Ensuring Competitive Project Delivery in a Megaproject World

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2010 Major Incident Study (MIS) Frame
October 1, 2009 – December 31, 2010

Scope

Total Incidents reported to Corporate

216 Incidents included in the MIS

Consequences Cited in Incident and MVC Reports

- DAFW, 25%
- Near Miss, 33%
- Environmental, 17%
- MVC, 9%
- Major COI, 10%
- Recordable/First Aid, 2%
- Fire/Explosion, 2%
- Fatality, 2%

216 Incidents included in the MIS Scope
Leading Root Cause Categories

- Procedures & Safe Work Practices
- Risk Recognition and Assessment
- Design (Scope and Review)
- Training / Competency
- Supervision / Oversight

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Our Megaproject World—Challenges and Solutions

- Rising energy demand and greater complexity
- Managing safety and risk
- Improved execution – maximizing value from project systems
- Investing in people
- Owner team role
All Energy Sources Must Deliver to Meet Demand

Global Energy Demand Set to Grow ~40% by 2035
All Energy Sources Grow – But the Mix Stays Constant

Million Barrels of Oil-Equivalent per Day

- Oil: 28%
- Natural Gas: 22%
- Coal: 29%
- Nuclear: 6%
- Renewables: 15%

Source: IEA WEO 2010 Current Policies Scenario
Massive Investment Will Be Required To Satisfy Global Energy Demand

Global Cumulative Energy Investment 2010-2035
($ Billions – Year 2009 Dollars)

- Coal: $335
- Oil: $8,053
- Natural Gas: $7,101
- Biofuels: $721
- Power Generation: $16,606

$32,816 Billion in Total

Source: © OECD/IEA World Energy Outlook 2010
Energy Megaprojects—
Deeper & More Complex

OPEC Gross Capacity Additions in 2010-2014

Source: IHS CERA

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Energy Megaprojects—Deeper & More Complex

Non-OPEC Gross Capacity Additions in 2010-14

- Ultra-deepwater >750 m
- Deepwater 200-749 m
- Shelf <200 m
- Onshore
- Heavy Oil
- # Number of Projects

Source: IHS CERA

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Larger Projects & MCP Portfolio—
Emphasizing Standards to Improve Performance

2005
- 5 Projects >$1B each
  - BBLT
  - SGI/SGP
  - Agbami
  - Tahiti
  - Gorgon

2011
- More than 30 Projects >$1B each
  - Angola LNG
  - Big Foot
  - Chuandongbei
  - Escravos Gas To Liquids
  - CPC Expansion
  - Jack/St. Malo
  - Platong II
  - Papa Terra, Usan, Perdido

- Projects >$10B
  - Gorgon
  - Wheatstone
  - AOSP Expansion 1

Note: Includes projects starting up or reaching final investment decision between 2011-2014
The Megaproject Complexity—Gorgon LNG

- Subsea tie-backs to Barrow Island
- 3 x 5mtpa LNG trains & CO₂ Injection on Barrow Island
- Future Domestic Gas Connection to the mainland
- Existing Domestic Pipeline
Build on Partnership to Improve Project Performance

- Safety
- Risk Management
- Execution
- Investing in People
- Owner Role
Partners in Safety Improvement
Total Recordable Incident Rate (TRIR) & Days Away From Work Rate (DAFWR) Over Time – Chevron Relative to Industry

*American Petroleum Institute's Benchmarking Survey of Occupational Injuries, Illnesses, and Fatalities in the Petroleum Industry data are used as industry benchmarks. 2010 benchmark data were not available at the time of publication.
Project Risk Management

Health, Environment & Safety
- Process Safety Management
- Personal Safety
- High Risk / High Consequence
- Spill Prevention

Project Risk Management System
All project risks captured, mitigated, and tracked in project risk register

Operational Excellence

Business Performance

Execution Performance

Project Development & Execution
- Scope & Technology
- Execution Planning
- Labor Productivity
- Logistics & Transportation
- Quantities & Prices
- Quality
Construction Management & Workface Planning—Driving Craft Productivity in Nigeria

A 10% increase in tool time results in a 25% improvement in productivity.
System Completion & Transition to Operations—Achieving Production Attainment Goals

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Planning in Engineering

Execution of Systems Completion

Transition Facilities to Operations

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Organizational Capability Challenge—Transfer of Competencies to New Leaders

Example of the US Workforce

US workforce (%)

Over half of the workforce eligible to retire in next ten years

Age Distribution

Source: US Dept of Labor
Investing in People—Building PRC Organizational Capability

Horizons Program
- Discipline Specific Experience
- Technical Training
- 3 - Assignments
- Mentoring

Pathways Program
Technical & Professional Competency Development
- Skills Assessment
- Update Plan
- Discuss Gaps
- Execute Plan
- ID Activities
- Develop Professional Plan

Competency Maps
- Cross Discipline Reference Competency Maps
- Project Management Competency Maps
- PM Org Capability
- Major Capital Project Leadership Development
- Project Management Academy

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Structure for Success—Centers of Expertise Organization

PRC President & General Manager

Project Execution Teams

Operational Excellence/HES

Organizational Capability

Project Management System Consulting

Project Contracting & Procurement

- Project Execution CoE
- Business Management
- Construction Management
- Engineering Management
- Risk & Interface Management
- Quality Management
- System Completion

= Recently Formed

= Recently Changed

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Ensuring Competitive Project Delivery
In a Megaproject World

- Manage robust portfolio, increasing project scale, technical and execution complexity
- Close gaps in Project Management Systems
- Partnering to improve execution
- Aggressive focus on mitigating risks
- Drive standard approach for managing core areas of practice
- Prepare next generation of project leaders
Questions + Answers