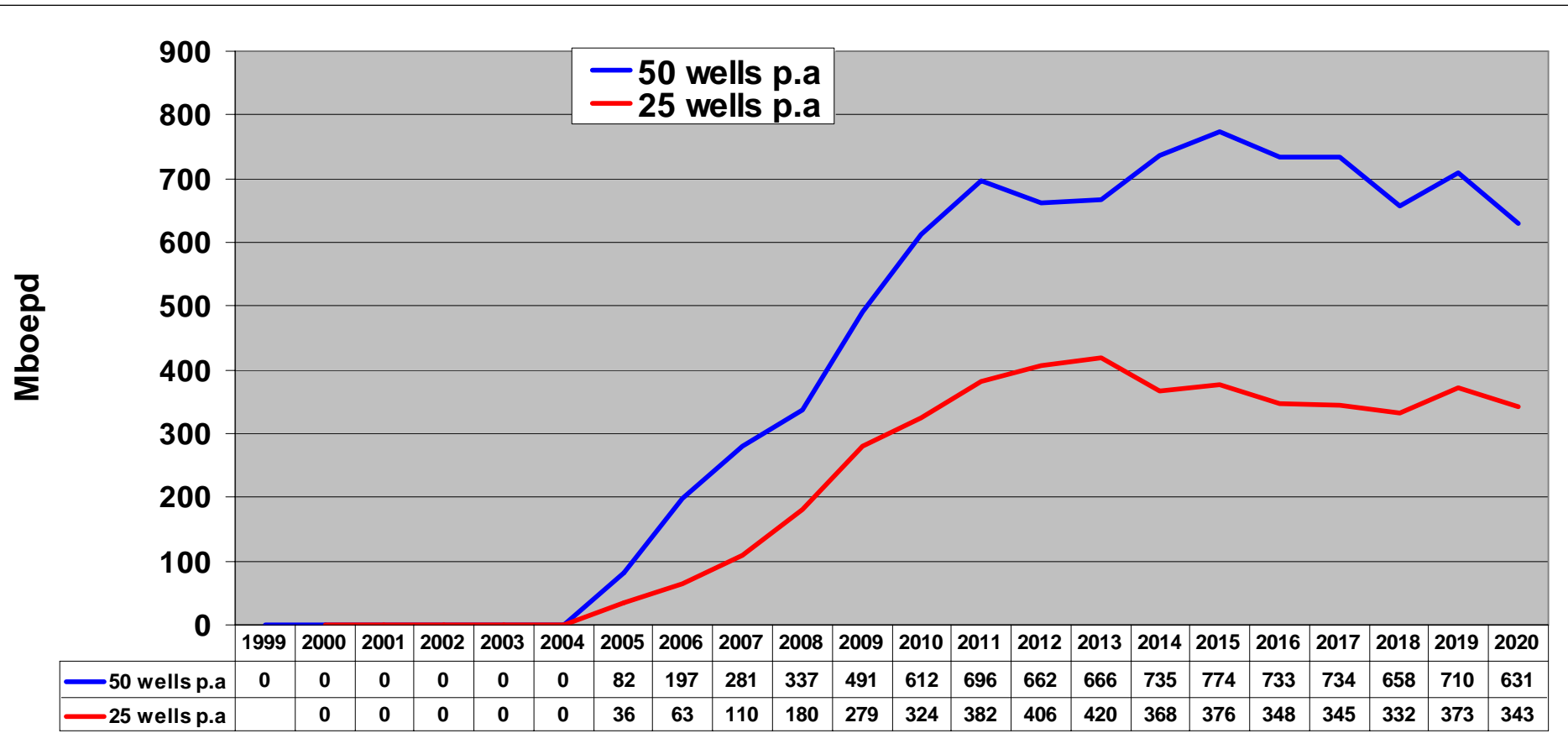
Note finding cost =\$3.1/bbl

Future Production: \$16 scenario



Results from Exploration programme

Exploration review



Source : Ditch Group 1999

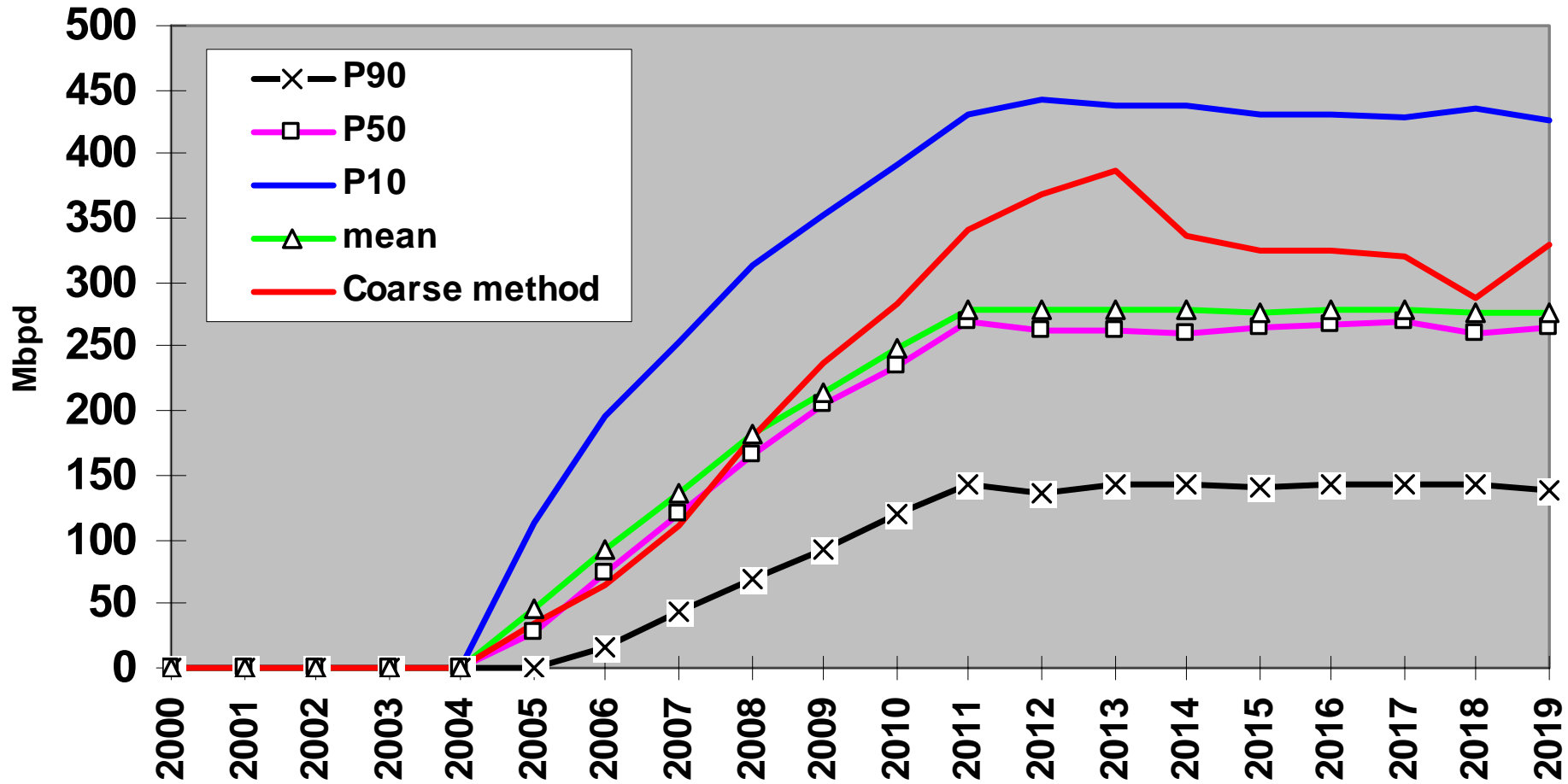
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Assumptions for Monte Carlo Modelling

- 'Monte Carlo' sampling of DTI database
 - Enables generation of profile range P90 to P10
- Used 1000 iterations
- Field size Cut-off limits applied:
 - SNS & IS =10 mmboe
 - Other areas= 20mmboe
 - All other discoveries developed with 5 year lag
- West of Shetland excluded
 - DTI database not complete
- Results compared to deterministic method.

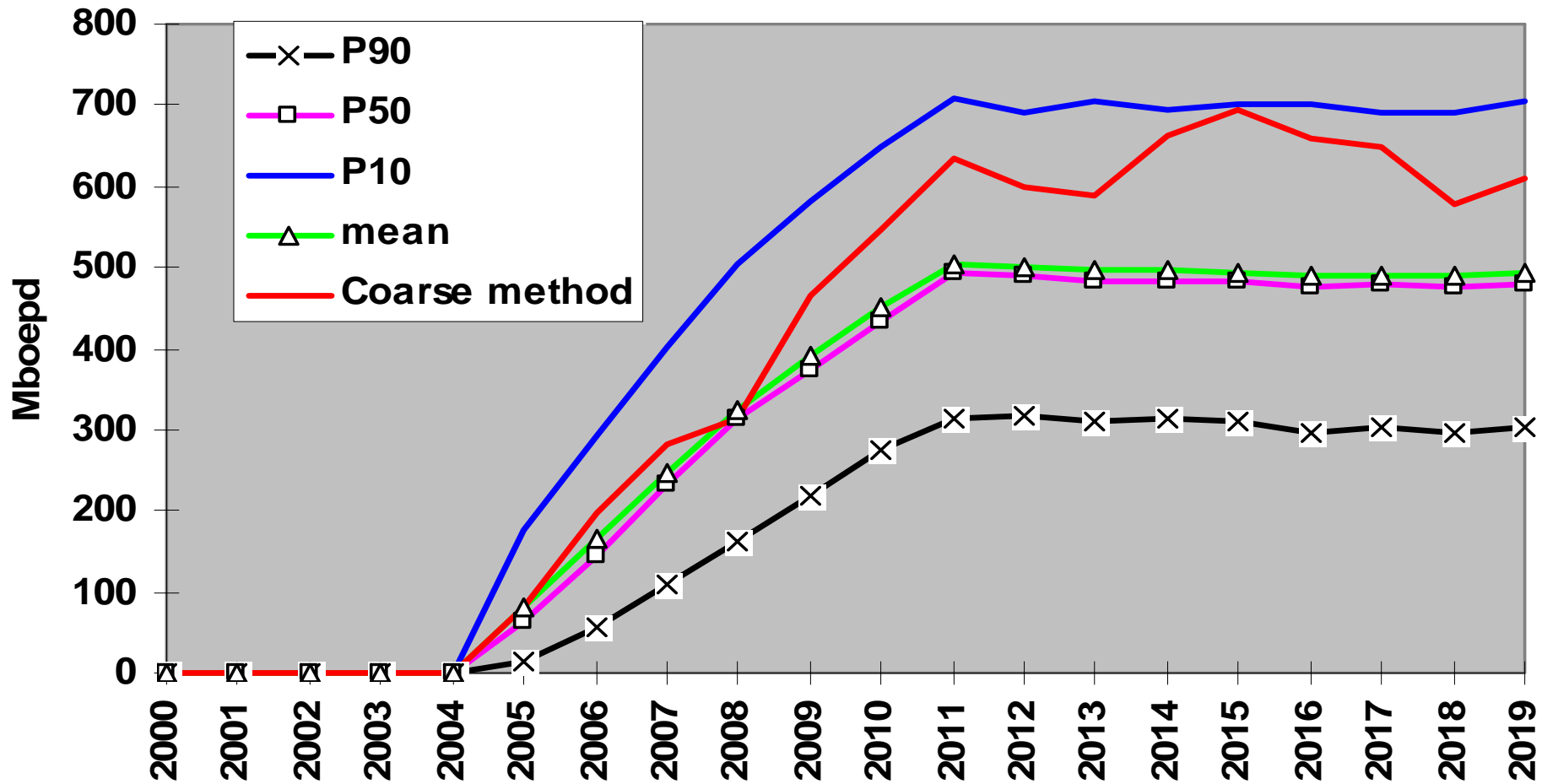
Exploration impact on production :25 well case

Exploration review

Actual well count 22 p.a, West of Shetland excluded

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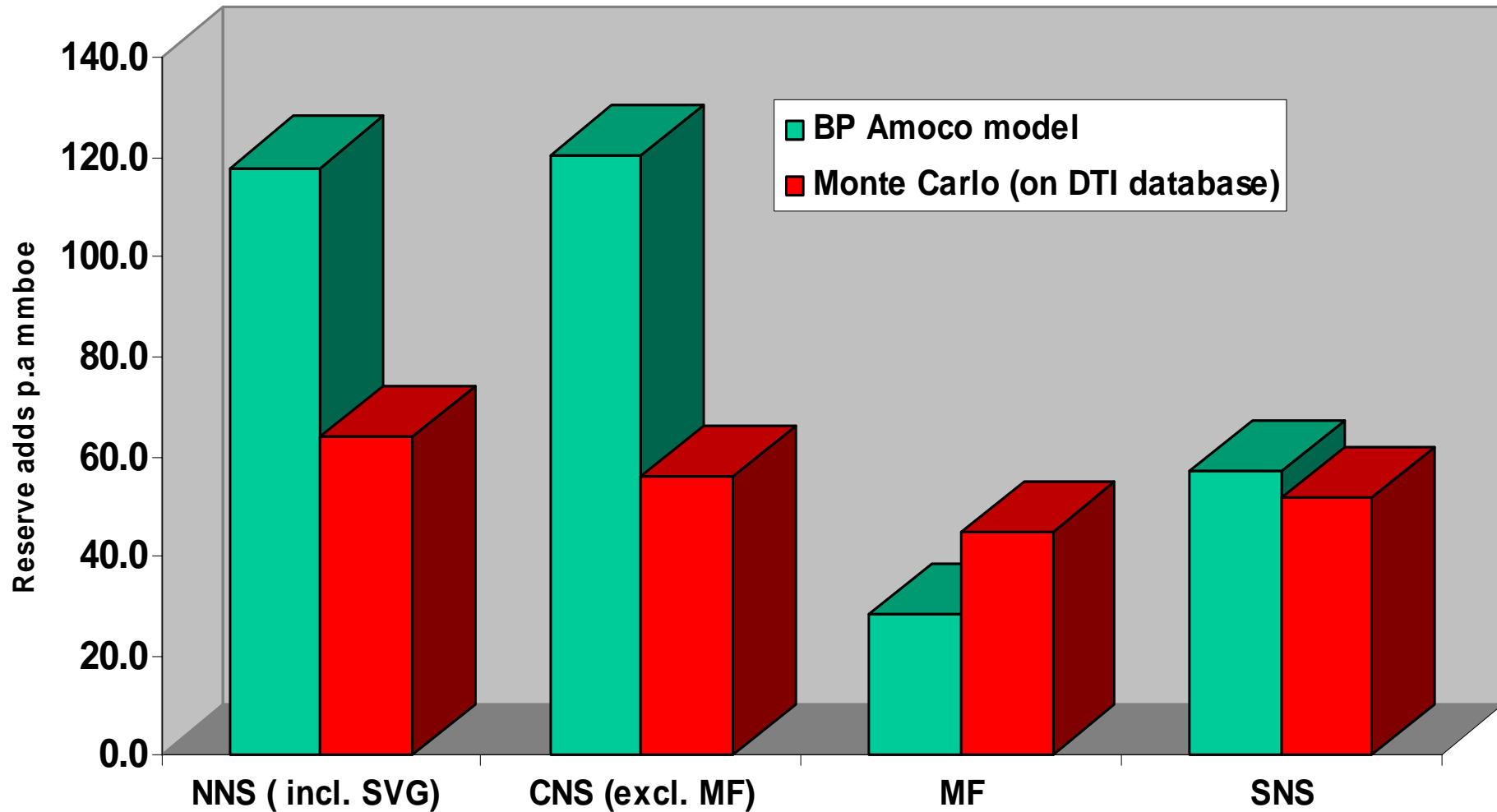
Exploration impact on production :50 wells p.a

Exploration review

Actual well count 40 p.a, West of Shetland excluded

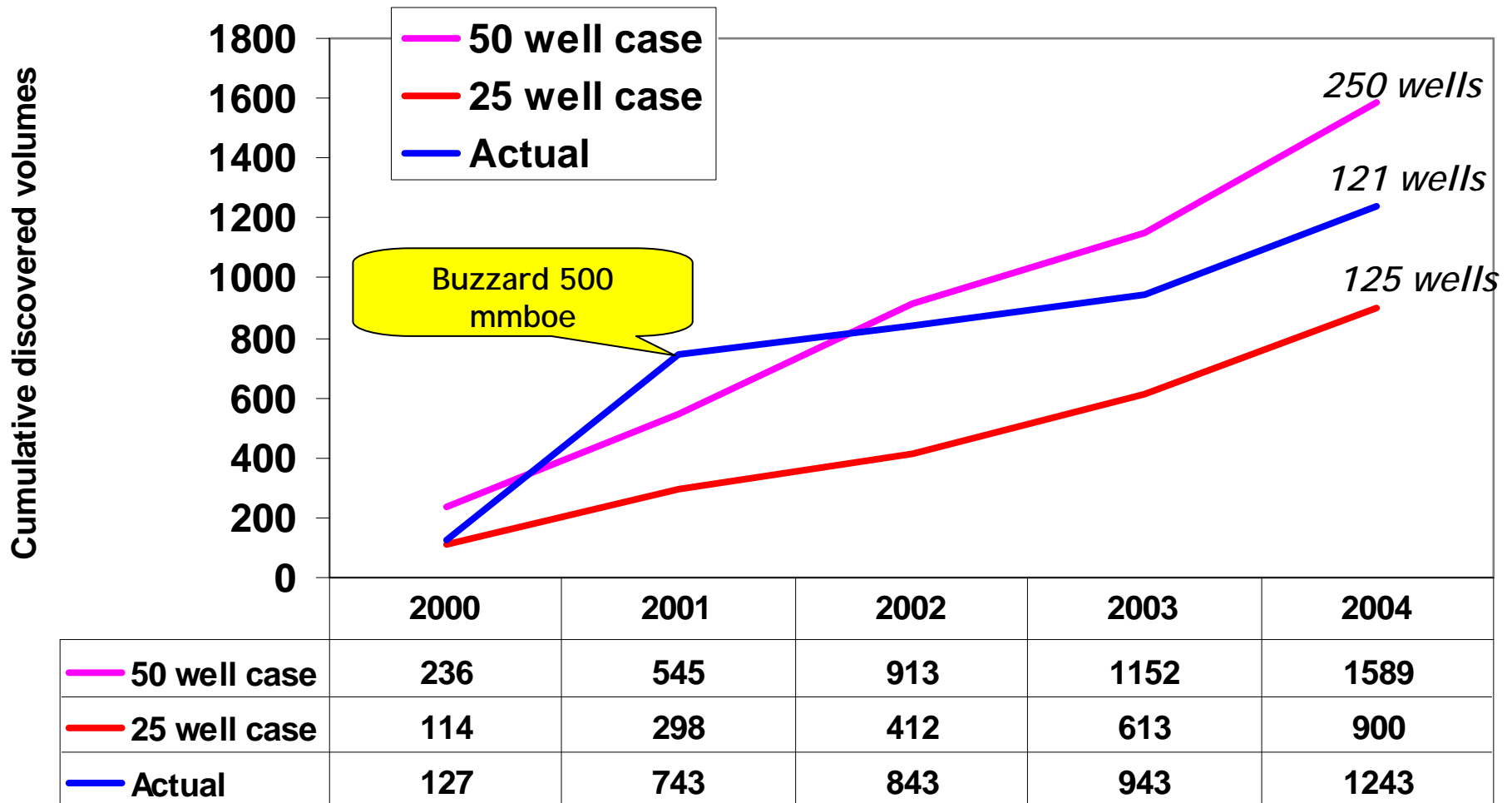
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Reserve adds: BP Amoco v DTI data (50 well case)

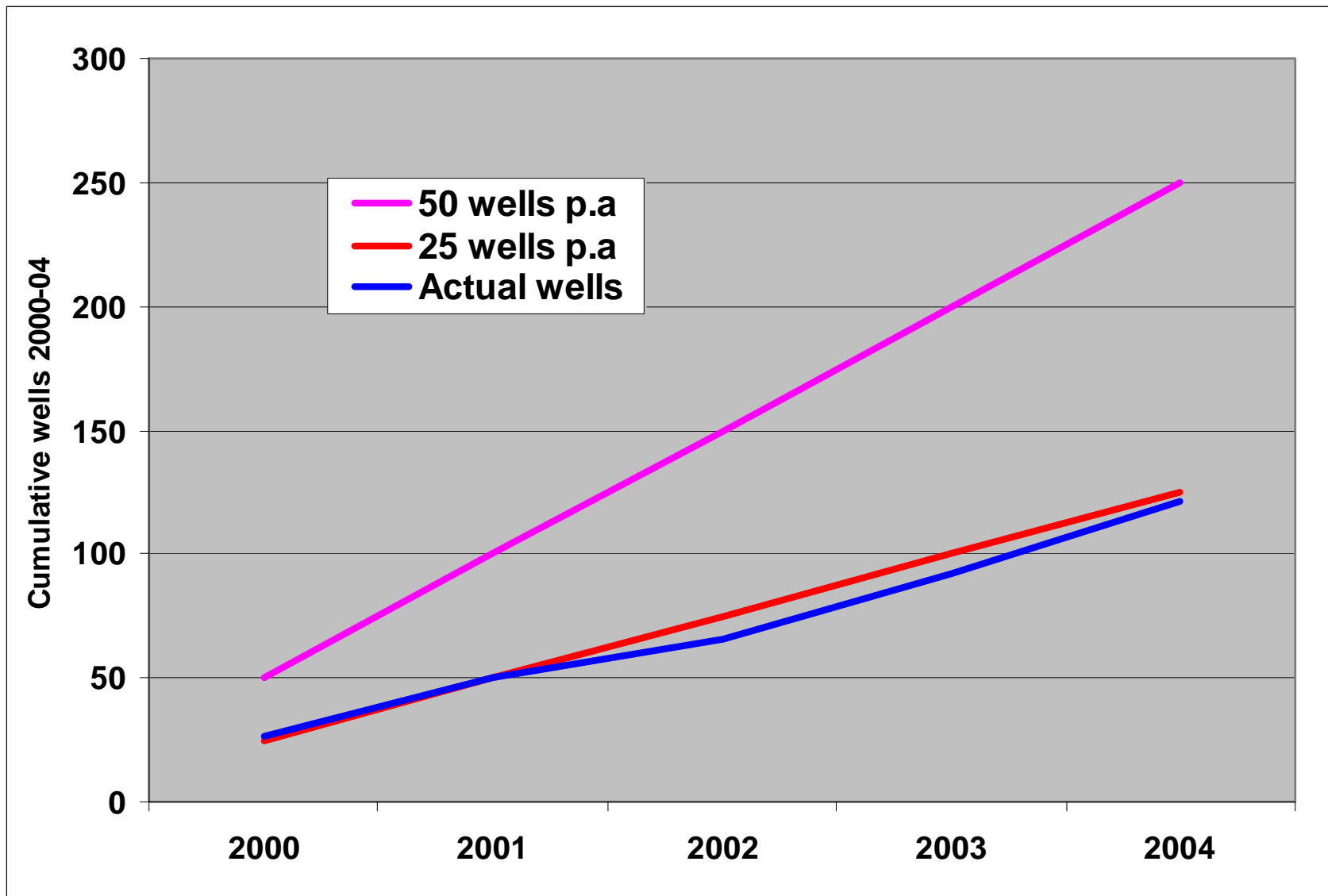
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UKCS: Cumulative discovered reserves 2000-04

Exploration review

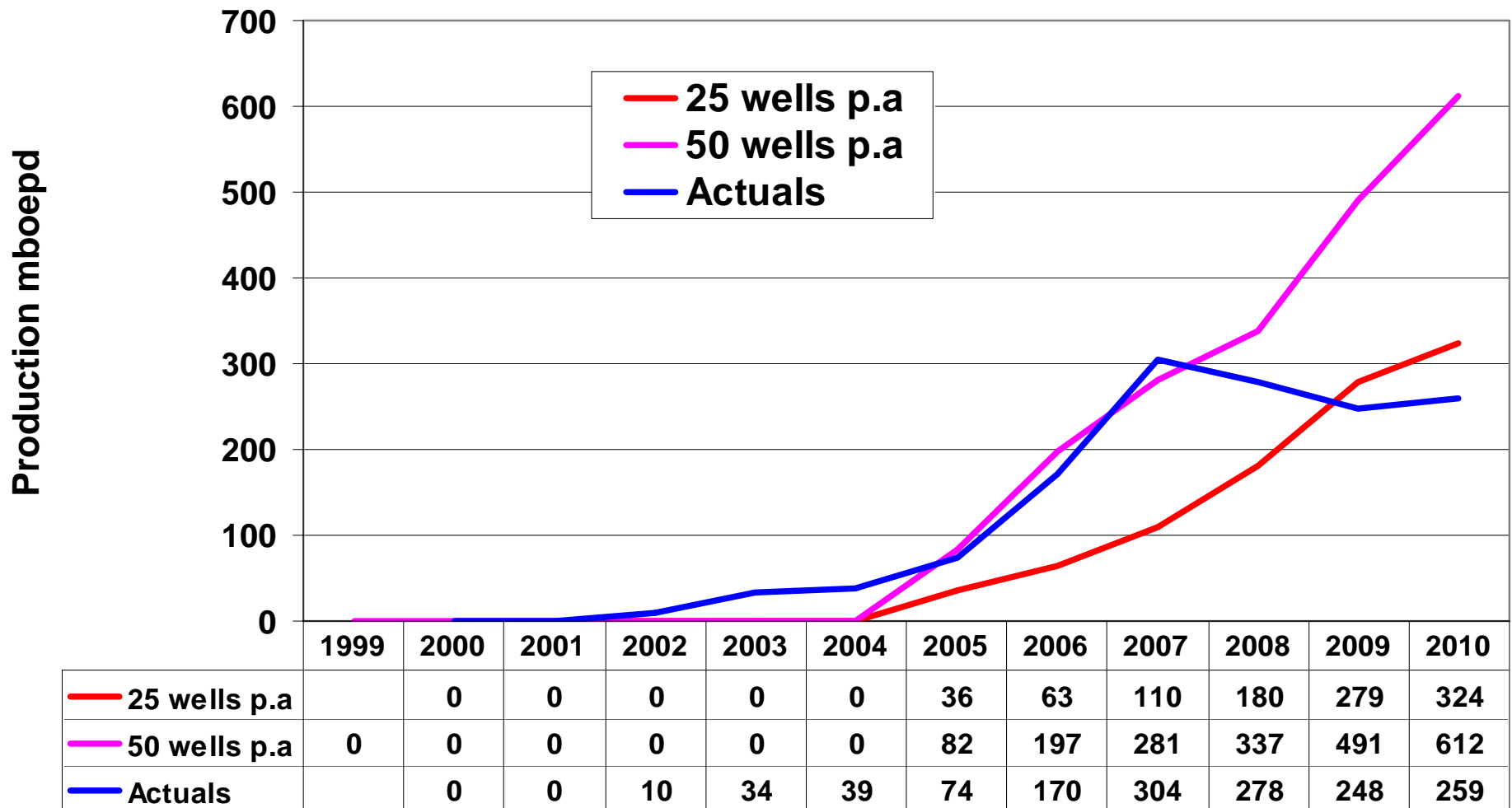


Based on Technical discovered volumes (Source: Wood Mac)
 Compares to 'Ditch 25 and 50 well per annum scenarios'



Production contribution from discoveries (2000-04)

Exploration review



Actuals based on Commercial discoveries (Source :Wood Mac)
 Compares to 'Ditch 25 and 50 well per annum scenarios'

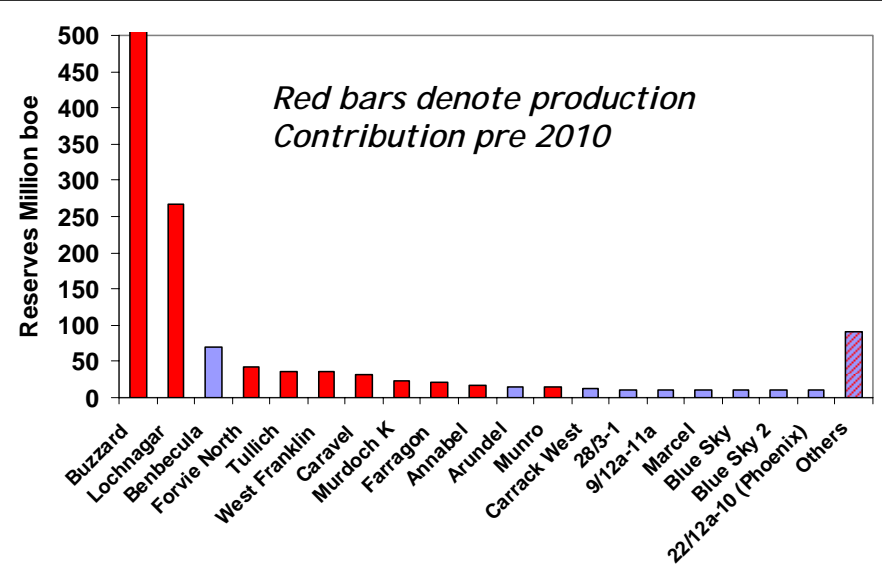
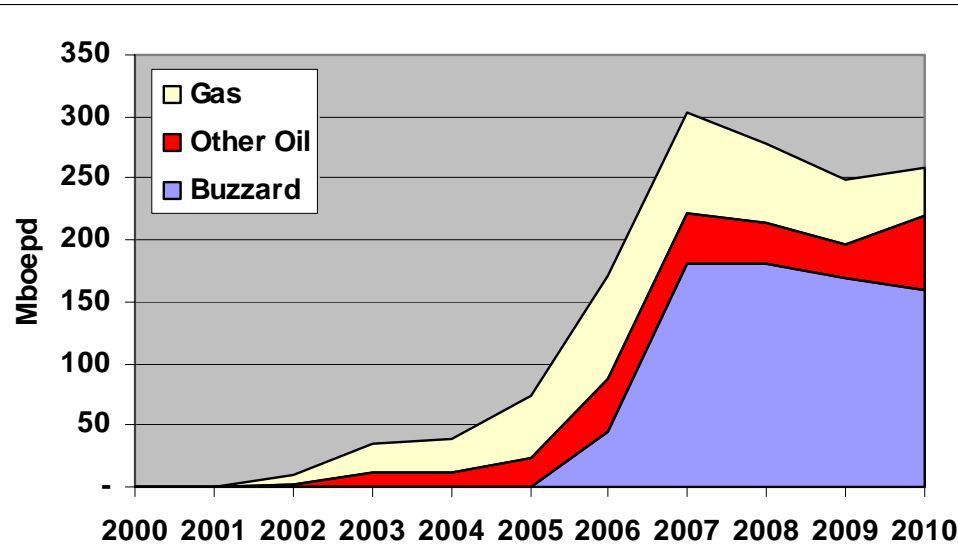
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UKCS Exploration Success 2000-04

Exploration review

Production Contribution

Field Reserve additions



Source : Wood Mackenzie

Summary

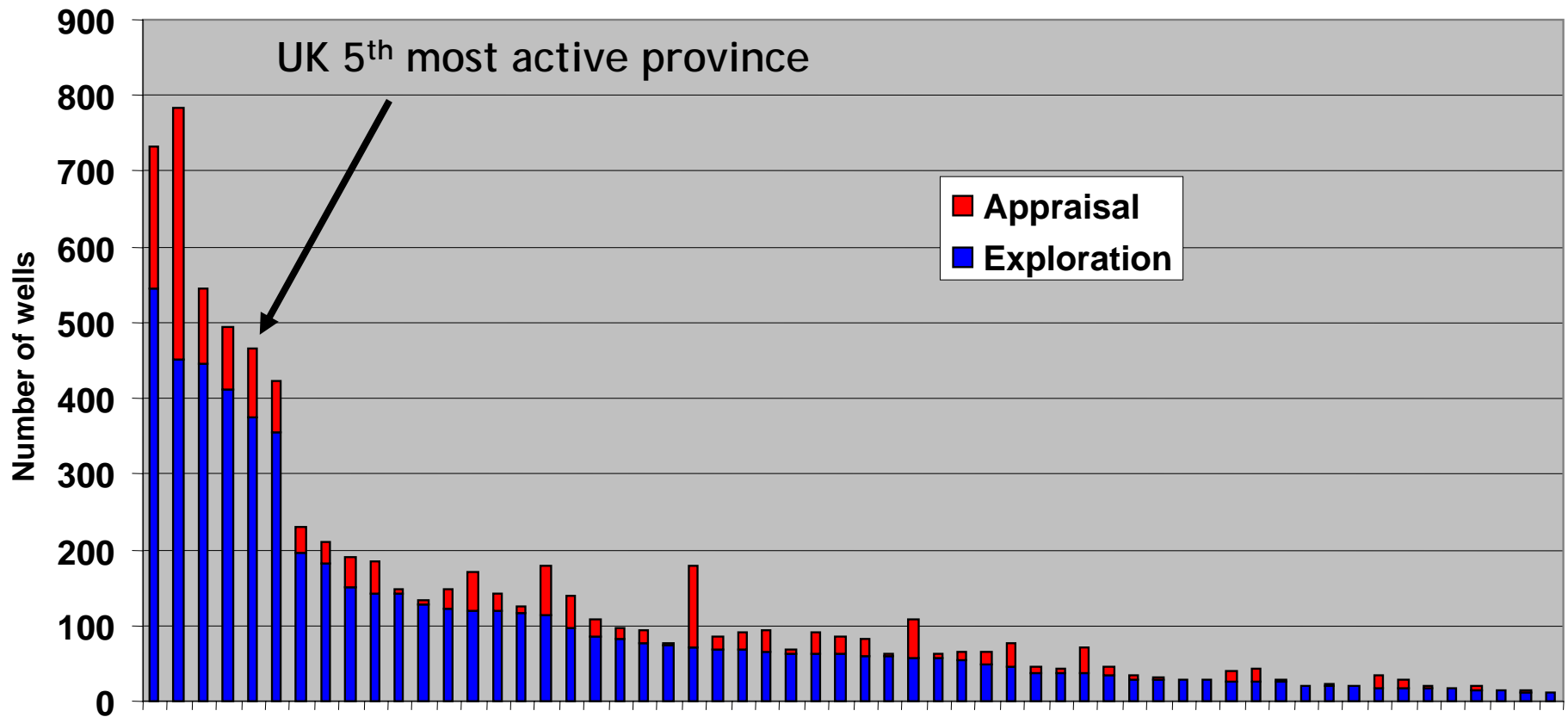
Exploration review

- ✓ Exploration activity averaging circa 25 wells p.a. since 2000
- ✓ Discovered volumes ahead of predictions based on above
- ✓ Production contribution matching the 50 well p.a. prediction
 - Success in tying backing discoveries more quickly than expected
 - Particularly for gas
 - Success highly dependent on Buzzard & Lochnagar (?)
- ✓ Suggest detailed update as part of UKOOA/DTI 2005 survey

Benchmarking summary

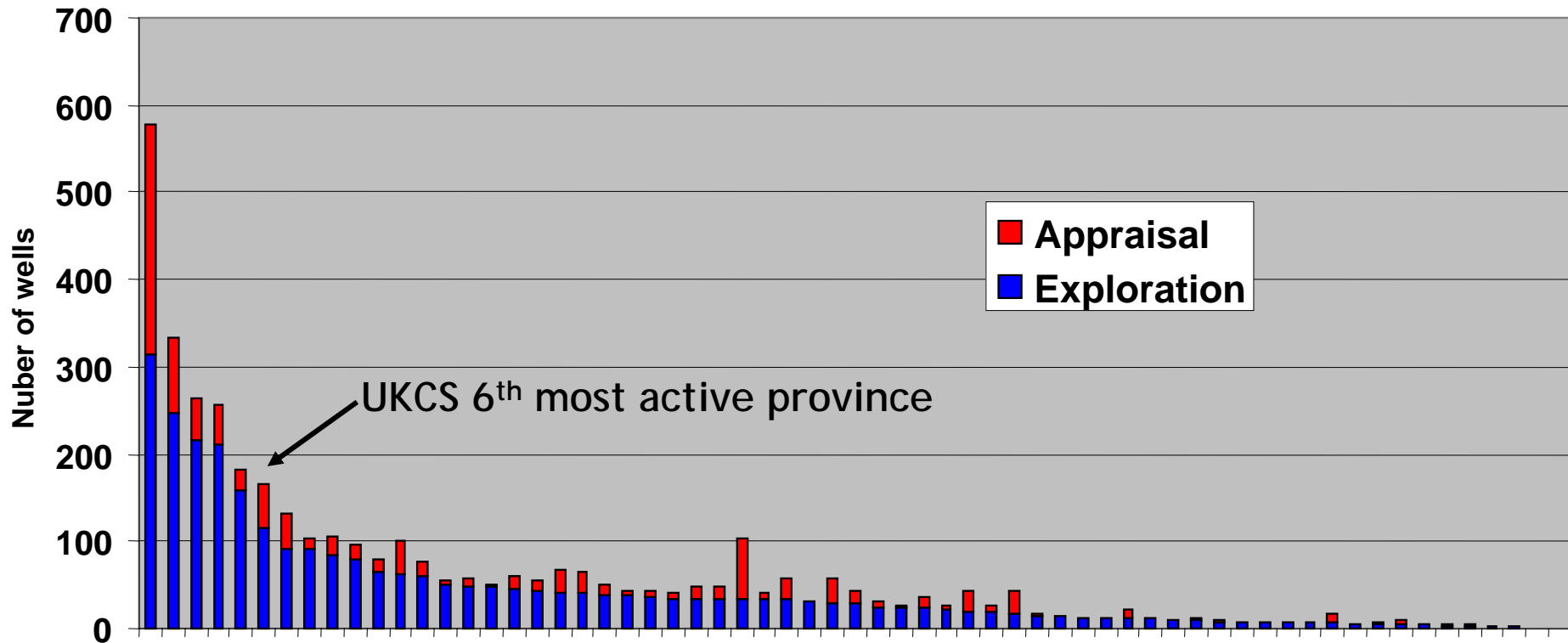
Exploration and appraisal wells : 1994-2003

Exploration review

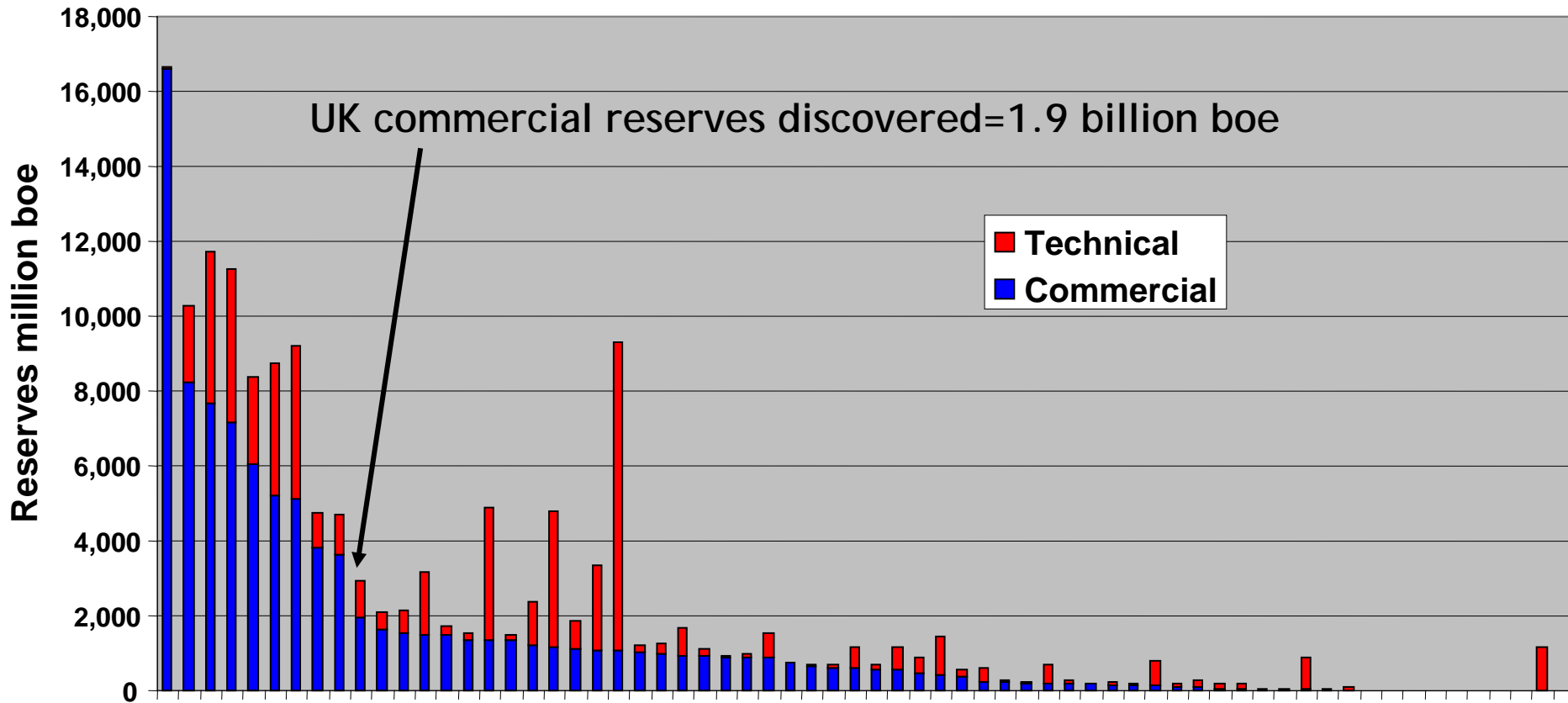


UKCS second most active (after GOM) for expenditure (\$5.5 billion)

Exploration and appraisal wells 1999-2003

Exploration review

Reserves discovered 1994-2003

Exploration review

Summary

Exploration review

✓ Exploration performance since 2000.

- Number of wells at low end of expectations (From 1999 Task Force)
 - Loss of momentum with 2002 fiscal change
 - Strong recovery now under way
- Performance from the wells above average
 - Discovered above average volumes
- Production contribution ahead of target
 - Near field discoveries swiftly on-stream
 - Near high strike rate to convert Technical discoveries to commercial projects
- Perception of poor prospectivity
 - Commercial success of 1 in 10

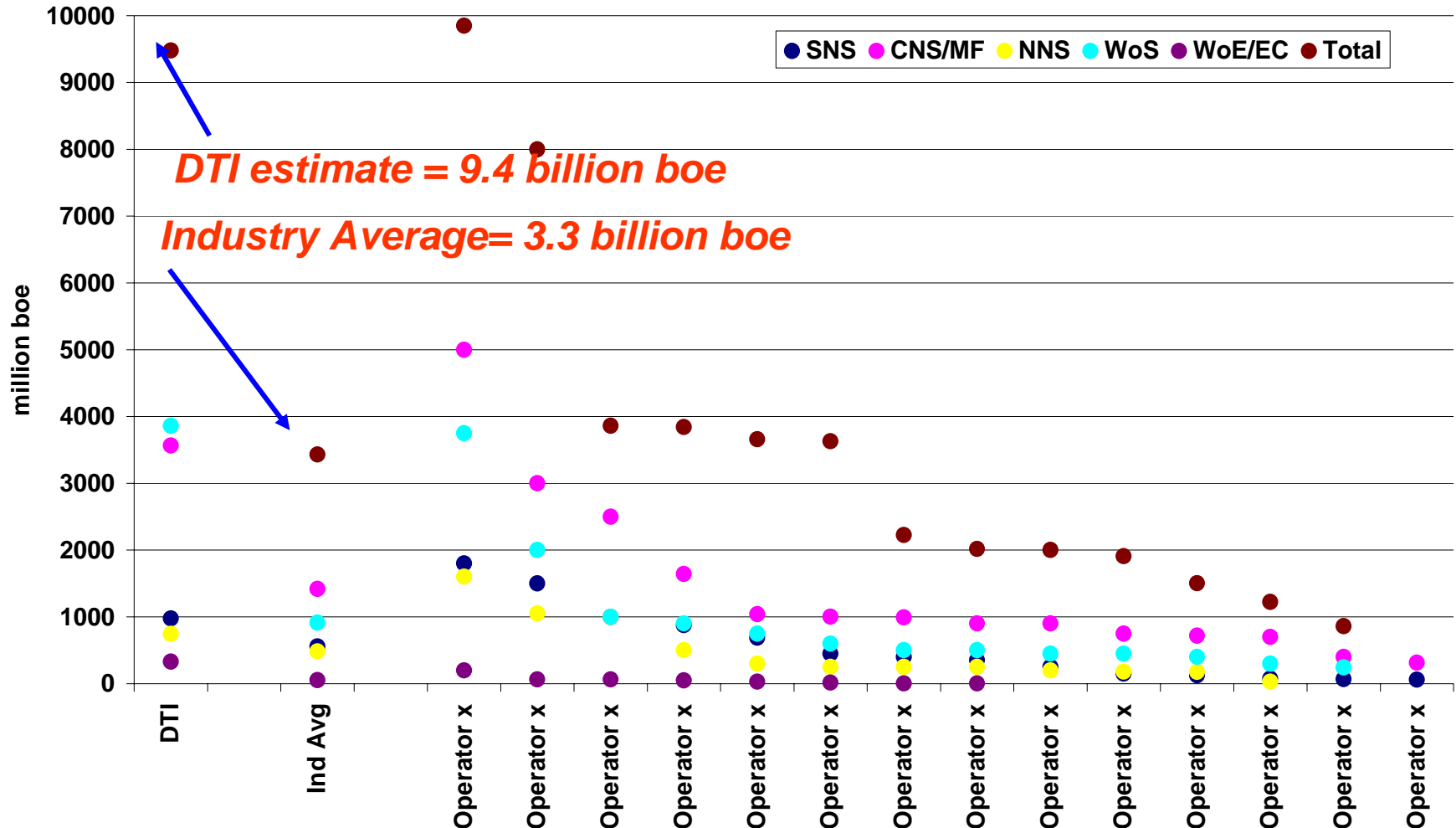
✓ Benchmarking

- UKCS punches above its weight
 - Well activity above trend based on prospectivity & geological risk
 - UKCS continues to attract high level of exploration spend
 - UKCS competes on value not volume

Top down estimates of UKCS YTF-Scatter

Exploration review

Estimates of UKCS YTF Technical Reserves



Source : UKOOA 2003

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Key success factors for Exploration

Exploration review

- ✓ **Sustained confidence**
 - Fiscal stability
 - Track record/ visibility of success (need more Buzzards)
 - Global competitiveness
- ✓ **Access to opportunities**
 - New licenses, fallow processes
 - Promote licenses
- ✓ **Access to infrastructure**
 - Physical & commercial access
- ✓ **Access to capital**
 - Need equity, banks will not lend to fund exploration
- ✓ **Diversity of participants**
 - More players= more activity
- ✓ **Access to exploration skill set**
 - Prospect generation essential part of process
- ✓ **New Technologies**
 - Deep water, HPHT, subsea tie-back, seismic,