Contracting Strategies

by
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Contracting Strategies

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Some Definitions and Contracting Alternatives

- Reimbursable or Lump Sum Services – E, P, Cm – numerous variations - no construction
- Lump Sum Services + Procurement – includes services and materials and equipment as a lump sum – no construction
- Lump Sum Construction – EP Services executed by others - 'traditional' construction approach
- Unit Rate Construction – Construction provided on a unit rate basis – quantities provided by the engineer – Engineering and procurement services by others
- Target Price – can be used with services and/or construction – risk / reward mechanism

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Some Definitions and Contracting Alternatives

- EPC Reimbursable – work conducted in all phases on a reimbursable basis or $/manhour
- EPC Lump Sum – Lump Sum services, procurement of equipment and materials and construction - Bid at the time of FEED completion
- LSTK – EPC Lump Sum Turn Key - takes the project through to commissioning ready to ‘turn the key’
- CLS – Converted Lump Sum – Lump Sum after X% Engineering is completed

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Factors Affecting Contracting Strategies

- Schedule – Is the Owner schedule driven to bring the project on stream? - each contract approach consumes different bid and award time
- Cost Certainty or Cost Predictability – What is the Owners need to obtain cost certainty going forward and when that is needed?
- Risk – What is the willingness of Owner to accept risk? or the Owner's desire to shift this to the Contractor?
- Scope of Work – Has the Owner being able to 'freeze' the scope or is more development needed?

Factors Affecting Contracting Strategies

- Contractor Availability – fewer contractors are able to execute Lump Sum either EPC or Construction only. Is the Owner willing to accept reimbursable contracts?
- Competing Projects – A 'Hot market' may restrict the options available to the Owner – Does the owner have some flexibility in contracting approaches to meet market conditions?
- Owner Resources – each alternative requires a different involvement of the Owner – Does the Owner have a lump Sum mentality?

Contracting Market in Alberta

- There are only a few large Construction Contractors (Kiewit, PCL, KBR) in Alberta able to execute major construction packages - >$250 million is problematic
- Few major Construction Contractors will offer LS in Fort McMurray – labour availability being the most significant risk
- Some of the majors may be willing to offer unit rates if the labour availability risk is assumed by the Owner
- There are several smaller contractors willing to accept LS execution however this is for project work in a range of $20 to $50 million

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Contracting Market in Alberta

- There are several international EPC LS contractors now located in Calgary - Snamprogetti, Technip, Toyo as well as some Chinese and Korean firms anxious to enter the market
- SNC-Lavalin is the only Canadian firm that has executed EPC LS projects in Alberta as well as EPCm
- There are numerous international engineering services companies such as Bantrel, Fluor, Jacobs, WorleyParsons, Wood Group and others offering EPCm services - some of these firms will offer EPC Reimbursable work but not Lump Sum construction
- There are also numerous smaller EPCm firms with <300 employees able to provide these services also

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Contracting Market in Alberta

- Most *engineering* work in Alberta is executed on a *reimbursable basis* or a slight variation
- *Construction* is also *reimbursable* in Alberta especially Fort McMurray (Tucker Lake in Cold Lake was an exception and the first EPC LS maybe ever for a SAGD)
- *Commercial construction* activities are *mostly LS* meaning bids are solicited after most of the engineering is complete and a firm price is provided
- *Civil Construction* work is many times *unit rate*
- *LS EPC* is *rare* in Alberta but common in most international work. LS firm price is provided at the end of FEED when engineering is only partially complete ! (Husky Tucker Lake was bid this way)

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Other Comments?

- Desire of Client to have *cost certainty.* Also *cost predictability* is 'your almost certain' or feel you have a better idea of the final cost'
- Risk profile – more LS more Risk – is the Client willing to pay. *Risk is far greater at the end of FEED.*
- Risks should be allocated to parties who are best able to accept it an have an incentive to control it
- There are few EC in Alberta that have the desire or ability to execute EPC LS. More international companies are willing to consider it – Koreans, Europeans and only one Canadian (SNC-Lavalin)

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Vertical Construction Contracting

- Packages are issued by the Owner (typically through the engineering firm retained by the Owner) for a construction package consisting of civil, structural, architectural, mechanical, electrical and control trades.
- This work is typically led by the Mechanical Contractor with subcontracts for the other trades
- Typically the interface management is internally managed by the mechanical contractor

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Horizontal Construction Contacting

- Packages are issued by the Owner (typically through the engineering firm retained by the Owner) for a single discipline or trade
- This means that an independent civil package is issued for excavation and foundation work
- Another separate package is issued for the mechanical work and so on
- This requires the Owner to assume the integration between the disciplines

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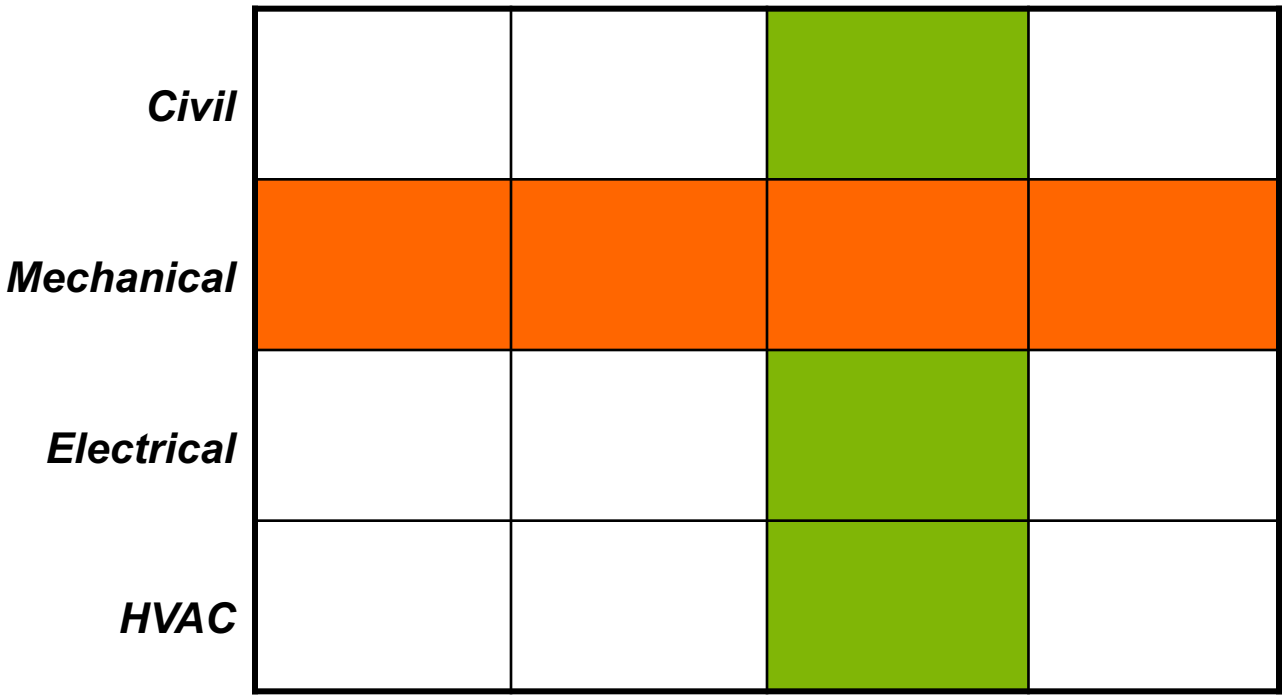
Vertical vs. Horizontal Contracting Construction

Vertical Contracting uses General Contractors and may break the work into smaller pieces

Horizontal Contracting uses Multiple Specialty Contractors



Source: George Jergeas, University of Calgary

Vertical vs. Horizontal EPC Packages

- For major/mega capital projects wishing to conduct EPC execution either reimbursable or lump sum a decision needs to be taken to vertically or horizontally execute the work
- Vertical is the EPC activities for a single project or a package of a larger multi-billion dollar project. The Owner contracts with the firm to provide all of the services for the package that is either a reimbursable or lump sum – engineering, procurement and construction
- The Contractor is then responsible for all of the interfaces

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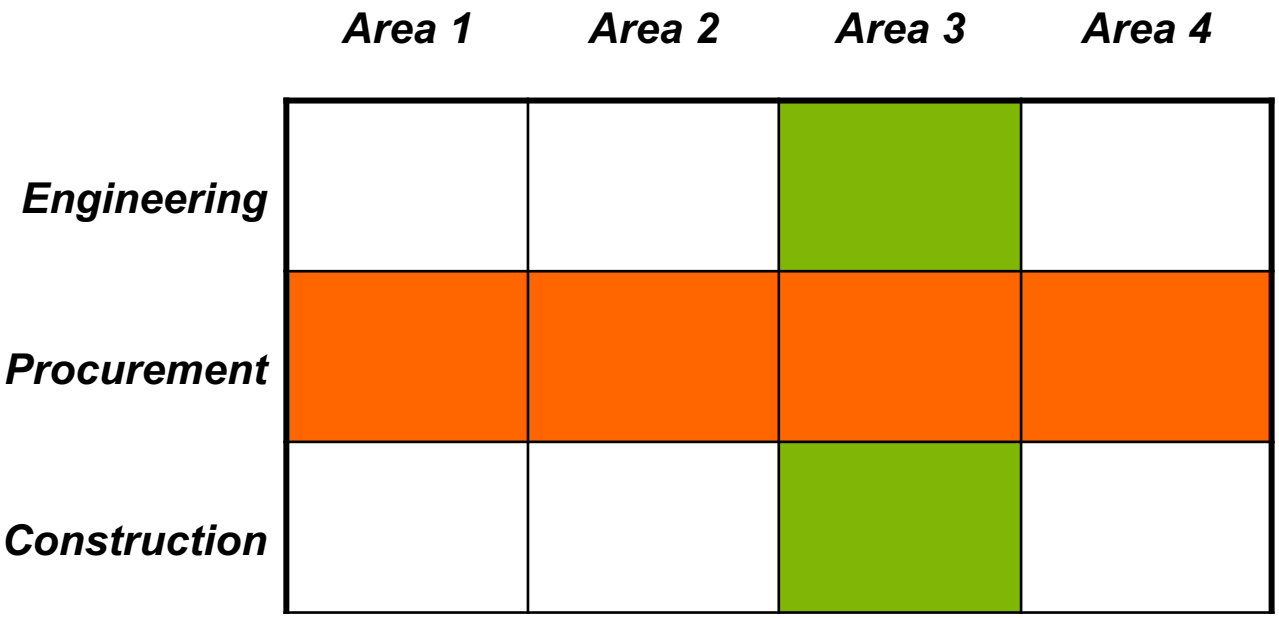
Vertical vs. Horizontal EPC Packages

- The horizontal execution is based on the Owner awarding engineering services for the single project or a multiple areas to one engineering firm
- The Owner must then ensure there is integration across all packages and between the engineering, procurement and construction contractor
- A simplistic representation is made in next slide

Vertical vs. Horizontal Contracting Engineering Packages

Example: CNRL Horizon several variations i.e. : EPC LS, EP LS, EPCm, EPCmR

Vertical Contracting by Area/Unit including Engineering, Procurement and Construction with variations



Horizontal Contracting by Engineering Procurement Construction

Example: Suncor Millennium and Syncrude UE-1

This applies primarily to 'mega' projects

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Vertical vs. Horizontal EPC Packages

- The following slide is an animated depiction of the vertical and horizontal options
- An added twist is the addition of a Project Management Contractor or PMC
- The PMC is acting on behalf of the owner to execute the FEED ensuring consistency and standardization across the project
- In the EPC Phase the PMC is the integrator and Interface Manager. This can be further enhanced if the Utilities and Offsites package is undertaken by the PMC

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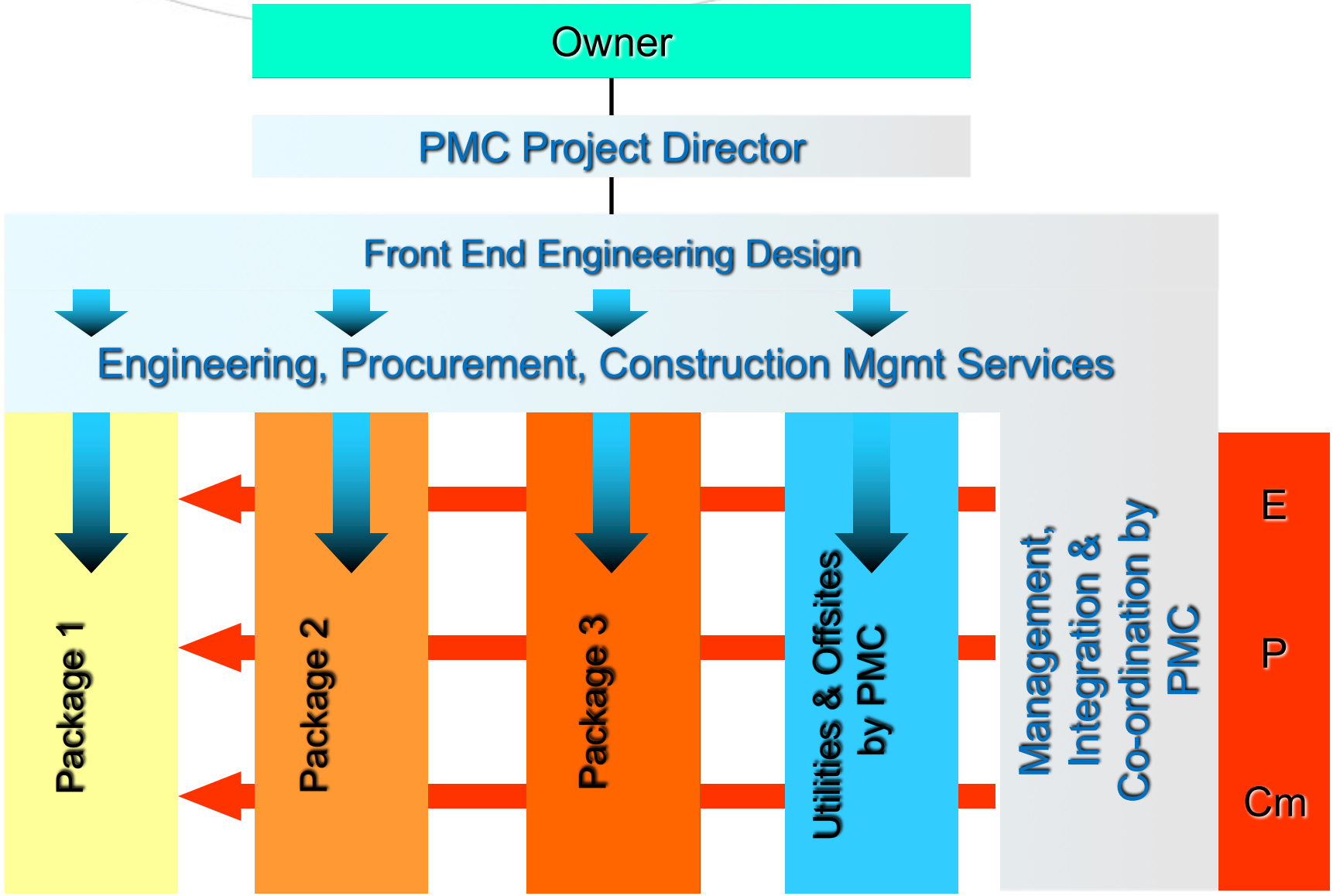
Packaging for a Project



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Vertical Packaging

Advantages

- Seamless integration between E, P, C activities
- Better management of materials within the silo
- Manageable work package size to meet market conditions
- Multiple bidders
- Success is within contractors control

Disadvantages

- Requires integration between packages
- Too many packages creates too many interfaces
- Owner or PMC team needs to provide separate teams for each package

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Horizontal Packaging

Advantages

- Consistency of engineering between packages
- Procurement may be able to obtain better pricing with increased quantities
- Sharing of resources between packages

Disadvantages

- Requires significant integration efforts by Owner between E, P, and C
- Horizontal work may be too large for one Engineering contractor hence requiring more interfaces
- If delays occur they could impact all packages
- Less accountability – more blame
- Fewer contractors available

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Contract Types

Critical Factors	EPCm – Cost Reimbursable	LSEP	LS - /EPC	Converted LS	Target Price-Plus
Project Size	All	Small/Med	All	All	Small/Med
Hot Market	Most Common	Common	Least Common	Common	Common
Soft Market	Common	Common	Most Common	Common	Common
Contract Preparation & Pre Award Activities	Low	High	High	Low	Med
Schedule Over-run	High	High	Low	Low	Low
Schedule Savings	Low	Low	Low	High	High
Cost Certainty	Low	Med	High	High	Med
Client Input	Highest	High	Low	Med	Med
Relationship with client	Master/Slave	Defined	Defined	Collaborative	Collaborative
Preferential Engineering	Highest	Low	Low	Med	Med
Risk Perception	Client Only	Shared	Contractor Only	Shared	Shared
Overall Project Cost	High	Med	High	Low	Low
Client Risk Sharing	High	Med	Low	Med	Med

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