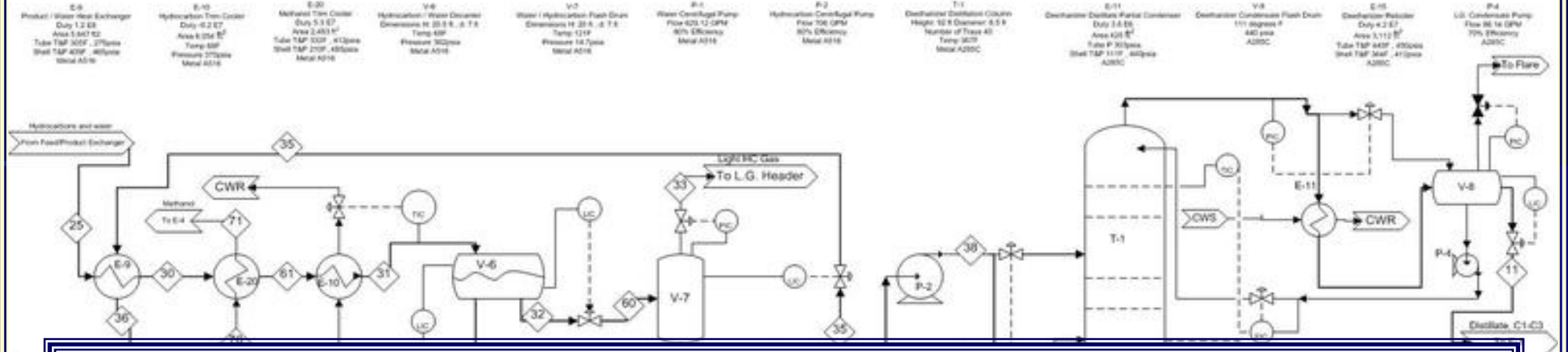


Water and Light Gas Separation



Process Plant Project Delivery Methods: Overview and Key Considerations

Larry Watkins, Esq.

(Draw) 90										(Draw) 90				
CS-(Gen) 90	02	2290.8	2290.8	2290.8	.62	.8	.02	.01	.02	CS-(Gen) 90	2290.8	2290.8	2290.8	.8
(Draw) 90										(Draw) 90				

What Is A Project Delivery Method?

- “‘Project delivery’ refers to the organizational ‘packaging’ of...design, construction, finance, operation, maintenance, and overall risk management” (Bruner and O'Connor on Construction Law, § 2.10).
- Project Delivery Method does not refer to a contract type or pricing structure (e.g. lump sum, unit price, cost plus, or GMP).

Project Delivery Methods & Primary Considerations

Project Delivery Methods

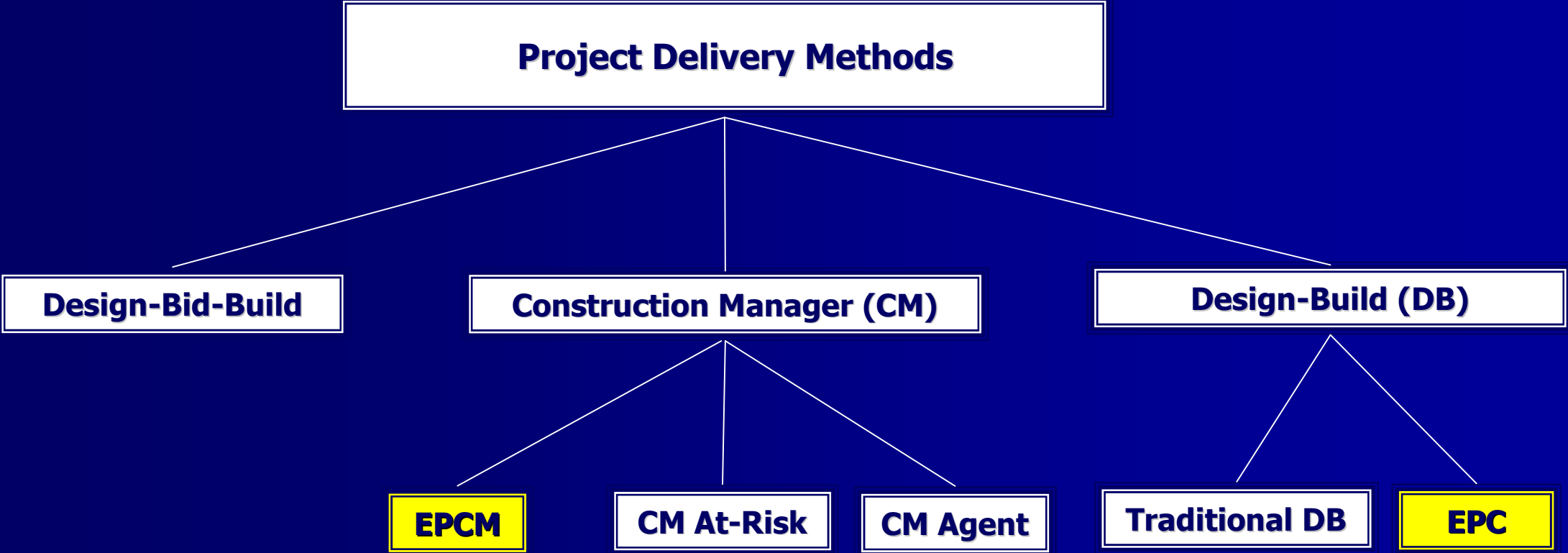
1. Design-Bid-Build
2. Construction Manager (EPCM)
3. Design-Build (EPC)

Key Considerations

1. Time Risk
2. Cost Risk
3. Performance Risk

Project Delivery Methods Relationship Chart

Focus on EPCM and EPC



EPCM is a CM that also provides E & P Consulting

EPC is a DB that also provides a performance guarantee

Project Delivery Methods: Engineering, Procurement, Construction Manager (EPCM)



Project Delivery Methods:

Engineering, Procurement, Construction Manager (EPCM)

Positives:

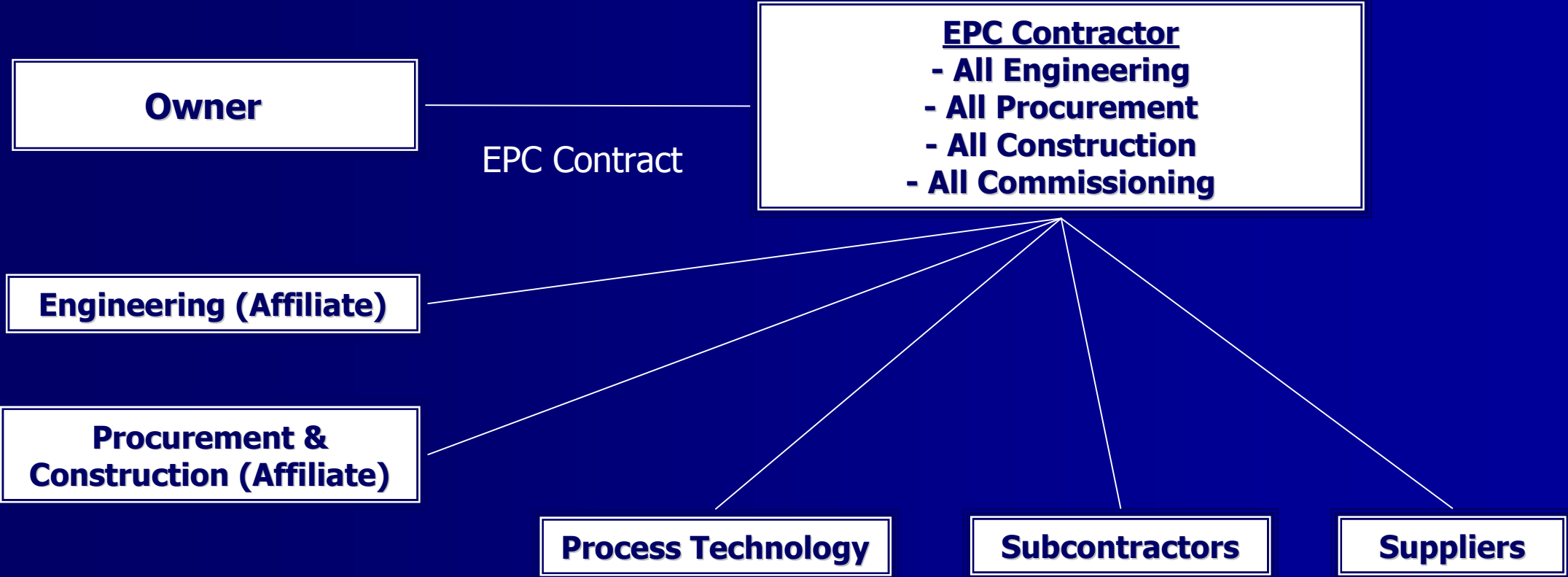
1. EPCM lowers project costs if the Owner takes cost, schedule, dispute, and performance risks (typical for large firms, such as Exxon)
2. EPCM manages and coordinates all design, purchasing & construction as the Owner's agent from concept to operations
3. EPCM allows fast-tracking the project
4. Though EPCM benefits the EPCM firm more than the Owner and arises because the firm has much leverage in a tight market for unique plants, the positive is that such a specialized EPCM usually has extensive experience and success with your unique project type – lowering the risk of a project failure or a performance shortfall

Negatives:

1. EPCM likely has a low limit of design liability, no construction liability, and little or no performance liability.
2. EPCM has little or no liability for increased costs or schedule delays by trades or vendors
3. Owner must have a dedicated project staff (PM, Engineers, Legal) for the duration of the project for contracts, permits, management, and claims
4. Due to the Owner contracting with all parties separately, disputes between the parties are more likely (e.g. design or construction defects)
5. EPCM is *ONLY* a consultant to Owner

Project Delivery Methods:

Engineering, Procurement, Construction (EPC)



Project Delivery Methods:

Engineering, Procurement, Construction (EPC)

Positives:

1. EPC contractor is the sole party responsible for all design, procurement & construction
2. EPC contractor is solely responsible for all costs, schedule, and performance
3. EPC contractor can fast-track
4. EPC contractor provides performance guarantees

Negatives:

1. Owner has little control over design
2. Owner has little control over procurement & construction
3. If owner exerts too much interference, contractor can claim a change in work or no longer be bound to performance guarantees
4. Owner pays a risk premium for performance guarantees, cost & schedule guarantees

Key Considerations:

1) Time Risk; 2) Cost Risk; and 3) Performance Risk

1. Time Risk (Duration & Fixed Date)

- EPCM: Fast-tracking available, but EPCM has low liability for schedule delays. Owner must obligate contractors and suppliers in each contract and actively manage schedule obligations.
- EPC: Fast-tracking is available and there is a schedule guarantee for the fixed completion date.

2. Cost Risk (Overruns)

- EPCM: Typically little or no liability for costs exceeding the estimate. EPCM cannot control or be liable for supplier/trade cost increases. Owner must be pro-active in managing project costs.
- EPC: Fully liable for all cost overruns absent Owner fault. However, this fixed price guarantee will add to the overall contract price as a risk premium.

Key Considerations:

1) Time Risk; 2) Cost Risk; and 3) Performance Risk

Before Considering Performance: What Is a Performance & Guarantee?

- Performance: Efficiency, emissions and output of the plant in terms of quality and quantity
- Performance guarantee: A guarantee by the contractor that the plant will:
 - (a) produce the agreed upon output in terms of quality and quantity (e.g. 100 kt/yr propylene); and
 - (b) meet other specified requirements (e.g. electricity usage, air permit ppm values).
- Performance Liquidated Damages (PLDs): If there is a shortfall in the plant's output, the contractor pays PLDs, which equal the NPV of the total forgone revenues for the life of the project (minus operations expenses).
- The contractor will not provide a PG unless it *designs & builds* the plant.

Key Considerations:

1) Time Risk; 2) Cost Risk; and 3) Performance Risk

3. Performance Risk and Performance Guarantees

- EPCM: The EPCM will not give a PG, but it may be the case that no EPC firm will give a PG either, as is the case with some petrochem projects. The expertise of the EPCM and a diligent Owner's project staff are the best means of assuring plant performance.
- EPC: The only choice if you need a PG. The EPC delivery method was created primarily to provide a performance guarantee, *but* this comes with a large mark-up.

Conclusions

- In short, EPCM and EPC are the best delivery methods for process plants. Both firms have specialized design, procurement, and construction experience. Assuming the Owner using EPCM has a robust project staff and assuming that EPC is an available option, here is the Owner's most important trade-off:

EPCM Delivery

Lower Costs *without*
Guarantees for Cost,
Schedule & Performance

Versus

EPC Delivery

Higher Costs *with*
Guarantees for Cost,
Schedule & Performance

- At the end of the day, your selecting the best Project Delivery Method for your process plant, whether EPC or EPCM, will mitigate performance shortfalls, schedule delays, cost overruns, and, thus, will decrease economic losses and change orders, which only benefit the contractor.
- As an example, Exhibit A to this presentation illustrates the contractor's profit perspective on the original contract versus change orders:

Exhibit A: Contractor's Profit Perspective – Original Contract Versus Change Orders



Thank you!



*The information in this article does not constitute legal advice and is for general educational purposes only. This article is provided only as a public service to the web community. The contents of this article should not be used as a substitute for obtaining legal advice from an attorney licensed or authorized to practice law in your jurisdiction. You should always consult a qualified attorney regarding any specific legal matter.

**Key Words: Construction Contracts; Construction Law; Arkansas Construction Contracts; Contractor Liens; Construction Liens; Subcontractor Liens; Supplier Liens; Vendor Liens; Arkansas Liens; Liens in Arkansas; Construction Dispute; Construction Litigation; Project Delivery Methods; EPC; EPCM; CM; Engineering Procurement Construction; Engineering Procurement Construction Manager; Design-bid-build; Design-build; Lump Sum Turnkey.