

The assumption of this post is that the review / validation effort will be a 2 to 4 week effort, which is typical for a \$100 - \$750 million CAPEX Project; the number of weeks could be more or less depending on the capital cost & sophistication of facility:

Main Tasks:

- ☐ **1. Visit FEED office** for at least a week to get informed / familiar with the project's goals. Interview key project team members: Project Managers, Engineers, Estimators / Planners & Procurement staff.
- ☐ **2. Review Project Objectives** / Understand Scope of Work (SOW) / Basis of Estimate / ISBL & OSBL / Hook-Up / Tow of FPSO Interface Scopes
- ☐ **3. Review any Owners Pre-FEED Studies**, Conceptual (Class 5 & 4 Estimates) if available.
- ☐ **4. Examine construction execution approach**, Open Shop Direct Hire, unionized labor, S/C packages, multiple sub-contracts / Construction Management / or a significant modularized approach.
- ☐ **5. Evaluate Estimate Plan / Current Major EPC milestones** – project handover date / Validity of estimate (determine if the estimate is valid for 3 months or longer.) Determine what the impact would be if the project is not approved for 2, 3, or 4 months or longer.
- ☐ **6. Investigate current FEED engineering deliverables** PFDs, UFDs, BOD, preliminary P&IDs, Site Plot c/w location of Major Equipment (M.E.) foundations, Instrument preliminary list & M.E. list.
- ☐ **7. Critique pricing of M.E.** (multiple vendor quotes c/w bid tabs or in-house estimate; have quotes been conditioned for missing scope or T&Cs), validity of M.E. quotes.
- ☐ **8. Discuss estimating approach & methods utilized with estimating team members** (where did the unit prices come from). Ask a lot of estimate / schedule questions & come prepared with estimate checklists (understand if the FEED estimate has captured the full intent of the SOW, project challenges & the site conditions). Ask what accuracy they deem the estimate is. Review labor rates, material unit prices & MTO method (spot check major accounts such as concrete, structural steel, piping & instrumentation).
- ☐ **9. Review any module** / skids & pre-fabricated piping pricing basis c/w T&Cs.
- ☐ **10. Discuss labor productivity basis** - is there one overall value, or has productivity been modified for different areas of the project? E.g., welding in confined areas / offshore, general conditions / field in-directs / prelims, site supervision, scaffolding, site establishment, safety equipment, small tools / consumables, construction equipment & heavy lift cranes as a percentage of TIC.
- ☐ **11. Review allowances**, provisional sums, escalation basis, currency data source / date & profit percentage's.
- ☐ **12. Critique contingency** supporting QRA / Monte Carlo data, risk registrar, freight, vendor assistance, FAT values & spare parts, startup & commission costs.
- ☐ **13. Ask how** the initial fill went and if the catalyst and tower Raschig ring packings were estimated and included in the commissioning spares.
- ☐ **14. Review & evaluate** any construction-related exclusions, assumptions, missing SOW or estimate errors & the need for temporary camps / weather issues.
- ☐ **15. Evaluate EPC Home Office** / Detailed Design, Site Construction Management hourly rates, durations, costs / travel & temporary site allowances.
- ☐ **16. Discuss issues related to state & local government** air / water quality permit approvals, royalties, unique insurance requirements, "Buy American" or other country requirements, local state tax holidays & state relocation grants / incentives.
- ☐ **17. Review any Owner-related cost items** such as long lead M.E. items, oversight, inspection, Owners' contractual T&Cs, such as 45 days or more, payments & cash flow issues.
- ☐ **18. Discuss project challenges & risks with Owners'** senior management (are there any specific issues that could impact the final TIC, such as performance guarantees, LDs, penalty clauses, etc.). Have they worked with this company before? Ask their opinion on what percentage of the DD is completed.
- ☐ **19. Discuss project challenges & risks with EPC** senior management, such as skilled worker shortages, per diems for travelers, overtime, shift work, winter work, extended warranty issues & competing with other major CAPEX projects in general area for available skilled labor & heavy lift cranes / plant hire. Have they worked with this client before? Ask their opinion on what percentage of the DD is completed.
- ☐ **20. Compile & provide a final Benchmark & Validation Report** to Owner with findings / comments & recommendations related to CAPEX estimate. Provide initial findings report in 1 week, final report in 3 weeks.

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