The Owner: his driver is profitability of the production facility

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The different purposes of estimates

Cost estimating is used throughout the opportunity life cycle from identification through to value realisation.

- Prospect screening
- Concept selection
- Economic evaluation
- Establishing budgets
- Contract tendering
- Cost control and reporting

Business decision making
Control
### Project Phases and Estimates

**Scouting Study**
- **Identify & Assess**
- **Estimate Type**: Screening Economics
- **Estimate Purpose**: Budget Control
- **Estimate Accuracy**: +40/-25%

**Feasibility Study**
- **Identify & Assess**
- **Estimate Type**: Screening Economics
- **Estimate Purpose**: Budget Control
- **Estimate Accuracy**: +25/-15%

**Development Plan**
- **Identify & Assess**
- **Estimate Type**: Screening Economics
- **Estimate Purpose**: Budget Control
- **Estimate Accuracy**: +15/-10%

**Front End Engineering**
- **Identify & Assess**
- **Estimate Type**: Screening Economics
- **Estimate Purpose**: Budget Control
- **Estimate Accuracy**: +10/-5%

**Detailed Design**
- **Define**
- **Estimate Type**: Screening Economics
- **Estimate Purpose**: Budget Control

**Procurement**
- **Define**
- **Estimate Type**: Screening Economics
- **Estimate Purpose**: Budget Control

**Construction**
- **Execute**
- **Estimate Type**: Screening Economics
- **Estimate Purpose**: Budget Control

**Hand Over**
- **Operate**
- **Estimate Type**: Screening Economics
- **Estimate Purpose**: Budget Control
Assess and Select in the Upstream industry

Some typical decision for a Deepwater development:
- wet tree vs dry tree?
- included storage?
- production rate
  - Capital recovery vs reservoir management and long term contracts
- export routes
- level of processing
  - Separation of oil and gas (and water) etc
- schedule
  - Are Early Production Facilities economic?
- etc

The tyranny of three:
- Good, quick, cheap
- Balance between cost and availability
Define stage

Some typical decisions driving profitability:

- Sparing
- Line-up
- Material selection
  - Life cycle costs
- Impact of contracting strategies
- Drive type for LNG plants
- Feedback from running plants to future ones

All require a good estimating capability………..
Non-Technical Influences to Cost Estimates – the value of in-house estimating capability

Influences on Cost Estimates:
- Engineering Design Maturity
- Cost Norms
- Budget Quotations
- Market Forces
- Industry Escalation
- Cartels
- 3rd Parties
- Subsurface Maturity
- Execution Strategy
- Efficiency of Project Team
- Risk Assessment
- Legislation
- Country Inflation
- New Technology
- Productivity Improvements
- Standardisation
- Phasing of Work
The value of an in-house capability

- complete cost to owner (total cost is not just the sum of the contracts)
- no single other company can cover the breadth of our business
  - facilities, wells, integrated projects, new country entries, etc
  - importance of cost engineers understanding the business drivers and different agreements with host governments
- independence from design/construction contractors
  - own view on cost so we know what we should be paying
- assessment of risk/contingency is different from the owner perspective
- consistency... (using the same tools and processes gives one less variable in the equation and allows portfolio decision making)
- ...and control
Cost estimating in Shell

• Core competency, being actively grown
  - Upstream and midstream being combined into a single project management services organisation
  - Scale: $800 bln of estimates made in 2005 for business decision making (new opportunities, concept selection alternatives, etc) in upstream and integrated projects level 1, 2 only

• Work hand-in-glove with project and engineering teams, but independent
  - Groups of cost estimators attached to project delivery groups but also small ‘central’ group working on tools, market forecasting etc,

• In house tools for:
  - Deepwater prospect evaluation
  - Upstream level 1 and 2 estimates
  - Midstream and Downstream level 1, 2 and 3 estimates
  - Operating cost estimating
In summary……..

• An internal cost estimating is essential to Shell for
  - Business decision making
  - Control during execution

• This is provided by a semi—-independent Project Management Services group, with some in-house tools

• Skills in this area are critical, as is connection with industry