

Performing Price and Cost Analyses

Sharon L. Hauht, CPSM, C.P.M.
Manager of Purchasing & Contracts
Regional Transportation Commission of Southern Nevada
hauhts@rtcsonv.com

Goal of Training

- To become familiar with Price and Cost Analyses to be able to determine if the proposed prices/costs are fair and reasonable and to be able to use as leverage in negotiations for better pricing or cost savings

Knowledge is Power

- Researching and concentrating on facts and avoiding reliance on guesswork in the negotiation process is the most surefire way to achieve objectives
- Doing analysis upfront and asking questions will help determine reasonableness of price and potentially cut costs on the procurement
- Become a Data Sleuth!



Objective of Price/Cost Analyses

- To determine and pay a fair and reasonable price
- Fair to the buyer
- Fair to the seller

When Should an Analysis be Performed?

- Purchasing new products or services
- Purchasing new products or services using federal funds
- Change order for new products or services using federal funds
- Price increase request
- Market conditions justify a purchaser-initiated request for a price decrease
- Purchasing wants to add value to the organization on products or services not looked at before
- Purchasing high-dollar and/or high-volume items
- Purchasing a single- or sole-source product or service

Definitions

- Price Analysis: The process of examining and evaluating a proposed price to determine if it is fair and reasonable without evaluating its separate cost elements and proposed profit
- Cost Analysis: The process of analyzing each individual cost element of a price
 - material, labor hours and rates, overhead, general and administrative costs, and profit that together add up to the final price, to determine if the costs are allowable, fair and reasonable

When Each Analysis is Used

- What is the nature of the buy?
- Price Analysis: Generally used on commodity and general services procurements which *are easily compared* to other similar procurements
- Cost Analysis: Generally used whenever you do not have price competition on procurements that are *unique and hard to compare* to other procurements.
 - Useful when purchaser can act upon the data (i.e., negotiate a better price, use an alternate source, sole source procurements or produce the item internally)

Price Analysis

- Comparison to:
 - historical prices
 - market prices
 - published prices
 - similar purchases
- Use of price indices

Price Analysis-How Performed

- Use as many of the following techniques as applicable and appropriate:
- Compare competitive prices received in response to the solicitation to one another
 - *This assumes you receive a large enough number of competitively priced offers from the current marketplace.*
- Compare proposed prices with prices under existing contracts and with prices proposed in the past for the same or similar items/services
 - *Be sure to factor in any market changes (e.g., commodity price changes) or other influences (e.g., inflation)*

Price Analysis-How Performed

- Apply rough yardsticks
 - dollars per pound, per square foot, per hour, etc. to compare prices and highlight significant inconsistencies that warrant additional pricing inquiry
- Compare competitive price lists, commodity exchanges, published catalog or market prices of commodities and products, telephone or fax inquiries, competitive bidding, price indices, industry magazines, internet research, similar indices and discount or rebate arrangements
- Compare proposed prices with your independent (i.e., in-house) cost estimates

Price Analysis-Benefits

- Must be apples to apples for good comparison
- Gives the buyer a good feel for the market
- Objective
- Simple, fast and inexpensive

Price Analysis: Exercise

- Your using department submits a purchase requisition to buy a Toro Groundsmaster® 4500-D/4700-D Mower for \$15,448. Describe how you would perform a price analysis.

Cost Analysis

- Understand cost drivers
- Total contract price includes:
 - Direct Costs – any cost that can be identified specifically with a final cost objective, such as a contract
 - Indirect Costs – any cost that cannot be directly identified with a single, final cost objective, but is identified with two or more final cost objectives or an intermediate cost objective
 - Profit- the dollar amount over and above allowable costs paid to the supplier to motivate supplier performance

Direct Costs

- Labor – All labor that is physically traceable to the finished good or service in an economically feasible manner. Includes:
 - Base Salary
 - Fringe benefits (Usually 30-33%)
- Materials – All materials that may be traced to the finished good or service.
- Subcontractors which are directly billable to the project.
- Travel which is directly billable to the project.

Indirect Costs

- Indirect costs consist of that portion of a firm's not directly associated with customer projects such as:
 - Accounting, advertising, depreciation, indirect labor (accounting, clerical, custodial, customer services, management, purchasing, sales and warehousing), insurance, interest, legal fees, rent, repairs, office supplies, taxes, telephone, travel, utilities and other non-project-specific expenses.
- Identified with multiple contracts

Indirect Costs

- These indirect costs include what is sometimes referred to as the overhead expenses and/or general and administrative costs.
- An Overhead Rate indicates how a supplier's indirect costs compare to others in the industry.
- Does not include direct labor, direct materials, subcontractors and travel which are directly billable to the project.

Profit

- Percentage – Should reflect:
 - Complexity of the work to be performed
 - Risk assumed by the company through the contract type
 - time and materials contract provide no risk to the supplier, so the profit should be lower than a fixed price contract
 - Supplier's investment
 - labor, oversight, etc.
 - Subcontracting
 - Quality of the supplier's performance
 - Industry profit rates

Price/Cost Diagram

| | | | | |
|------------------------|------------------|----------------|-----------------|--------|
| Direct Labor | Direct Materials | Overhead | General & Admin | Profit |
| Direct Costs | | Indirect Costs | | Profit |
| Total Cost to Supplier | | | | Profit |
| Price | | | | |

Overhead Indicators

- Overhead Rate = Total Indirect Costs divided by Direct Costs ($\$110,000/\$50,000=2.2$)
- Break-Even Overhead Multiplier = Total Indirect Costs plus Direct Costs divided by Direct Costs
 - If a supplier has an Overhead Rate of 2.2 (or an Overhead Percentage of 220%), then its Break-Even Overhead Multiplier would be 3.2 ($\$110,000+\$50,000/\$50,000=3.2$)
 - What does that 3.2 mean? if a firm has \$2.20 in overhead and G&A expenses for \$1.00 in direct labor and material costs ($\$1.00+\2.20), for a total of \$3.20, then they need a 3.2 multiplier on every dollar of direct labor and material costs in order to cover all their expenses and break even
 - Anything over a 3.2 multiplier will result in a profit and anything under 3.2 will result in a loss

Overhead Indicators

- Overhead Rates vary based on industry, but typical industry averages are between 1.35 and 2.90
- Overhead Rates can be negotiated
- Sometimes, a higher Overhead Rate indicates business inefficiencies:
 - $\$110,000/\$50,000 = 2.2$
 - $\$200,000/\$50,000 = 4.0$ (higher overhead expenses, same direct labor rate; purchasing could negotiate the Overhead Rate down if the rest of the industry was in a lower range)

How Suppliers Price Services

- If a supplier has an Overhead Percentage of 220% which means that for every \$1.00 of direct labor billed to the organization, the supplier must collect an additional \$2.20 ($\$1.00 \times 220\%$) from you just to cover its cost of doing business
- Thus, if a job required a direct labor wage of \$8.50 per man-hour, overhead of \$18.70 ($\$8.50 \times 220\%$) must be added, thus totaling a labor cost of \$27.20 per man-hour
 $(\$8.50 \times 2.2) + \$8.50 = \$27.20$
- Profit on services must be then added to the labor cost. A 15% gross margin would be figured as follows:
 $\$27.20 / 1 - .15 = \32.00 per man-hour

How Suppliers Price Products

- Need to determine the cost of producing one widget
- Both direct material costs and direct labor costs must be included in the price calculations
- If production time for one widget is 10 minutes and each widget uses \$0.84 in materials:

$\$27.20$ divided by 60 minutes = $\$0.75/\text{minute}$

$\$0.75/\text{minute} \times 10 \text{ minutes/widget} =$

$\$7.50$ direct labor cost per widget

$\$0.84$ direct material costs per widget

$\$8.34$ cost to produce one widget

For a 15% gross margin on selling price:

$\$8.34 / 1 - .15 = \9.82 selling price per widget

Getting Cost Breakdowns from Supplier

- Based on your relationship with the supplier, ask for a cost breakdown
- Require a cost breakdown in the Request For Proposal or Bid
 - confirm validity and accuracy
- If supplier is unwilling or unable to share this information, costs must be estimated

Getting Cost Breakdowns from Supplier

- To determine direct material costs, ask supplier to provide a parts list that specifies the cost of each material component that goes into the product or service
- To determine direct labor costs, ask supplier to provide the staff working on the project, the number of hours, and their labor cost per hour
 - Work with your using department to determine if number of hours is reasonable

Getting Cost Breakdowns from Supplier

- To determine subcontractor costs, ask supplier to provide a copy of proposal from subcontractor to substantiate pricing
- To determine travel costs, find out number of trips, people and days
 - Obtain coach air fare and apply per diem rates
- To determine Overhead Rates, research internet, other suppliers, professional organizations, peers in industry, etc.

Cost Analysis

Verify the accuracy of the cost and pricing information submitted, and evaluate:

- The reasonableness of the proposed costs, including allowances for contingencies. To be considered reasonable, proposed costs must meet three critical tests. The costs must be:
 - *Allowable* - Cost principles that the entity uses may state whether a type of cost is allowable or not
 - *Allocable* - Costs are logically related to, or required in the performance of the contract
 - Many costs may be allowable but not related to the work required under the contract
 - *Reasonable* - What a prudent business would pay in a competitive marketplace
 - A cost can be allowable and allocable, and still not be what a prudent businessperson would pay

Cost Analysis

Verify the accuracy of the cost and pricing information submitted, and evaluate:

- The necessity for proposed cost items
 - Technical personnel (e.g., engineer, architect, information systems specialist, etc.) should review the proposed direct cost elements to determine their necessity to perform the contract and reasonableness (e.g., in comparison to market rates)
 - A cost may be allowable under the cost principles and even allocable to the type of work to be performed, *but* still not be necessary for the specific contract
- Application of audited or pre-negotiated indirect cost (e.g., overhead) rates, labor and fringe benefit rates, or other factors

Cost Analysis

Verify the accuracy of the cost and pricing information submitted, and evaluate:

- Effect of the supplier's current practices on future costs
 - Does the supplier have a track record of containing costs (completing contracts at or "under cost")? Does supplier overrun costs?
- The projection of the supplier's cost trends
 - Is there any indication that supplier's costs are likely to increase or decrease over the life of the contract?

Cost Analysis

Compare costs proposed by the supplier with:

- Actual costs previously incurred by the same supplier for the same or similar work
 - If it is a repetitive type of work or service, how much has it cost in the past? Apply any appropriate inflation factors for past work
- Actual costs of previous the same or similar work performed by other suppliers
- Previous cost estimates from the supplier or other suppliers for the same or similar items

Cost Analysis

Compare costs proposed by the supplier with:

- The methods proposed by the supplier with the requirements of the solicitation
 - do the costs reflect the technical approach proposed and the work required?
- An independent cost estimate
 - created by in-house staff or
 - created for your organization by an independent architect, engineer, appraiser, etc.
- Verify that the supplier's cost submissions comply with the appropriate set of your organization's cost principles, if applicable

Cost Analysis: Exercise

- A consultant proposes a labor cost of \$176 per hour for your project. You know that the going rate for that type of actual labor cost is \$40 per hour. You also know that the industry average Overhead Rate is 2.0 and Profit Margin is 10%.
 - What leverage would you use and what labor cost per hour would you try to negotiate?

Cost Analysis: Exercise Solution

- Indirect Expenses + Direct Expenses + Profit = Price
- Actual Direct Labor x Overhead Rate + Actual Direct Labor + Profit = Total Charged Labor Cost
- $X = \text{Overhead Rate}$
- $(\$40x + \$40) 1.10 = \$176$
- $x = 3$
- Industry average = 2
- Negotiate a lower Overhead Rate using the Industry average of 2
- $(40 (2) + 40) 1.10 = \$132$

Summary

- The utilization of price and cost analyses can serve as a valuable tools in cost containment.

References

- Smith, M. E., Ph.D., C.Q.A., Buddress, Ph.D., C.P.M., Raedels, A. Ph.D., C.P.M., " The Strategic Use of Supplier Price and Cost Analysis", 91st Annual International Supply Management Conference, May 2006.
- Woods, Patrick S., C.P.M., A.P.P., CPIM, "Purchasing At All Costs? Understanding Your Supplier's Cost Structure", 84th Annual International supply Management Conference, 1999.
- Ellram, Lisa, "A Structured Method For Applying Purchasing Cost Management Tools", Journal of Supply Chain Management, February 1996.
- Heaton, William L., "Pat Purchaser, Private Investigator" Purchasing Today, January 1998.
- Scott Baker, Robin Stevens, Phil Johnson, "Basic Cost and Price Analysis and Risk Assessment", National Transit Institute, Federal Transit Administration AECOM consult, Inc.

Questions?
