



Preparing a Basis of Estimate

AACE Recommended Practice – 34R-05

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Preparing a Basis of Estimate

What is a Basis of Estimate?

- It is a document that is prepared by the estimator or estimating team that provides the basis for the costs identified within cost estimate
- It is a succinct method of documenting critical aspects of the project for the purpose of mitigating cost risk
- It is a documented record of communications and agreements that have been made regarding the estimated costs
- AACE – TCM describes a BOE as “the one deliverable that defines the scope of the project” and ultimately becomes “the basis for change management”
- Anyone should be able to read the BOE to understand and assess the estimate

Basis of Estimate

What is the purpose of a Basis of Estimate?

- Alert the Project Team to Potential Cost Risks
Unquoted Equipment, Unidentified Engineering or Construction Resources ,
Potential Labor Issues, Unknown Site Conditions...
- It's a Record of Communications
Key Decisions, Assumptions...
- It's a Record of Documentation
Requirements, Specifications, Equipment Lists, Drawings, Schedule, Resource Plans,
HSE, Electrical Classification, I/O Lists...
- Can be Used to Support Litigation
- Display the estimator's knowledge of the problem that is being addressed and the solution being proposed by this project

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Basis of Estimate

Why is Preparing a Basis of Estimate Important?

- From the perspective of the Project Manager or Owner's Representative
 - What Requirements were the estimate based on
 - How was the Contingency determined
 - How does this project Compare to other similar projects
 - Does the Estimator understand the requirements of the project
- From the Perspective of the Project Team and Engineering Team
 - What Scope, Specifications, and Drawings did the estimator use
 - What Key Assumptions did the estimator make
 - What was excluded
- From the Perspective of the Estimating Team
 - The Best Opportunity to have your estimating voices heard
 - Protect your Company's financial interests
 - Protect your job

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Basis of Estimate

How much Detail should be in the BOE?

- Estimate Classification
Conceptual vs. Semi-Detailed vs. Final Funding
- Cost Value of the Project
\$100K vs. \$1M vs. \$100M vs. \$1B
- Nature of the Project
Direct Purchase vs. Retrofit vs. Greenfield
- Estimating Methodology Used
Capacity Factor vs. Parametric vs. Semi-Detailed vs. Detailed
- Other Factors
Multiple Areas, Multiple Technologies, Data Used

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Basis of Estimate Content

Purpose Statement

- Briefly describe the Project that is being estimated
- What Type of Project is it?
 - New Facility
 - Addition
 - Revamp
- Type and Capacity of Units
- Location of the Facility
- What is the Overall Timing of the Project
- What Estimating Methodology was used to prepare the estimate

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Project Scope Description

- Should correspond with the Work Breakdown Structure
 - Plant
 - Train
 - Building
- Brief description of the scope for each major segment of the project
- Identify major equipment or components
- Indicate primary trades involved in the project
- Be thorough – but not overly descriptive

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Basis of Estimate Content

Design Basis

- Qualify the information that is required for the Classification of the estimate that is being prepared per Company Standards
 - Provide a Checklist of Project Deliverables as an attachment to the BOE
 - Provide a list of Documents and Drawings as an attachment to the BOE
- Identify Types and Status of Engineering and Design information that was provided
- Describe any assumptions that were made with regard to the Design Basis

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Planning Basis

- Document the execution approaches
 - Project Management
 - Engineering and Design
 - Procurement
 - Fabrication
 - Construction
 - Start-Up and Commissioning
- Identify Contracting and Resource Strategies
- Describe Workweek and Overtime assumptions
- Discuss Constructability and Modularization assumptions
- Identify overall Schedule and Key Milestones

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Cost Basis

- Explain Methods and Sources used to determine Labor and Material Pricing
 - Major Equipment Pricing Sources (quotes, historical data, etc)
 - Bulks and Commodity Pricing (include any assumed discounts)
 - Pricing Sources for Labor Hours (including productivity adjustments)
 - Wage Rates – if All-In Rates are used identify items included in that Rate
 - Sources of Construction Indirects
 - Start-Up Cost Sources
 - Sources for Home Office Costs
 - Sources for Taxes, Freight, and Duties
 - Owner Costs
 - Currency Exchange Rates
 - Escalation Cost Calculations
- Identify timeframe for all costs

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Allowances

- Material Take-Off Allowances
- Overbuy Allowances
- Design Allowances (for Engineered Equipment)
- Process Technology Development Allowances
- Congestion and Work Height Allowances
- Lump Sum Allowances for Undefined Scope

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Assumptions

Describe any assumptions that were made during estimate preparation but not discussed elsewhere in the BOE

- Adequate labor supply assumptions
- Adequate funding available assumptions
- Site Conditions

Exclusions

Document all potential items of cost which might be associated with the project but have not been included in the estimate

- Asbestos Abatement
- Removal of Hazardous Wastes
- Licensing Fees
- Land Acquisition Costs

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Exceptions

Identify any anomalies to Standard Estimating Practices that are defined by the company that you are providing the estimate for

- Document significant deviations from the Standard Deliverables required for the class of estimate you are preparing
- Provide a Checklist if possible as an attachment to the BOE

Risks and Opportunities

Identify any areas of the estimate that contain Significant Risks or Opportunities

If a formal Risk Analysis was performed identify any items with High or Very High Risk

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Contingencies

- Contingency covers Uncertainties and Unforeseeable Costs within the defined project scope. It covers inadequacies in:
 - Project Scope Definition
 - Estimating Methods
 - Estimating Data
- It does NOT include:
 - Changes in Scope
 - Unforeseen major events such as Strikes, Earthquakes, etc.
- Identify the amount of Contingency included in the estimate as well as the method used to determine it.

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Management Reserve

Management Reserve is designated funding added to the project estimate above and beyond Contingencies, and is included to cover the following:

- Allowances necessary to cover anticipated changes in Scope
- Items that may be required but are not specifically identified in the estimate

Reconciliation

Compare any previous estimates prepared for this project and explain any major differences.

- Identify cost impacts due to Scope Changes, Pricing Updates, Labor Productivity Adjustments....
- Attach a more detailed Reconciliation Report if needed

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Benchmarking

Document any comparisons of resulting Metrics, Ratios, and Factors with Similar Projects, Historical Data, and Industry Data

- Comparison projects should be similar in Type and Value
- Identify significant variations and provide comments
- Provide a detailed Benchmark Analysis Report as an attachment

Estimate Quality Assurance

Identify all Reviews that have previously taken place and all anticipated future Reviews

Estimate Team Members

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Attachments

- Estimate Deliverables Checklist
 - Provide a listing of Project and Engineering Deliverables
 - Indicate if they were in fact supplied for the estimate
- Reference Documents
 - Document the Drawings, Manuals, Specifications, and any other References used in developing the estimate.
 - Identify Issue Dates and Revisions for Key Documents
- Additional Attachments
 - Identify other attachments that may be necessary or required (Benchmark Reports, Reconciliation Report, Risk Analysis Report...

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Basis of Estimate

Important Points to Remember

- Be complete... but be concise!
- Be able to support your facts and findings
- Identify the estimating team members
- Describe the techniques and data used in the estimate
- Identify other projects that were referenced
- Develop the BOE while the estimate is being prepared

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Any Questions?

Question:

Wie wil meedoen het document
"Base of Estimate"
aan te passen naar
"Base of Estimate - Software Development"

Contact

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