Directlink Joint Venture

Proposed
Forecasting Methodology

For the regulatory period
July 2025 to June 2030

June 2023

Contents

Purpose

The purpose of this document is to define Directlink's proposed methodology for forecasting capital and operating costs for the 2025-30 regulatory period, as required under Rule 6A.10.1B of the *National Electricity Rules*:

> **6A.10.1B Notification of approach to forecasting expenditure**
>
> (a) A *Transmission Network Service Provider* must inform the *AER* of the methodology it proposes to use to prepare the forecasts of operating expenditure and capital expenditure that form part of its *Revenue Proposal*.
>
> (b) A *Transmission Network Service Provider* must submit the information referred to in paragraph (a):
>
> (1) at least 24 months before the expiry of a *revenue determination* that applies to the *Transmission Network Service Provider*; or
>
> (2) if no *revenue determination* applies to the *Transmission Network Service Provider*, within 3 months after being required to do so by the *AER*.

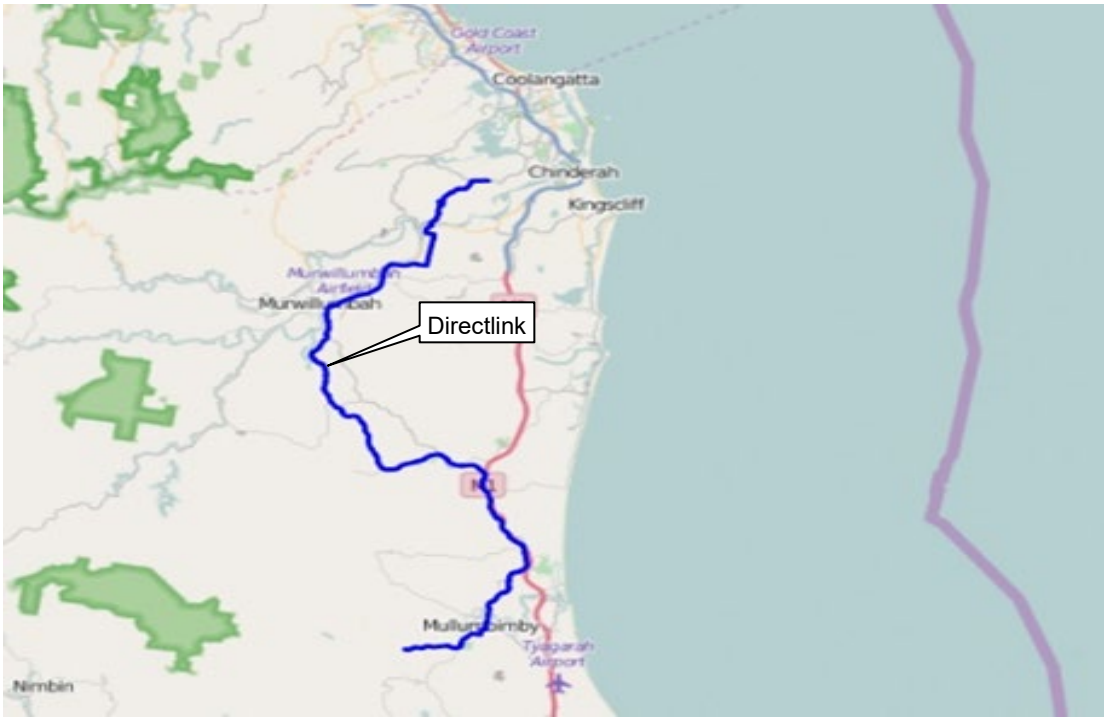
Italicised terms are defined in the *National Electricity Rules*.

1 Background

1.1 The Directlink interconnector

The Directlink interconnector is a 59 km, 180 MW High Voltage Direct Current (HVDC) interconnect running between Mullumbimby and Terranora in NSW.

Figure 1 – The Directlink Interconnector



Directlink comprises six AC/DC convertor stations (three at each end) and the six cables (three pairs) that link them, making up three circuits of 60 MW each. It is made up of both primary equipment (the major components operating at high voltage) and secondary equipment (necessary for the operation of the primary equipment).

Directlink has a number of unique features that distinguish them from the more conventional static transmission assets operated by other TNSPs:

The cables are exposed to direct voltages, which imposes different stresses and potential insulation breakdown mechanisms, than alternating voltage cables.

- The cables have unusual installation approaches; Directlink cables are laid primarily underground, and partly in above-ground galvanised steel troughing (GST).
- The convertor stations use what was, at the time of their installation, cutting edge HVDC Light technology.

The primary equipment at the convertor stations comprise:

- 132 kV power transformers;
- AC/DC convertor valve banks;

- harmonic filtering and power factor correction equipment; and
- busbars and switches.

Directlink has been in service for approximately 13 years. The expected service life of the primary convertor station equipment is 40 years. The DC cables have a potential service life in excess of 40 years.

This primary equipment is supported by a number of ancillary systems, all of which are essential for the secure operation of the link:

- power system protection equipment;
- computerised control systems and communications;
- air conditioning systems (necessary for the control system equipment to function);
- power transformer oil circulation pumps and cooling fans;
- convertor valve water purification and cooling equipment;
- convertor hall air filtering and ventilation; and
- fire protection systems.

It is important to note that the service life of these ancillary systems is much shorter than that of the primary equipment. Various components of the ancillary systems (eg. motor contactors and bearings, fluid control valves) require major maintenance or replacement at intervals ranging from 5 to 10 years.

1.2 Regulatory history

Directlink first came into operation on 25 July 2000 as an unregulated Market Network Service Provider, earning revenue from the National Electricity Market by providing a market network service between the NSW and Queensland power grids.

In March 2006, Directlink converted to a regulated interconnector (i.e. a "prescribed service" under Rule 2.5.2(c)) following application for conversion to the Australian Energy Regulator (“AER”) and an AER determination allowing conversion of Directlink to a regulated interconnector.

The AER’s decision established the Regulated Asset Base, and the revenue cap for the ten-year regulatory control period ending on 30 June 2015. Directlink collects its revenues from TransGrid, acting in the role of Coordinating TNSP under the National Electricity Rules.

Since then Basslink has had regulatory determinations covering the periods:

- 1 July 2015 to 30 June 2020
- 1 July 2020 to 30 June 2025

1.3 Directlink’s role in the National Electricity Market

As a result of the conversion to a regulated interconnector, Directlink is registered with the Australian Energy Market Operator as a Transmission Network Service Provider.

The link is dispatched by AEMO, in a similar manner to a generator, to control flows between the NSW and Queensland regions of the National Electricity Market (NEM) and thereby minimise the costs of generation in the NEM.

The implications of this arrangement, for forecasting methodology purposes, is that Directlink provides the asset to be available to AEMO for dispatch as required. Directlink is not required to derive its allowed revenue over load or demand served and therefore does not establish tariffs for the provisions of its service. Accordingly, there is no need for Directlink to forecast load or peak demand as would be the case for other regulated TNSPs.

This Forecasting Methodology therefore focuses on the approaches expected to be used to forecast capital and operating expenditure only.

2 Forecasting Methodology

2.1 Load and demand

Owing to the nature of the interconnector and its dispatch by AEMO, Directlink does not collect its revenue over forecast load and demand. Moreover, load and demand do not impact on Directlink's capital expenditure program.

Consistent with the AER's approach on Directlink and Murraylink, Directlink will not prepare a load and demand forecast.

2.2 Capital expenditure

Consistent with the nature of the asset, Directlink expects that there will be a small number of discrete capital expenditure items. These items are expected to be of a "stay in business" nature.

Forecast costs for these projects will be individually estimated, based on the best estimates of relevant materials costs and labour rates based on recent experience.

2.3 Operating expenditure

Directlink is proposing to forecast operating expenditure on the AER's base-step-trend revealed cost methodology. Directlink will firstly identify an efficient level of base year operating expenditure that reflects the expenditure a prudent network operator would require taking into account a realistic expectation of the demand forecast and cost inputs to achieve the operating expenditure objectives. Any one-off items, costs expected to vary in the future or non-recurrent expenditure items will be removed so that the base year is representative of ongoing expenditure.

Directlink will then apply an annual rate of change, consistent with the AER Expenditure Assessment Guideline, across the forecast period. The annual rate of change will be based on the best forecast of likely changes in real costs.

Directlink will add 'bottom up' cost estimates for any other one-off requirements, variable forecasts or step change cost items that are not captured in the base year operating expenditure or rate of change that are required for the forecast in order to meet the operating expenditure objectives.

2.4 Real cost escalation

Directlink anticipates that it will escalate materials and labour costs in line with real cost increases.