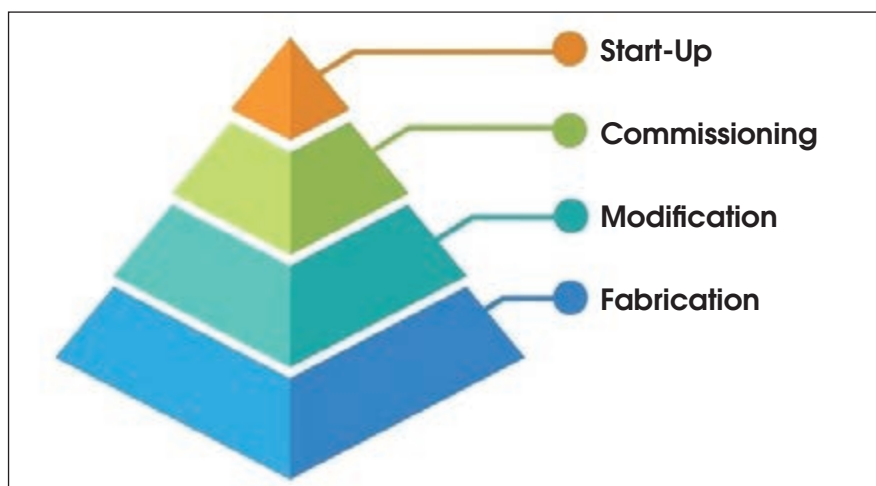


# Readiness of Hook-Up and Commissioning Works



Ir. Izwan Noor

**H**ook-up and Commissioning (HuC) is a major business in the Oil & Gas industry. HuC works range from minor fabrication and installation to modification, tie-in and commissioning (startup for equipment or system).



Pyramid flow in HuC Scope

HuC is applied to both green field (new field) and brown field (field that has been producing for some time) projects. Several aspects need to be checked, monitored and planned early to ensure smooth HuC execution at the site.

Many operators issue minor fabrication, modification work, improvement plan and commissioning work under HuC tender for a small-scale budget and team size.

Several aspects and area of concern need to be checked prior to execution.

- i. Constructability review.
- ii. Construction HAZID (Hazard Identification).
- iii. Work-pack review & challenge.
- iv. Material readiness.
- v. Manpower loading and schedule.
- vi. Equipment.
- vii. Cost.
- viii. Marine spread.
- ix. SISO (Specific Instruction for

Simultaneous Operations) and offshore execution monitoring.

## WORK-PACK

The work-pack is the most critical element in HuC execution. This is because the contractor needs to develop the job card, job card summary, job hazard analysis, estimate manhours and job card acceptance sheet. From the work-pack, the contractor can also further extend/develop the constructability document and HAZID. The level of information in the work-pack must be comprehensive and adequate so that the Client/Operator can check off contractor readiness for the incoming work to be carried out. In addition, the contractor also needs to estimate the manhours for each job card in the work-pack. This information can be used for costing purposes.

Another factor that needs to be considered prior to mobilising personnel to offshore, is material

readiness. A contractor must develop a series of checklists from the purchase order for equipment readiness at the warehouse. This monitoring process needs to be parallel with progress of the fabrication team as the team cannot execute/start work without materials in place.

## MARINE SPREAD & SISO

Marine spread is the most expensive part in a HuC contract. During the proposal, a contractor needs to ensure that the vessel to be used is not to "overpromise" or "overspec". For instance, in Malaysia, the workboat average rate for 2018 is about RM45,000/day, a workbarge is about RM75,000/day and SV (Supply Vessel) DP2 (Dynamic Positioning Level 2) is RM135,000. The rates does not include fuel consumption, so the total cost can be dramatically high. The vessel to be used should be fit-for-purpose and suitable for the offshore execution team mobilisation.

On the other hand, the SISO document is one of the key elements in ensuring a successful offshore execution. This document will include pertinent documents detailing all the operations involved during that time. If this document is not prepared in time for approval by the client, the commissioning of work can be denied.

HuC work is usually slotted within a very small window of time and is carried out at the same time as many other operations. If this time slot is missed, then the next slot will be considered but this may jeopardise operations significantly.



*HuC scaffolding work on topside facilities*

*Source: <http://www.globalconstructionreview.com/news/scaffolders-earn-more-architects-uk-body-says/>*

## SUMMARY

With proper monitoring and planning tools, the HuC business promises very good returns on investment. Project Management Team (PMT) and service contractors need to be proactive and should work together to keep up with the high pace

operations. The estimation of cost needs to be relevant and accurate in order to secure profit. The cost estimate should consider a margin of errors from schedule or change of decision, must have a strong basis and, at the same time, flexibility for last minute changes. ■

## Author's Biodata

*Ir. Izwan Noor, a committee member of OGMTD, has over 14 years' experience in marine and offshore structural engineering design, appraisal and verification in the South East Asia region.*