

SOP ES-001: Estimate Classification System

ES-001 | v01

Version: v01 | **Date:** 2026-04-03 | **Domain:** Estimating | **Priority:** CRITICAL

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1. Purpose and Scope

Purpose: To define the framework for classifying project cost estimates by maturity, accuracy, and intended use, ensuring that estimate consumers understand the confidence level and basis of any cost figure presented.

Scope: Applies to all cost estimates prepared by or reviewed by Faolan project controls teams, including conceptual, pre-FEED, FEED, definitive, and check estimates. Covers both capital cost (CAPEX) and operating cost (OPEX) estimates.

Out of scope: Scheduling estimates (duration, resource loading) are addressed in schedule management procedures. Vendor quotations and contract pricing are governed by procurement procedures.

2. Definitions and Abbreviations

Term	Definition
Basis of Estimate	Document describing assumptions, exclusions, and methodology underpinning an estimate (see ES-003)
CAPEX	Capital Expenditure
Class 1	Definitive estimate (highest maturity, check or bid/tender)
Class 2	Detailed estimate (AFC design, procurement packages issued)
Class 3	Authorisation estimate (FEED complete, used for DGR/FID)
Class 4	Preliminary estimate (conceptual design, feasibility)
Class 5	Conceptual screening estimate (order of magnitude)
DGR	Decision Gate Review
FID	Final Investment Decision
P50	50th percentile (median) cost outcome under probabilistic analysis
TIC	Total Installed Cost

3. Roles and Responsibilities (RACI)

Activity	Lead Estimator	Cost Controls Officer	Project Manager	Project Sponsor	Client / Owner
Select estimate class	R	C	A	I	C
Define scope basis	R	C	C	I	C
Prepare estimate	R	C	I	I	I
Prepare Basis of Estimate	R	C	I	I	I
Peer review estimate	C	R	I	I	I
Approve and issue estimate	C	C	A	C	A
Maintain estimate register	C	R	I	I	I

R = Responsible, A = Accountable, C = Consulted, I = Informed

4. Procedure

4.1 Estimate Classification Framework

Faolan adopts the AACE International five-class estimate classification system (AACE 18r-97, 56r-08), calibrated for process, mining, and infrastructure capital projects.

Class	Maturity of Project Definition	Typical Engineering Completion	Expected Accuracy Range	Typical Use
Class 5	0% to 2%	Conceptual screening	-50% to +100%	Opportunity screening, initial viability
Class 4	1% to 15%	Concept study / scoping	-30% to +50%	Feasibility, preliminary budget
Class 3	10% to 40%	FEED / prefeasibility	-20% to +30%	Budget authorisation, DGR
Class 2	30% to 75%	Detailed engineering (partial)	-15% to +20%	Project control baseline, bid evaluation
Class 1	65% to 100%	AFC / complete	-10% to +15%	Lump sum tender, check estimate, final budget

Note: Accuracy ranges are probability-based (P10 to P90 or equivalent) and must be stated in the Basis of Estimate. Tighter ranges require more complete scope definition, not just more effort.

4.2 Estimate Class Selection

- At the start of each estimating assignment, the Lead Estimator and Project Manager jointly confirm the estimate class to be prepared, based on:
 - Current level of engineering completeness
 - Available scope documents (drawings, specifications, geotechnical data, vendor quotes)

- Decision to be supported (screening, FID, tender, etc.)
 2. Document the selected class in the Basis of Estimate (see ES-003).
 3. Do not prepare a Class 3 or higher estimate if the engineering completeness does not support it. Classify at the actual maturity level, not the desired one.

4.3 Estimate Preparation by Class

Class 5 (Conceptual Screening):

- Method: Parametric (cost per tonne, cost per m2, cost per km, analogous project ratios)
- Sources: Faolan CostIQ benchmark database, published industry indices
- Deliverable: Single-number estimate with explicit +/- accuracy range. No detailed breakdown required.

Class 4 (Preliminary / Feasibility):

- Method: Factored or parametric, major cost centres identified
- Sources: Benchmark database, vendor ROM quotes, equipment lists (preliminary)
- Deliverable: Cost by major discipline or cost centre. Basis of Estimate document required.

Class 3 (Authorisation / DGR):

- Method: Semi-detailed. BOQ or equipment list with factored balance-of-plant
- Sources: FEED drawings, preliminary vendor quotes, geotechnical report
- Deliverable: Full CBS breakdown. Basis of Estimate mandatory. Contingency determination per risk register or percentage-based.

Class 2 (Control Estimate / Bid Evaluation):

- Method: Detailed BOQ per discipline. Major equipment firm quotes.
- Sources: AFC or near-AFC drawings, issued-for-tender subcontract packages, firm vendor quotes
- Deliverable: Full CBS to WP level. Basis of Estimate mandatory. Contingency by risk register.

Class 1 (Definitive / Check):

- Method: Quantity takeoff from AFC drawings. All major equipment and subcontracts quoted.
- Sources: 100% AFC drawings, signed vendor purchase orders or firm quotes, executed subcontracts
- Deliverable: Full CBS to line-item level. Basis of Estimate mandatory. Remaining contingency documented.

4.4 Accuracy Range Reporting

1. All estimate deliverables must state the accuracy range on the cover page and in the Basis of Estimate.
2. Use asymmetric ranges (e.g., -20%/+30%) not symmetric ranges, unless probabilistic analysis supports symmetry.
3. For Class 3 and above: conduct a qualitative risk assessment to validate the contingency adequacy against the stated accuracy range.
4. For Class 1 estimates on projects above R 500 million TIC: consider Monte Carlo simulation to derive P10/P50/P90 outcomes. Document the method in the Basis of Estimate.

4.5 Estimate Review and Approval

1. All estimates Class 3 and above require a peer review by a second estimator or the Cost Controls Officer before issuance.
2. Peer reviewer must confirm:
 - Correct estimate class assigned

- Scope coverage complete (no obvious gaps)
- Unit rates sourced and referenced
- Contingency basis documented
- Accuracy range justified

3. Project Manager approves the estimate for issuance. For Class 3 and above: Project Sponsor review is required before DGR use.

4.6 Estimate Register Maintenance

1. Maintain an estimate register for each project: estimate ID, class, date, purpose, total value, status (draft/approved/superseded).
2. When a new estimate supersedes a prior one, update status to SUPERSEDED. Do not delete prior estimates.
3. Archive all issued estimates with their Basis of Estimate in the project document register.

5. Inputs and Outputs

Item	Type	Source / Destination	Frequency
Engineering deliverables (drawings, specs)	Input	Engineering team	Per phase
Vendor ROM or firm quotes	Input	Procurement	Per phase
Geotechnical / site data	Input	Engineering	Per phase
CostIQ benchmark data	Input	Faolan CostIQ platform	Per estimate
Cost estimate (by class)	Output	Project Manager / Client	Per phase or request
Basis of Estimate	Output	Project records	Per estimate
Estimate register	Output/Maintained	Project records	Ongoing

6. Tools and Templates

Tool / Template	Purpose	Location
CostIQ (Faolan platform)	Benchmark unit rates, P10/P50/P90 analysis	Platform
Estimate Summary Template	Standard CBS output format	`05_Templates`
Basis of Estimate Template	Document assumptions and exclusions (see ES-003)	`05_Templates`
Estimate Register (Excel)	Track all estimates issued on project	`05_Templates`
AACE 18r-97	Classification system reference	`04_ReferenceData`
AACE 56r-08	Updated classification for process industries	`04_ReferenceData`

7. References

- AACE International Recommended Practice No. 17r-97: Cost Estimate Classification System
- AACE International Recommended Practice No. 18r-97: Cost Estimate Classification System (process industries)
- AACE International Recommended Practice No. 56r-08: Cost Estimate Classification System (mining and mineral processing)
- AACE International Recommended Practice No. 10S-90: Cost Engineering Terminology
- Barrick CPS4 PC PD 03201: Estimating Standards and Classification

8. Quality Criteria and Checklist

Pre-issue estimate checklist:

- Estimate class assigned and justified against engineering completeness
- Scope coverage confirmed (discipline and area coverage)
- Unit rates referenced (source document or benchmark ID for each rate)
- Contingency basis documented (risk-based or percentage, with justification)
- Accuracy range stated (asymmetric, with rationale)
- Basis of Estimate prepared (refer to ES-003)
- Peer review completed (Class 3 and above)
- Project Manager approval obtained
- Estimate register updated
- Issued estimate filed in document register

Quality gates:

Criterion	Target
Estimate class matches engineering completeness	100%
Basis of Estimate present with every Class 3+ estimate	100%
Peer review for Class 3 and above	100%
Accuracy range stated on all estimate deliverables	100%

9. Revision History

Version	Date	Author	Changes
v01	2026-04-03	Anvil (#20)	Initial draft

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