

# ENGINEERING, PROCUREMENT AND CONSTRUCTION (EPC) PROJECTS

To EPC or not to EPC?

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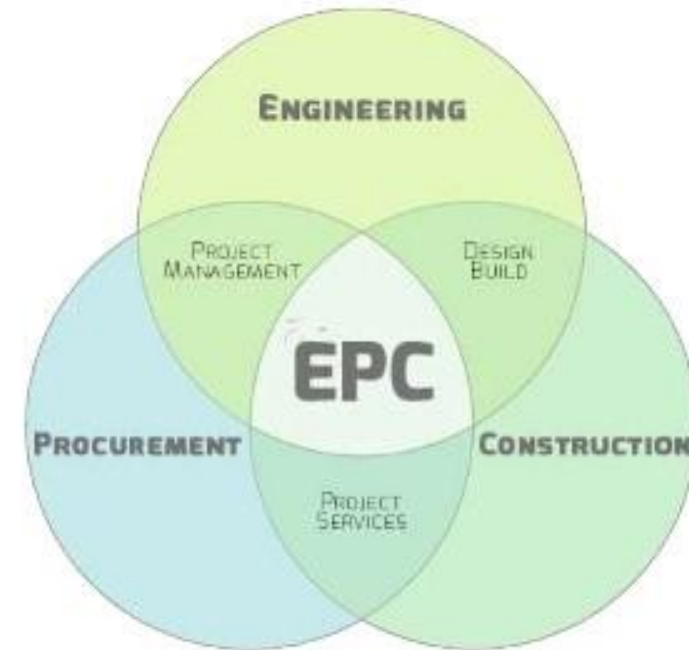
# Summary

1. What is EPC
2. Key Features of an EPC Contract
3. Advantages of EPC
4. Disadvantages of EPC

# 1. What is EPC procurement

## EPC: ENGINEERING, PROCUREMENT, CONSTRUCTION

- “Turnkey” contracts: delivery of a completed project from design;
- Contractor is responsible for Design, Procurement, Construction and Commissioning of a project;
- Typically associated with developing an operating facility (ie: power station)
- Contract contains performance standards the completed facility is required to achieve.



**Figure 1.1** EPC PROPOSAL

# 1. What is EPC procurement

The **Engineering** functions include;

- Basic Engineering
- Detailed Engineering
- Planning
- Construction Engineering

The **Construction** functions include;

- Electrical Installation
- Mechanical Erection
- Civil Engineering

The **Procurement** functions include;

- Logistics & Transport
- Receiving
- Procurement
- Invoicing
- Purchasing

# 1. What is EPC procurement

- In EPC, an employer will provide basic engineering to a contractor and the latter shall perform detailed design based on received basic design.
- In Turnkey, Employer will only provide certain technical specifications of the project and it is the responsibility of the contractor to prepare basic and detail design of the project.
- In turnkey, contractor is responsible to perform construction and commissioning (EPCC), start-up and take over of the plant to employer, but in EPC, it may be the responsibility of other third person to do commissioning and start-up.

The **Commissioning** functions include;

- After-sales-service
- Testing & Commissioning
- Modernization of plants

# 1. What is EPC procurement

## Engineering, Procurement and Construction Contract Structure



Source: Global Intelligence Alliance, ILF Consulting

**Figure 1.2** EPC Structure

## 2. Key Features of an EPC Contract

- Scope of Work & Technical Specifications
- Acceptance & Testing
- Price & Payment
- Delay & Defects
- Suspension & Termination
- Force Majeure

## 2. Key Features of an EPC Contract

- Single point ownership/responsibility
- A fixed completion date
- A fixed completion price
- Procurement responsibilities
- Performance guarantees
- Liquidated damages for both delay and performance
- Security from the contractor and/or its parent
- Caps on liability
- Restrictions on the ability of the contractor to claim extensions of time and additional costs



### 3. Benefits of EPC

- The planning and **collaborative** operation of the overall project
- The limit between working range and responsibility is **clear**
- The total prices and duration of the contract are fixed. This could help **the control of expense and progress**.
- The owner could be **free** from the specific affairs and the pay attention to the important factors influencing the project, finally ensuring the general direction of project management

### 3. Benefits of EPC (cont.)

- Remedies (such as LDs), liability caps and bond amounts are all sized relative to the total cost of the works and thus likely to cover a significant proportion of the owner's losses
- Administrative burdens on the owner are minimised
- The documentation is relatively simple and standardised
- EPC procurement is widely used and understood and is the most "bankable" procurement method

### 3. Disadvantages of EPC

- The control degree is also **low** for the owners
- **The owner transfers the risk to the EPC companies.** So it is important to choose the right EPC companies
- So the cost of EPC companies will be **higher** for the owner.
- The owners of the traditional construction mode will be **more difficult** to understand the works of the EPC companies.

### 3. Disadvantages of EPC (cont.)

- Duration – total construction time may be prolonged by required FEED → EPC sequence
- Capacity/competition – few contractors have the balance sheet capacity to accept (and bond) the risk of large projects on an EPC basis
- Claims – contractors are motivated to make claims to alleviate risk transfer
- Caps – EPC risk transfer is in reality limited by express liability limits and by balance sheet and bonding limitations of contractors