Overview of Success Factors

A robust contracting strategy that allocates project risks among contract parties in a reasonable fashion is a key driver of good project performance.

A good example in the civil and transportation sector is Infrastructure Ontario’s Alternative Financing and Procurement (AFP) program, which has delivered over 70% of its projects on time and budget using the Public-Private Partnership (P3) model.

Under the P3 “design-build-finance-operate” delivery model, major risks (such as schedule, productivity or quality risks) are identified upfront and transferred to capable private sector developers and contractors – thereby promoting innovation and reducing costs through value engineering. Specialist advisors are heavily involved from the early stages of project planning to ensure that a robust contracting framework is put in place.

Historically, project performance in the hydro power industry has been lacking. A 2014 study, which analyzed data over a 70 year period, concluded the cost of 245 large hydro dam projects in 65 countries escalated by an average of 90 percent.¹

The nuclear industry is also plagued with poor performance on new builds and refurbishments. In the U.S., Georgia Power started building its Vogtle nuclear reactors in 2009, with expected completion projected for 2016. After several delays, completion is now forecasted in 2022. Costs escalated from US$14 B to almost US$26 B during that period.²

Frequent drivers for lower than planned performance can include:

1. Contracts that transfer little or no construction schedule risk, driving lower upfront prices that inform optimistic budgets and returns that are not attainable.
2. Risks transferred to the wrong party (e.g. an equipment supplier taking on construction risk).
3. A low bid procurement model where contractors put forward aggressive schedules that imply lower overall project cost but lead to change orders or claims.
4. A lack of independent advisor scrutiny on the business case through the planning phases and lack of independent oversight through execution.

Six Steps for Developing a Contracting Strategy

1. Bundling of projects or contract packages according to their distinct scopes of work.
2. Identifying project risks and deciding what will be borne by the owner vs. the contractor.
3. Selecting a delivery method (Design Build Finance, Design Build, or Bid Build) for each bundle.
4. Identifying contract packages and selecting a form of contract (Unit Price, Lump Sum, Cost+, or Hybrid).
5. Establishing bid evaluation criteria that enables a fair and realistic final award price.
6. Retaining independent advisory teams to perform sound checks on the above process.

¹ “Should we build more large dams? The actual costs of hydro power development” (B. Flyvbjerg, Ansar, Budzier, Lunn)
² “Plant Vogtle on track after schedule revised” (W. Brown, The Augusta Chronicle)
Contract types and lessons learned

Reimbursable contracts (such as EPCM or Cost Plus contracts) typically produce lower upfront bid prices, and therefore seem to yield higher project returns on investment. Risks associated with these contracts (such as man-hour overages) are high and often not accurately reflected in the project’s financial model. In situations where contractors are tempted to take advantage of the terms by “burning” hours to increase revenues and margins, owners have resorted to:

A. Target cost and pain/gain mechanisms.
B. Penalties or liquidated damages associated to delayed schedule milestones.

These are adequate risk transfer mechanisms, however they need to be sizable and meaningful. Strong incentives for schedule performance or high quality are strongly recommended.

When scope is highly uncertain and schedule is driven by operational constraints, reimbursable or cost plus contracts can be used (coupled with adequate risk transfer mechanisms). E.g., in a target cost contract, exceeding the target cost should affect payment of a portion of direct costs and not just overheads or profit. Independent reviews and cost audits are very helpful to identify and mitigate such risks of overruns, preventing incorrect billing.

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Most successful energy projects utilize a hybrid delivery model, with a combination of contract forms that are different for various areas of scope. For example the price to cover indirect costs and overheads could be fixed, the price for materials and equipment could be a price per unit, and the price for labour could be cost at an agreed rate per hour (reimbursable) with a target cost for labour and a pain/gain mechanism.

Lump Sum or turnkey (EPC) contracts should be used mostly on highly specialized projects, typically with only one general contractor involved and a heavy equipment supply component. Smaller organizations should consider this form of contract if they do not want to deploy a larger team of in-house project staff. However, if the scope is not well defined, costs will grow as scope changes accumulate. Contractors are not normally required to report on actual (incurred) costs resulting in less visibility for the owner around root causes of cost or schedule variances. Further, commercial interests may misalign due to contractors trying to cut costs by reducing quality, and owners enforcing the contract unreasonably given the lack of visibility. This form of contract often promotes less owner-contractor collaboration.

Unit price contracts are in the middle of the spectrum when it comes to risk transfer levels. Costs can escalate, but task (item) prices are fixed per unit, which limits the owner’s exposure to cost overruns and schedule delays. Unit price contracts are also not applicable to every situation as they require upfront time and investment to produce detailed designs, and bills of quantities. In addition, these contracts also don’t offer good visibility into actual costs per item, since contractors can distribute the costs among different items in the bid form to maximize their cash flow.

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Above all, project executives and Boards of Directors should recognize the need to pay the right price for on time/on budget delivery, and avoid a lowest bid procurement model.

Owners should always ensure contractors remain profitable and can deliver quality, through fair and prudent contract procurement and administration.

Contact us

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