



# Contractor Cost & Pricing

## Components of Cost & Price... *From the Contractor's View*



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## So Why Are We Here Today?



- **Discuss Ethical, Statutory Implications of Cost and Pricing**
- **Discuss the difference between Cost and Price and the Government's Role in Both**
- **Show Examples Of Cost and Pricing**

## Costs: Dollars and Nonsense



**“The long and short of it was that Generally Accepted Accounting Practices weren’t as generally accepted as I thought.”**

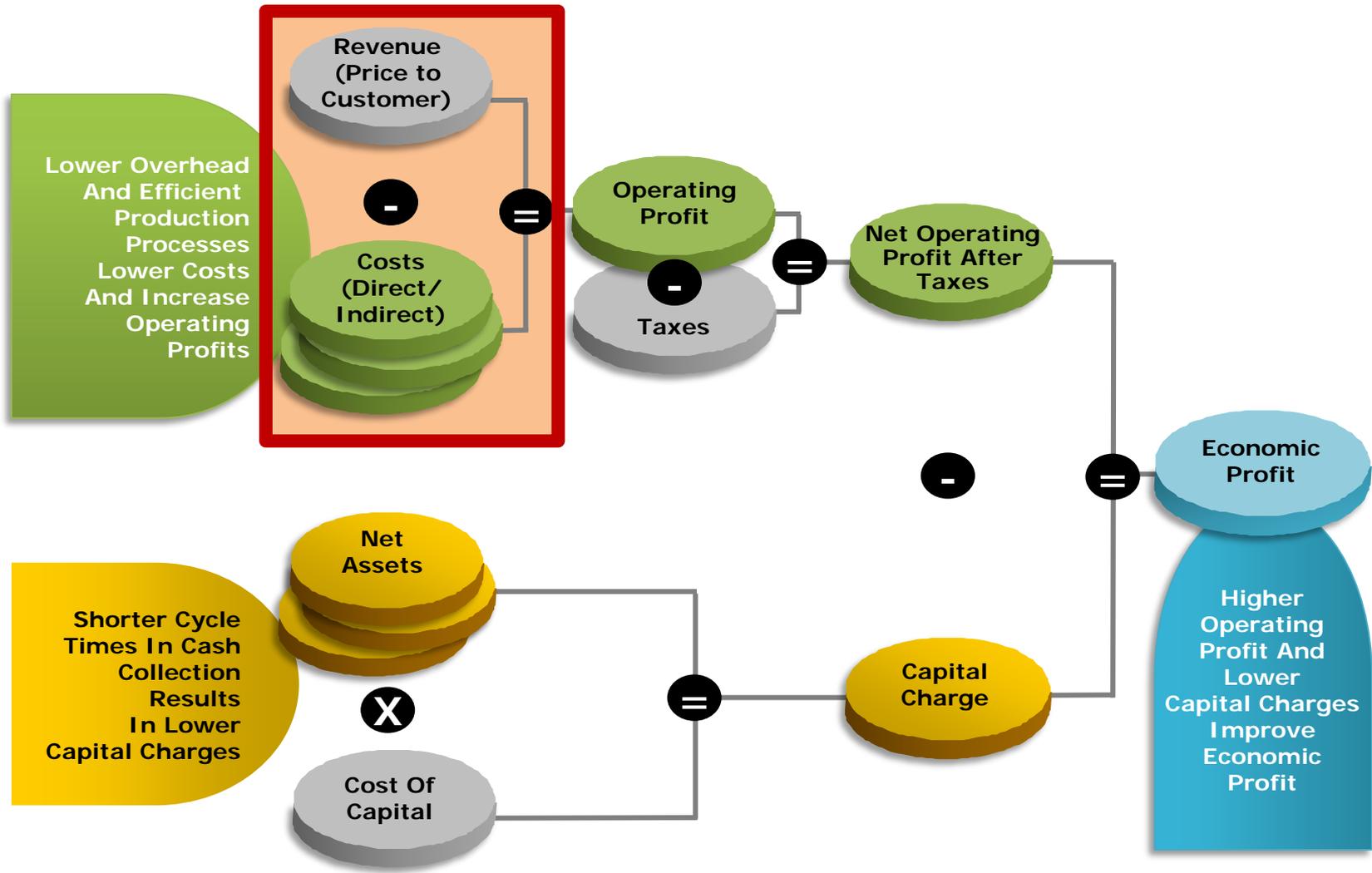
### **Truth in Negotiations Act**

- Understate Costs
- Overstate Costs

### **False Claims Act**

- Cross-Charging (*fixed price to cost reimb.*)
- Improper Cost Allocation (*comm'l to gov't*)
- Not Compliant with Specifications
- Inferior Product

# The Big Picture





# Cost Categories and Subcategories

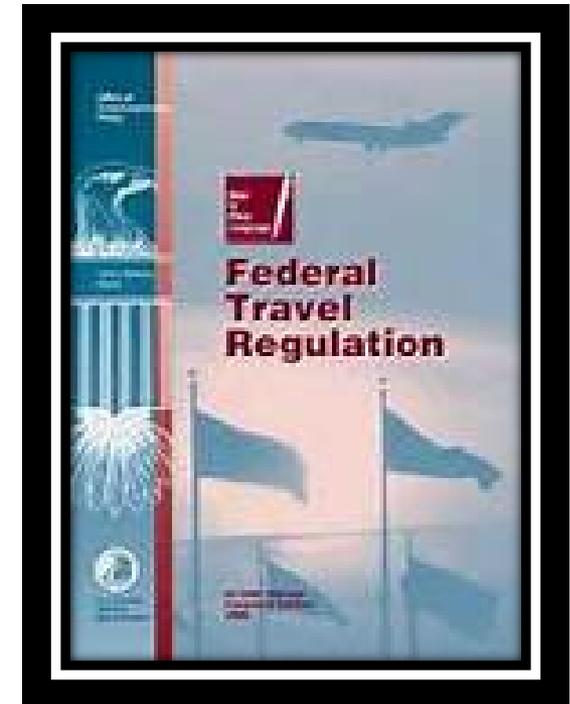
Influenced by: FAR (Federal Acquisition Regulation), CAS (Cost Accounting Standards), GAAP (Generally Accepted Accounting Practices)

Type of Cost	Description	Impacts
<b>Direct</b>	<b>DIRECTLY identifiable <i>benefit</i> to a contract</b> <ul style="list-style-type: none"> <li>▪ Direct Labor</li> <li>▪ Materials,</li> <li>▪ ODCs (Sub-K, Travel...)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Applied directly as a <i>billable</i> contract cost</li> <li>▪ Results in <i>cash</i></li> </ul>
<b>Indirect</b>	<b>GENERAL support to overall operations</b> <ul style="list-style-type: none"> <li>▪ Indirect Labor</li> <li>▪ Other non-contract “cost of doing business” expenses</li> </ul>	<ul style="list-style-type: none"> <li>▪ Applied as a <i>rate</i> to direct costs</li> <li>▪ Part of <i>billable</i> costs</li> <li>▪ Results in <i>cash</i></li> <li>▪ Must be kept low to remain <i>competitive</i></li> </ul>
<b>Allowable</b>	<b>Not specifically prohibited</b>	▪ <b>Allowable = <i>billable</i> → <i>cash</i></b>
<b>Unallowable</b>	<b>Cannot be charged to Government (FAR Part 31)</b>	▪ <b>Come out of <i>Profit</i></b>

## ***Costs: Unallowable Costs***



- **Public Relations**
- **Lobbying**
- **Advertising**
- **Interest**
- **Debts**
- **Contributions**
- **Alcohol**
- **Penalties**
- **Entertainment**



*Travel Costs Exceeding JTR Allowances*

***See FAR Part 31.205***

# Costs: Variable, Semi-Fixed, Fixed

- **Variable Costs**
  - Controllable – You Have Choices
  - Costs Can Fluctuate More Significantly
  - More Business Impact In The Short Term
- **Semi-fixed And Fixed Costs**
  - Not As Controllable – Generally Set By External Factors
  - Little Change From Month-to-month
  - More Business Impact Longer Term

**Variable: Postage, Shipping, Raw Materials, Inventories, Hourly, Commissions, Utilities**

**Semi-Fixed: Vehicle Rental, Utilities, Total Factory/Facility Overhead**

**Fixed: Rent, Interest, Insurance, Licenses, Salary of Perm Full Time Employees, Plant & Equipment Expenses**

***WHAT ARE SOME EXAMPLES OF VARIABLE VS. SEMI-FIXED EXPENSES?***



## Costs: “Colors” of Costs

- **LABOR**

- Base Hourly Pay
- Charged To Jobs At Average Hourly Rate By Salary Grade
- *Not* Actual Rate Of The Employee Working The Job

- **FRINGE**

- Estimate Of Benefits, Employment Taxes And Incentives
- Key Elements Of Fringe Costs:
  - Paid Time Off (PTO)
  - Jury Duty Pay
  - Severance Pay
  - Unemployment Insurance Taxes
  - Social Security Taxes
  - Retirement Plan
  - Worker's Compensation Premiums
  - Savings Plan
  - Health Insurance
  - Performance Sharing



## **Costs: Colors of Costs** (Continued)

### ▪ **OVERHEAD**

- Costs Of A General Nature
- Not Directly Attributable To A Specific Contract
- Benefits Overall Operations Of Organizations Belonging To Rate "Pool"
- Includes Indirect Labor And Other Expenses
- Examples Include...

***THE MORE YOU HAVE, THE MORE EXPENSIVE YOU'LL BE!***

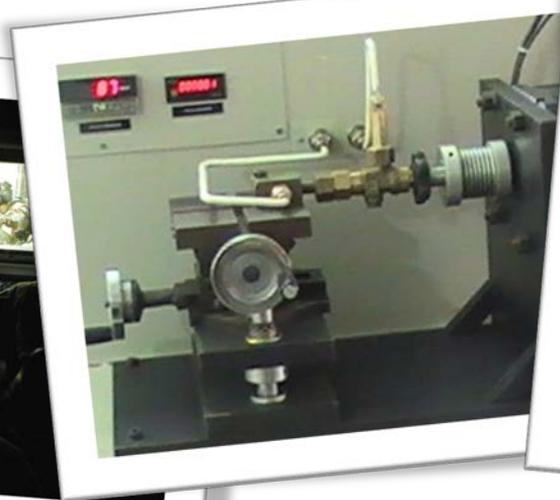
# Costs: Colors of Costs (Continued)

## Typical Content of Overhead Expenses



## **Costs: Colors of Costs** (Continued)

- **CAPITAL**
  - Acquisition Of A Depreciable Fixed Asset
  - Examples:
    - Milling Machine
    - High Altitude Test Chamber
    - "Shake" Table
    - Other Specialized Test Equipment
    - Buildings Owned And Used For The Business



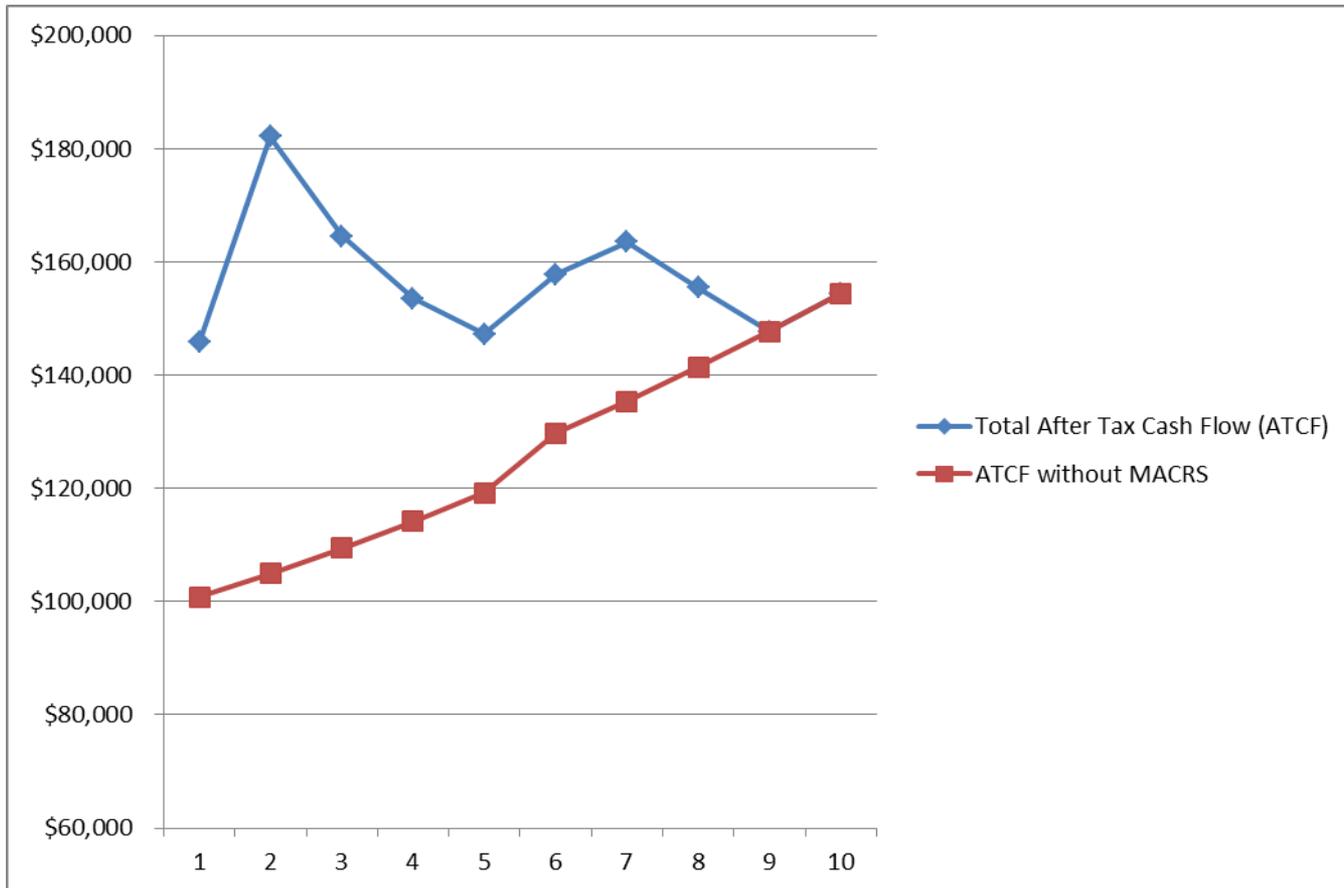


# Modified Accelerated Cost Recovery System (MACRS)– Taxes, Cash Flow and Cost

Year	0	1	2	3	4	5	6	7	8	9	10
<b>Investment Year 0</b>	\$ (900,000)										\$ -
<b>Positive Cash Flow</b>											
Sales grow @ 5% A year	\$	175,000	\$ 183,750	\$ 192,938	\$ 202,584	\$ 212,714	\$ 223,349	\$ 234,517	\$ 246,243	\$ 258,555	\$ 271,482
Utilities Savings @ decrease @ 2% a year	\$	40,000	\$ 39,200	\$ 38,416	\$ 37,648	\$ 36,895	\$ 36,157	\$ 35,434	\$ 34,725	\$ 34,031	\$ 33,350
<b>Total Positive Cash Flow</b>	\$	215,000	\$ 222,950	\$ 231,354	\$ 240,232	\$ 249,608	\$ 259,506	\$ 269,950	\$ 280,968	\$ 292,585	\$ 304,832
<b>Net Negative Cash Flow</b>											
Training Cost	\$	8,000	\$ 8,000	\$ 8,000	\$ 8,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Labor Expense grow @ 3 %	\$	50,000	\$ 51,500	\$ 53,045	\$ 54,636	\$ 56,275	\$ 57,964	\$ 59,703	\$ 61,494	\$ 63,339	\$ 65,239
Maintenance	\$	2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 10,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
<b>Total Negative Cash Flow</b>	\$	60,000	\$ 61,500	\$ 63,045	\$ 64,636	\$ 66,275	\$ 67,964	\$ 69,703	\$ 71,494	\$ 73,339	\$ 75,239
<b>Net Cash Flow from Operations (BTCF)</b>	\$ (900,000)	\$ 155,000	\$ 161,450	\$ 168,309	\$ 175,596	\$ 183,333	\$ 191,542	\$ 200,248	\$ 209,474	\$ 219,247	\$ 229,594
<b>Non Cash Items</b>											
Depreciation MACRS		14.29%	24.49%	17.49%	12.49%	8.93%	8.92%	8.93%	4.46%	0.00%	0.00%
Depreciation	\$	(128,610)	\$ (220,410)	\$ (157,410)	\$ (112,410)	\$ (80,370)	\$ (80,280)	\$ (80,370)	\$ (40,140)	\$ -	\$ -
Taxable Income	\$	26,390	\$ (58,960)	\$ 10,899	\$ 63,186	\$ 102,963	\$ 119,262	\$ 127,878	\$ 177,334	\$ 227,247	\$ 237,594
Incremental Tax Rate		35%	35%	35%	35%	35%	35%	35%	35%	35%	35%
<b>Taxes</b>	\$	9,237	\$ (20,636)	\$ 3,814	\$ 22,115	\$ 36,037	\$ 41,742	\$ 44,757	\$ 62,067	\$ 79,536	\$ 83,158
<b>Total After Tax Cash Flow (ATCF)</b>	\$ (900,000)	\$ 145,764	\$ 182,086	\$ 164,494	\$ 153,481	\$ 147,296	\$ 157,801	\$ 163,491	\$ 155,407	\$ 147,710	\$ 154,436
Taxes without MACRS	\$	54,250	\$ 56,508	\$ 58,908	\$ 61,458	\$ 64,167	\$ 69,840	\$ 72,887	\$ 76,116	\$ 79,536	\$ 83,158
ATCF without MACRS	\$	100,750	\$ 104,943	\$ 109,401	\$ 114,137	\$ 119,166	\$ 129,703	\$ 135,361	\$ 141,358	\$ 147,710	\$ 154,436



# Modified Accelerated Cost Recovery System (MACRS)– Taxes, Cash Flow and Cost



## Costs: Colors of Costs (Continued)



### G&A (General and Administrative)

- Costs Associated Primarily With
  - General Management Of The Company
  - Some specific aspects of New Business
- Includes
  - Costs Of Local Contracts
  - “Flowdown ” → “Higher HQ” Management & Staff
    - Senior Management Not Assigned To A Contract
    - Their Administrative Support
    - Other Associated Management Costs
  - Other Costs Not Assignable To Other Categories



## Costs: Colors of Costs (Continued)



- **New Business Requirements (NBR)**
  - **Costs Associated With *Acquiring New Business***
    - Marketing - The Dedicated Staff
    - Selling - The Non- Marketing Staff
      - Investigating, Analyzing, Developing New Business
      - Other Efforts In Preparation For A Proposal Effort.
    - *Bid & Proposal Or B&P - Responding To Direct Customer Request For Proposal.*
    - *Internal Research And Development (IR&D) - Basic Research And Product Development*

**NO FREE LUNCH – MUST ACCOUNT FOR EVERYTHING!**

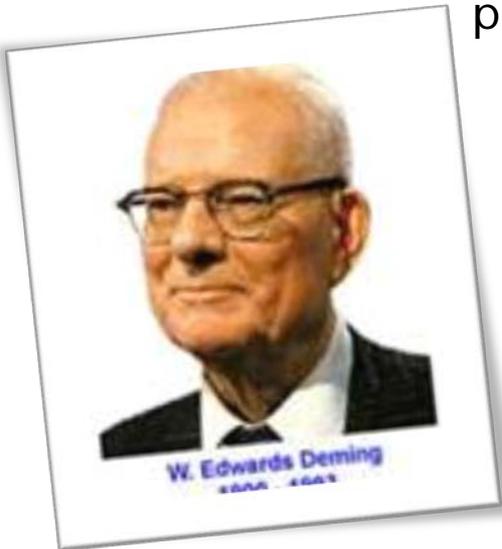
## About Rates....

- What are “rates”?
- Why are rates important to our industry partners?



*“You can’t manage what you don’t measure.” Deming*

- Costs are fully traceable from the “timesheet” to the “invoice” to “payment” to an “incurred cost submission”...  
and an “adjustment to payment” if necessary.



Why should Government PM’s understand how industry computes rates?

*DCAA reported in 2011 that 80-percent of all defense contracts were cost reimbursable and about half of those contract costs were indirect costs.*

**Other reasons?**



# Rates: Graphical View of Cost & Price Buildup

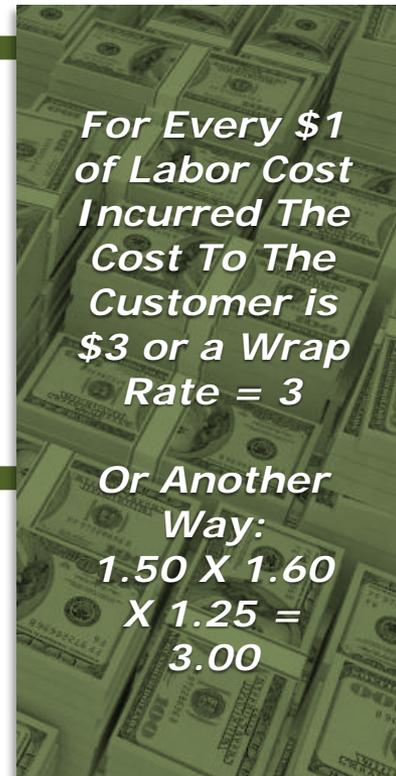
Total Costs + Fee or Profit = Price





## Rates: Effect Of Rates On Costs

Direct Labor		<b>10.0k</b>
Fringe @ 50%	Multiplier = 1.50	<u>5.0k</u>
Subtotal W/Fringe		15.0k
Overhead @ 60%	Multiplier = 1.60	<u>9.0k</u>
Subtotal Labor W/ Fringe & O/H		24.0k
G & A @ 25%	Multiplier = 1.25	<u>6.0k</u>
Subtotal Fully Burdened Labor		<b>30.0k</b>
Other Direct Costs		7.5k
Sub-k Work		10.0k
Material		<u>20.0k</u>
Total Cost		<b><u>67.5K</u></b>



For Every \$1 of Labor Cost Incurred The Cost To The Customer is \$3 or a Wrap Rate = 3

Or Another Way:  
 $1.50 \times 1.60 \times 1.25 = 3.00$

*Consider the life cycle of your program. What areas or events and in what ways would this knowledge of costs be helpful to you and your contractor?*

# Impact of Changing Rates on Cost

*Cost Before Rate Change*

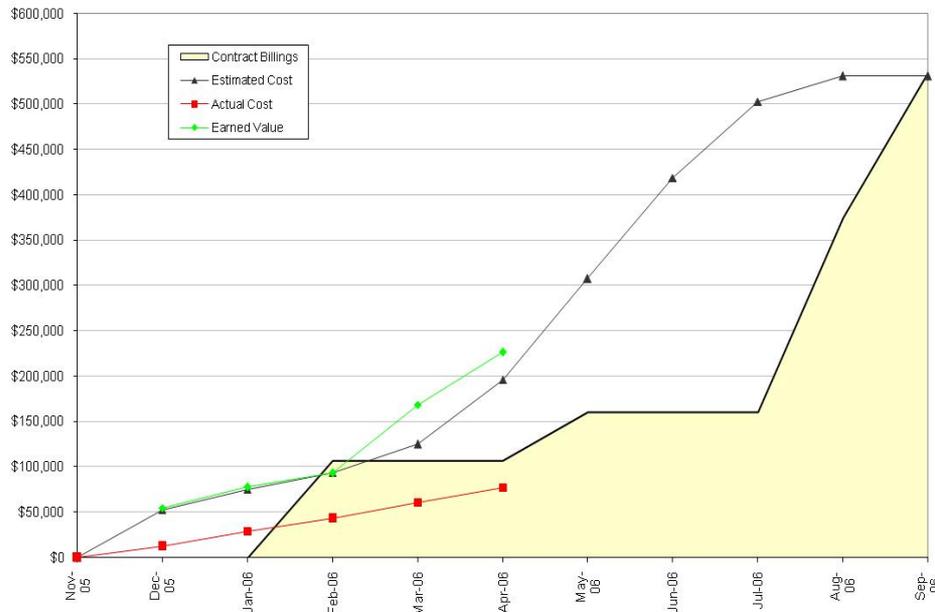
*Cost After 8% Increase to Fringe Halfway Into a 10-month Project*



RATES TABLE	Dec-05	Jan-06	Feb-06	Mar-06	Apr-06	May-06	Jun-06	Jul-06	Aug-06	Sep-06
Fringe Benefit:	24.84%	24.84%	24.84%	24.84%	24.84%	24.84%	24.84%	24.84%	24.84%	24.84%
Overhead Apps:	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%
G&A:	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%
COM:	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MARR:	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Labor Multiplier:	3.1005	3.1005	3.1005	3.1005	3.1005	3.1005	3.1005	3.1005	3.1005	3.1005
ODC Multiplier:	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707

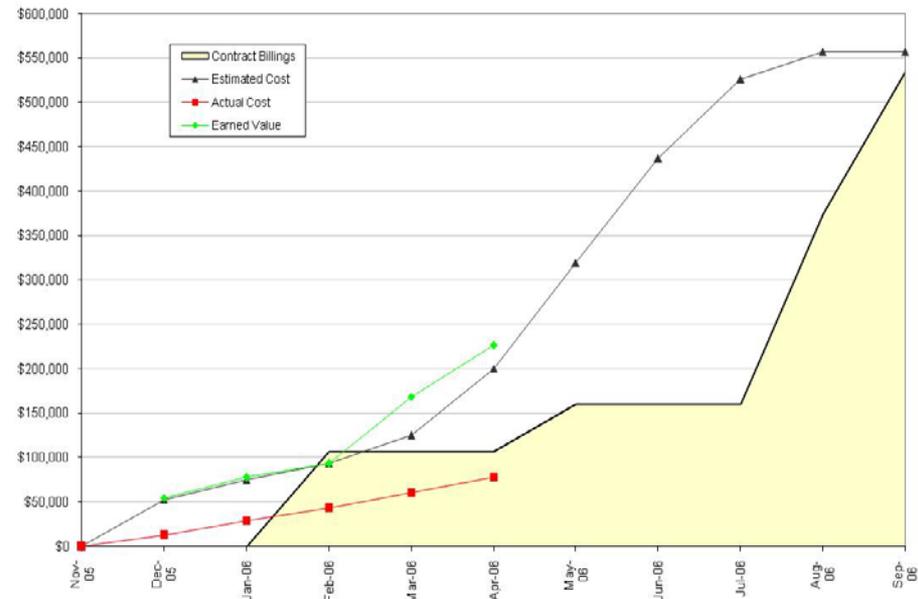
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Overhead Apps:	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%	58.12%
G&A:	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%	36.58%
COM:	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MARR:	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%	15.00%
Labor Multiplier:	3.1005	3.1005	3.1005	3.1005	3.1005	3.2991	3.2991	3.2991	3.2991	3.2991
ODC Multiplier:	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707	1.5707

**Cumulative Expenditures**



**Project Cost: \$531K**

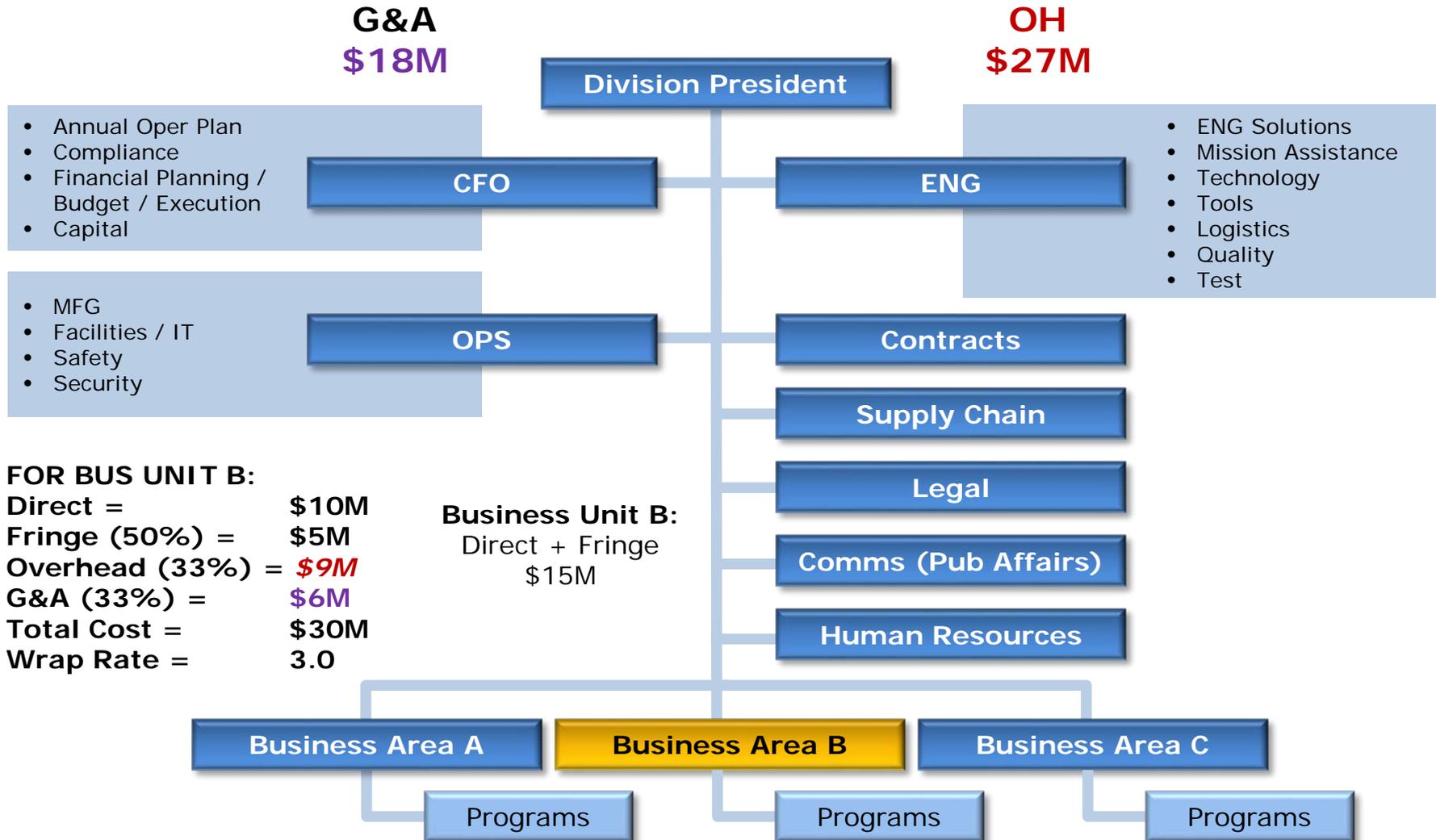
**Cumulative Expenditures**



**Project Cost: \$557K**



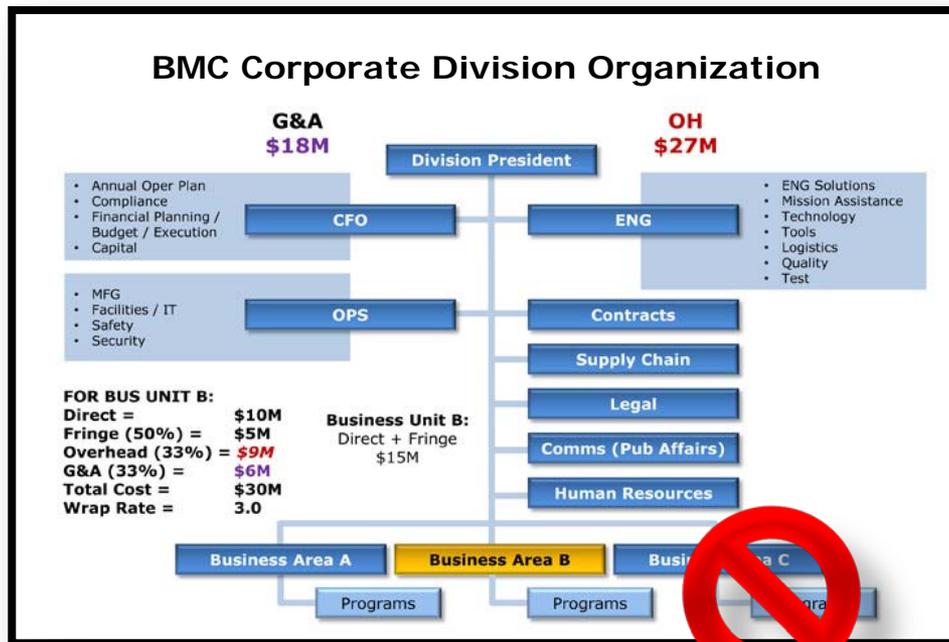
# BMC Corporate Division Organization





## Scenario for Discussion:

The Government terminates/drastically cuts MH-60Z program. MH60Z is Business Unit C's primary customer as a second-tier sub. BMC closes Business Unit C.



1. What is the impact of Business Unit C's closure on Business Unit B's Wrap Rate (assuming Division Overhead and G&A spread evenly across the remaining two business units)?
2. What actions might the Division President take to mitigate the loss of Business Unit C?
3. What actions might Business Unit B's Director take to make the Business Unit rates more competitive (after the loss of Business Unit C)?
4. Assuming the Government has a cost reimbursable prime contract with Business Unit B, what are the impacts of all of this to that program's success?

*Changes in Overhead Rates Cause Cost Growth, but...  
How Much of Overhead Can Industry Control?*



## **Cost & Pricing of Services:** “A deed, a performance, and effort”



- **Different than Goods**
  - Basically intangible (an implied promise)
  - Customer actively involved in the creation of the service
  - People are part of the product
  - No “final assembly”, services consumed as they are produced– quality problems become apparent
  - Cannot store-up inventory– goal is to smooth demand to match capacity. However, customers have expectations of how long it should take to provide the service.
- **Unique Service Cost-Drivers**
  - Timing
  - Physical Efforts
  - Sensory Costs (smells, noise)
  - Psychic Costs (mental effort, fear)
- **Pricing**
  - Driven by the service provider’s opinion of what the customer values
  - Price to Meet Competition
  - Price Below Competition
  - Price Above Competition/Prestige

***Customer: Communicate what you value from the Service to get an accurate price.***



## Cost & Pricing Software: *A Matter of Effort and Duration*



- **Boehm's Equation**  $Effort = A \times Size^B \times M$ 
  - **A** depends on the organization's practices and the type of software under development (2.94)
  - **Size** in the formula is an estimation of the SLOC, function points, or application-points. Very sensitive to the language.
  - **B** (value between 1 and 1.5) depends on the system size and complexity
  - **M** represents the effort multipliers like precedentedness, team cohesion, risk management maturity, development flexibility.
  - **Duration** is very sensitive to the amount of code reuse.
- **Best approaches to reducing schedule and cost: reduce requirements, add tools, improve skills.**

**Software Maintenance Cost Rule of Thumb: 10% per Year of Initial Development**



## ***Contractor Costs: Summary***

- **Allocate Charges On A Causal/Beneficial Relationship**
- **Pool Costs That Support A Common Cost Objective**
- **“Wrap” All Appropriate Costs Into A Fully Burdened Labor Rate**
- **Other Non-labor Contract Costs Added Next**
- **Then Fee Or Profit Applied Resulting In Price**
- **Cost, Price, Competitiveness Tied to Changes in Rates**
- **Services and Software Present Unique Challenges for Cost and Pricing**
  - Services: Need to know what the customer values from the service.
  - Software: Don't know when you will be done until you are done.

### **Additional Learning**

***Continuous Learning Module CLB-029 Rates and Resident Course ACQ-315 Understanding Industry***



# Back-up Slides

## Rates: The Rap on Wrap



### BOTTOM LINE UP FRONT:

- Wrap Rates *Apportion* Other Costs To Our Initial "Base" -- Direct Burdenable Labor (DBL)
- Account For Contribution To Total Cost Of Other Costs Such As Fringe, Overhead, G&A, And NBR
- "Wrap" Up All *Allocable & Allowable* Costs From Various "Pools" Into A *Multiplier* Of DBL
- Example: If DBL = \$1 & Total Cost = \$3, Wrap Rate = 3

**"WRAP" UP ALL ALLOWABLE & ALLOCABLE COSTS INTO SINGLE PACKAGE**

# Rates: Pools, Rates & Disclosures



- **Pool: Accumulation Of Indirect Costs**
  - That Support A Common Cost Objective
  - Purpose: Allocating Those Costs For Recovery
- **“Colors of Cost” Generate Several Pools**
  - Fringe, Overhead, G&A, NBR
- **Allocated Over An Appropriate Base**
  - Causal/Beneficial Relationship
  - Base Builds Incrementally With Each Allocation Of Pooled Costs
- **Ratio Between Cost And Base Defined As *Rate***
- **Having Several Rates Is The Norm**
  - Costs Differ Geographically For Virtually Every Cost Pool
  - Pools Within Pools

## Rates: Pools, Rates & Disclosures (Continued)



- **Pools And Rate *Development* Subject To**
  - Cost Accounting Standards Or CAS
  - FAR Part 31
- **Disclosure Statement *Communicates* To Government:**
  - Contractor's Pools And Rates
  - Rationale For How These Were Developed
- ***Forward Pricing Rates* or *FPR* Is Generally Accepted Term**
  - Developed Annually Or As Requested
  - For Future Time Periods
  - Basis For Bidding, Booking, And Charging

***DISCLOSURE STATEMENT CONVEYS FORWARD PRICING RATES  
Approach Used To Pool Costs And Develop Rates***



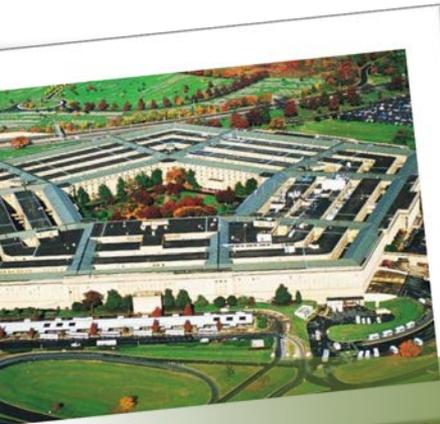
## Rates: Cost Pool Allocation To DBL

BASE COMPONENTS	RATE CALCULATION
Direct Burdenable Labor (DBL)	$\text{Direct Base Pay} \times \text{Hours Worked} = \text{Direct Base}$
Fringe	$\text{Payroll Expenses} / \text{Direct Base} = \text{Fringe Rate}$
Overhead	$\text{Overhead Expense (Including Payroll Expenses For Indirect Labor)} / \text{Direct Base Burdened By Fringe} = \text{Overhead Rate}$
Special Security	$\text{Cost Of Special Program Security And Awaiting Access Expenses} / \text{Direct Base Burdened By Fringe \& OH} = \text{Special Security Rate}$
General & Administrative	$\text{NBR, General Mgt, Corporate Flowdowns} + \text{Otherwise Not Assignable} / \text{Direct Base Burdened by Fringe, OH, \& Special Security} = \text{G\&A Rate}$

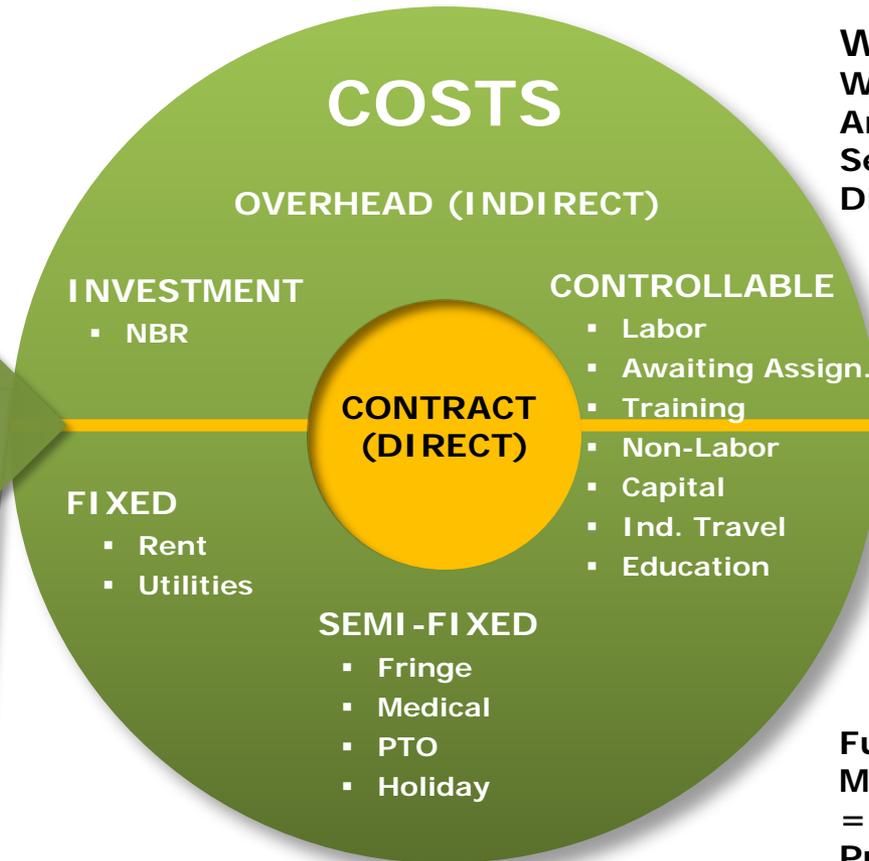
**BASE AND RATES BUILD SEQUENTIALLY AS EACH POOL ALLOCATED**  
*Differs From Company To Company*



# Rates: Wrap Rate Overview



DoD Needs & Competitors Drive Our Price



**WRAP RATE**  
We Pre-estimate Costs And Apply Them As A Series Of Rates To The Direct Charges

**CHARGE TO CUSTOMER**  
\$1 Salary x Wrap Rate = Billable Hourly Rate

Fully Burdened Labor + Material + Subs + ODCs = Total Cost + Fee or Profit = Price

**REDUCED COSTS IMPROVE COMPETITIVENESS AND CAN LEAD TO CONTINUED GROWTH?**

## Rates: Developing Cost To The Customer



- **Begin With Direct *Burdenable* Labor (DBL)**
- **Sometimes Called Direct Labor Base (DLB)**
- **Total Salaries Paid To *Direct Charge* Employees Less:**
  - Direct Paid Absence (Sick Leave, Vacations, Holidays, Etc.)
  - Crossover
  - Direct Employee On Indirect
  - Example: Non-Contract Specific Training
  - Loaned Labor To Another Project
- **Includes Effort Charged To Bidding And IR&D *On That Contract***
- **Does Not Include Marketing And Selling**

**TOTAL COST TO CUSTOMER BEGINS WITH OUR DBL**