Decommissioning and Restoration
Shell International

Views from around the world

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Reserves: Our use of the term “reserves” in this presentation means SEC proved oil and gas reserves.

Resources: Our use of the term “resources” in this presentation includes quantities of oil and gas not yet classified as SEC proved oil and gas reserves. Resources are consistent with the Society of Petroleum Engineers 2P and 2C definitions.

Organic: Our use of the term Organic includes SEC proved oil and gas reserves excluding changes resulting from acquisitions, divestitures and year-average pricing impact.

Shales: Our use of the term ‘shales’ refers to tight, shale and coal bed methane oil and gas acreage.

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AGENDA

Typical cost distribution for offshore decommissioning

Diverse Shell experience with decommissioning (*not* one size fits all)

- Gulf of Mexico
- North Sea
- Elsewhere

Success factors and cost optimization

- Mindset change
- Supply chain innovation
- Collaboration
Global Spending

Global spending to decommission assets expected to grow to $160 billion between 2015-2030*

*Source: Woodmac
Forecast decommissioning expenditure in UK 2016 to 2025
(OGUK Decommissioning Insights 2016)

- Facilities preparation and removals approximately 25%
- Offshore wells P&A approximately half the decommissioning cost
- Decommissioning cost efficiency programmes should always include a component on Wells P&A
Removal of ST301 Gulf of Mexico

Date: Topside lift Sept and reefing November 2017
Key dimensions: Topsides 4800t jacket 3500t
Water depth 100m
Chosen option and learning/benefit:
Topsides to shore for recycling
Jacket transported and donated to Louisiana artificial reef programme reefing (environmental benefit)
Leman BH, Southern North Sea: Accommodation block and Jacket removal

Date September 2017

Key dimensions: topsides 1000t jacket 600t

Water depth approx. 40m

Chosen option and learning/benefit:
- Use a Sheerleg (or heavy lift barge)
- Lump Sum Contract with Decom Contractor
- Dismantling Contractor is a Sub-Contractor to the Decommissioning Contractor
- Contractor led designs
- Use Lifting Pins for Jacket Lift
- High Focus on Government Agencies (BEIS, HSE)
Brent D topsides lift. North North Sea

Date: April - May 2017

Key dimensions: topsides 24,200 tonne, 44m high

Water depth 140m

Chosen option and learning/benefit:

Single lift

Reduced safety exposure (offshore, helicopter, etc)

Reduced post CoP opex
Popeye. Subsea equipment in the Gulf of Mexico

Date: September 2016

Key dimensions: a six-slot subsea cluster manifold

Water depth 700m

Chosen option and learning/benefit:
- Leave in Place.
- Reduced safety exposure
- Avoided burning 500,000 litres of diesel
- Cost benefit
India – Tapti project. First D&R project in India

Date: Design phase. Planned 2019.

Key dimensions: 5 jackets with topsides 500-700t

Water depth 20m

Chosen option and learning/benefit:

- Awaiting responses from the market before D&R options
- Close engagement and collaboration with regulators to clarify D&R requirements
- No use of divers enhance safety reduce cost
- Due diligence on Onshore recycling yards
Success Factors

- Mind Set Change
- Learning from Other Countries
- Clear, Fit for Purpose D&R Requirements
- Supply Chain Innovation
- Campaign Bundling
- Share Good Practice and Collaborate
Mind Set Change

- Traditional mindset -> traditional behaviours -> traditional costs
- ‘Curse of the incumbent ’
- Declining risk profile
- Stop dictating ‘how’ to decommission; outcome focus
Learning from Other Countries

US GoM has seen >4000 structures decommissioned
North Sea less extensive, but still >150

- Knowledge and experience is building continuously
- Learn from recent D&R projects and plans
- Understand differences due to local context – not ‘one size fits all’
- Benchmarking
- Supply chain as well as operators
Clear Fit-for-Purpose D&R Requirements

- ASCOPE Guidelines provide good frame work aligned with Industry good practice.
- Industry and govt collaborate on establishing guidelines and regulations
- Fit for purpose for local context
- Clear, stable and efficient decision-making process
- Risk Based Approach based on science

- Leave in Place permitted, when safe and environmentally responsible
- When completed, all residual liabilities should revert to the Government.
Supply Chain Innovation

**Contractors** are asking for
- Volume
  - Scope bundling
  - Long term planning
- Flexibility
  - Remove schedule imperative
  - Leave methodology / tools to us

**Operators** are asking for
- ‘Coopetition’
- Risk allocation
- Contractors to lead capacity and technology development
- Innovation
Campaign / Bundling

- Continuous improvement
- Not necessarily large bundle
- What do we bundle into a campaign?
Share Good Practice And Collaborate Whilst Maintaining Competition

- Netherlands. Cross-industry and government cooperation “A Platform for Decommissioning”
- UK. Govt (OGA) led cross industry collaboration
- Brazil. Joint Industry and Govt Project on Decommissioning assessment methodologies
- Australia. Operator cooperation APPEA
- International. IOGP Decommissioning Committee
- Annual Industry Conferences UK, Norway, USA.
- 1st Indian Decommissioning Conference (May 2017)