

# **SPE DEEPWATER FORUM**

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**“Willingness to Employ New Technology”**

**Production Risers and Flowline Systems**

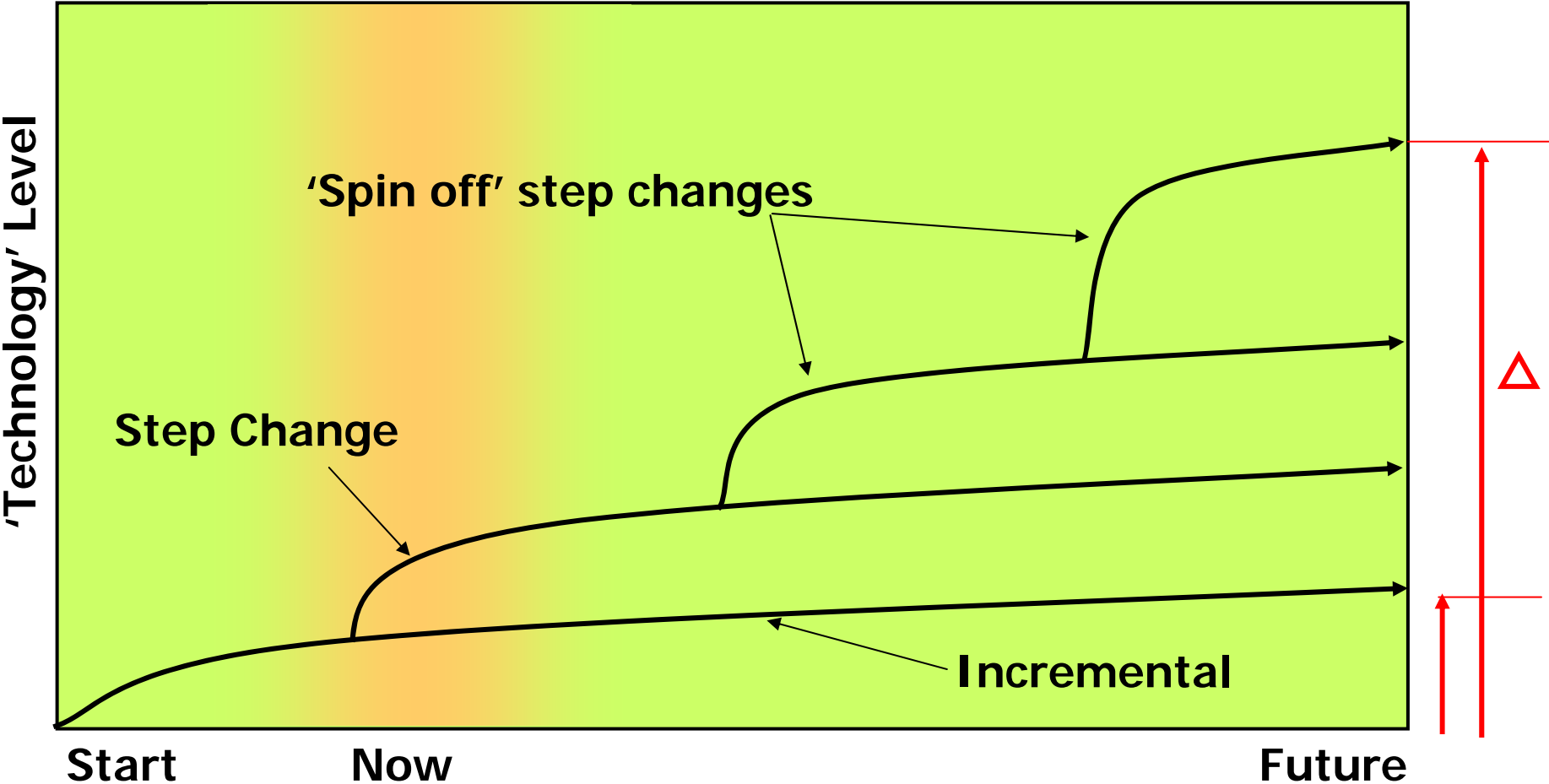
**June 2005**

# Introduction

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- Deepwater risers are an 80/20 package – 20% URF value 80% problem
- Riser technology has progressed rapidly (300-2000m) in last 10 years through:
  - JIPs
  - Pan industry initiatives eg. Deepstar
  - Project specific developments
  - Individual Company R&D
- **HOWEVER**
  - Flexible pipe and welded steel construction dominates – Extended shallow water solutions
  - There is a general feeling that we could do better and that the problem is not a lack of ideas but turning these into reality
  - **Is something going wrong? What?**

# Hi-Tec / Low Risk Industry Committed to Incremental Technology Development !



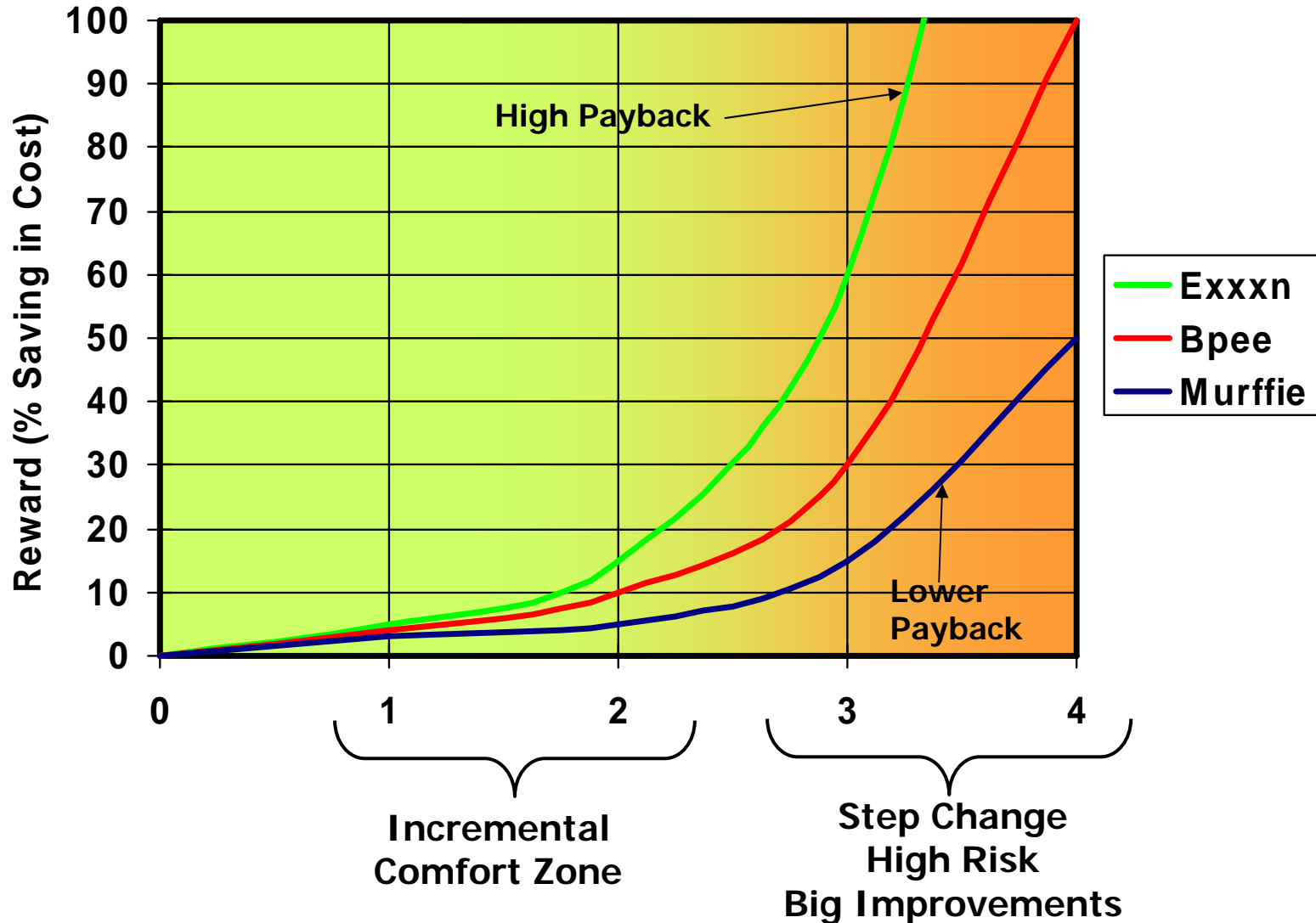
# Incremental vs Step Change Technology

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## 4 levels to categorise new technology

- 1 - **Incremental** change with **existing** supply chain- (Technip Zeta wire, truss spar)
- 2 - **Incremental** change with **new** supply chain – (Techlam FJ, Steel tube umbilical, )
- 3 - **Step change** with **existing** supply chain – (Cameron Spool tree, Auger SCR )
- 4 - **Step change** with **new** supply chain - (Heidrun Ti DR, Girassol Hybrid, Deepflex)

# 'New Technology' Operator Acceptance Threshold



# Discussion - Why So Few Category 4's in Risers?

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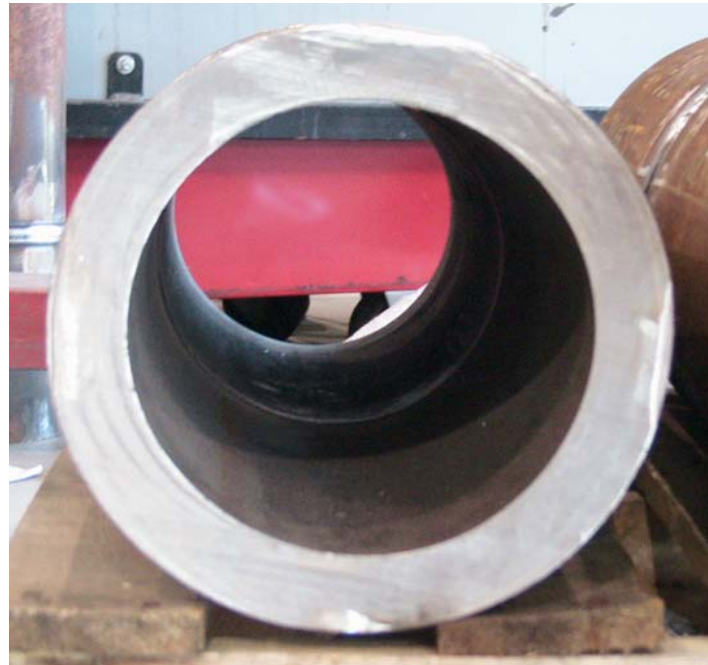
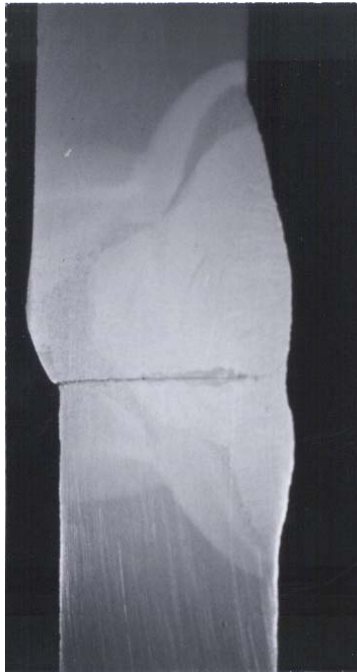
- Pressure from Shareholders - Expectations
- Complacency (\$6-\$60/Barrel)
- Riser value is low in percentage terms
- Emphasis on fast track projects reduces ability to qualify new technology
- Technical development driven SME's but cannot manage implementation
- Small number of capable installation contractors – Poor Financial performance
- Existing supply chains block implementation
- Operator/Contractor allegiances
- Ability for Engineers to sell new solutions to PM and commercial team
- Poorly optimised contract commercial strategies – same old route
- Poor cross project and cross discipline communication
- Project Manager measurement criteria and job safety

# Potential Category 4 - Construction Using Threaded and Coupled Connections

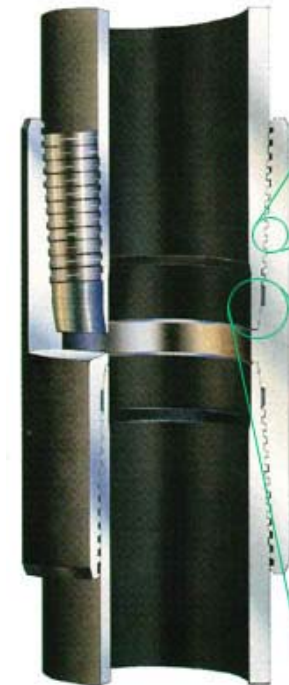
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## Thick wall High Strength Pipe

### Welding



### Mechanical Connectors



# How do we implement the T&C Step Change ?

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- Industry currently resisting T&C for flowlines, SCR's & Freestanding risers despite being:
  - Installation friendly, safe, and cost effective
  - An enabling technology for HP Ultra deepwater riser
- Main challenge is contractual framework (EPIC, fast track)
  - Installation and drilling contractors have different agendas
  - Engineering contractor cannot manage risk
  - Operator preference is EPIC – but its killing innovation
- Operators have to take lead – What does it take ?

# Backup Thoughts and Discussion points

- Step changes requires
  - Operator driven market
  - Healthier installation and engineering contractors
- Technical focus is wrong – more important to drive commercial issues
- Pre-investment of suppliers and desire to control market to get investment back
- Risk aversion of project managers (it's the detail)
- Standardised contract and procurement strategies
- Suppliers are self centred and internally focussed
- Operators only want to deal with major contractors
- Whilst technically complex risers are swamped by the commercial and technical constraints of flowline and pipeline systems with which they are lumped.
- Industry emphasis on fast track combined with poor project scheduling results in reliance on extrapolating existing solutions that are considered low risk and 'safe' by PM's
- FEED work is conducted by Engineering entities that are not close enough to the technology 'Coal Face' and by resources that are not sufficiently qualified. As a result they simply re-crunch earlier work. (This situation is often driven by financial constraints and competitive tendering)
- The market has allowed itself to become 'hamstrung' by a small number of contractors owning large installation assets. Alternative solutions are not available