



Proposed Alternative Mechanisms to Award Works Contracts

INTRODUCTION

The international consulting engineering community is publically judged by the performance of the world's physical or built infrastructure. While responsible for the design of this infrastructure, the actual construction work is usually performed by contractors. Successful construction is dependent on implementation of the engineers' designs into the completed project. Critical to achieving this success is the method used to select and award work to construction contractors. The purpose of this paper is to identify alternative best practice contractor selection methodologies that can be applied world-wide, depending on the complexity of the project and the procurement and technical sophistication and capacity of the procuring entity.

FIDIC has just completed a survey of its world-wide member associations and multilateral development banks (MDBs), to better understand the current contracting practices used and how successful they are. The result uncovered a need for change.

Some of the notable survey results are:

1. Most countries have separate procurement laws for construction work.
2. Advertising in public sources is commonly done.
3. Almost all require some sort of qualifications and technical proposals.
4. For countries, slight majorities prequalify/short list firms and less than one-half require technical proposals and don't consider sustainability, long-term performance and operational cost in decisions.
5. For MDBs, short listing based on qualifications and evaluation of technical proposals is required.
6. Nearly 60% of countries do not award contracts based on quality and price, with low bid being used in nearly 40%.
7. It was almost unanimous that low bids are a problem, causing overruns, scheduling problems, disputes, and contract terminations and do not serve owners, contractors, or the public.
8. All agreed that low bids have a negative effect on relationships.
9. Over 75% stated that low bids increase engineering costs.
10. The majority (61%) want FIDIC to produce a Best Practice Guideline for awarding work to contractors, with another 31% preferring FIDIC generate a policy paper.

Under the low bid method, the construction firm submitting the lowest bid receives the right to the construction contract. Its perceived advantage is that it forces contractors to continuously try to lower costs by adopting cost-saving technological and managerial innovations. These savings are then passed to the owner through the competitive process. An owner runs a significant risk of selecting a contractor that has either accidentally or deliberately submitted an unrealistically low price. A contractor cannot adhere to such a price and at the same time expect to complete the project according to plans and specifications, and also make a reasonable profit. This often results in the contractor generating excessive claims and disputes during construction that lead to litigation, schedule delays, compromises in quality, increased costs, and sometimes defaults.



Attempts by owners to mitigate artificially low bids and recommended alternative contractor selection approaches have included:

1. Prequalification and short listing, based on the well-defined criteria, in order to limit the number of bidders and thereby the pressure for a contractor not to submit unrealistically low bids or not bid at all.
2. Using a realistic approach to find a reasonable bid (suitable to the local situations & environment) that should reflect reality and not misunderstanding, errors, or desperation.
3. Requiring and evaluating project specific Technical Proposals, along with Cost Proposals, in order to understand an offeror's approach and select the "best value" offer.

PREQUALIFICATION AND SHORTLISTING OF CONTRACTORS

Limiting the number of bidders increases the probability of any one bidder being able to win the work. While this encourages the firms short listed to submit bids, it does not eliminate the potential for mistakes or desperate offerors to submit artificially low bids. The shortlisting criteria given below are meant to determine most appropriate bidders from amongst the prospective bidders.

For effective prequalification and shortlisting process, a well-structured Expression of Interest (EoI) is to be widely published. The criteria for prequalification and evaluating the submissions have to be clearly spelled out in the EoI. Shortlisting should limit the number of firms to those with distinctly superior qualifications.

The shortlisting criteria should generally include the following:

1. Company details, history & commitments
 - 1.1 Details of work performed as Prime Contractor for last 5 years
 - 1.2 Details of Projects Completed (similar nature and in same geographical area) over the previous 5 years
 - 1.3 Details of the current projects of similar nature under execution.
2. Plant & equipment, personnel & sub-contractors
 - 2.1 Major items of Contractor's Equipment proposed for carrying out the Works.
 - 2.2 Qualifications and experience of key personnel proposed for administration and execution of the Contract.
3. Financial details & legal status
 - 3.1 Financial references of the Offerors main Bank
 - 3.2 Current financial details (attach financial statements & profit/loss statements for the previous 5 years)
 - 3.3 Details of current litigation involvement
4. Reference checks from the clients of the completed projects to know the Contractors performance including any litigation history.



RECOMMENDED CONTRACTOR SELECTION APPROACH

Once the Contractors are shortlisted/prequalified on the basis of a pre-determined criteria as discussed above, it is assumed that the shortlisted Contractors are qualified enough to execute the projects.

The possible approaches of selection of Contractor could be grouped under three main broad criteria with sub-groupings under each approach:

- Lowest Workable Cost Approach.
 - Selection based on Average Bid approach,
 - Selection based on the Contract price closest to the average bid price after elimination of abnormally low & high bidders and
 - Selection based on Lowest Reasonable Cost
- Cost and Quality Approach (weightage of technical and cost score applied).
 - Selection Based on Technical and Cost Scores and
 - Selection Based on Best Value Approach
- Quality Approach (selection based on highest technical score).
 - QBS method as per the Associated General Contractors of America and
 - Selection Based on the Highest Technical/Performance Score Established on Owner's Budget

A. Lowest Workable Cost Approach (this approach is to identify an appropriate bidder with reasonable cost):

1. **Selection based on Average Bid approach:** This could be a simple as using the 'average bid', arithmetic average approach. The process is to calculate the arithmetic average bid price of the bids and award the contract to a bidder whose bid price is nearest to the average bid price.
For example, if the bid prices are 82,250, 84,650, 86,250, 88,950 and 90,150 respectively, then the average bid price is 86,450. The award goes to the bidder whose bid price is 86,250, as this price is the nearest to the average bid price.
2. **Selection based on the Contract price closest to the average of bid price after elimination of abnormally low & high bidders:** Once the bids are opened, the financial bids of the technically qualified bidders are compared. The bidders whose bid price are beyond the +/- 10% than the average bid price are rejected. The lowest of the remaining bids is considered for award. See example as below:

Firm	Bid price	Average bid price	Range of +/- 10%	Rejection	Rank	
A	100,000	99,666	89,699 – 109,632		03	
B	110,000			Beyond range		
C	90,000					01
D	85,000			Beyond range		
E	115,000			Beyond range		
F	98,000					02

This selection process would be ideal for non-complex projects and procuring entities with minimal procurement and technical sophistication and capacity. But the process of above



evaluation and comparison of bids has to be clearly specified in the bidding documents in the Bid Data Sheet (BDS) (under relevant chapters) so that the prospective bidders are well aware of the evaluation technique.

3. Selection based on Lowest Reasonable Cost

For non-complex projects and procuring entities with minimal procurement and technical sophistication and capacity, this two-step approach to the procurement of a construction contractor retains the benefits of prequalification and shortlisting. The first step is to solicit offerors to provide qualifications to do the work based on the type of project, location, schedule, and other criteria/factors that allow the potential offerors to determine if they can do the work and are likely to win the contract. The offerors submit relatively inexpensive, but responsive qualifications submittals and back up information, including information on example projects and appropriate contacts, to verify performance.

Based upon the qualifications packages received, the owner identifies the offerors that have the capabilities, resources, experience, reputation, local knowledge, and other attributes that should lead to a successful project completion. If the number of qualified offerors is too large to encourage competitors to remain engaged in the procurement (low probability of winning), the owner ranks the qualified offerors based on pre-established scoring of the criteria. If there is a natural break in the scoring of the top 3-5 offerors, these become the short list. If the natural break in scores is higher, the list can be expanded. Minimizing the number of offerors avoids unnecessarily burdening offerors with proposal costs that probably will not result in winning the work and controlling the owner's internal procurement process costs.

The second step is to request cost proposals for the specific project from the short listed offerors. The cost proposals are analyzed to identify artificially low or high bids and then an offeror is selected based on the lowest cost or the closest to the average cost (as discussed earlier in this paper) of the proposals.

B. Cost and Quality Approach (weightage of technical and cost score applied):

1. **Selection Based on Technical and Cost Scores** - For more complex projects and more sophisticated procuring entities, a methodology that balances technical capabilities, project approach, and proposed cost of the offerors is sought. It is to request technical and cost proposals for the specific project from the short listed bidders. Included in the request for proposals would be a preliminary scope of services (terms of reference) and the evaluation criteria and scoring for the technical and cost proposals.

The performance requirements and other fixed portions of the scope of services should be identified, with innovation and changes to the scope encouraged. The contents of the Technical Proposal should address the offeror's approach to meeting all of the challenges and requirements of the project. The performance requirements shall be considered while ranking the bids and shall include any specialized input of resources to complete the project, along with lesser cost and time, proposed risk management and mitigation plan, protection



of social and environmental standards, safety standards, adoption of environment friendly construction techniques, etc.

The Technical Proposals are then evaluated and scored based on pre-established criteria. A table of scores is established and, based on natural divisions in score totals, the procuring entity can retain all offerors or further limit the selection to those offerors over a certain achieved score. Once the technical scores are established, the Cost Proposals of the remaining offerors are evaluated and scored. The procuring entity then decides which offeror provides the best combination of capabilities, approach, and cost. Often a weighting of technical and cost scores is applied. To truly value the technical aspects of projects the weighting of the technical score should be at least 80% of the total score.

The selection criteria for technical and cost scores shall be clearly specified in the bidding documents in the BDS (under relevant chapters) so that the prospective bidders are well aware of the evaluation technique being used.

2. **Selection Based on Best Value Approach** - The Best Value Bidder is selected after given due weightage to the four factors (price, project capability, risk assessment plan, and value added plan). The Bidders document shall include these four factors.

The final selection modality is similar to quality and cost value approach. The good thing in this approach is that the best two or three bidders are interviewed before the final ranking is prepared. The quality/price weighting can vary, with at least 80/20 recommended. The recommended weightage of Interviews is 30%, Project capability 15%, Risk Assessment Plan 20% and Added Value Plan 15%.

C. **Selection based on Quality Approach (selection based on highest technical score)**

1. **QBS method as per the Associated General Contractors of America:** Here QBS creates a focus on quality and value only, not price. The most qualified vendor is selected on the basis of demonstrated competence, project approach, and ability to perform only. Criteria, like experience and past performance of the firm and the key individuals, capacity, financial strength, management plan, safety plan, quality assurance plans, are considered while ranking the bids/proposals.

The agency head/procurement head shall negotiate final scope and cost with the highest qualified firm at a compensation which the agency head determines is fair and reasonable.

2. **Selection Based on the Highest Technical/Performance Score Established on Owner's Budget** - For procuring entities with full technical and procurement capabilities and capacity, wishing to achieve the most project performance within an established budget, an alternative best practice is offered here. It is to request technical proposals, based on the provided scope of services and project budget (cost and schedule). In addition to the offeror's approach to accomplishing the project, the offeror is asked to identify what scope and performance requirements can be completed within the budget identified by the owner and what cannot be done and should be deferred. If all scope and performance requirements can be completed within budgeted cost and schedule restraints, the offeror should identify



proposed additional enhancements or improvements that can be obtained without adding cost or time. The owner should identify whether cost or schedule is dominant in their decision making and if the offeror can adjust either to better the project value delivered.

PROS AND CONS OF ALTERNATIVES

While the alternatives identified basically combine the best attributes of the mitigating approaches being explored by many owners, they present certain benefits and challenges to the owner, and therefore to FIDIC, in developing a best practice. The **benefits** include:

1. Ascertaining the best value to the owner.
2. Avoiding damaging too low bids.
3. Nurturing more and better competition.
4. Encouraging innovation by offerors.

The **challenges** include:

1. Overcoming the allure of the simplicity of selecting the lowest bidder.
2. Explaining and educating owners on the positive aspects of the alternative methods.
3. Developing or providing the necessary skills for owners to use the alternatives.
4. Convincing the government, public, and media that low price is rarely the best approach for physical infrastructure projects.
5. Getting the construction contractors to accept new award methodology. The bidding document has to be very clear and lucid on the proposed method of evaluation and selection criteria and specified stipulations must be there in the bidding documents in the BDS (under relevant chapters) so that the prospective bidders are well aware of the evaluation technique.

