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Douglas D. Gransberg, *Texas Tech University*

Michael A. Ellicott, *Wayne State University*



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TECHNICAL ARTICLE

Best-Value Contracting Criteria

Dr. Douglas D. Gransberg, PE, and Michael A. Ellicott, PE

Federal government construction contracting in the US historically has focused on awarding contracts to the lowest responsive, responsible bidder [7]. This assumes that by carefully crafting a complete, unambiguous set of project plans and specifications, price becomes the sole competitive factor [2]. More subtly, this approach assumes that only construction costs matter. A government need not consider procurement, project management, lost opportunity, or similar costs.

Best-value procurements focus on selecting the contractor with the offer most advantageous to the government, when price and other factors are considered. These other factors include technical and managerial merit, financial health, and past performance [8]. Best-value procurements allow government contracting agencies to evaluate offers on the basis of total procurement costs, construction quality issues, completion dates, additional features, and technical innovations. More importantly, best-value procurements force the early development of detailed project and procurement plans and create solicitations that contain accurate source-selection criteria. This combination of early planning and quality-based contracting yields significant benefits in construction timeliness, cost containment, and customer satisfaction.

LOW-BID CONTRACTING

Traditional cost- or price-based contracting stresses cost and price competition between proposals that meet the minimum requirements stated in the solicitation [4]. After a customer determines a construction requirement, the technical project manager develops these

requirements, translates them into design criteria, solicits architect-engineering firm proposals, and selects the design firm (normally making the selection based on quality rather than price). The design firm prepares comprehensive, detailed plans and specifications that outline not only what to build but how to build it.

A contracting specialist next attempts to turn the design package into an unambiguous solicitation package that results in a contract to construct a facility meeting the customer's requirements. These documents, after exhaustive review by several agencies, theoretically outline the government's complete requirements in terms of features, quality, and timeliness. Ideally, construction cost remains the sole factor used to determine the successful offeror. Construction contractors develop detailed bids and carefully review each detail in the solicitation to calculate the minimum cost proposal. Selection of the low bidder theoretically selects the contractor with the most innovative, cost-effective solution to the problem. A low bid also could indicate a quality contractor with excess capacity or one already mobilized in the area. In any event, a low-bid award does exactly what the name implies: it selects the contractor who promises to construct the facility at the lowest construction cost [1]. This approach has several obvious advantages:

- a simplified, though time-consuming, solicitation preparation and review;
- a simplified selection process in which the lowest responsive, responsible offer wins; and
- it is difficult to protest—protesters must show a flawed process since the low bidder is readily apparent.

Conversely, disadvantages of low-bid contracting include the following:

- it makes a selection based only on price, not quality or timeliness;
- it assumes perfect (unambiguous) plans and specifications;
- it assumes that the minimum requirements meet the customer's needs and that exceeding minimum standards does not enhance the project; and
- the process may select a contractor buying into the contract with a low bid [2].

Breaking the Paradigm

Low-bid contracting creates a business relationship based on price [2]. During construction, both sides attempt to keep construction costs within the agreed-upon amount, or failing that, to minimize cost increases. Construction cost containment becomes the major focus of effort, often resulting in extended construction periods, omitted features, and reduced project functionality. Other considerations become secondary. In 1992, the US Army Corps of Engineers' Europe District (FUD) decided to break this paradigm. The district analyzed the award and administration of four problem contracts to develop improved contracting procedures. The district studied two contracts to build medical/dental clinics at Stuttgart and Rhein-Main Air Base in Germany (both awarded to the same contractor), a contract to build 188 units of family housing in Vilseck, Germany, and a contract to construct a US Air Force hospital in Incirlik, Turkey.

Case Studies

All four projects studied shared the following characteristics:

- they were behind schedule;
- they were all above the original program amount authorized by the US Congress;
- quality deteriorated during construction; and
- marginal firms submitted the low bids.

The Stuttgart Clinic experienced a 30 percent cost growth and finished 14 months late. The Rhein-Main Clinic experienced only a 10 percent cost growth, but the contractor defaulted 17 months after the original completion date, forcing a costly, extended reprocurement action to complete the project. The Vilseck Housing Project recorded a 19 percent cost increase and a 2-year delay in completion. Finally, the Incirlik Hospital saw a 24 percent cost increase and a 2-year delay.

An examination of the history of each successful offer revealed information that may have eliminated the firm from competition if the district had used a different procurement strategy. The German firm building the two clinics consistently produced quality products but had a long history of financial problems and a reputation for buying-in to contracts. The two concurrent clinic projects exceeded the firm's financial resources and managerial ability. The EUD awarded the Vilseck Housing Project to a joint venture between an American and a German firm, neither of which had any experience in constructing manufactured housing in an international setting. Undercapitalized from the beginning, this project suffered from a lack of skilled management and workers. The German firm eventually declared bankruptcy, leaving the American firm to complete the project. The Turkish firm that was awarded the contract for the Incirlik Hospital, though well established and with a wealth of technical talent and expertise, was operating beyond its financial capability. When the Turkish inflation rate reached 80 percent in 1992, the undercapitalized firm experienced severe cash flow problems and slowed project execution to match available cash.

US Government Procurement Initiatives

Beginning in 1984 with the Competition in Contracting Act (CICA), the US Congress recognized the need for improved procurement procedures. Federal acquisition regulations (FAR) developed to implement CICA include language permitting quality- or value-based selections. FAR 15.605 states, "Quality also shall be addressed in every source selection" [5]. This FAR section also states:

While the lowest price or lowest total cost to the government is properly the deciding factor in many source selections, in certain acquisitions the government may select the source whose proposal offers the greatest value to the government in terms of performance and other factors. Government procurement officials authorize best-value procurements where the quality performance over and above the minimum acceptable level will enhance mission accomplishment and be worth the corresponding increase in cost [9].

The EUD's experience indicated that minimum levels of contractor performance rarely met customer expectations. Increases in quality were generally worth a corresponding increase in cost.

With this regulatory backing, the EUD set out to revamp its procurement policies. Changing customer requirements, increased competition from other construction management agencies, the US Army Corps of Engineers' emphasis on partnering, and its adoption of total quality management (TQM) all provided the impetus required to produce needed change. The district instituted several new procedures designed to improve quality, responsiveness, and customer sensitivity while reducing the total time and money required for project completion. These revised procedures included the methods described below.

- Best-value contracting—contracting procedures that are focused on the early identification of key features and solicitations evaluating timeliness, quality, and past performance to reduce total cost. A low bid alone no longer guarantees success.
- Project execution teams—these are a synergistic combination of project managers, project engineers, designers, contract specialists, customers, and other key players. Project execution teams extend the concept of life-cycle project management by the early involvement of all concerned in the development of the complete project package: design, specifications, solicitation package, and evaluation

criteria. The situation is analogous to Ford Motor Company involving the insurance industry in the design of the original Taurus, and project execution teams lead to comprehensive, creative project solutions.

- Performance specifications—these are design specifications that describe what the facility must do rather than how to build it. This approach solicits good ideas from contractors and creates a richer selection of contractor proposals.
- Partnering—partnering is a proactive, positive relationship between the contractor, customer, and district that creates a "we" attitude. Partnering focuses on fixing problems, not on assigning blame.

BEST-VALUE CONTRACTING

Best-value contracting ties all of these initiatives together through quality-based contracting. Successful best-value contracting requires the following things.

- The early determination of key parameters (features, completion date, security requirements, mobilization sites, etc.)—time and money are interchangeable at this point.
- The development of performance requirements—the project execution team must prioritize key project criteria. Minimizing project requirements maximizes contractor innovation and choices among alternatives.
- The development of evaluation criteria—the key to successful source selection, evaluation criteria must directly relate to the usefulness of the project and permit a rational tradeoff between technical merit and cost [3].

Evaluation Criteria

Evaluation criteria can be either quantifiable, in terms of dollars, or non-quantifiable [3]. While the solicitation must specify general criteria and the relative value between criteria, source selection panels often develop detailed evaluation criteria capable of discriminating between various proposals after an initial review of all proposals. Criteria can include these items:

- technical excellence;
- management capability;
- financial capability;
- personnel qualifications;
- prior experience;
- past performance;
- optional features offered;
- completion date; and
- risk to the government.

While not specifically scoring cost, source selection panels use contract price to compare the technical value versus the cost of the added-value of various proposals. This is called the cost-technical trade-off [3]. The US government must show that a more expensive proposal provides a corresponding increase in value.

BEST-VALUE CASE STUDIES

The structural failure of a military commissary (grocery store) in Chievres, Belgium, provided an initial opportunity for the EUD to combine best-value contracting with its other initiatives. After rejecting the project several times, the US Congress authorized the \$3.5-million project on June 30, 1992, and mandated a contract award by September 30 of the same year. The district received the project on July 1st and convened the project execution team on July 2nd. Because of time and funding constraints, the team decided on a design-build contract using performance specifications. Extensive partnering with the Belgian government's Joint Staff for Infrastructure produced a list of 19 prequalified Belgian firms that had the required expertise and capabilities. Further, a Belgian representative participated in design development and proposal evaluation. The district issued the request for proposals on August 14th and received five proposals on September 9th. The contract was awarded on September 25th and was followed by groundbreaking on October 2nd. Phase I, the sales area, opened before Christmas (a key customer requirement), and the contractor turned over the entire project on schedule on March 15, 1993. The project experienced negligible cost and schedule growth due to distribution of risk and a clear understanding of key requirements resulting from best-value contracting.

The final phase of a \$60-million construction/renovation project at the Frankfurt

American Hospital provided another opportunity to test best-value contracting. Due to previous delays, approximately DM25 million (US \$15 million) in construction work remained. Expiring funds required the completion of all work and disbursement of all funds in 15 months. A solicitation package that focused primarily on the completion date and used a prioritized, well-defined scope of work resulted in the project being awarded to a consortium of quality contractors. The firms completed the work on schedule with minimal cost growth.

Two projects in Turkey provided further proof of the success of these initiatives. The US Air Force authorized the construction of a standard-design dormitory in a remote location in eastern Turkey. Significant civil unrest and extreme weather conditions made winter construction impossible and required an accelerated construction schedule. Originally designed with an 18-month construction period, the project execution team revised the solicitation to emphasize a fast-track schedule. The successful contractor offered a 9-month construction period and completed the project on schedule with less than a 1 percent cost growth, despite a major design error in the structural plans [6].

The failure of the existing water distribution system at Incirlik Air Base in Turkey dictated an expedited project to construct a new water treatment plant. The customer's primary goal was to restore potable water as quickly as possible to minimize expensive distribution of bottled water. The team used performance specifications based on off-the-shelf technology. Fourteen firms submitted proposals. The technical review panel selected four finalists based on technical merit, construction period, prior experience, and a cost/benefit comparison. After requesting best and final offers, the US government awarded the project to the contractor offering the best value. The project was completed on schedule, at 60 percent of the original program budget [10].

Best-value contracting offers the following advantages over low-bid procurements:

- key players agree on important project criteria early in the procurement process;
- the contractual relationship focuses on quality and value rather than only on construction cost;
- the process encourages contractor innovation and solicits alternative proposals; and
- best-value contracting meets the customer's needs by selecting a contractor best able to satisfy those needs.

Some disadvantages include the following:

- the solicitation package requires more time and effort to prepare properly;
- the evaluation process becomes more complicated and requires more attention to detail; and
- the process increases the danger of bid protest and a subsequent delay in contract award.

Successful best-value contracting requires the early commitment of time, personnel, and resources to succeed. By determining priorities and identifying key features, this up-front investment results in significant savings in the total project cost, minimizes delays, and increases customer satisfaction. Customers help select contractors most responsive to their needs, construction managers participate in the selection of quality contractors, and the government gets the best value for its money. More importantly, the key tenets of best-value contracting already exist in current US federal acquisition regulations and do not require special authorizations or waivers.

KEY ELEMENTS OF SUCCESS

Best-value contracting procedures can find ready application outside the Byzantine world of government contracting. Private owners and architect/engineer firms could easily adapt the EUD model. Many firms award negotiated design and construction projects on the basis of quality. Applying TQM princi-

ples, focusing on continually improving both the product and the process, and making an up-front investment of time and resources will improve the quality of any construction project. A best-value contractor is the best partner in the rapidly changing world of construction contracting.

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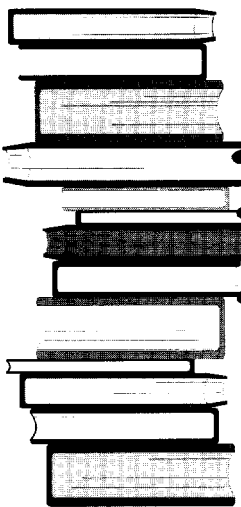
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Dr. Douglas D. Gransberg, PE, is an assistant professor in the Department of Engineering Technology at Texas Tech University. Dr. Gransberg is the owner of an active consulting practice. He served in the US Army Corps of Engineers for 20 years, retiring as a lieutenant colonel. He is a registered professional engineer in Texas and Oregon. He holds a B.S. and M.S. in civil engineering from Oregon State University and a Ph.D. from Somerset University in England. He is the Chair of AACE International's General Construction Committee.



Michael A. Ellicott, PE, is the assistant vice president for facilities planning and management at Wayne State University. He holds a B.S. in mechanical engineering from Lafayette College and an M.S. in mechanical engineering from the University of Missouri at Rolla. He served in the US Army Corps of Engineers for 26 years, retiring with the rank of colonel. ♦



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