AACE® International Recommended Practice No. 34R-05

BASIS OF ESTIMATE
TCM Framework: 7.3 – Cost Estimating and Budgeting

Rev. May 2, 2014
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PURPOSE

AACE International’s Total Cost Management (TCM) Framework identifies a basis of estimate (BOE) document as a required component of a cost estimate. As a recommended practice (RP) of AACE International, the template outlined in the following sections provides guidelines for the structure and content of a cost basis of estimate.

In the TCM Framework, the BOE is characterized as the one deliverable that defines the scope of the project, and ultimately becomes the basis for change management. When prepared correctly, any person with capital project experience can use the BOE to understand and assess the estimate, independent of any other supporting documentation. A well-written BOE achieves those goals by clearly and concisely stating the purpose of the estimate being prepared (i.e. cost study, project options, funding, etc.) the project scope, pricing basis, allowances, assumptions, exclusions, cost risks and opportunities, and any deviations from standard practices. In addition the BOE is a documented record of pertinent communications that have occurred and agreements that have been made between the estimator and other project stakeholders.

A well prepared basis of estimate will:

- Document the overall project scope.
- Communicate the estimator’s knowledge of the project by demonstrating an understanding of scope and schedule as it relates to cost.
- Alert the project team to potential cost risks and opportunities.
- Provide a record of key communications made during estimate preparation.
- Provide a record of all documents used to prepare the estimate.
- Act as a source of support during dispute resolution.
- Establish the initial baseline for scope, quantities, and cost for use in cost trending throughout the project.
- Provide the historical relationship between estimates throughout the project lifecycle.
- Facilitate the review and validation of the cost estimate.

This RP is intended to be a guideline, not a standard. It is understood that not all organizations that prepare estimates employ the same processes and practices, and therefore, may opt to use this information either in part or in its entirety.

RECOMMENDED PRACTICE

The primary intent of this RP is to provide a guideline for the topics and contents to be included in typical BOE. However, before describing the template contents there are a few points of significance worth noting. A basis of estimate should:

- Be factually complete, but concise.
- Be able to support facts and findings.
- Identify estimating team members and their roles.
- Describe the tools, techniques, estimating methodology, and data used to develop the cost estimate.
- Identify other projects that were referenced or benchmarked during estimate preparation.
- Be prepared in parallel with the cost estimate.
- Establish the context of the estimate, and support estimate review and validation.
• Qualify any rates or factors that are referenced either in the estimate or BOE; e.g. productivity can be expressed as either units/time (linear feet/hour) or time/units (hours/linear foot).

The following describes the suggested topics and contents included in a typical BOE.

**Purpose**

In this initial section of a basis of estimate, the estimator should provide a brief and concise description for the total project. The type of project should be identified (i.e., new facilities, addition to existing, revamp of existing, etc.), as well as the type and capacity of the process units, the location of the facility, and the overall timing of the project.

**Project Scope Description**

This section of the estimate basis should be organized to correspond with the project’s work breakdown structure (i.e., plant, building, floor, etc.). A semi-detailed description of the scope of work should be provided for each major segment of the project. Identify any major pieces of process equipment or components. It’s also good practice to indicate the primary trades that will be involved with the project. Be as thorough as necessary, without being overly descriptive, so as to adequately explain the scope of work being estimated.

**Methodology**

The BOE should indicate the primary estimating methodology used to prepare the cost estimate. This should include documentation of the use of cost resources, historical data and project benchmarking. Documenting the level of effort or man-hours used in preparation of the estimate is also recommended.

**Estimate Classification**

The AACE International estimate classification should be identified, along with reasons or justification used in the selection of the estimate classification.

**Design Basis**

Company standards will typically specify the technical and project information required for the classification of the estimate that is being prepared. In this section, the estimator will identify the types and status of engineering and design deliverables that were provided to prepare the estimate including any design basis assumptions. Two attachments to the estimate basis should be referenced: 1) an estimate deliverables checklist that is aligned with the company’s standard project process; and 2) a listing of all engineering drawings (including revision number and date), as well as other design information, such as specifications, equipment lists, units of measure (imperial vs. metric), etc.

In addition it may be useful to document specific quantity metrics for particular projects, such as overall excavation and backfill quantities, overall concrete volumes, overall piping quantities, etc. These may be organized by facilities, process train or manufacturing unit.

If material take-off’s (MTO’s) are provided to the estimator, identify specifically who developed the MTO’s and the methodology used.