Application of a Risk Based Assurance Process to a Mega LNG Liquefaction Project

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Agenda:

1. The OKLNG Challenge
2. Project Management vs. the OKLNG Risk Based Assurance Process (H₀ vs. H₁)
3. Risk Based Assurance Process - H₀ & H₁ conditions
4. Conclusions
1. The OKLNG Challenge:

- Build an LNG Liquefaction plant, marine loading facility and offsites, utilities and infrastructure at an undeveloped green field site in Nigeria
- Process gas and produce LNG at a rate of approx. 20 million TPA for export, including by-products production and sale
- Implement a fit-for-purpose world class facility using equipment and systems with well proven reliable performance, all at a competitive unit cost

Value Chain

Gas Gathering Facilities & Pipelines  OKLNG LNG Project  Export, Shipping Regas & Marketing

Upstream Facilities  Midstream Facilities  Downstream Facilities
This paper takes as the null hypothesis ($H_0$) that fully effective project management will lead to maximisation of Value, whereas our proposed alternative hypothesis ($H_1$) is that without the addition of an appropriate Risk Based Assurance Process maximum value will not be achieved.

The challenge to this process is the fact that Value is not an absolute criterion, but a relative one. Perception of risk levels and potential impacts varies between individuals and differing tolerance towards perceived levels of risk exposure varies between each shareholder.

The Front End Loading (FEL) criteria that need to be complied with for Project Sanction are broadly:
1. Have we selected the Best Option from an appropriate range of options
2. Are plans in place to successfully complete the Definition phase (Pre-Sanction)
3. Are plans in place to fully prepare for the Execution Phase (Post-Sanction)
4. Are all Risks identified and mitigation plans understood and agreed.
2b. Project Management vs. the OKLNG Risk Based Assurance Process ($H_0$ vs. $H_1$)

Value Chain

- Price
- Gas Spec
- Reserves
- Deliverability

- Engineering
- Construction
- Operations
- Financing

- Shipping
- Regas Access
- Marketing

FEL Process

Evaluation $\rightarrow$ Concept Selection $\rightarrow$ Concept Definition $\rightarrow$ Execution

Project Sanction

Uncertainty at Each Decision Gate

FEL = Front End Loading. Common for $H_0$ & $H_1$
3a. Risk Based Assurance Process - $H_0$ Condition - Effective Project Management

Steady State Condition

3 Key Criteria ‘optimised’ During the Project

Value Assurance and Risk Management are applied through the staff line functions

Value Chain

Business Requirements

Project Management
   - Project Scope & Timeline
   - Strategic

Cost Time Quality

Project Execution
   - Project Execution
   - Tactical
3b. Risk Based Assurance Process - H₁ Condition - the 'mechanics' of RBAP

1. Integrate the Value & the Risk Processes
2. Apply Risk Mgmt to the Assurance (gates) Criteria
3. Provide authority to the Risk Assurance Committee
4. Capture Changes to the objectives (swiftly)
5. Introduce comprehensive Expert Committees and sub committees
4. Conclusions

- Effective Project Management is satisfactory only if the project is stable or mature and the following conditions are fulfilled:
  1. The shareholding is closely aligned on Objectives
  2. The number of potential project concepts is low
  3. The ‘Value Chain’ are all closely aligned
  4. The Technical, Economic, Commercial, Organisational and Political conditions are clear, few and manageable.

- Alternatively, it is proposed that a Risk Based Assurance Process is not only appropriate but that it is superior in terms of ultimately maximising Value for both the $H_0$ and $H_1$ conditions.