DISPELLING THE MYTHS AND FEARS OF THE EPC CONTRACTING STRATEGY

Any manufacturing or energy company relies on the basics of production efficiency, innovation, cost management and time to market which are the critical factors for achieving a competitive advantage. These companies need to achieve their business strategy, and thus a fast-track capital project is often necessary. When a strategically best method of delivery is chosen for capital construction projects, the companies can guarantee successful business goals anticipated for the project.

In the U.S., there are a variety of project delivery methods in use today. Choosing the appropriate and best method for a capital project is dependent on various factors ranging from budgets, schedule, cash flows, complexity in the projects, risk mitigation and hedging, the team composition and the goals designated for the project.

The traditional way of doing capital projects was by hiring and retaining engineering and project management resources within the manufacturing or energy company. However, in recent years, mostly because of specific market-based issues related to compensation and competition, many manufacturing and energy companies have tended to decrease their in-house capacities and in turn, rely on outside third parties to design and build their capital projects.

Primarily, a project delivery method is a configuration of roles, relationships, responsibilities, and sequences on a project. The fundamental decisions that an owner must consider are what kind of task conveyance strategy to utilize, what will be the contracting strategy and what will the contract look like. The Project delivery process generally involves an owner, engineer/designer and a builder.

The project delivery method may be a combination or hybrid of numerous contractual methods.

The Engineer-Procure-Construct (EPC) project delivery method has risen as a favored choice for some industrial entities and is beginning to pick up support in the manufacturing and energy sectors.

EPC utilizes one entity — a design-build team — and works under a single contract with the owner, to provide design and construction services. This means there is one entity, one contract and one unified flow of work from initial concept through completion. In this delivery method, the EPC contractor handles all the interfaces between engineering teams, equipment and material vendors, and construction teams.

While some clients may perceive EPC as costly, its advantages can mitigate or outweigh those concerns. The first advantage is better use of limited owner resources. This means leveraging the EPC contractor's depth of knowledge and resources in engineering, procurement, construction and construction management, project management, safety, and quality control.

With a single point of responsibility, you can benefit from the EPC contractor's management and coordination of multiple equipment providers, material suppliers, consultants and contractors. This reduces the amount of your owner resources necessary to manage projects.

Single point of responsibility EPC Contracts often also provide owners with certain guarantees on price, schedule and plant performance. While individual process equipment vendors can and often do provide process guarantees and reliability guarantees, their inputs are critical for the guarantee to be effective. For example, in a typical digester to renewable natural gas project, there are three or four critical process equipment suppliers:

1. The digester
2. The biogas conditioning system (H2S removal, dehydration, compression)
3. The CO2 removal process
4. Product Gas Compression

Each of the above equipment suppliers will provide certain guarantees based upon a set of input conditions. These input conditions must be well engineered and designed and properly integrated for the guarantees to be effective. Without an integrated EPC approach, the owner must manage multiple guarantees from multiple equipment suppliers. Under the EPC approach, the EPC contractor undertakes this responsibility of integrating the various inputs and outputs to provide an overall guarantee that satisfies the owners and financiers of projects.

With several EPC options available, a partnered front-end loading (FEL) planning approach to EPC allows for a portion of the design to occur before seeking bids for equipment, materials and construction. This allows the owner to participate in the project definition — to reduce risk transfer as well as benefit from a competitive equipment bidding process.

Another advantage of choosing EPC as the preferred project delivery method can be an expedited schedule. With EPC, many project tasks can take place with overlapping timelines. For example, engineering activities can be completed such as to allow construction to begin sooner; in a more traditional design-bid-build approach, construction cannot begin until detailed design is complete. The time difference on a typical manufacturing or energy project is about 4 to 6 additional months for a design-bid-build approach.

Specifically, in design-bid-build, a time-consuming bid process typically occurs only after detailed design is complete. Under the design-bid-build model, there are a variety of separate contracts such as engineering, equipment vendors, Owner's Engineer, and either a General Contractor, or Construction Manager supervising and administering multiple part prime contacts (foundations, buildings, mechanical, electrical, instrumentation, fire protection, HVAC, etc.

With EPC, the bidding process for equipment, materials and construction can occur earlier in the design phase and conclude before detailed design is complete. Additionally, this EPC process enables an established price — and corresponding certainty to the owner — much earlier in the process.

But these benefits only scratch the surface. Among additional reasons to opt for EPC:

- Improved constructability
- Integrated HS&E throughout the project
- Efficiency (design & construction expertise together)
- Fitness for purpose
- No real alternative for proprietary technology
- Reduced exposure to cost overruns and change orders
- Reduced administrative burden for owner
- Established supplier prequalification process
- Accommodation for many different owner risk profiles
- Clear definition of risks
- Improved communication

It's important to consider all delivery methods before deciding which one is right for you. Each project and project owner will have different requirements and needs, and understanding the nuances is a critical first step. EPC project delivery offers solutions to many problems that owners face. It's worth considering for your next project.

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