



September 2009



Carmagen. All the right people in all the right places.SM

Effective Lump Sum Contracting

By Robert J. Heinzman

Many project management professionals believe that properly administered engineering, procurement and construction contracts awarded as the result of competitive lump sum bidding can save an owner up to 10 percent vs. reimbursable cost contracts when market conditions are favorable for lump sum. This has been proven in an examination of contract performance over the last century. But ... and there are a few significant "buts" ... the market conditions must enable the assembly of a competitive slate of qualified bidders committed to the lump sum, and the bidding development, commercial and technical bid conditioning review, contract award, and the administration of the contract must be done in a professional manner.

Timing

Along with the potential savings, there is an offsetting potential debit for the lump sum project. Whereas for a reimbursable cost contract in which the contractor would usually begin detailed engineering from a preliminary or incomplete set of specifications, for the lump sum case the contract work will not start until the contractor has done sufficient detailed engineering to prepare a lump sum estimate for his bid. The owner likewise requires time for the review of two or more proposals and the subsequent negotiations of contract price and completion schedule. The net result could be an overall delay in project completion of six to nine months.

Definition

Job specifications for lump sum work must be sufficiently complete in the detail necessary for the bidder to prepare cost estimates and completion schedules to submit a firm price for the work. With the exception of vendor-supplied equipment, the bidder must estimate material quantities and then obtain prices for the materials and labor in order to estimate the cost for all of the work. This usually requires the performance of enough detailed engineering during the preparation of the proposal in order to estimate the materials and labor needed to install the vendor-supplied equipment and materials.

If the specifications are incomplete or otherwise ambiguous and the bidder is unable to obtain necessary clarifications to adjust the bid price, the bidder might hope that change orders could be awarded later to incorporate the contentious work in the contract price. For this reason, bidders usually include some allowances (i.e., contingency) in their bid price to cover cost elements that are not definable at the time of proposal preparation. Obviously, if the allowances are not high enough to cover the undefined costs, the contractor could be risking an overrun. Conversely, if the allowances are too high, the work would probably be awarded to others.

Work Highlights

Fired Equipment



Reviewed the design and operation of several

fired heaters located at a Oil Sands upgrading facility for their suitability for increased capacity and improved operations. Work also involved simulating the heater designs and investigating various alternate operating scenarios and conditions.

Reliability & Maintenance



Provided planning and implementation consulting

support for a Fluid Coker unit turnaround (T/A) done at a Oil Sands Upgrading facility located in Canada during a 9+ month onsite assignment. Significant work done during the T/A involved making major modifications to the Reactor internals that were designed to increase yields and overall unit production. Several recommendations regarding engineering design and construction details and implementation procedures were made during this assignment that resulted in significant time and cost savings during the T/A.

While the bidders are preparing proposals, the owner's team would usually be preparing a bid check estimate. In effect, the owner will be submitting its own proposal to compete with that of the bidders, but more importantly the bid check estimate can be a tool for evaluating the bidders' proposals.

Risks

Unlike a contract on a reimbursable cost basis wherein the intent is that the contractor be compensated for virtually all costs incurred, for a lump sum contract the contractor receives only the contract price that was bid or otherwise negotiated upon contract award, plus any adjustments for changes in accordance with the contract. Obviously, if the contractor can do the work for less than the lump sum price and still meet the specification criteria, he stands to profit. Conversely, if he spends more than the contract price, he experiences a loss. For this reason, some contractors are unwilling to take the risk of a lump sum contract, particularly if they lack the confidence that there is sufficient detail in the work scope or that their planning and execution in the projected marketplace would enable them to do the work within their cost estimate.

Marketplace

When contractors are busy, their shops are loaded with reimbursable cost work that could cover their costs and yield a reasonable profit and if they have future backlog work, they are more likely to pass up opportunities for lump sum bidding. Although an active marketplace could provide a contractor the opportunity to train the less experienced members of their staffs and thus prepare for the next market surge, it is more likely that, during such periods, owners could find it difficult to assemble a lump sum bid slate of qualified contractors.

Administration

Under a reimbursable cost regime, the owners' project management teams monitor the contractors' cost, schedule, and technical performance, seeking to obtain quality performance at a reasonable cost. Incentives are often offered to reduce cost, improve technical quality, and to maintain and improve schedule.

However, it is different for a lump sum contract. The contractor is, in effect, working with his own money. The portion of the lump sum price that is not spent is, in fact, the contractor's profit. Conversely, if the lump sum price is not large enough, the contractor could lose money, unless he can justify, and the owner agrees to authorize, changes to cover work that is considered beyond that authorized in the contract.

The owners' project management teams, in monitoring contractors' work under a lump sum contract, will usually focus their efforts on technical quality, to assure that the contractor is providing the goods and services that are required under the contract. Incentive plans covering completion schedules are often included in an endeavor to maintain a consistency between owner and contractor objectives. The lump sum arrangement does in fact provide the contractor with an incentive to perform in a timely manner. But in addition to achieving a stipulated completion schedule, there are numerous interim activities that are of value to the owner for which the owner would be willing to pay a premium to attain. For this reason, the owner often negotiates a separate agreement or amendment to the contract to reward the contractor for achieving a better result.

Summary

In summary, contracts awarded by competitive lump sum bidding can be beneficial for an owner, provided that the work can be well defined, there is sufficient time in the schedule to allow for longer contracting activities, and the marketplace is favorable for taking the increased lump sum risks.

Robert Heinzman has over 50 years experience in the development and management of major capital projects for the process industry. Specific expertise at management/supervisory and working level roles includes project management/engineering, contracting/subcontracting, project execution planning, cost engineering/control, construction management/engineering, schedule engineering/control. Please contact Vince Carucci (vcarucci@carmagen.com) if you'd like more information on Carmagen's project management expertise.

Upcoming: Turnaround Mini-Conference being offered at Carmagen's facility.

Do you know what the 12 commandments for achieving successful turnarounds are? We do.

For details, [click here](#).

Would you like more information about Carmagen?
Please visit our website at www.carmagen.com.

