# Powerlink Cost Estimating Methodology

## 1. Purpose

This document describes Powerlink's cost estimating process (process) which focuses on ensuring the estimated costs used to inform the options to address an identified network need are accurate to the extent practicable. This process is applied during the planning and development phases of capital projects when Powerlink assesses the various options under consideration, and includes proposed transmission network investments subject to the Regulatory Investment Test for Transmission (RIT-T). In particular this document describes the:

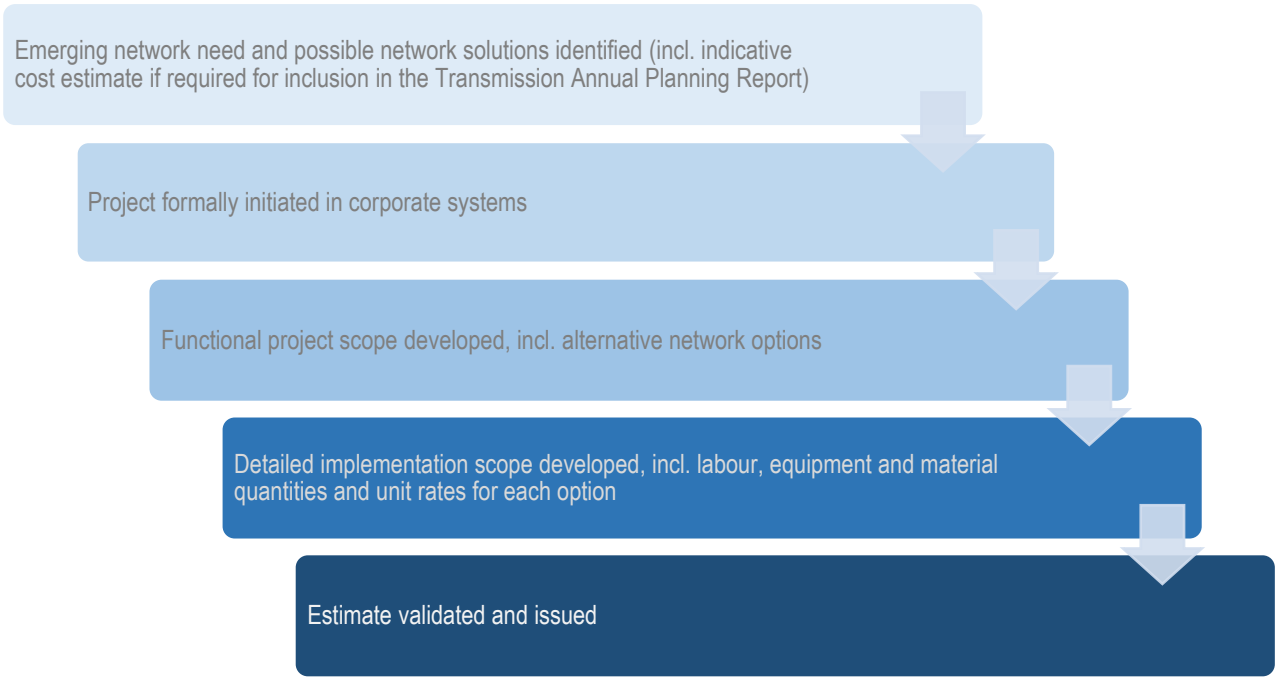
- project scope development and governance;
- estimating framework and process; and
- estimate maturity, risk and contingency.

For completeness, where Powerlink identifies a potential non-network solution as a credible option at the Project Specification Consultation Report stage of a RIT-T (Stage 1), the cost of the proposed option is based upon publicly available generic cost data. Similarly, where non-network solution providers elect to not provide specific project cost data in their RIT-T submissions (e.g. commercial-in-confidence reasons), Powerlink may rely on cost estimates from independent specialist sources such as the Australian Energy Market Operator's most recent Inputs, Assumptions and Scenarios Report.

## 2. Project and option development overview

Powerlink applies a standard business process to develop cost estimates. Initially, a project is initiated by the issue of a functional project scope that identifies the requirements and potential options to address an identified network need.

Cost estimates are subsequently developed on the basis of an implementation scope/s. Estimates are developed using a first principles approach, where the costs are calculated based upon the specific resources and quantities required to complete the defined scope of works for the options under consideration (e.g. labour, equipment, materials and subcontracts). The estimate also quantifies cost items which are specific to the location, such as geography and climatic conditions as well as compliance and other obligations, such as environmental, biodiversity and cultural heritage requirements. Each estimate is validated and checked to ensure quality and consistency. The process is illustrated below.



Option estimates provide the basis for economic analysis, project approvals, budgets and cost control. Estimates of increasing accuracy may also be produced to support these activities as a project progresses after public consultation has concluded (if applicable).

# 3. Estimating framework and process

## 3.1 Estimate types

Powerlink adopts two formal estimating methodologies for network capital projects. This reflects a fit-for-purpose approach to estimating based on project complexity, risk and expected cost as detailed below.

- Concept Estimates: produced in response to a high-level project scope requiring the consideration of multiple options. The costs are prepared within a wider cost accuracy range, typically to determine the cost of a future investment need or to support identification of the preferred option of a confirmed investment need.
- Project Proposals: developed in response to a detailed project scope for a single option. It provides a narrower cost accuracy range that informs a RIT-T, where applicable, and supports the full financial approval of a project consistent with Powerlink's corporate governance framework.

## 3.2 Estimate classes and accuracy

Powerlink produces five classes of estimate in line with international recommended practice[1] that are informed by the level of specific project information available at the time of the estimate being prepared. The most common class of estimate for Concept Estimates and Project Proposals are class 5 and class 3 respectively. Table 1 provides the typical level of detail required and accuracy of each class of estimate produced.

Table 1: Estimate classes and accuracy

| Estimate Class | Maturity of Project Definition | Typical Accuracy Range | Typical Estimate Type |
|---|---|---|---|
| Class 5 | 0% to 2% | -50% to +100% | Concept Estimate |
| Class 4 | 1% to 15% | -30% to +50% | |
| Class 3 | 10% to 40% | -20% to +30% | Project Proposal |
| Class 2 | 30% to 75% | -15% to +20% | |
| Class 1 | 65% to 100% | -10% to +15% | |

Source: AACE International, Powerlink

The estimate classification is derived from the maturity of the project scope. The maturity of scope relies on whether quantities are assumed, based upon recent similar projects, such as for Concept Estimates, or alternately based on a more detailed design scope and considered delivery methodology that is generally applied once a preferred option is identified (typically at the RIT-T stage for identified needs undergoing public consultation).

While Powerlink adopts a Class 3 estimate to inform the cost of the proposed option, a proportionate approach adopting Class 5 estimates may be used to inform alternate option costs where the cost difference is deemed to be material.

[1] Association for the Advancement of Cost Estimating (AACE International), *Recommended Practice No. 18R-97*.

## 3.4 Estimating allowances, risk and estimate banding

Powerlink has developed a risk modelling framework consistent with the Australian Energy Regulator's (AER) RIT-T Application Guidelines.

The project manager and estimator, with advice and input from the project team, identify project specific allowances, risks and estimate banding based upon the particular attributes of a project scope and site conditions.

Project specific allowances are estimate provisions for activities that are certain or almost certain to occur on a project, and may include costs arising from above average wet weather conditions (e.g. Wet Tropics), access constraints, and latent site issues (e.g. rock) that cannot be avoided or mitigated. The costs associated with allowances are incorporated into the base cost of a project estimate.

Risks are categorised as events, beyond the control of the project team, that have the potential to occur. Identified risks are captured in a deterministic risk model together with an appropriate mitigation strategy. A first principles approach is used to cost the potential impact of the risk both before and after mitigation, including the cost of the mitigation strategy.

For proposed transmission investments subject to the RIT-T, known and unknown delivery risk costs are excluded from the cost of the option. This approach aligns with that of the RIT-T Instrument which requires that the cost of the options considered include only direct costs, apart from any other costs the AER has agreed to in writing.[2]

The banding is a nominal additional provision for potential costs arising from unidentified and/or unforeseen events. Represented by an additional nominal percentage of the base estimate within the maturity accuracy range, the banding is determined by an assessment of the level of confidence in the estimate.

[2] AER, *Regulatory Investment Test for Transmission*, August 2020, paragraph 5.