

Contract Pricing

The role of cost estimating in the contracting process

"Now as through this world I ramble / I see lots of funny men
Some will rob you with a Six gun / And some with a fountain pen"
- "The Ballad of Pretty Boy Floyd," Woody Guthrie, 1939



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Contract Pricing Overview

- | | |
|--|--|
| <ul style="list-style-type: none"> • Key Ideas <ul style="list-style-type: none"> - Commensurate risk and reward - Establishing a fair price using the best available data <ul style="list-style-type: none"> • Competition and negotiation - Justifying estimates (BOEs) | <ul style="list-style-type: none"> • Practical Applications <ul style="list-style-type: none"> - Cost Proposal Development - Cost Proposal Evaluation <ul style="list-style-type: none"> • Including suppliers - Negotiations - Risk-based ROS |
| <ul style="list-style-type: none"> • Analytical Constructs <ul style="list-style-type: none"> - Piecewise linear functions <ul style="list-style-type: none"> • Multiple sharelines | <ul style="list-style-type: none"> • Related Topics <ul style="list-style-type: none"> - Estimating Methods - Data Analysis - Risk Analysis - Cost Accounting Standards (CAS) - Compliance (DCAA, DCMA) |



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Contract Pricing Outline

- Core Knowledge
 - Introduction
 - Background and Definitions
 - Purpose of Contract Pricing
 - Overview of the Acquisition Process
 - Basics of Contract Pricing
 - Understanding the Contract Pricing Process
 - Determining the Contract Vehicle
 - Creating the Cost/Pricing Proposal
 - Performing the Cost/Price Comparative Analysis
- Summary
- Resources
- Related and Advanced Topics



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Introduction

- Acquisition Planning
 - Choosing the best contract vehicle, taking into account cost and risk

 “Acquisition planning’ means the process by which the efforts of all personnel responsible for an acquisition are coordinated and integrated through a comprehensive plan for fulfilling the agency need in a timely manner and at a **reasonable cost**. It includes developing the overall strategy for managing the acquisition.”



Reasonable Cost = fair to both parties in terms of risk & reward

Federal
Acquisition
Regulation
(FAR) 2.101



- Contract Pricing
 - Using cost estimating techniques to establish a basis of estimate (BOE) as the foundation of the cost/price proposal
- Cost/Price Analysis
 - Evaluating contractor’s cost/price proposal



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Purpose of Contract Pricing

- Purpose of Contract Pricing is to establish a “fair and reasonable” price for the effort
 - Contractor: Price supported by defensible BOEs and approved rates
 - Government: Cost analysis to support release of RFPs and evaluation of proposals
- Questions to be asked for contract pricing are:
 - What is the potential cost for a system that satisfies a given set of requirements?
 - Initial government estimates
 - What is the cost of a contractor’s solution?
 - Cost/price proposal
 - What are the differences in the estimates?
 - Cost/price analysis



Overview of the Acquisition Process

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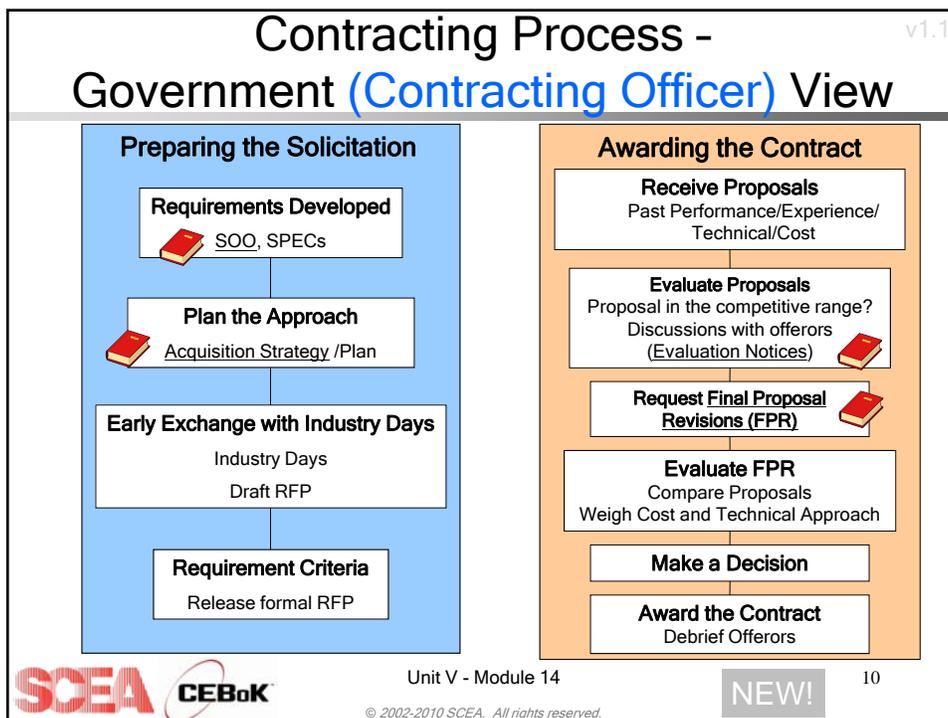
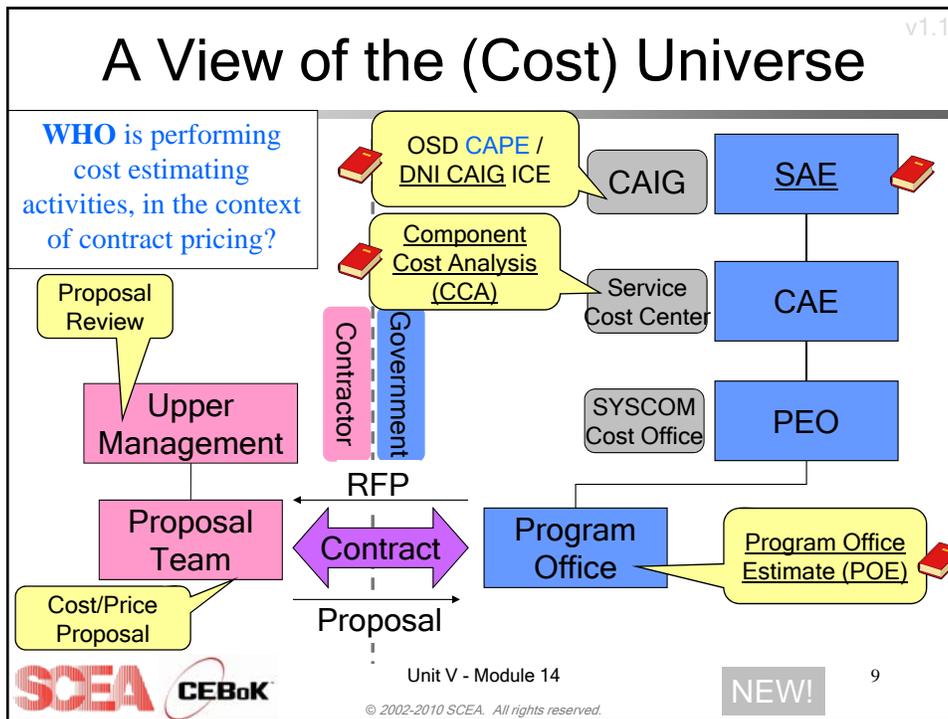
Initial Contract Pricing

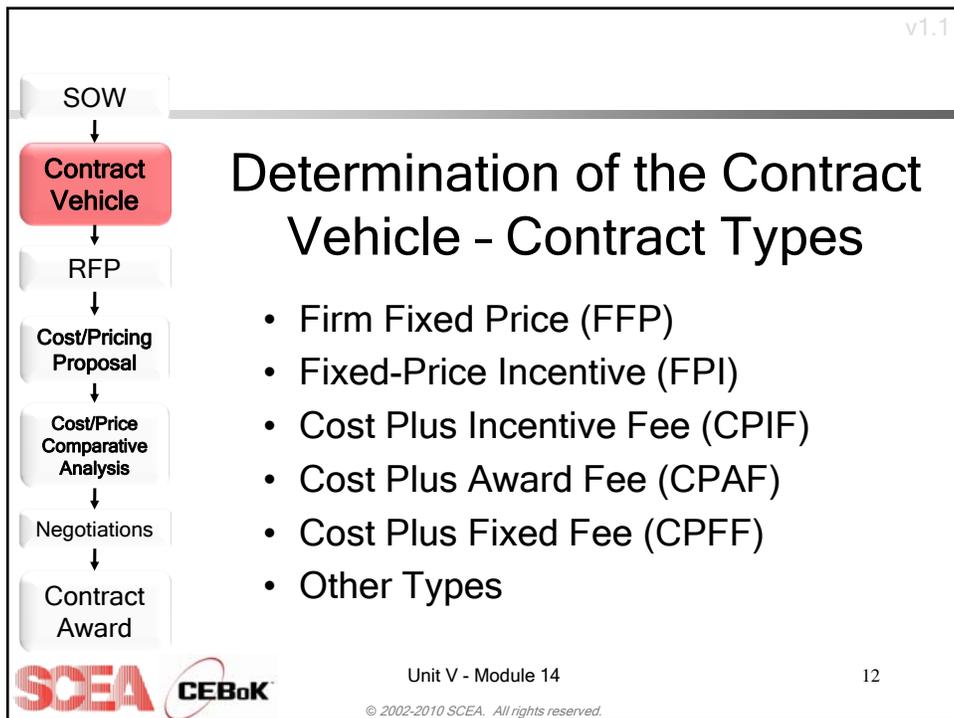
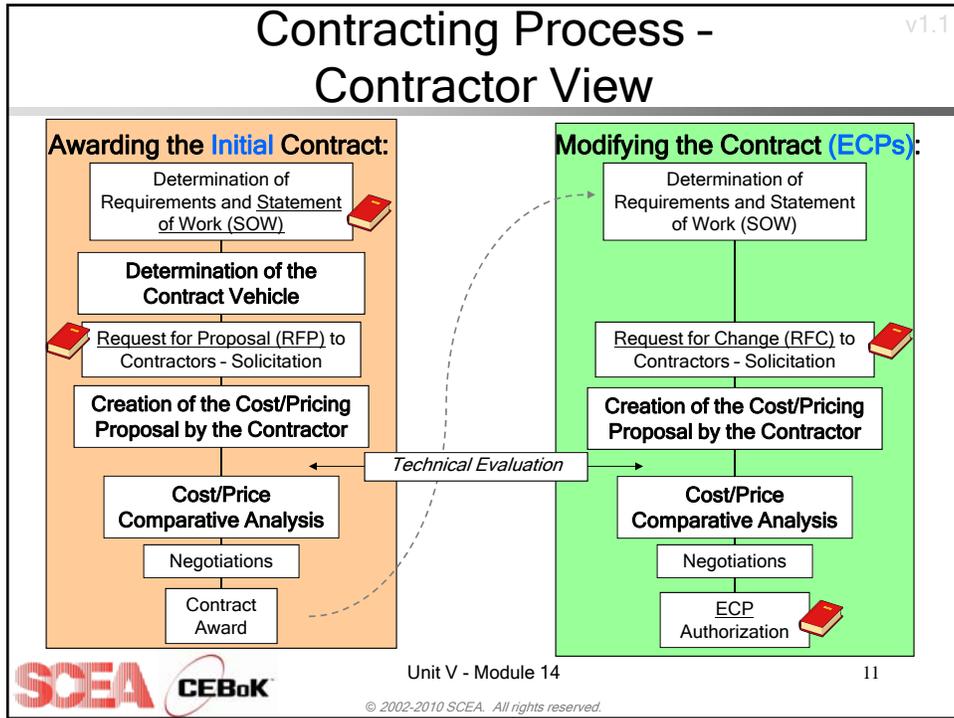
Maintaining Cost Estimates

- The acquisition process:
 - Establishing agency needs
 - Description of requirements
 - Solicitation and selection of sources
 - Award of contracts
 - Contract financing
 - Contract performance
 - Contract administration
 - Technical and management functions directly related to the process of fulfilling agency needs by contract

Federal Acquisition Regulation (FAR) 2.101







Contract Types v1.1

SOW

↓

Contract Vehicle

↓

RFP

↓

Cost/Pricing Proposal

↓

Cost/Price Comparative Analysis

↓

Negotiations

↓

Contract Award

- Types of Contract Vehicles:
 - Fixed Price**
 - Profit = Price - Cost
ROS could be negative!
 - Firm Fixed Price (FFP) [FAR 16.202]
 - Fixed-Price Incentive (FPI) [FAR 16.204]
 - Cost Reimbursement**
 - Cost Plus Award Fee (CPAF) [FAR 16.304, .405]
 - Cost Plus Incentive Fee (CPIF) [FAR 16.305]
 - Cost Plus Fixed Fee (CPFF) [FAR 16.306]
- Contract Types vary according to:
 - Degree and timing of the responsibility assumed by the contractor for the costs
 - Amount and nature of the profit incentive offered to the contractor for achieving or exceeding specified standards or goals

All of these contract types can be found in further detail in Section 16 of the Federal Acquisition Regulation (FAR)

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Incentive type contracts [FAR 16.4]

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Price = Cost + Fee
ROS strictly positive

AKA Cost Reimbursable, Cost Plus

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Determining the Contract Vehicle - Contract Types and Risk v1.1

- Cost-Reimbursement contracts are high risk to the government
 - But what about Good Will Risk?! (LPD 17)
- Fixed-Price contracts are high risk to the contractor
 - But what about Over-the-Barrel Risk?!
 - Manifests as Default or Cancellation (A-12)
 - But what about Economic Price Adjustment (EPA)?!
 - But also high opportunity!
- FFP is (in theory) cheaper for the government
 - But the contractor will price in risk!

Contractor Risk = Contractor Incentive to Control Costs

Government Risk

Beware Default Risk!

Beware Good Will Risk!

FFP + Mods = Cost Plus!

Typical continuum

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Fee, Profit, and Margin

- 11 • **Fee:** Amount paid to contractor over and above Cost (or $Price = Cost + Fee$)
 - Cost-type contracts
 - AKA Return On Cost (ROC)
- **Profit:** Amount of money earned *expressed as a percentage of Cost* (or $Price - Cost$)
- **Margin:** Profit *expressed as a percentage of Revenue* ($= Cost + Profit = Price$)
 - AKA Return On Sales (ROS)

Warning: The error is in denominator!



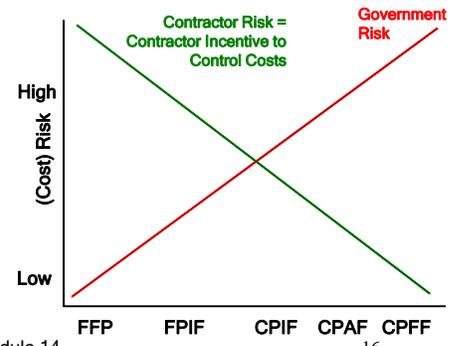
Tip: This is a "percent-centric" slide; these three quantities can also be reported in dollars (\$).

$Fee = Profit = \$10M / \$100M = 10.0\%$
 $Margin = \$10M / \$110M = 9.1\%$
 $Margin = Fee / (1+Fee)$
 $Fee = Margin / (1-Margin)$

Contract Types

- CEBok presents contract types in order of increasing government risk (decreasing contractor risk)
- We will learn the various contract types in a different order (shown below), but keep in mind the graph of risk on the right...

- (1) Firm Fixed Price (FFP)
- (2) Cost Plus Fixed Fee (CPFF)
- (3) Fixed-Price Incentive (FPI)
- (4) Cost Plus Incentive Fee (CPIF)
- (5) Cost Plus Award Fee (CPAF)



Contract Type Examples

- Key Concept to remember: contract type only matters if the program deviates from the target cost (this will be our 'anchor' for all examples)
- For all following examples, we will use the base contract values shown below:
 - Target Price = \$11 M
 - Target Cost = \$10 M
 - Target Profit = \$1 M



Contract Types - Firm Fixed Price (FFP)



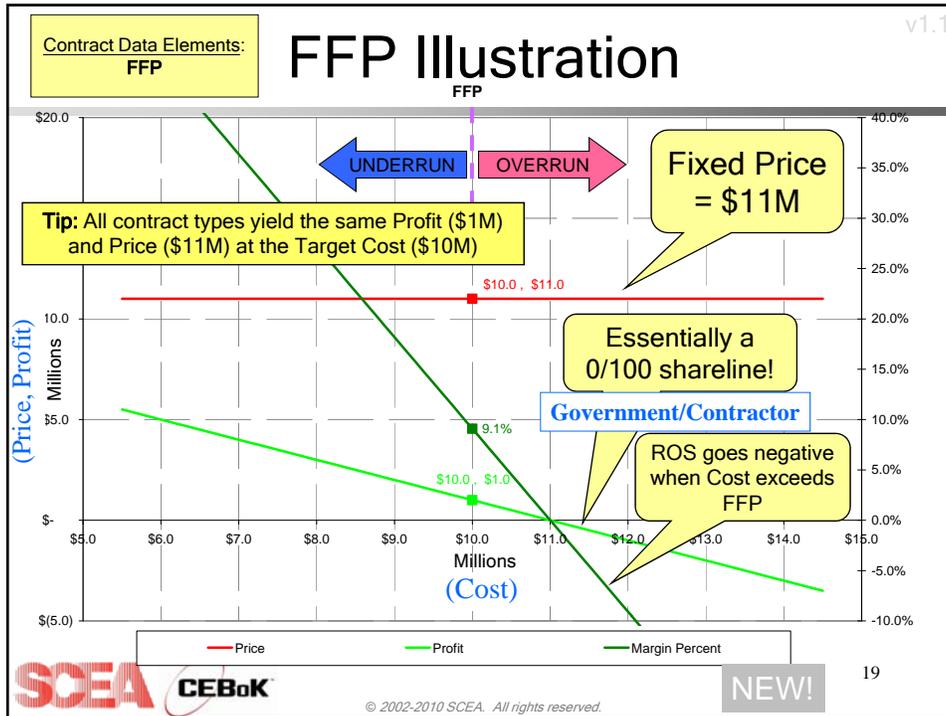
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- A firm-fixed-price contract provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience during performance of the contract. (in theory, least risky for the government, most risky for the contractor)

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- When to use:
 - Adequate price competition
 - Reasonable price comparisons to prior purchases of same or similar supplies or services
 - Available cost or pricing information permits realistic estimates of the probable costs of performance
 - Performance uncertainties can be identified and reasonable estimates of their cost impact can be made, and the contractor is willing to accept the risks involved.
 - Requirements are well-defined (i.e. not research)





- ## Contract Types - Cost-Reimbursement
- v1.1
- Cost-reimbursement contracts provide for payment of allocable allowable and reasonable incurred costs
 - These contracts establish
 - An estimate of total cost for the purpose of obligating funds
 - A **cost** ceiling that the contractor may not exceed (except at its own risk without the approval of the contracting officer) (often associated with incentive contracts... though CPFFs also have cost ceilings)
 - Suitable for use only when costs can not be estimated with sufficient accuracy to use any type of fixed-price contract
 - To be used when:
 - Contractor's accounting system is adequate for determining costs applicable to the contract
 - Appropriate government surveillance during performance will provide reasonable assurance that efficient methods and effective cost controls are used
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Contract Types -

v1.1



Cost Plus Fixed Fee (CPFF)

- Cost-reimbursement contract that provides for payment to the contractor of a negotiated fee that is fixed at the inception of the contract
 - The fixed fee does not vary with actual cost (though contractor can lose money if cost ceiling exceeded)
 - May be adjusted as a result of changes
- When to use:
 - Contracts for research or preliminary exploration and study, not development of major systems
 - Cost-plus-incentive fee is not practical
- Max fee (based on target cost at negotiation):
 - R&D = 15%
 - Production and Services = 10%

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Tip: Fixed fee is a fixed amount. The FAR specifically prohibits fixed *percentage* fee, but guidelines are given in percentages...

FAR 15.404-4 Profit (c)(4)(i)



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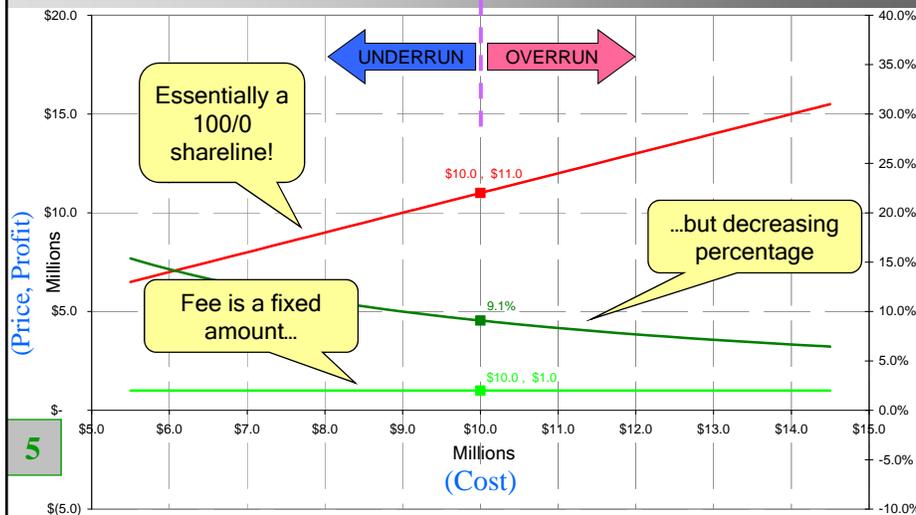
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FAR 16.101 Policies (c)

Contract Data Elements:
TC, FF

CPFF Illustration

This example does not include a ceiling cost



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TTI: Incentive Contracts - Share ratio v1.1

- Share ratio corresponds to the amount of risk assumed by each party (government and contractor)
 - Share ratio expressed as “Government/Contractor”
 - Two shares must add to 100%
 - The higher the share, the more risk assumed by that party (conversely, also represents greater opportunity for success, as measured by profit)
- Share ratio is applied to profit/fee
- Contracts can have a different share ratio for *overruns* (final cost > target cost) and *underruns* (final cost < target cost) to incentivize contractor performance



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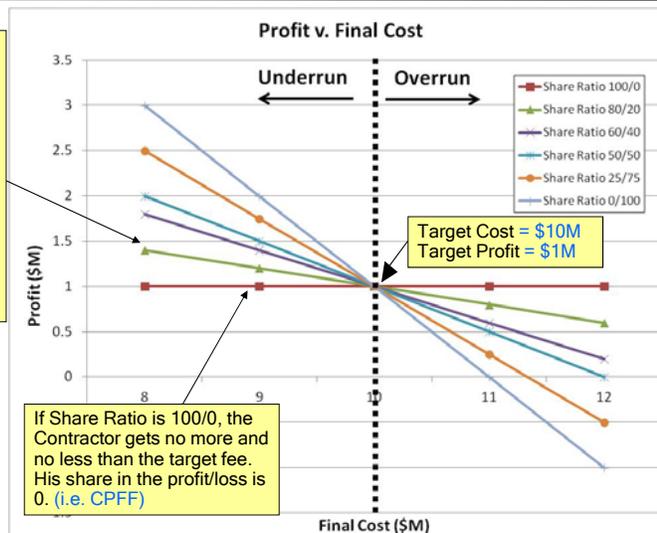
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TTI Original Content: Incentives Contracts - Share Ratio Ex. v1.1

If Share Ratio is 80/20, it means that for every \$1 the contractor saves in actual cost under the target cost, the contractor's target fee will be increased by \$0.20. And, for every \$1 in actual costs that the contractor exceeds target cost, the contractor's target fee will be decreased by \$0.20.

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If Share Ratio is 100/0, the Contractor gets no more and no less than the target fee. His share in the profit/loss is 0. (i.e. CPFF)

Target Cost = \$10M
Target Profit = \$1M



Share Ratio = Government/Contractor

Contract Types - Fixed Price Incentive (FPI)

v1.1

- Fixed-Price Incentive (FPI)

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 - A fixed-price incentive contract provides for adjusting profit and establishing the final contract price by a formula based on the relationship of final negotiated total cost to total target cost.

- FPI Data Elements

-  - Target Cost
-  - Target Profit
-  - Shareline
-  - Ceiling Price

Targets may be Firm (FPIF) or Successive (FPIS)

Tip: IF is for quantitative incentives; AF is for qualitative incentives.

Tip: Target profit and ceiling price are fixed dollar amounts, but often initially expressed as a percent of target cost.



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FPI Example - Profit Adjustment Formula

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$$AP = TP + CS(TC - FC)$$

 • AP is Adjusted Profit ($AP \geq 0$)

• TP is Target Profit

• CS is Contractor Share Ratio

• If Share Ratio is 80/20, the Contractor earns (loses) \$0.20 of profit for each dollar that Final Cost is below (above) the Target Cost

• TC is Target Cost

 • FC is Final Cost

 • FP is Final Price

Expressed as a percentage - i.e., Share Ratio of 80/20 translates to $S = 20\% = 0.20$

Tip: Share Ratio has Government first, usually with the lion's share

$$FP = FC + AP$$

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FPI Example

• Fixed-Price Incentive Firm (FPIF) Contract

- Incentivizing Cost: 3 scenarios
 - Final cost is less than target cost
 - Final cost is more than target cost
 - Final negotiated cost exceeds the PTA (not shown)
 - Final cost exceeds the price ceiling

Tip: Understanding the logic of cost-sharing will serve you better than memorizing formulae.

\$10M	Target Cost		\$8M	\$11M	\$14M	Final Cost
\$1M	Target Profit (10%)	→	?\$M	?\$M	?\$M	Adj. Profit
\$13M	Price Ceiling		?\$M	?\$M	?\$M	Final Price

FPI Example - Solutions (TTI)

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- \$10M Target Cost
- \$1M Target Profit (10%)
- \$13M Price Ceiling
- 40/60 Under-target Share Ratio
- 70/30 Over-target Share Ratio

Scenario 1: Final cost is \$8M
 Share ratio is 40/60
 Target Cost - Final Cost = \$10M-\$8M=\$2M
 Target Profit = \$1M
 Adjusted Profit: AP=TP+S(TC-FC),
 \$1M+0.60(\$2M) = \$2.2M
 Final Price:
 \$8M+\$2.2M=\$10.2M

Scenario 2: Final cost is \$11M
 Share ratio is 70/30
 Target Cost - Final Cost=\$10M-\$11M= -\$1M
 Target Profit = \$1M
 Adjusted Profit: AP=TP+S(TC-FC),
 \$1M+0.3(-\$1M) = \$0.7M
 Final Price:
 \$11M+\$0.7M=\$11.7M

Scenario 3: Final cost is \$14M
 Share ratio is 70/30
 Final Cost is greater than price ceiling
 Final Price = Price Ceiling = \$13M
 Adjusted Profit = Final Price - Final Cost =
 \$13M - \$14M = -\$1M

TTI: Point of Total Assumption (PTA) v1.1

PTA - *cost* beyond which the contractor assumes total responsibility for overrun (i.e. contractor loses profit dollar for dollar)
 - More formal definition: cost at which *price* hits the price ceiling

CP is Ceiling Price
 TP is Target Price
 GS is Government Share
 TC is Target Cost

$$PTA = \left(\frac{CP - TP}{GS} \right) + TC$$

Example:

\$10M Target Cost

\$1M Target Profit (10%)

\$13M Price Ceiling

70/30 Share Ratio

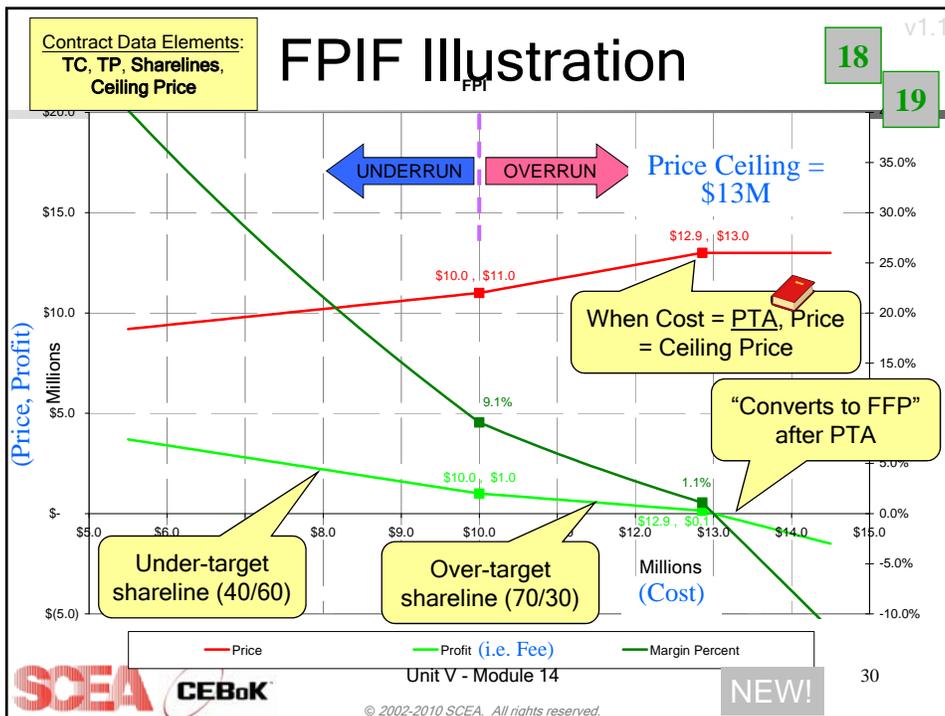
PTA
 $(\$13M - \$11M) / 0.70 + \$10M = \$12.9M$



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Contract Types - Other Fixed-Price Contract Vehicles

v1.1

- Other Fixed-Price contract vehicles are meant to put the burden of cost management on the contractor while adjusting for factors outside their control
- Fixed-Price with Economic Price Adjustment (EPA) 
 - Adjustments based on increases or decreases from established prices of specific items; on increases or decreases from actual, specified costs of labor or material; and on increases or decreases from contractually-specified cost indices of labor or material
 - Allows for some market fluctuation
-  • Fixed-Price Level Of Effort (FP LOE)
 - Labor rates are fixed price, but level of effort is specified by the government (“best efforts”) (i.e. contract deliverable is hours)
 - Work effort too ill-defined for a completion type contract



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Contract Types - Cost Plus Incentive Fee (CPIF)

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- Cost-reimbursement contract that provides for the initially negotiated fee to be adjusted later by a formula based on the relationship of total allowable costs to total target costs
-  • Specifies a target cost, a target fee, minimum and maximum fees, and a fee adjustment formula
-  • Range of Incentive Effectiveness (RIE) = range of costs within which the fee-adjustment formula operates
- When total allowable cost is above (overrun) or below (underrun) the RIE, the contractor is paid total allowable costs plus the minimum or maximum fee, respectively



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Contract Types -

v1.1

Cost Plus Award Fee (CPAF)

- Cost-reimbursement contract that provides  for a fee award amount based on a judgmental evaluation by the government
 - 2 - “Sufficient to provide motivation for excellence in contract performance”
- Factors that can be incentivized:
 - Cost
 - Delivery
 - Performance



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TTI: CPAF Example (Part 1)

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- Award fee can be evaluated based on cost, schedule and technical performance, usually a combination of all three. Evaluations are subjective and given on a percent scale.

\$10M	Target Cost
\$1M	Award Fee (10%)
\$13M	Cost Ceiling

Scenario 1: Final cost is \$8M

Award fee in four phases:

Phase 1: \$0.2M, evaluation 90% => \$0.18M
Phase 2: \$0.3M, evaluation 85% => \$0.255M
Phase 3: \$0.3M, evaluation 95% => \$0.285M
Phase 4: \$0.2M, evaluation 100% => \$0.20M

Total Potential Award Fee = \$1M

Total Award Fee Earned = \$0.92M

Final Price: \$8M + \$0.92M = \$8.92M

Scenario 2: Final cost is \$11M

Award fee in four phases:

Phase 1: \$0.2M, evaluation 90% => \$0.18M
Phase 2: \$0.3M, evaluation 80% => \$0.24M
Phase 3: \$0.3M, evaluation 75% => \$0.225M
Phase 4: \$0.2M, evaluation 65% => \$0.13M

Total Potential Award Fee = \$1M

Total Award Fee Earned = \$0.775M

Final Price: \$11M + \$0.775M = \$11.775M



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TTI: CPAF Example (Part 2) v1.1

- Award fee can be evaluated based on cost, schedule and technical performance, usually a combination of all three. Evaluations are subjective ¹ and given on a percent scale.

\$10M Target Cost

\$1M Award Fee (10%)

\$13M Cost Ceiling

Scenario 3: Final cost is \$14M

Cost exceeds ceiling

Phase 1: \$0.2M, evaluation 90% => \$0.18M
 Phase 2: \$0.3M, evaluation 80% => \$0.24M
 Phase 3: \$0.3M, evaluation 75% => \$0.225M
 Phase 4: \$0.2M, evaluation 65% => \$0.13M

Total Potential Award Fee = \$1M

Total Award Fee Earned = **\$0.775M**

Final Price: **Cost Ceiling** + Award Fee,
 \$13M + \$0.775M = **\$13.775M**

1. FAR 16.405-2 (b)(1)(i) states that: "The cost-plus-award-fee contract is suitable for use when - (i) The work to be performed is such that it is neither feasible nor effective to devise predetermined objective incentive targets applicable to cost, technical performance or schedule." The memo goes on to state that a CPAF contract should only be used when it is determined that objective criteria do not exist.



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Contract Types - v1.1

Indefinite-Delivery Contracts

- Three types of Indefinite-Delivery Contracts:

- Definite-quantity

- Requirements

- Indefinite-quantity (ID/IQ)

Flexibility in both quantities and delivery scheduling and ordering of supplies or services after requirements materialize

- May use the contract vehicles already discussed to create "delivery order contracts" and "task order contracts"

- Delivery order contracts provide for the issuance of orders for the **delivery of supplies** during the period of the contract

- Task order contracts provide for the issuance of orders for the **performance of tasks** the period of the contract



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Contract Types - Other Contract Types

v1.1



Warning: A time-and-materials contract provides no positive profit incentive to the contractor for cost control or labor efficiency.

- Time-and-Materials



- Time-and-materials (T&M) contracts provide for acquiring supplies or services on the basis of—

- Direct labor hours at specified fixed hourly rates that include wages, overhead, general and administrative expenses, and profit
- Materials at cost, including, if appropriate, material handling costs as part of material costs.

- Labor-Hour



- Labor-hour contracts are a variation of the time-and-materials contract, differing only in that materials are not supplied by the contractor

- Letter Contracts



- Letter contracts are written preliminary contractual instruments that authorize the contractor to begin immediately manufacturing supplies or performing services



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Contract Types Cheat Sheet

v1.1

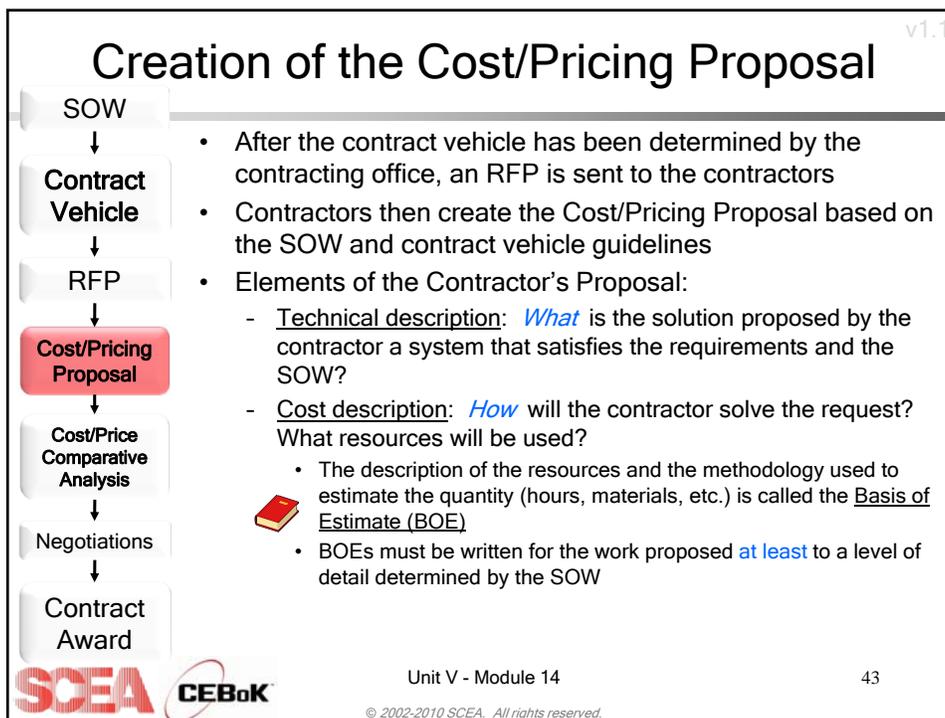
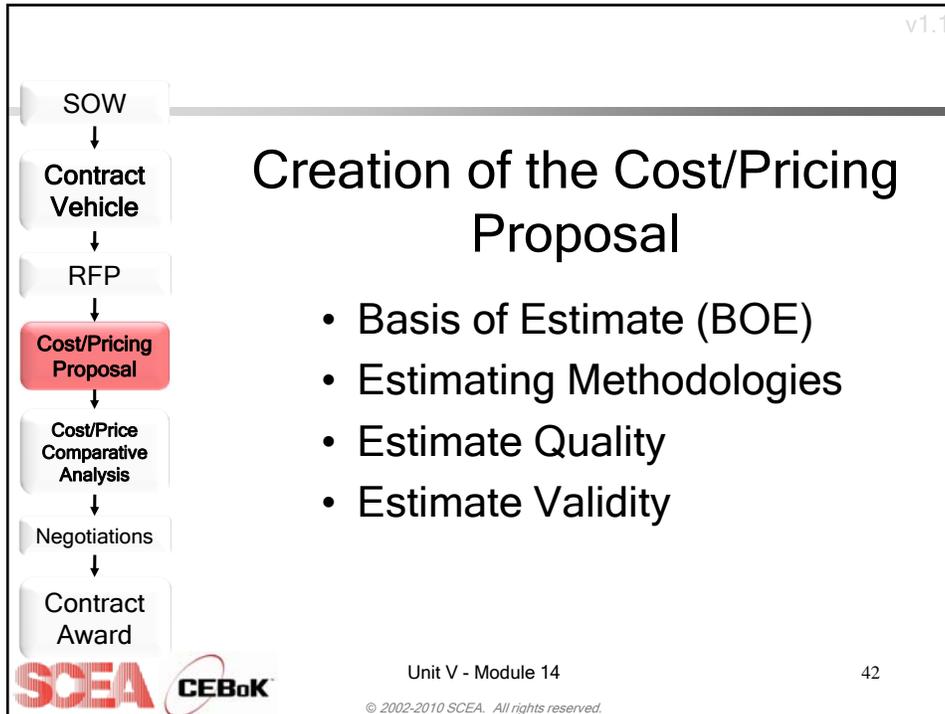
	Contract Elements												
	Estimated Costs	Firm-Fixed Price	Firm-Fixed Fee	Profit/Fee Adjustment Formulas	Target Cost/Price	Share Ratio	Target Fee/Profit	Minimum Fee	Maximum Fee	Ceiling Price	EPA clause	Base Fee	Award Fee
Contract Type	Firm-Fixed Price (FFP)		X										
	Cost-Plus Fixed Fee (CPFF)	X		X									
	Fixed-Price Incentive Fee Target (FPIF)					X	X	X			X		
	Cost-Plus Incentive Fee (CPIF)					X	X	X	X	X			
	Fixed-Price Incentive Successive Targets (FPIS) - initial values only				X	X		X					
	Fixed-Price Award Fee (FPAF)		X										X (w/ determination process)
	Cost Plus Award Fee (CPAF)								X			X	X (w/ determination process)
	Fixed Price with EPA (FP w/EPA)		X								X		



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Cost/Pricing Proposal - Basis Of Estimate (BOE)

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- Example of a BOE: [Similar to Ground Rules & Assumptions of LCCE...](#)
[Should be auditable & replicable!](#)

Description: Interface to Program JKL

WBS: XX.XX.XX

Labor/Material/Travel/Other: Labor

Start Date: 10/0X End Date: 9/0X

Activity Description: Additional code will be required to interface to Program JKL.

Estimating Methodology: Analogy

Supporting Documentation of Methodology: The interface to Program JKL is **similar** to the interfaces developed by this program to Programs ABC, DEF, and GHI. The lines of code required for these interfaces were 1546, 2103, and 1678 (new code). Program JKL is similar in complexity. Average of the three previous interface development activities is 1776 lines of new code. Historical average for the program cost per line of code is 1.19 labor hours per LOC. Cost per line of code based on spirals 1, 2, and 3 where average cost per line of code was 1.08, 1.25, and 1.18 labor hours, respectively.

	Lines of Code	Labor Hours	Labor Hr/LOC
Spiral 1	44,000	47,520	1.08
Spiral 2	80,000	100,000	1.25
Spiral 3	32,000	37,760	1.18
Total	156,000	185,280	1.19

Resource Description:

Labor	Hours	Units	Direct Dollars
Sr. SW engineer	2,113.4	N/A	\$88,763

Key calculations missing:
 $1776 \text{ LOC} \times 1.19 \text{ hrs/LOC} = 2113.4 \text{ hrs}$
 $2113.4 \text{ hrs} \times \$42/\text{hr} = \$88,763$

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Cost/Pricing Proposal - Estimating Methodologies

v1.1

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- Estimating Methodology Types:

Type	Supporting Information
<p>Analogy Method</p> <p>2 The most commonly found method</p>	Similar to other specific tasks or programs. Identify Tasks or Programs and comparison rationale. Provide the specific historical data point(s) used, the type and source of the historical data, any adjustments (factors) made to the historical data and the supporting rationale.
<p>Parametric Method</p> <p>Most often found in complex developmental HW</p>	Provide the specific historical data point(s) used, the type and source of the historical data, any adjustments made to the historical data and the supporting rationale for them, the equation calculated from the data with associated statistical measures (i.e., t and F statistics, significance levels, r-squared and standard error).
<p>Engineering Build-Up Method</p> <p>Seen in site hardware installation and late in manufacture of complex HW</p>	Provide a breakdown of the cost estimate by direct labor hours, direct labor dollars, direct material, and overhead. Where the effort represented by the cost record was divided into subtasks for estimating purposes, provide the breakdown at the top subtask level. For factors and rates used in engineering build-up, describe specifically how the factor/rate was derived from Historical Experience.
<p>Standard Cost Models</p> <p>3 Usual in developmental S/W, occasional in developmental elec</p>	Identify the model and its vendor. Provide a copy of the input data file, and a description of the rationale for the selection of the input factors. Explicitly identify how the outputs map into the offeror's estimate.



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Cost/Pricing Proposal - Estimating Methodologies

v1.1

Rare

- Estimating Methodology Types (cont'd.):

Type	Supporting Information
Company Standard Bidding System	Provide the details of the methodology and reference any DoD agency certifications that may apply. Refer to other methods that were used to develop the individual costs, and provide the justification for each individual item.
Expert Opinion	Identify the key individuals or organizations who contributed significantly to the estimate and their relevant qualifications, the major factors that were considered in making the estimate (e.g., experience with similar projects) and explain how those factors influenced the cost.
Commercial Price	<p>Catalog price -- Identify the relevant commercial catalog, its date, catalog price for the item, and discounts offered. Provide a list of all sales for the item in similar quantities during the last three years.</p> <p>Market price -- Describe the nature of the relevant market and how that market affects the offered price including the source and date or period of any relevant market quotation or other basis for market price, the base market price, and applicable discounts or other price adjustments.</p> <p>Other commercial price -- Provide evidence of prices charged other customers under similar circumstances of quantity, terms, and conditions.</p>
Other	A detailed description of the estimating methodology is required showing clear traceability to the cost proposed.

2 Frowned upon except for truly first-ever elements

Common in IT BOMs

Most RFPs allow for this, if they lay out categories, but we've never seen anything that fit it

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Cost/Pricing Proposal - Estimate Quality

v1.1

```

graph TD
    SOW[SOW] --> CV[Contract Vehicle]
    CV --> RFP[RFP]
    RFP --> CPP[Cost/Pricing Proposal]
    CPP --> CPA[Cost/Price Comparative Analysis]
    CPA --> Negotiations[Negotiations]
    Negotiations --> CA[Contract Award]
    
```

- Characteristics of High Quality Estimates:
 - Reflects correct technical/design baseline and WBS
 - Based on accepted cost estimating practices
 - Appropriate use of historical data and statistical analysis
 - If resulting from statistical analysis, based on CERs with minimal error bands
 - Unbiased: Neither optimistic nor pessimistic, but an assessment of the most likely cost
 - Comprehensive: No cost elements are left out or double counted
 - Well-Documented: Ground rules and cost driving assumptions clearly detailed
 - Auditable/replicable: Reviewer can "do the math" and arrive at the same answer
 - "No Surprises"

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Follow these guidelines to produce *credible* and *defensible* BOEs

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Cost/Pricing Proposal - Estimate Validity

v1.1



- Cross Checking Results
 - Checking your results from one methodology using another method increases credibility
 - Example: A parametric-based estimate can show an analogy as a “reasonableness test”
 - Doesn’t result in exact same number, but should be same order of magnitude
- Within reason, more information is better than less
- Any information that is used in the analysis must be included in the documentation - do not refer to studies or other sources that are not attached
- Like they used to tell you in math class....



Warning:
Cross-checks can be misused

If you don't show your work, you don't get any credit!



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Cost/Price Comparative Analysis

v1.1



- When the proposals are submitted to the government for technical and cost evaluation, the cost analyst is tasked to perform a Cost/Price Comparative Analysis 14
- Purpose of the Cost/Price Comparative Analysis:
 - To provide an objective basis for comparison and validation of a system’s cost (evaluating for reasonableness) 16
 - To assist in performing CAIV-based analysis (e.g., cost impacts of alternative designs or architectures) 13
 - To provide an objective basis for evaluating competing proposals 9
 - To objectively quantify the impact of program risks, both technical and schedule
 - To assist the government in contract negotiations and long-range planning



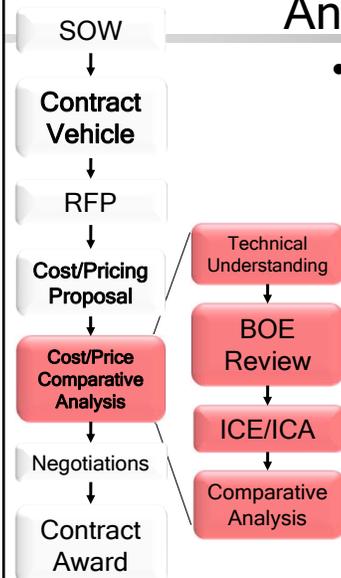
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Cost/Price Comparative Analysis - Process

v1.1

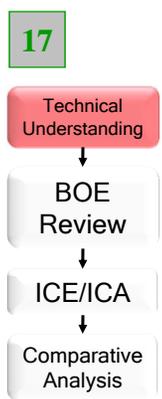


- Cost/Price Comparative Analysis Process:
 - Achieve aggregate technical understanding of the system/architecture
 - Review of the BOEs
 - Independent cost estimate or assessment of the proposal(s)
 - Comparative analysis of contractor proposal(s) and independent estimate



Cost/Price Comparative Analysis - Technical Understanding

v1.1



- Aggregate technical understanding of the system/architecture(s) being proposed
 - What is the proposal for?
 - Initial development
 - Re-planning of program
 - Additional requirements
 - Contract extension
 - How does this proposal relate to past history?
 - Either to the same program or to relevant industry programs
 - What is the effect of changes to the government's acquisition baseline on the integration of this proposal?
 - How will it affect the scheduled work?

The cost analyst need not be (and should not be) the system engineer/architect of the program, but neither can he or she ignore the program's technical scope.



Cost/Price Comparative Analysis - BOE Review

v1.1



- Do the BOEs answer the following questions?
 - Who? (Contractor, DoD Agency, etc.)
 - What? (system, element, or program is being referenced)
 - When? (time frame of data used)
 - Why? (was this data used?)
 - Explain the similarities/differences between the historical data and the program being costed
 - How? (did you adjust your data or estimate for the impacts of these similarities/differences?)
- Referenced data must be shown as part of the documentation, not just alluded to



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Cost/Price Comparative Analysis - BOE Review

v1.1



- Do the BOEs embody the following traits?
 - Transparency - The whole point of the BOE is documentation; the BOE must clearly show the rationale used to derive the cost estimate
 - Consistency - Information referenced in the BOE must match the source information, be it in the technical proposal/descriptions, historical documents and/or other parts of the contract effort
 - Accuracy - Are the estimates calculated correctly?
 - Due Diligence - Does the documented estimating process represent the best available cost estimating process and data?



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NEW!

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Cost/Price Comparative Analysis - Independent Assessment v1.1

```

graph TD
    A[Technical Understanding] --> B[BOE Review]
    B --> C[ICE/ICA]
    C --> D[Comparative Analysis]
    style C fill:#f00,stroke:#f00
  
```

- 1 • Analyst may create an estimate of the same system solution proposed
 - Based on historical data and appropriate methodology
- 3
- 6 • If multiple competing proposals are submitted, the analyst may create an assessment of the differences:
 - Including methodology, resource quantity, and technical solution (cost-benefit analysis)
- 7
- 8
- 11 • Historical data and methodology used by the analyst may differ from that of the contractor(s)
- 12

Tip: If different methods arrive at the same answer, it's a *strong* cross check.

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Cost/Price Comparative Analysis - Bottom Line v1.1

```

graph TD
    A[Technical Understanding] --> B[BOE Review]
    B --> C[ICE/ICA]
    C --> D[Comparative Analysis]
    style D fill:#f00,stroke:#f00
  
```

- Cost Comparative Analysis
 - Summarize and document the assumptions, resources and results of both the contractor proposals and the independent estimate
 - Identify and explain each delta over a predetermined threshold
 - What are the big differences in the estimates? e.g., is the amount of software development comparable between the estimates? If not, why?
 - Do both estimates contain the same cost elements (e.g., computer-based training, six-year recapitalization cycles on COTS HW, etc.)? If not, why not?
 - Are any of the underlying assumptions between the contractor's estimate and the independent estimate different? If so, why are they different and what is their impacts on the delta?
- Price Comparative Analysis
 - An analysis where proposed price is evaluated without evaluating proposed cost elements or profit

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Negotiations and Contract Award

v1.1



- After the comparison analysis is completed, government is set for Negotiations and a subsequent Contract Award
- If the deltas discovered during the comparative analysis were substantial, the analyst should be asked to update the estimate/assessments based on cost trades done at negotiation
- When cost trades are final and the government and the contractor come to agreement via negotiations, the contract is awarded



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Contract Pricing Summary

v1.1

- The contract pricing process guides the government from the determination of requirements through the contract award of a system solution of those requirements
- The primary elements of contract pricing are:
 - Determining the best applicable contract vehicle
 - Creating the Cost/Pricing Proposal (contractor)
 - Performing the Cost/Price Comparative Analysis
 - This analysis may be repeated during Negotiations



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