Efficiency Task Force
Subsea Standardisation Project
Adopting a Simplified and Fit for Purpose Approach

Unlocking Marginal Fields – Subsea Expo 17
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Subsea Standardisation Background

- The Oil & Gas UK executive formally launched the Efficiency Task Force (ETF) in September 2015, while recognising that some behavioural change will be company-specific, Oil & Gas UK took the lead to help drive pan-industry initiatives to achieve efficiency improvements and transformational change, formalising those initiatives under the ETF.
- The task force is taking a three pronged approach under the themes:
  - Business Process
  - Co-operation, culture and behaviours
  - Standardisation
    - Compression Systems
    - Inventory Management
    - Procurement
    - Logistics
    - Maintenance
    - Subsea Technology
    - Valves
    - Well Plugging & Abandonment

The Subsea Standardisation Project was formed with the goal of identifying efficiencies that could be applied to subsea developments.
Project Overview

Working Group from across Industry

Steve Duthie (Industry Lead)
Alan Black
Graham Whitehead
Guy Trumper
Matt Corbin
Martin Fowlie
Neil Kirkbride
Patrick Duggan
Rebecca Borresen
Richard Hinkley
Stuart Buchan
Stephen Marcus Jones

Input from:

Oil & Gas Authority

Subsea UK

Scopes

Literature Review

Case Studies

Strawman Theoretical Exercise

Efficiency Scopes

Prospect Reviews

Develop Approach

Develop Theory

Apply Theory

12 Sub Groups from across Industry

Detailed Design | Pre-Commissioning
Fabrication | SPS
Flexibles | Survey
IVB | Trenching, Backfill & Rockdump
Installation | Umbilicals
Pipelines, Line Pipe & Coatings | Valves, Flanges & Fittings
Key Stakeholders and Companies Involved

Industry Driven
Over 31 companies involved.
Developing an Approach to Restore Competitiveness

Literature review undertaken to identify an approach to restoring competitiveness.

- Existing Practices
- Cross Sector
- True Standardisation
- Impact of Behaviours and Cultures

Four key themes were developed through which subsea developments could be made more competitive.

**Applying a Fit for Purpose approach:**
- Functional vs Prescriptive approach
- Applying Industry Standards

**Applying Alternative Methods and Technology to provide optimised solutions:**
- Design & Field Architecture
- Manufacture
- Fabrication
- Installation
- Scheduling and Sequence of the work scopes

**Applying a Simplified & Streamlined approach:**
- Documentation
- Review cycles
- Reporting
- Interface management
- Inspection & testing

**Standardisation of Hardware**
- Standard designs
- Develop modular approach & components catalogue
- Common interfaces with plug and play capabilities & interchangeability
- Re-use capability similar to drilling equipment
Developing the Theory

1. UKCS Case Studies

- Case Study 1: FPSO riser system
  - Total Savings: £7.75m = 25%
- Case Study 2: Subsea pipeline tieback
  - Total Savings: £14.52m = 18%
- Case Study 3: Subsea manifold & bundle
  - Total Savings: £26m = 15%
- Case Study 4: Subsea pipeline tieback
  - Total Savings: £14.48m = 28%

2. Strawman Theoretical Exercise

3. Efficiency Scopes

- 55 Efficiency scopes were identified
- Applying a Simplified Process to the procurement of Trees identified 13% Cost Savings:
  - Reduced Inspection
  - Using Approved Vendors
  - Reduced Documentation
- Identifying areas of conservatism in API 17J identified 15% cost savings:
  - Mandatory use of Annex B – Purchasing Guidelines
  - Load combinations of Load Classes

There is a journey necessary to achieve viability for subsea developments.
Applying the Theory to Subsea Prospects

To establish what cost savings could be realised, the Standardisation Themes were applied to two ‘economically challenging’ prospects.

The West Wick field development is a potential heavy oil tie-back 2.7km from the Captain Platform in the Moray Firth.

West Pegasus field development, a potential three well gas tie-back in the Southern North Sea. Several options with different “Host” facilities were considered.
Prospect Reviews – Examples of Key Efficiencies

Cost efficiency savings from applying a simplified and fit for purpose approach to prospects.

**Flexible Riser Design Analysis**
- Design Analysis has increased dramatically from 12-60 to 5,000 – 12,000 load cases.
- Design analysis is now a project delivery critical path activity and analysis to allow replacement risers cannot be proven.
- No history of major failures to justify the increased load cases employed.
- A pragmatic approach to defining load cases should be approached and an upper limit of load cases applied.

**Applying the Standardisation Themes to each prospect provided a simplified and fit for purpose approach where 25% Cost Savings were realised...!!**

**Dropped Object and Over-trawlability**
- By trenching into the 500m zone there is an area between the dropped object cone and the boundary of the 500m zone where no mats would be required.
- The reduction of mats also has a significant cost and schedule saving from vessel duration.

**Single Pipeline and Umbilical Trench**
- Combining the umbilical and the pipeline in the same trench realised significant savings.

**Alternative to a Caisson Riser**
- Installing a hang-off platform to support flexibles and umbilical identified significant savings to a traditional caisson riser.
Conclusion

This unique industry driven initiative, supported by a large number of companies applying collective behaviours, has demonstrated that cost savings of 25% are achievable.

Wider adoption of the Standardisation Themes to other prospects including the “small pools” will provide “Sustainable Savings” going forward.
Application Guidelines
Adopting a Simplified and Fit for Purpose Approach

- The purpose of this document is to provide an overview on how to apply a simplified and fit for purpose approach to subsea prospects and future developments to provide efficiency improvements and cost reductions.

- Focusing exclusively on the UKCS basin, this guideline provides a list of worked examples to help users gain a better understanding on their application.

- Within this guideline, behaviours, cultures and practices are covered, as these are instrumental to the adoption of change necessary to implement efficiency improvements.

- The ultimate goal is to promote adoption and application of this approach to prospects and future projects in the UKCS basin going forward.

- The Application Guidelines can be found in the Efficiency Task Force Tool Kit. [http://oilandgasuk.co.uk/etf-toolkit.cfm](http://oilandgasuk.co.uk/etf-toolkit.cfm)
Thank You