

**AACE**  
INTERNATIONAL  
**RECOMMENDED  
PRACTICE**

**58R-10**

**ESCALATION ESTIMATING  
PRINCIPLES AND METHODS USING  
INDICES**

**SAMPLE**

**AACE**  
INTERNATIONAL



AACE® International Recommended Practice No. 58R-10

## ESCALATION ESTIMATING PRINCIPLES AND METHODS USING INDICES

TCM Framework: 7.3 – Cost Estimating and Budgeting  
7.6 – Risk Management

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# ESCALATION ESTIMATING PRINCIPLES AND METHODS USING INDICES

TCM Framework: 7.3 – Cost Estimating and Budgeting  
7.6 – Risk Management



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## INTRODUCTION

### Scope

This recommended practice (RP) of AACE International defines basic principles and methodological building blocks for estimating escalation costs using forecasted price or cost indices. There is a range of definitions of escalation and escalation estimating methodologies; this RP will help guide practitioners in developing or selecting appropriate methods for their definitions and situation. Other RPs are expected to cover methods that do not involve indices, that cover specific examples of fully elaborated methodologies for specific project situations, technologies, industries, and probabilistic applications. Also, while the RP discusses the relationships of escalation estimating to other risk cost accounts (namely contingency and currency exchange), dealing with those costs is not this RP's focus.

Escalation estimating is an element of both the cost estimating and risk management processes. Like other risks escalation is amenable to mitigation, control, etc. However, this RP is focused on quantification, not on escalation treatment (i.e., how it is addressed through contracting, bidding schedule acceleration, hedging, etc.) or control. In terms of cost estimating, this RP covers practices applicable to all classification of estimates<sup>[1]</sup>. The examples in the RP emphasize capital cost estimating, but the principles apply equally to operating, maintenance and other cost.

### Outline

The following is an outline of this RP's content:

- Background
- General Principles and Methods
  - General Principles
  - Basic Escalation Cost Estimate Relationship Using Indices
  - Price and other Economic Indices
  - Pricing Versus Costs
  - Price Index Forecasts
  - Addressing Costs Over Time (Cash Flow)
  - Addressing Cost Account Detail
  - Matching Indices to Cost Accounts (Weighting Indices)
  - Adjusted or Composite Indices
  - Using Price Indices to Normalize Historical Project Costs
  - Escalation on Contingency
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## Background

The current full definition of *escalation* is provided in AACE's recommended practice 10S-90, *Cost Engineering Terminology*<sup>[2]</sup>, but in summary, escalation is a provision in costs or prices for changes in technical, economic and market conditions over time.

As the volatility and uncertainty of the economy and the potential for escalation increases, it demands greater attention from decision makers and cost engineers; i.e., escalation is a major risk. It can have a tremendous impact on estimates, bids, profitability, and so on. In volatile times, it may be the largest cost account in an estimate; in stable times, it may seem insignificant, but could change suddenly. In contracting and procurement, it is a common source of claims and disputes if not addressed explicitly. While in some usages, the term escalation is associated with increase, escalation estimating addresses the impact of change whether that change is an increase or decrease (i.e., in risk terms, it can be either a threat or an opportunity).

Escalation as defined here excludes contingency and currency exchange impact, but includes inflation. These are all risks, but the principal estimating practices differentiate these. Some of the drivers of escalation, in addition to inflation (inflation is generally defined as the overarching effect on prices of excess money supply), include changes in market conditions, technology, regulation, general industry or regional-wide productivity and other economic factors that generally affect an economic sector or segment. Technology and regulation changes covered by escalation are those that are general in nature such as evolutionary changes in design tools or regulations not immediately impacting the project. Major technology change or regulations that directly or immediately impact the project would be covered in contingency or reserves. Escalation typically varies between different economic sectors or segments, different regions, and so on. Further, each good and service may be part of a different micro-economy facing its own escalation situation.

Escalation does not include changes in cost or price resulting from potential changes in company or project specific strategies, actions, risk events or other changes. Those pricing risks should be addressed by contingency estimates. Segregating escalation from exchange rate impacts is more challenging because both are driven by economic factors. However, segregation is recommended so that financial and other mitigation strategies can be considered (e.g., hedging of currencies for exchange risk and hedging of commodities for escalation). While this is a general guide, each company must clearly define what is in escalation versus allowance, contingency and currency exchange in its estimating process. This should be documented in the basis of estimate.

Escalation estimating is typically used to either bring past costs or prices to a current basis (i.e., an element of "normalization"), or to forecast what costs or prices will be in the future. While past escalation can be measured and is therefore less uncertain than the future, the measurements are difficult to make and are rarely of high accuracy.

As an uncertain cost, escalation is always a risk to consider in the risk management process. However, escalation is usually quantified using different methods than used for other risks (i.e., contingency). Being driven by conditions in the economy, which are external to the project, it is less amenable to quantification techniques that use project system empirical data (e.g., parametric contingency estimating), or project team input (e.g., range estimating, expected value, etc.). Given its economic nature, it is recommended that those with the most economics expertise (e.g., economists) be included in the process of developing escalation estimating methods and estimates.

Like other risks, escalation is amenable to mitigation and control. This RP does not cover the treatment and control of escalation (i.e., how it is addressed through contracting, bidding, schedule acceleration, hedging, etc.) or control. However, while this RP deals only with quantification, the unique characteristics of escalation's drivers and impacts mean that it should be controlled and otherwise managed as a unique cost control account (i.e., by AACE's definitions, contingency specifically excludes escalation<sup>[2]</sup>). As such, it is necessary to ensure that all stakeholders agree as to what escalation, contingency and currency exchange are, and estimate and manage them distinctly and

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appropriately. One reason for this careful attention is that in times of economic volatility, escalation tends to be used as an excuse for cost increases that are really caused by ineffective project practices.

## RECOMMENDED PRACTICE

### General Principles and Methods

#### General Principles

There is no single best way to quantify risks, including escalation. Each method has advantages and disadvantages and its advocates. However, there is general agreement that any recommended practice or method for estimating or forecasting the cost of uncertainty should address the principles identified in the AACE RP 40R-08, *Contingency Estimating: General Principles*<sup>[3]</sup>. The methods discussed in this RP are consistent with those principles.

For escalation, the principles in RP 40R-08 are clarified or expanded as follows in recognition of the differences between contingency and escalation estimating:

- Differentiate between escalation, currency and contingency
- Leverage economist's knowledge (based on macroeconomics)
- Use indices appropriate to each account including addressing differential price trends between accounts
- Use indices that address levels of detail for various estimate classes
- Leverage procurement/contracting specialists knowledge of markets
- Ensure that indices address the specific internal and external market situation
- Facilitate estimation of appropriate spending or cash flow profile
- Calibrate or validate data with historical data
- Use probabilistic methods
- Use the same economic scenarios for both business and capital planning
- Apply in a consistent approach using a tool that facilitates best practice
- Integrate in a total cost management (TCM) process

The escalation estimating methods described below address the above principles.

Estimating escalation at a cost level involves measuring or forecasting the performance of macro and micro-economies. Typically, cost engineering skills and knowledge do not include econometric practices. As such, practices that support escalation estimating such as macroeconomic modeling are not included in this RP. This is also in keeping with the principle of leveraging economist's knowledge. As an example of a violation of this principle, it is not uncommon to find estimators taking the shortcut of simply extrapolating past price trends without the benefit of any economic insight. This is not an effective practice and is not recommended.

#### Basic Escalation Cost Estimate Relationship Using Indices

The methods covered in this RP require input from economists as appropriate. That input usually takes the form of measured or forecast cost and prices, usually expressed with a relative index (i.e., convert the base year cost to a value of 1.00 or 100 and express the costs in all other years relative to that base).

At an elementary level, using forecast indices to estimate escalation for a future single estimated payment is easy. Escalation cost is the escalated cost minus the base cost as shown below:

$$\text{\$Escalation} = \text{\$Base estimate} \cdot [(\text{Index for target date})/(\text{Index for est. basis date}) - 1]$$