

PROSPEX

December 2010

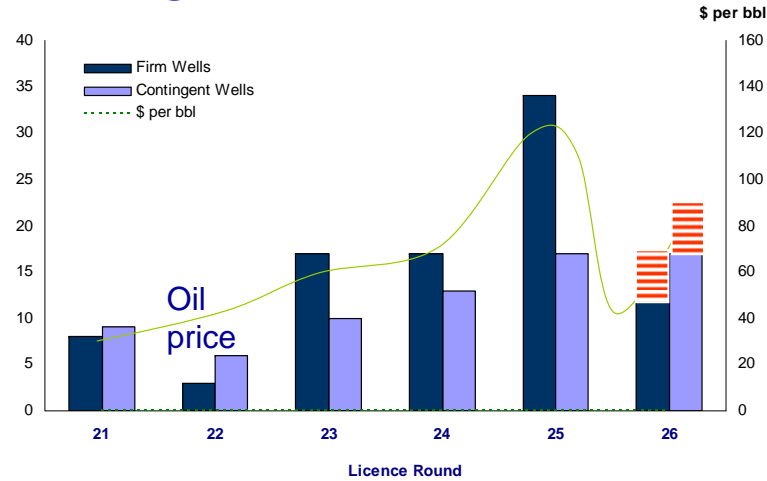
The Development of the UKCS to 2015

Based on HW data: fields, discoveries, prospects
& related model metrics & software

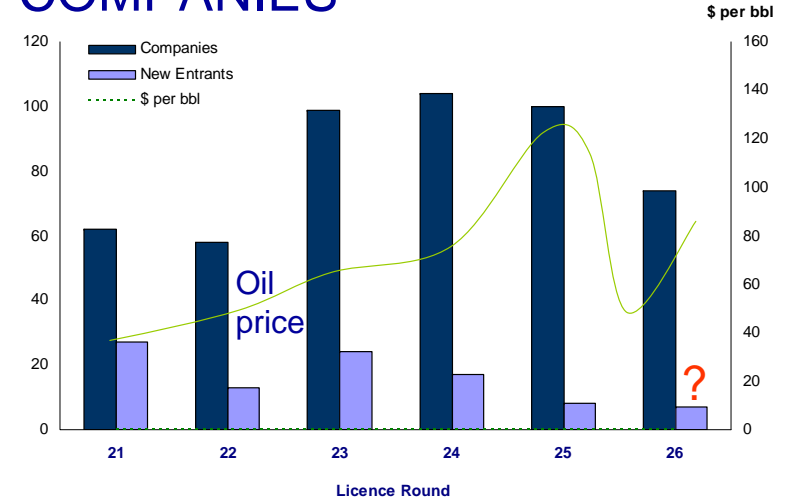
Hannon Westwood

The 26th LICENCE ROUND

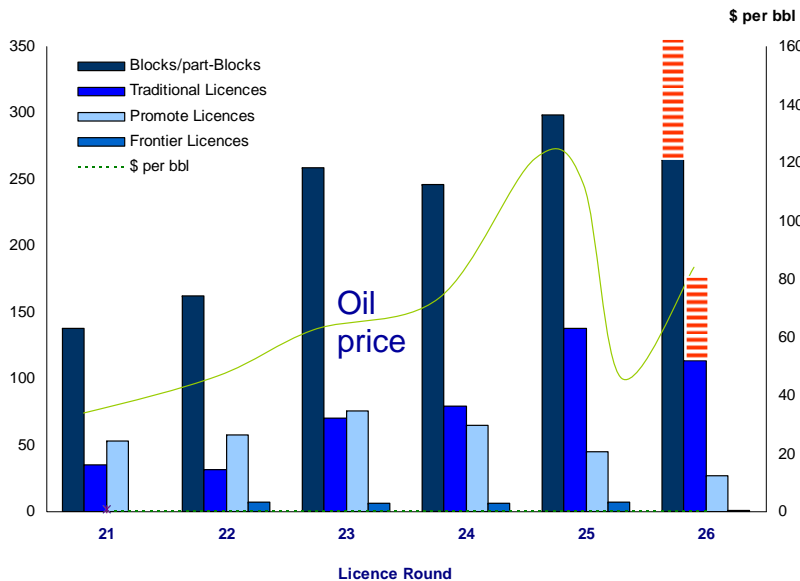
WELLS



COMPANIES



BLOCKS



These three graphs show oil price versus company count, block and well count.

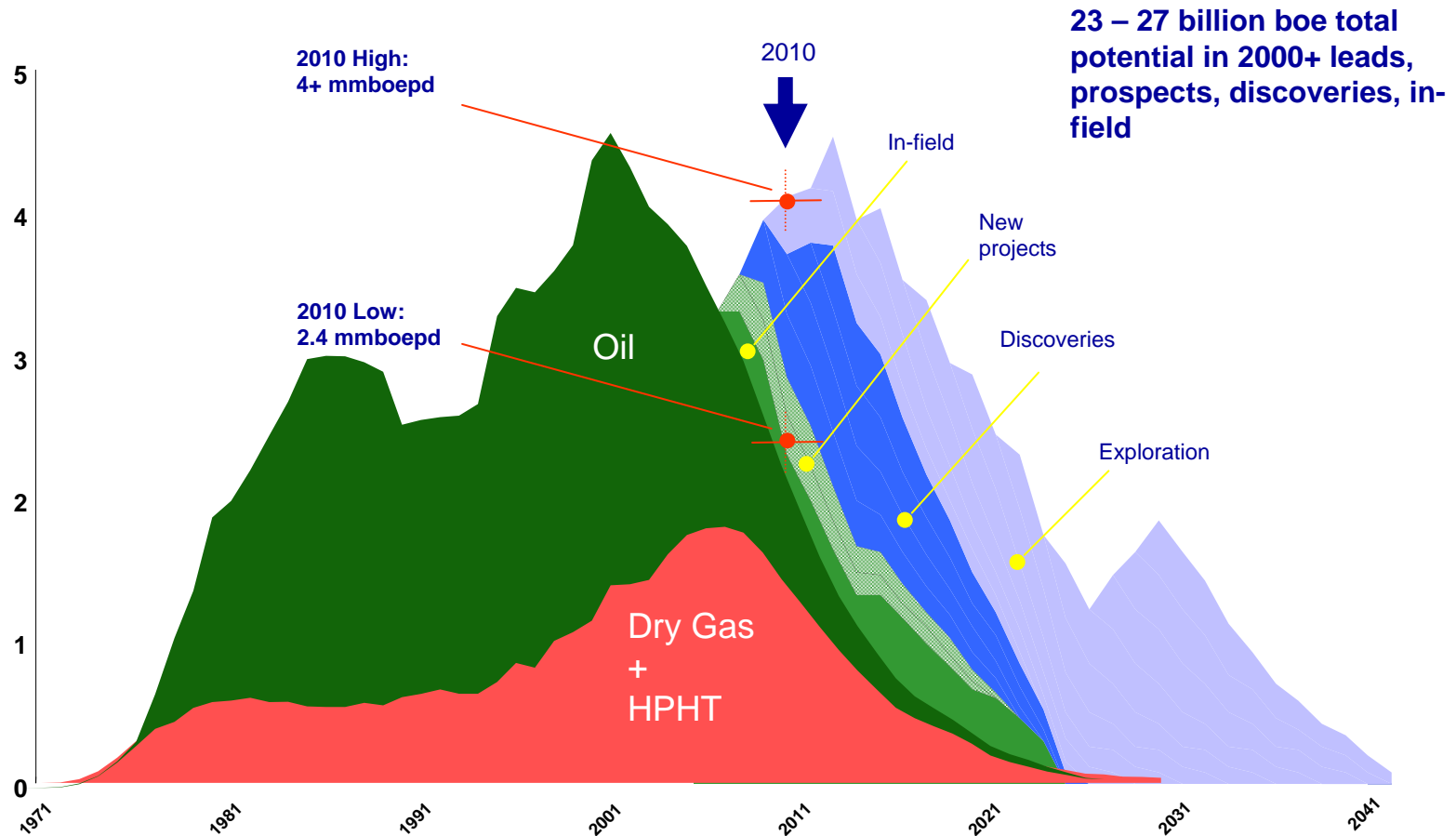
90+ blocks yet to be awarded pending environment assessments and may show a strong alignment with a growth in optimism with a \$70 oil price

The growing oil price “high” has attracted bids for more acreage; with caution over well commitments; perhaps back to the levels pre 25 Round bids

DEVELOPMENT OF THE UKCS TO 2015

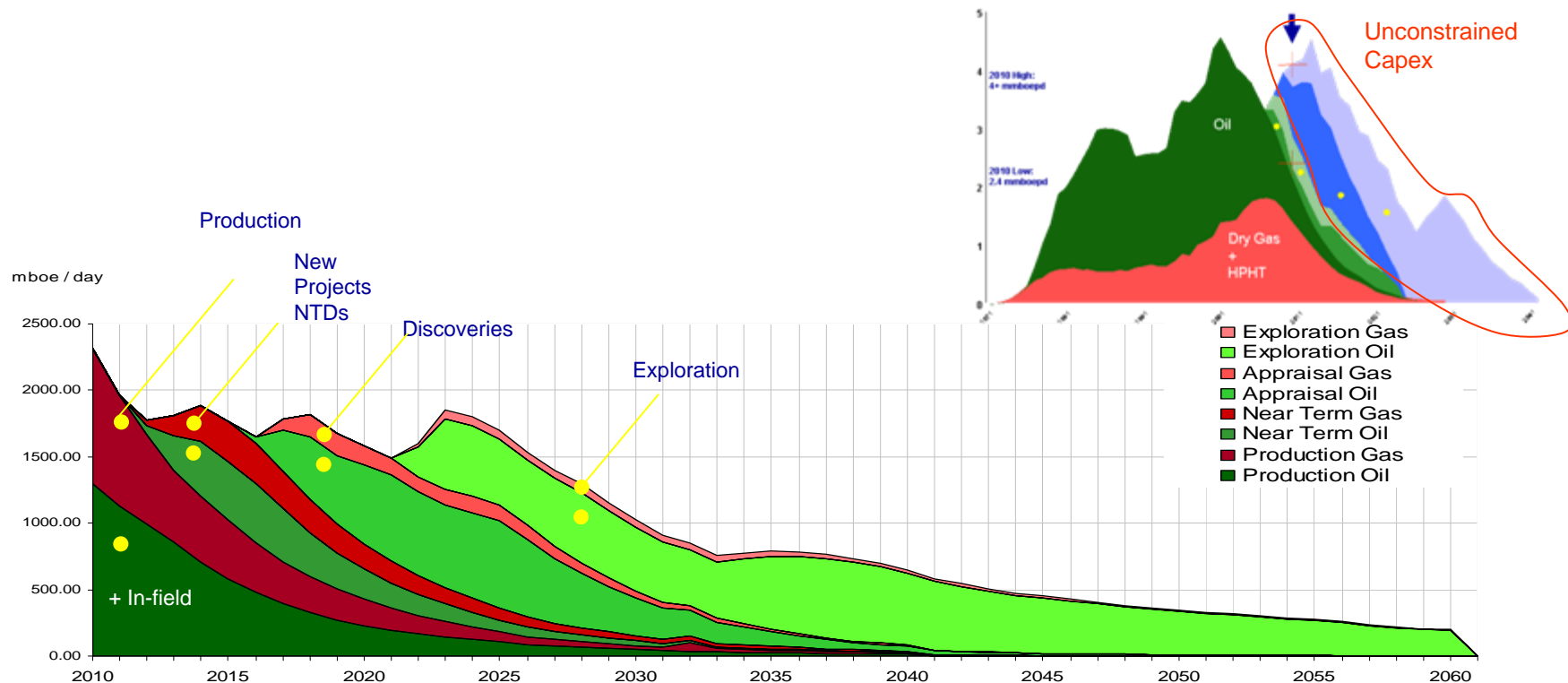
- Exploration is a longer term investment
- there is a more immediate need for short to medium term investments required by in-field projects and discoveries
- the oil price rise from \$40 to \$80 has moved **c. 90 discoveries** towards development (NTDs) offering c. 2.6 billion boe
- **This talk concentrates on these (NTD) discoveries & illustrates:-**
 - the funding requirements
 - the out-turns in production & cash flow
 - the value created; and indirect benefits of jobs created
 - the benefit to the Exchequer - direct tax take
 - The funding shortfall & the funding opportunity
- We see the level of \$\$ resources required will put enormous pressure on the capacity for investment and the service sector
- If anything, the supply of commercial discoveries exceeds funds

FORECAST PRODUCTION: 2006; unconstrained Capex



2006 Forecast showed the range from Capex constrained to Capex unconstrained (low to high)
 The current 2010 production forecast is c. 2.4 mmboepd – the Low forecast

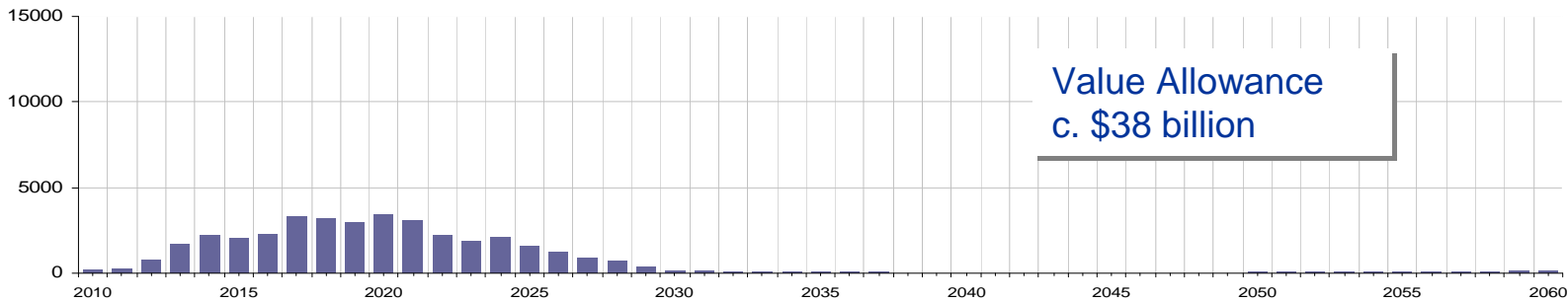
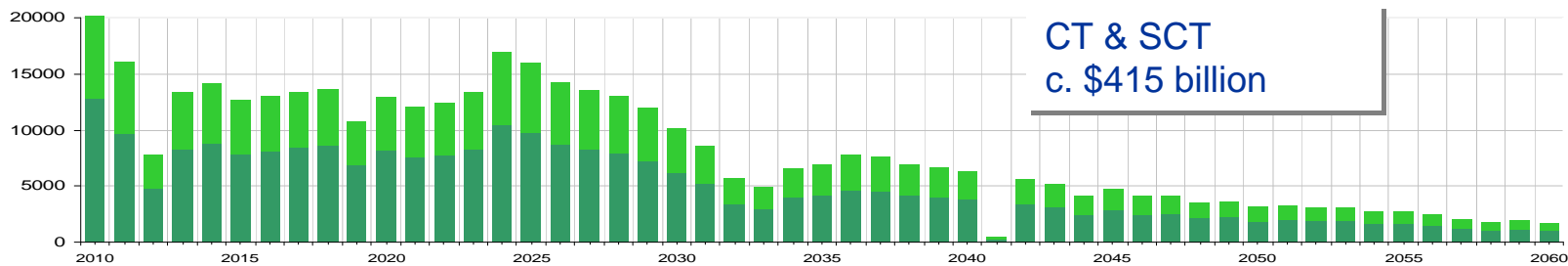
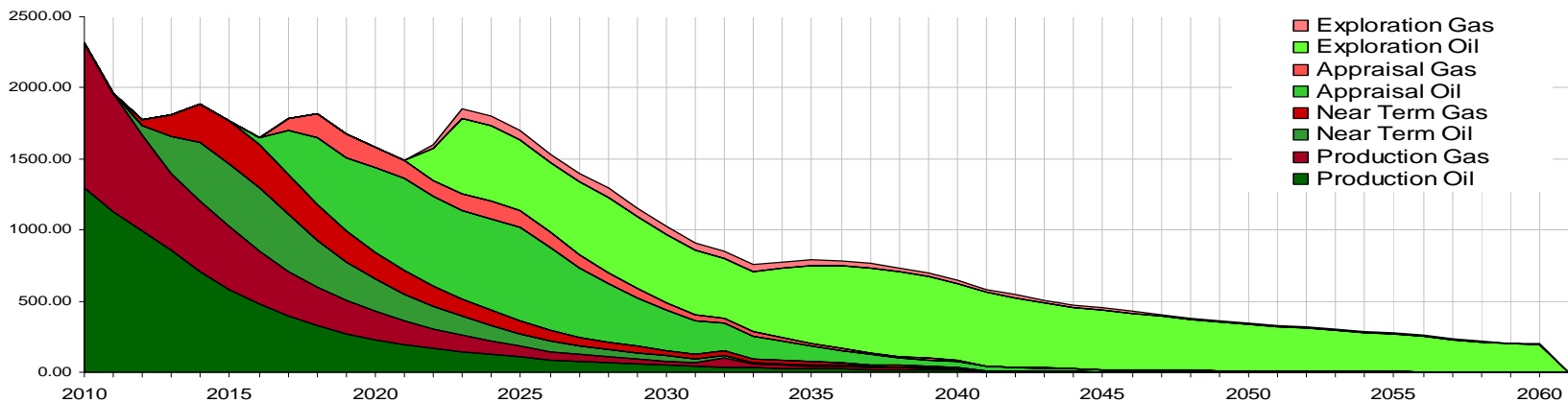
PRODUCTION PROFILE: 2010; constrained c \$2 - \$6 billion per year



- New E&A suggests a plateau of about 1.7 mmboepd until 2025
- Based on a constrained level of capex investment
- These levels of investment constraint are considered in this talk

TAXATION INCOME & ALLOWANCES

mboe / day



NEAR TERM DEVELOPMENT

If this constrained approach is correct
- what needs to happen next?

- A) In-field reserves or field enhancement
- B) Near Term Developments

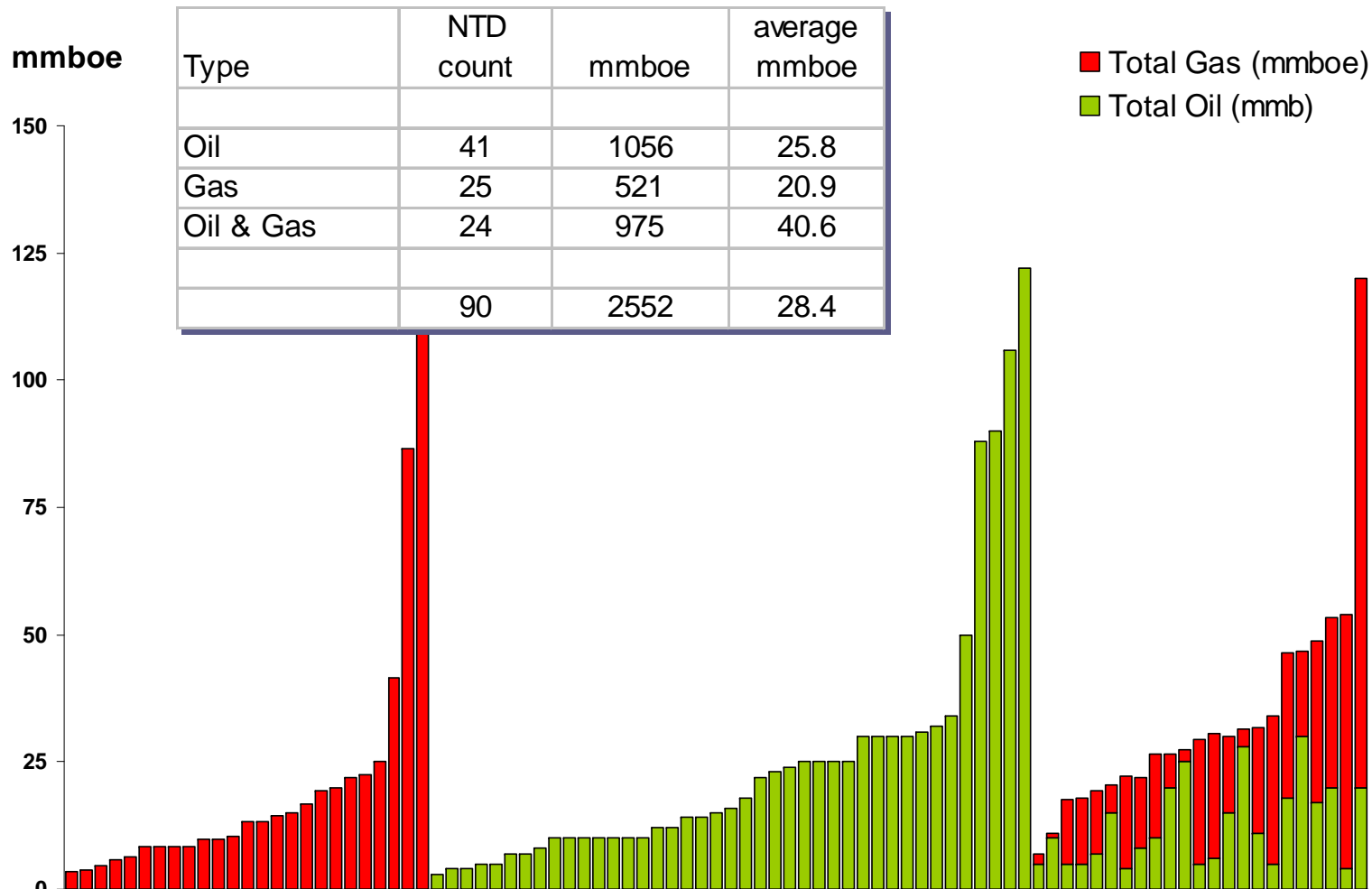
What I want to concentrate on today is the
E&A component & the near term
development - the NTD

Why? – because the NTD presents the
most accessible and near-term set of
opportunities

NEAR TERM DEVELOPMENT

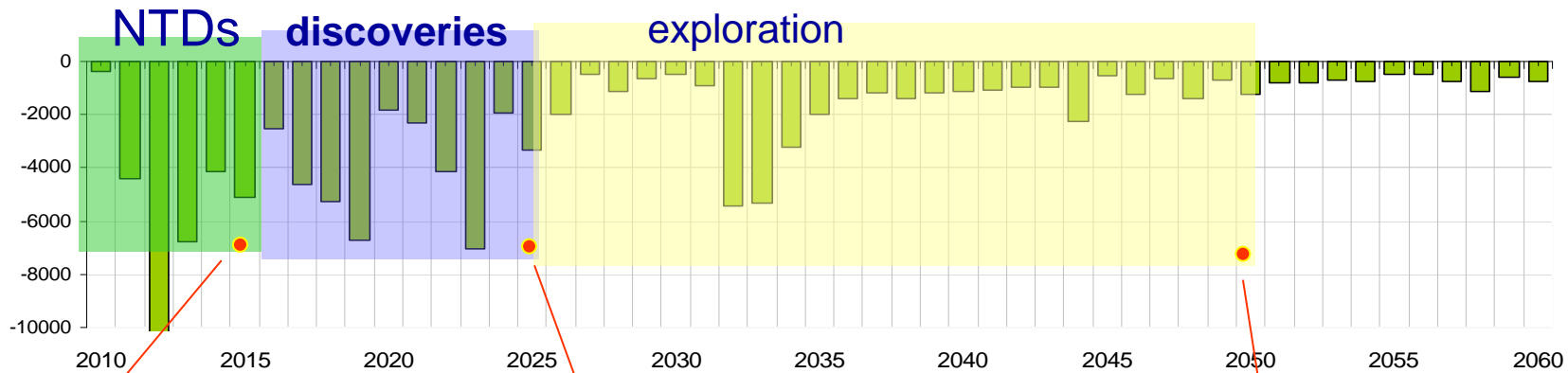
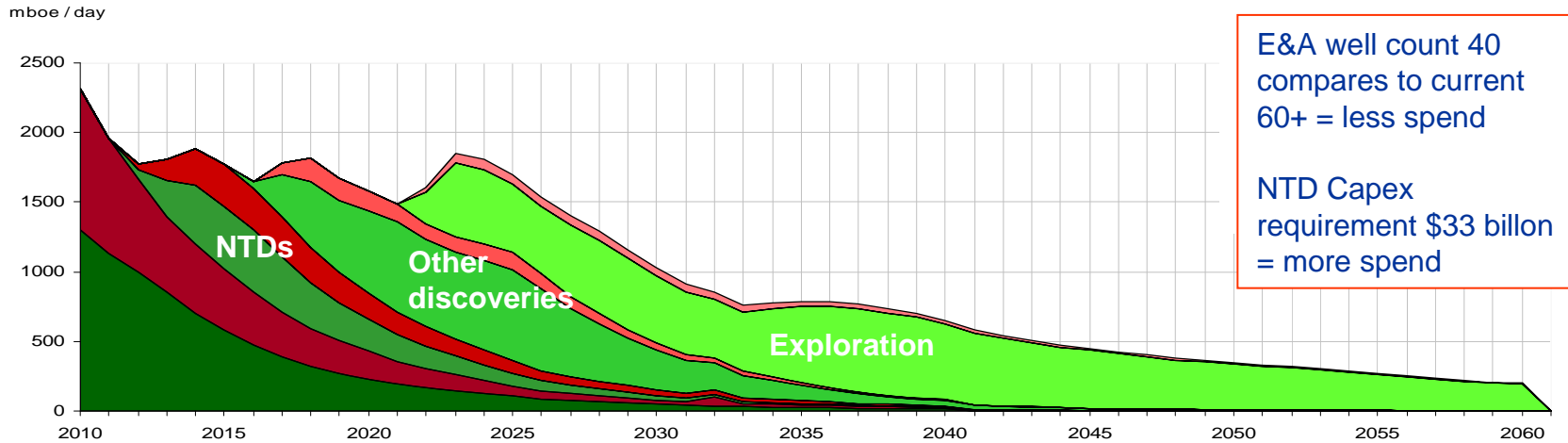
- AN NTD IS
- A 91 well subset of all 475 UKCS discoveries
- An appraised oil or gas discovery, or single well tie-back
- Joint Venture confirmation of Production within 5 years, or educated guess based on Licence terms and area activity
- A view that the project is commercial or can become commercial within this time frame
- No Field Development Plan yet, but the following considered manageable but not necessarily secured:-
 - Technology and reservoir difficulties
 - Size and materiality
 - Export and difficulties in pipeline access
 - Joint Venture misalignment / Joint Venture drag
 - Competition for funds & other / global priorities
 - Tax allowances
 - Oil & gas prices

Near term “new oil & gas”: NTDs 2550 mmboe



1. Average sizes look reasonable @ 20 to 40 mmboe
2. But individual reserves can be low
3. And it is probably the case that the commerciality of a portion of these NTDs relates to ownership and geography and core area development
4. This will constrain the ability of the market to farm-in or buy-in

FORECAST: constrained 40 E&A wells per year + constrained Capex



Capex \$ 33 billion
Opex: \$17 billion

Capex \$78 billion
Opex \$61 billion

Capex \$124 billion
Opex c. \$100 billion

c. 1.25 million man-years
62,000+ sustained jobs for 20 years
Assumes \$40,000 per job

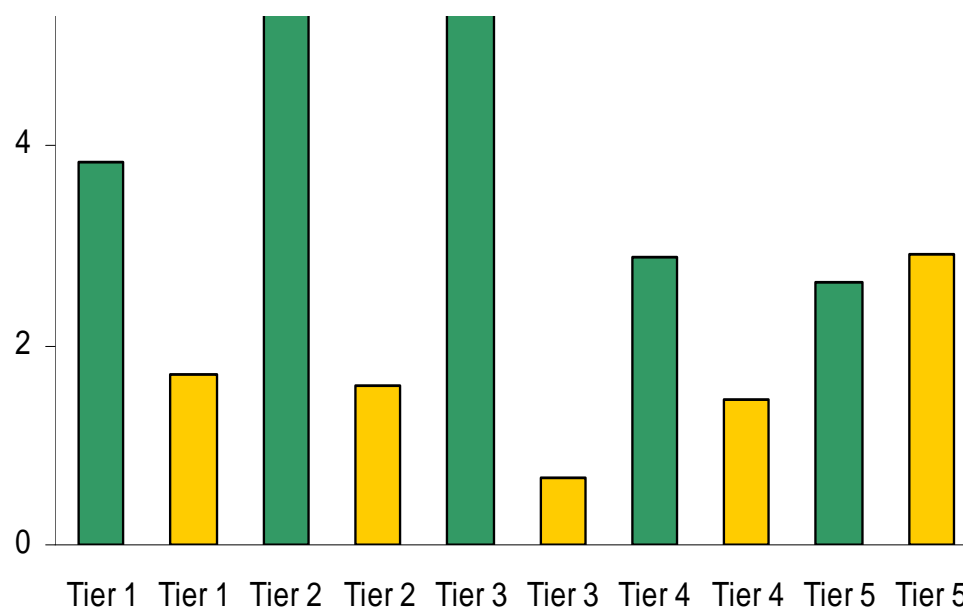
c. 5.6 million man-years
c. 180,000 sustained jobs for 30 years
Assumes \$40,000 per job

The non-core NTD 5 year funds gap

	core \$ billion	non-core \$ billion
Tier 1	3.8	1.7
Tier 2	7.5	1.6
Tier 3	7.8	0.7
Tier 4	2.9	1.5
Tier 5	2.6	2.9
	24.7	8.3

Capex
c. \$33 billion

Capex \$ mm



1. Core equity funds \$24.7 billion
2. Non-core equity funds \$8.3 billion per year c. **\$1.6 billion per year**
3. Opportunity in the funds gap in Tiers 1,2,4,5

The non-core NTD 5 year funds gap

Tier 1 250 - 500+ mmboe 8 companies	Total	ExxonMobil	BG					Non-core NTD Funds gap \$1.7 billion
	BP	ConocoPhillips	Nexen					
	Shell	Talisman						
Tier 2 100 - 250 mmboe 7 companies	Centrica	Eni	CNR					Non-core NTD Funds gap \$1.6 billion
	Chevron	Suncor						
	Apache	Maersk						
Tier 3 10 - 100 mmboe 29 companies	Dana	E.On Ruhrgas	Tullow	SSE	Noble	Ithaca		Non-core NTD Funds gap \$0.7 billion
	TAQA Bratani	EnQuest	BHP	Statoil	Valiant	Idemitsu		
	Marathon	Dyas	IOC	Marubeni	Murphy			
	Hess	Perenco	Premier	OMV	Sumitomo			
	GDF Suez	DONG	Nippon	RWE	Wintershall			
Tier 4 <10 mmboe 26 companies	Korean PDC	Aurora	Roc Oil	Zeus	Caithness	Energy Resource		Non-core NTD Funds gap \$1.5 billion
	Sojitz	Bridge Resources	EWE	Challenger	North Sea Energy			
	EDF	Bridge Energy	Atlantic Petroleum	Faroe	CalEnergy			
	Cieco	Mitsubishi	Gas-Union	Egdon	Reach			
	Endeavour	ZMB	ATP	EOG	Euroil			
Tier 5 No developed reserves 44 companies	<i>Volantis (24)</i>	<i>Antrim</i>	<i>Agora</i>	<i>Spyker</i>	<i>Island</i>	<i>Mitsui</i>	<i>Westoil</i>	Non-core NTD Funds gap \$2.9 billion
	<i>Sterling</i>	<i>MPX</i>	<i>Canamens</i>	<i>Veritas</i>	<i>KazMunaiGaz</i>	<i>Aimwell</i>	<i>Xcite (1)</i>	
	<i>Bayerngas</i>	<i>Sorgenia</i>	<i>Sagex</i>	<i>Bharat</i>	<i>Tata</i>	<i>Delek</i>		
	<i>Encore</i>	<i>Carrizo</i>	<i>PA Resources</i>	<i>Elixir</i>	<i>AFEX</i>	<i>Gas Plus</i>		
	<i>Nautical</i>	<i>Hurricane</i>	<i>Sussex Energy</i>	<i>GB Petroleum</i>	<i>Chrysaor</i>			
	<i>Cirrus</i>	<i>Serica</i>	<i>Celtic Oil</i>	<i>Ginger</i>	<i>DNO</i>			
	<i>Rocksource</i>	<i>Noreco</i>	<i>Holywell</i>	<i>Hansa</i>	<i>Ebor</i>			
Tier 6 Promote 11 companies	<i>REAP (7)</i>	<i>Swift</i>	<i>Mariner</i>	<i>Stelinmatvic</i>				
	<i>Black Sapphire</i>	<i>Iona</i>	<i>Sable</i>	<i>Focus (1)</i>				
	<i>Norfolk Resources</i>	<i>Mahona</i>	<i>SEQ</i>					

Another funds gap: based on projected use of FUNDS

OGUK 2010 Industry Survey
Annual spend

\$18 mm

Annual Opex =

\$11 billion

Annual Capex =

\$7 billion

Annual Capex on in-field development (2 billion)

\$4 billion

(assume \$10 per boe on 2 billion boe = \$20 billion / 5 years)

Annual remaining Discretionary funds:

\$3 billion

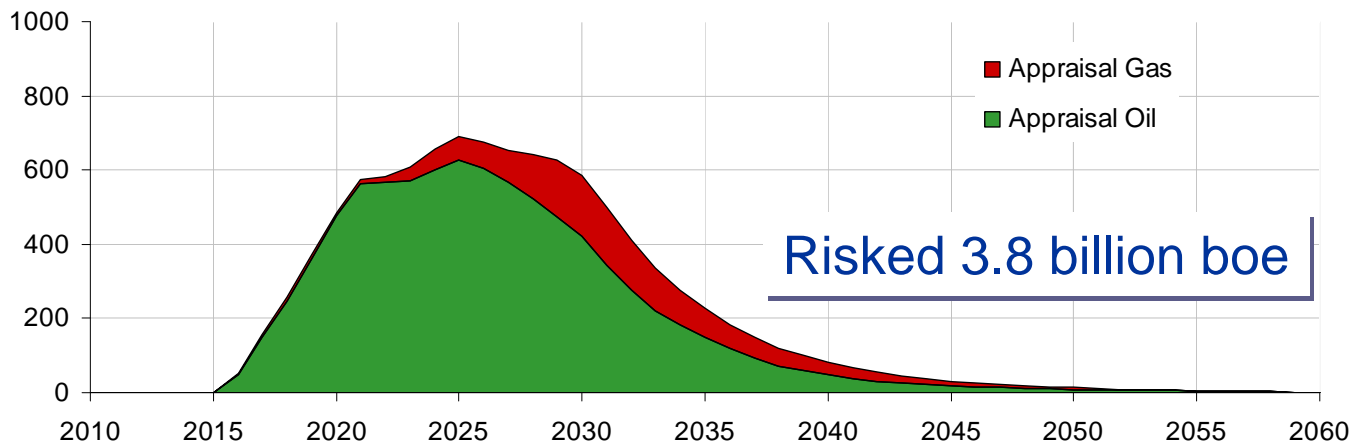
Suggests about \$15 billion Capex over 5 years

NTD capex estimate \$33 billion over 5 years

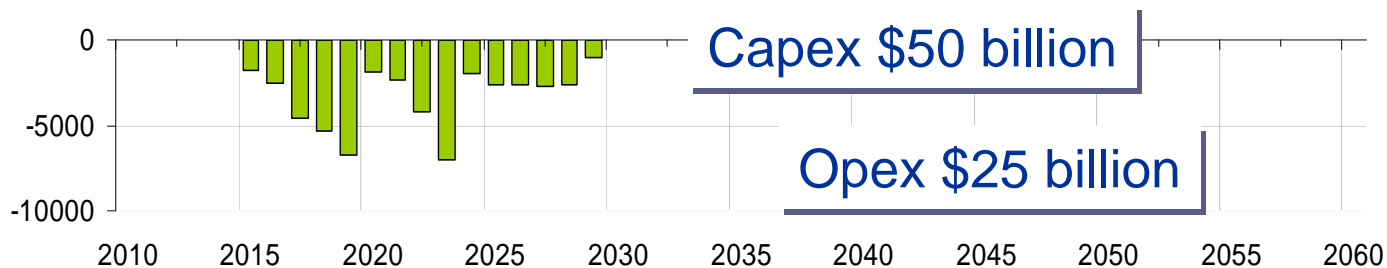
Shortfall **\$18 billion** over 5 years

Other discoveries – 383 wells

mboe / day



Capex \$mm



COMMENTS & CONCLUSIONS

- The Licence Rounds drive c. 10% of new wells to feed E&A
- The more immediate impact from E&A lies in 90 NTDs = strategic – pipeline decay; job preservation; indigenous supplies; gas component
- NTDs generate \$50 billion Capex and Opex; est 60,000 jobs for 20 years; \$44 billion tax take
- NTDs inject c. 2.6 billion boe and over 600,000 boepd
- Priority Capex spend goes to In-Field investment
- NTDs: Funds short \$8 - \$15 billion over 5 years

- What we really need is a **integrated Business Plan for UK Resources**
- to align government, oil companies, service sector and banks / investors
- If we don't do this, we fail to extract the full resource
- that is the path we are on

- 25 billion boe in the ground + market + global + fiscal + finance

- >>>> 10 to 15 billion boe?

- of which the NTD population is a useful 5 year test on c. 2.6 billion boe

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