Technical Session
Bunga Pakma A Development
A success story and its challenges

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PETRONAS MPM/Upstream
Bunga Pakma A Development: A success story and its challenges

**Introduction - Design Basis**

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To achieve first gas by May 2018 (2 years after project sanction)
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HSE Performances

LTI Free

Over 1.66 million man hours
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**Schedule Performance**

**PAKMA**

First Commercial Production

4.5 months ahead of schedule

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**Bunga Pakma A Development**

First Commercial Production

4.5 months ahead of schedule
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*Cost Performance*

**Field Dev Plan (FDP) Cost**

- **29%**

**Final Investment Approval (FIA) Cost**

**Latest Estimate Cost**

Below approved budget (FDP vs Latest Estimate)

- **45%**
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Quality Performances

<1.0% KPI

0.22% Structural

0.10% Piping (Duplex)

0.61% Pipeline

Legend:
P – Piping
S – Structure
PL - Pipeline
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*How did we achieve this?*

**PMT Organization:**

Project’s “Cradle to Grave” PMT approach

**Project Execution Approach:**

- Integrated Project Team
- Collaboration with Partners (MPM/ PCSB JV/ PVEP)
- Life replication & Lessons Learnt from concurrence Replol’s project
- Early Intervention for critical issues

100% Local PMT
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How did we achieve this?

Project Cost

- Drilling: -49%
- T&I: -47%
- EPC & HUC: -36%
- Procurement LLI: -42%

- Optimization on rig rates & services resulted from open bidding Malaysia/ Vietnamese drilling contractors
- T&I - Revised Overall Contracting Strategy from unit rate to lump sum competitive bid due to interest from Vietnamese partner.
- Revised OCS to capture low market environment; low HUC rate on competitive bid strategy

- Multiple cost negotiations for gaining 20% reduction prior to award
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*How did we achieve this?*

**Drilling Cost Optimization:**

- Successfully drilled all hole sections with one (1) bit run, with improved ROP as compared to offset wells that had multiple bit runs.

- Successfully implemented the first ever Formation Sampling while Drilling (FSWD) & Seismic while Drilling (SWD) technology within the Company.

- Maximized use of Logging while Drilling (LWD) in-place of Electric Wireline Logging (EWL) in efforts to reduce well cost – mainly Formation Pressure while Drilling (FPWD).

- Successfully implemented offline perforation under Simultaneous Operations (SIMOPS) in efforts to reduce the well cost.
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*Project Cost Performance Benchmark*
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Key Challenges

Challenging the Norms

PSC Contract Extension
Delay in project execution phase due to PSC Contract Extension Agreement Negotiation

New CIDB Requirement
Newly enforced CIDB requirement was not in the project original plan

EPC Contractor
First time experience (shared resources with another project & less experience manpower for EPC and its subcontractors)

HUC Execution
Execute during monsoon to maintain schedule
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*Challenges – how did we manage it?*

- Delay in project execution phase due to PSC Contract Extension Agreement Negotiation
  - *Turn this to opportunity by optimizing cost capturing lower oil price effect which subsequently resulted with overall project cost reduction*

- Newly enforced CIDB requirement
  - *Early engagement and rigorous follow-up with CIDB at their Head Office in KL and site office in Kuching*
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Challenges – how did we manage it?

- First time experience for EPC Contractor (Shared resources with another project & less experience manpower for EPC Contractor)
  - Cradle to grave approach
  - Close schedule monitoring
  - Form Integrated Team
  - Strong Client PMT
  - Early Intervention
  - Coach/Guide

- Live replication of lesson learnt from concurrent Repsol’s project
  - Engineering
  - Procurement
  - Fabrication
  - HSE
  - Quality

- Back to back discipline support
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Challenges – how did we manage it?

- Execute HUC during monsoon to maintain schedule
- Completed utility systems onshore with Zero Carry-over
- T&I Works completed prior to monsoon
- Offshore team integration (Drilling, Hook Up, Commissioning & Start-up)
- Maintained schedule alignment with Drilling/Start-up
- Include HUC activity in IOP for bedspace requirements
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Recommendation for future projects (Best Practices)

1. Project Definition
   Full project definition and freeze sub-surface design basis prior to FEED

2. Market Environment
   Market intelligence adapting to change of market environment and propose changes to overall contracting strategy for cost reduction opportunities

3. Lumpsum
   Competitive Bid
   Wherever possible, propose contracting strategy based on competitive bidding on lump sum basis with well defined scope of work

4. System Improvement
   Always consider all opportunity for system improvement and optimization in the design by introducing new technology innovation (Subsea cable for power and control; Self-contained electro-hydraulic Actuated Valves)

5. Value Improvement
   Performed Value Improvement Practices (VIP) with platform layout optimization at start of FEED

6. Cost Efficiency Initiative
   Embarked on Cost Efficiency Initiatives (CEI) and early intervention on critical issues throughout all project phases

7. Coordination/Collaboration
   Maintain and improve planning/scheduling of activities as well as maintain close coordination/collaboration with all stakeholders particularly Partners (PCS/EPV), MPM (RD/PO), Repsol Eng/tech Team, EPC/T&I/HUC Contractors, Drilling / Completion Contractors and Operations
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Thank You

Special thanks to MPM, PCSB JV and PVEP