Unlocking Marginal Fields – What does the economics tell us?

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Unlocking Marginal Fields – What does the economics tell us?

- Context / size of the prize
- Market Signals
- Business Opportunity
More than 85% of the existing reserves base has been produced

Source: Wood Mackenzie
A steady number of small pools (<50 mln boe) continue to be discovered.

Discoveries (number) By Year

Source: Wood Mackenzie – Pools under 50mmboe
There are undeveloped small pools across the UKCS

Total Reserves: 3.2bn barrels
Fields: <320

WoS:
20 fields
347mboe

Northern North Sea:
68 fields
620mboe

Central North Sea:
157 fields
1633mboe

Southern North Sea:
64 fields
498mboe

IS/E Channel:
15 fields
87mboe

Source: Wood Mackenzie – Pools under 50mboe
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What do the Economics tell us

- Limited number studies
e.g. Syed Mustafa Amjed - NSRI / Aberdeen University paper 3 Aug 2015

- 11-12 mln boe cut-off @ $60
- 9 mln boe cut-off 25% with cost reduction
- Higher oil prices help
Limited value to play with – High risk demands high reward

- Lots of them, but small
- Quick returns / pay-back
- Affordable opportunity
- Little competition to develop
- Growing a business
- Aggregate small pools to create critical mass
- Limited Development Options
  Subsea, ERD, FPS

- Technically risky
  - Well / reservoir risk
- Commercially risky
- Reliant on third party infrastructure
- Single well developments / limited recovery potential
- Reservoir characteristics
  e.g. black oil vs. dry gas
Over the last four decades 5.5 billion boe of “small pools” developed, 3.2 bln boe yet move

<table>
<thead>
<tr>
<th>Vols. (bln boe)</th>
<th>Developed</th>
<th>Yet to be developed</th>
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<tbody>
<tr>
<td>Number</td>
<td>&gt;310</td>
<td>&gt;320</td>
</tr>
<tr>
<td>Mean</td>
<td>17.2</td>
<td>9.8</td>
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<tr>
<td>Median</td>
<td>12.8</td>
<td>7</td>
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</table>

Source: Wood Mackenzie – Pools under 50mmboe
3.2 billion barrels in over 320 fields to be unlocked

>20mmboe mostly developed

<20mmboe – More Pools
The Real challenge

Source: Wood Mackenzie – Pools under 50mmboe
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The basin is at its best when Unit Technical Costs are less than third of oil price
Small Field Solutions Required @ $10-15/bbl user costs

New Business Models
- Come and collect?
- Re-useable facilities?
- Less than $20-25/bbl all up

Improved Risk/Reward
- Tax Drivers
- Well Cost
- Finance