

Subsea Tieback Forum

Subsea trends, challenges, and technology requirements

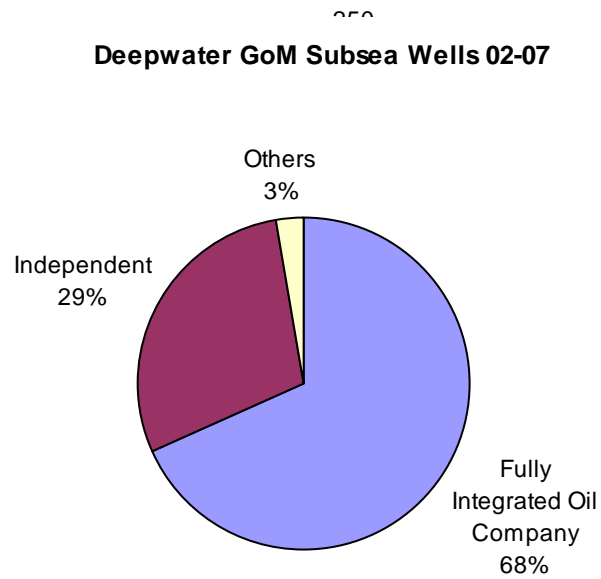
Howard Wright – Senior Analyst

The information contained in this document is believed to be accurate, but no representation or warranty, express or implied, is made by Infield Systems Limited as to the completeness, accuracy or fairness of any information contained in it, and we do not accept any responsibility in relation to such information whether fact, opinion or conclusion that the reader may draw. The views expressed are those of the individual contributors and do not represent those of the publishers.

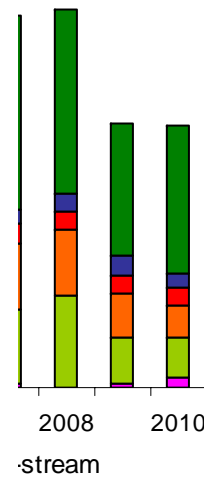
Some of the statements contained in this document are forward-looking statements. Forward looking statements include but are not limited to, statements concerning estimates of recoverable hydrocarbons, expected hydrocarbon prices, expected costs, numbers of development units, statements relating to the continued advancement of the industry's projects and other statements which are not historical facts. When used in this document, and in other published information of the Company, the words such as "could," "estimate," "expect," "intend," "may," "potential," "should," and similar expressions are forward-looking statements. Although the Company believes that its expectations reflected in the forward-looking statements are reasonable, such statements involve risk and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements. Various factors could cause actual results to differ from these forward-looking statements including the potential for the industry's projects to experience technical or mechanical problems or changes in financial decisions, geological conditions in the reservoir may not result in a commercial level of oil and gas production, changes in product prices and other risks not anticipated by the Company. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties.

The view in 2002

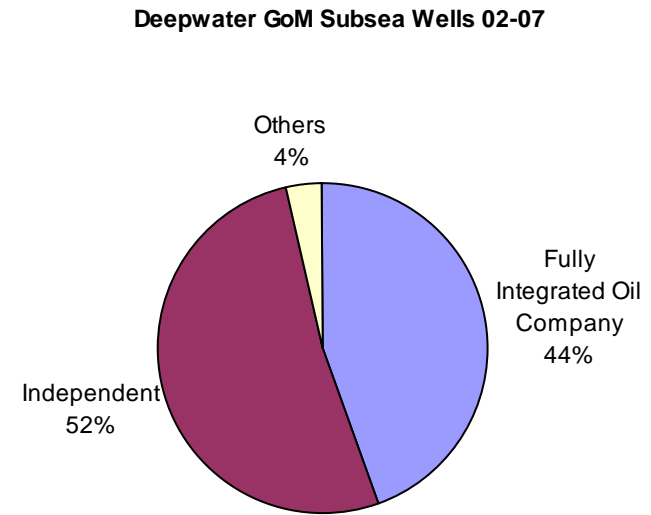
2002 Forecast



Deepwater Subsea Wells

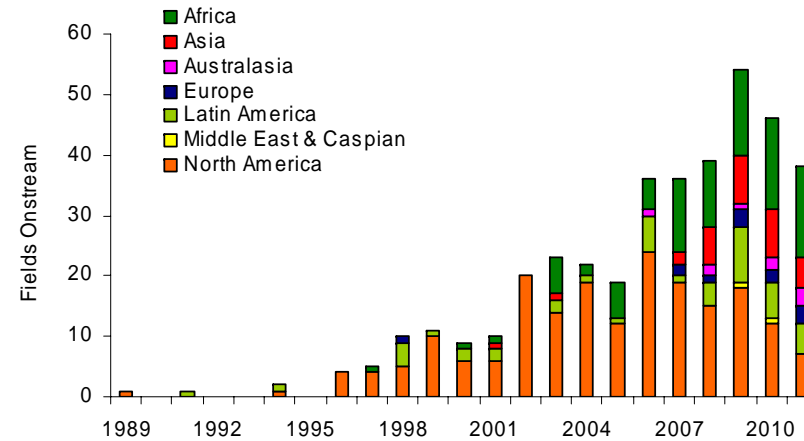


2007 Actual



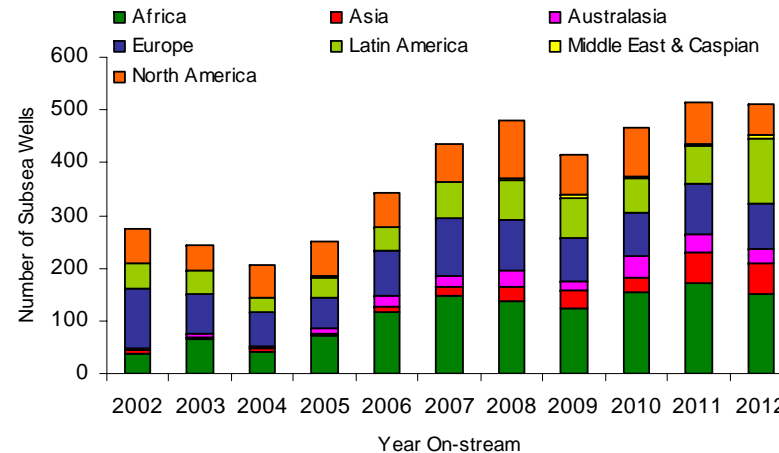
- **Market Overview**
 - **Deepwater**
 - **Subsea Market Trends**

- **Conclusions & Observations**



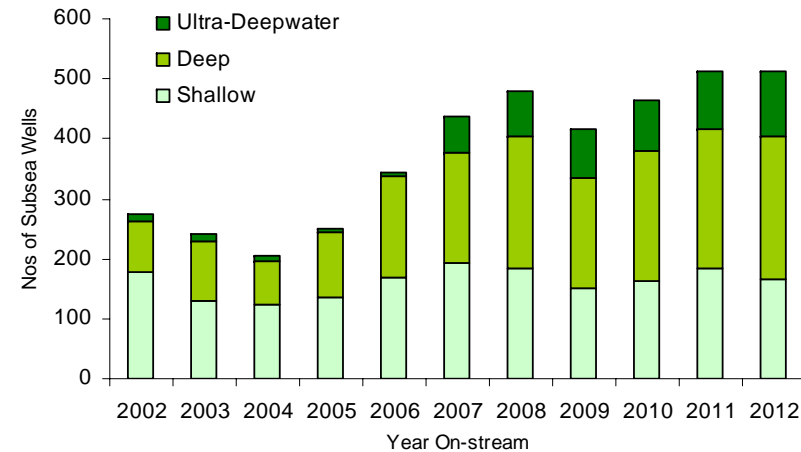
- Deepwater has evolved from the technological frontier to being strategically important
- Golden Triangle through to 2006
 - North America (126), Africa (22), Latin America (21)
- Key driver of growth in offshore activity
- Activity in Africa and Asia will provide the primary impetus for the forecast growth.
 - Nos of fields compared to shallow is low
 - The scale of reserves and production of deepwater is outstanding
- 37% located in North America
- 32% Brazil
- 27% Africa

- There are still a number of areas of high-prospectivity that are considerably under explored and have potential for upside
- These areas include some significant locations, including;
 - Arctic
 - Deep & ultra-deepwater Gulf of Guinea
 - Ultra-deepwater Gulf of Mexico
 - Deepwater South China Sea
 - Indian Ocean Margins
- A clear trend towards deeper waters and more remote locations

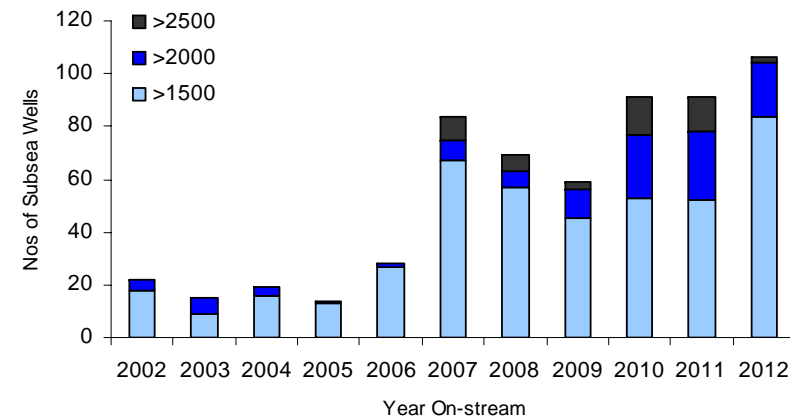


- In terms of the forecast:
 - Subsea wells are expected to push 500 brought on-stream per year by 2011
- Major deepwater developments drive the growth
 - Floating Production in West Africa, Brazil, GoM, Asia Pacific
- Expanding geographical coverage
 - To date subsea production facilities are used in 47 countries worldwide
 - These will be joined by a further 12 through this forecast period
- Within mature basins subsea plays an important role
 - New production to existing fields
 - Reservoir boosting through injection

- Water depths are increasing
 - An Increase from 55% in 2007 to 67% in 2012 of wells are expected to be completed in >500m
 - Maximum completions are expected at approx 3000m



- Ultra-deepwater frontier
 - Nos of wells is expected to grow from approx 20 in 2002 to over 100 in 2012
 - Lower Tertiary Trend
 - North Africa
 - Brazil



- Technical challenges increasing
 - HPHT
 - Flow assurance
 - Transportation
- Subsea is critical to deliver offshore future production growth – worldwide
- Increased use of “new” technologies:
 - Subsea Separation
 - Boosting
 - HIPPS

- Despite anticipated strong level of new development activity there are potential issues to be overcome if current feel good factor to be maintained
- The supply chain to the offshore sector is operating very close to or at full capacity
- Subsequent supply constraints creating significant cost inflation - limited fabrication, manpower, equipment and material availability
- This has seen major reassessment of project specifications and schedules
- Deepwater projects either brought on-stream over the past five years or due on-stream imminently shows a clear majority have experienced some form of delay to their initial forecast on-stream date
 - High profile deepwater projects, such as Agbami, Akpo, Atlantis, Bonga, Erha and Thunder Horse, catch the eye this trend has by no means been limited to deepwater areas
- The need to order critical equipment early has become paramount
- Oil companies face the need to keep discovery to production time as low as possible
 - Developing long term relationships
 - Frame Agreement, Long term charters...
 - Considering the implication of their risk strategy
 - Contractors do not have the capacity to tender for every job
 - Operators can not simply select from a range of contractors on a low cost basis
 - Looking at longer term picture – interested in the 15-20 year contracting environment

Thank You

Infield Systems Ltd: Booth 201

howard@infield.com