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<b>To</b>	Robert Alcaro and Stephanie McDougall – Transgrid
<b>From</b>	Ann Whitfield and Nick Twort
<b>Subject</b>	Transgrid repex metrics
<b>Date</b>	19 October 2022

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Transgrid has asked us to analyse its replacement expenditure (repex) over time and its proposed repex for its upcoming 2023-2028 regulatory period. The Australian Energy Regulator's (AER's) draft decision was to reduce Transgrid's proposed repex forecast for the forthcoming regulatory period by 20 per cent (a reduction of \$162.9 million), compared with the repex forecast Transgrid included in its initial Regulatory Proposal (January 2022).<sup>1</sup>

In this note, we set out the analysis we have undertaken with respect to Transgrid and other Transmission Network Service Providers' (TNSPs') repex. We focus on total repex (outturn repex and repex included in forecasts allowed by the AER) as well as repex metrics that are consistent with the AER's benchmarking partial performance indicators (PPIs) for TNSPs, ie, by comparing repex to:<sup>2</sup>

- non-coincident summated maximum demand;
- transmission network circuit length;
- energy throughput; and
- the number of end users.

In undertaking the analysis, we have had regard to Transgrid's repex performance over time, including relative to other TNSPs, and the level of repex approved by the AER in its April 2022 determination for Powerlink.<sup>3</sup> We focus on Powerlink's regulatory determination because it is the most recent TNSP final determination by the AER.

Transgrid has provided us with its most recent repex and inflation forecasts. We understand that the revised repex forecast reflects updated unit rate costs since Transgrid's initial Regulatory Proposal (ie, in January 2022).

Overall, our analysis finds that:

- The AER's adjustment to the level of forecast repex for 2023-28 results in a total repex forecast which is materially below Transgrid's levels of repex in its current regulatory period and at the lower end of the historical range for Transgrid's repex since 2009;
- The AER's adjustment would reduce Transgrid's repex by all 'PPI-style' metrics, relative to the current regulatory period.
  - > For some metrics (repex per end user, repex per circuit length), the AER's adjustment would result in forecast repex being below Transgrid's lowest levels on these metrics in real terms (since 2009).

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<sup>1</sup> Where relevant, we have assumed that the AER's draft decision to reduce Transgrid's initially proposed repex by 20 per cent applies uniformly across each year of the upcoming regulatory period. AER, *Draft decision Transgrid transmission determination 2023 to 2028*, Attachment 5: Capital expenditure, September 2022, p 15.

<sup>2</sup> The AER uses PPIs in its benchmarking to provide a general indication of comparative performance in delivering one type of output. See: AER, *Annual benchmarking report, electricity transmission network service providers*, November 2021, section 4.2.

<sup>3</sup> AER, *Powerlink Queensland transmission determination 2022 to 2027*, Final decision, April 2022.

- > For the other metrics (replex per GWh, replex per maximum demand), the AER’s adjustment would result in levels for these metrics being approximately consistent with Transgrid’s second-lowest levels for these metrics (ie, in 2010); and
- The AER’s adjustment would give rise to a significantly lower replex per MW and replex per GWh delivered for Transgrid than those implied by the AER’s recent allowance for Powerlink.<sup>4</sup> It would give rise to similar replex per km circuit length to that allowed for Powerlink.<sup>5</sup>

## 1. Repex metrics over time

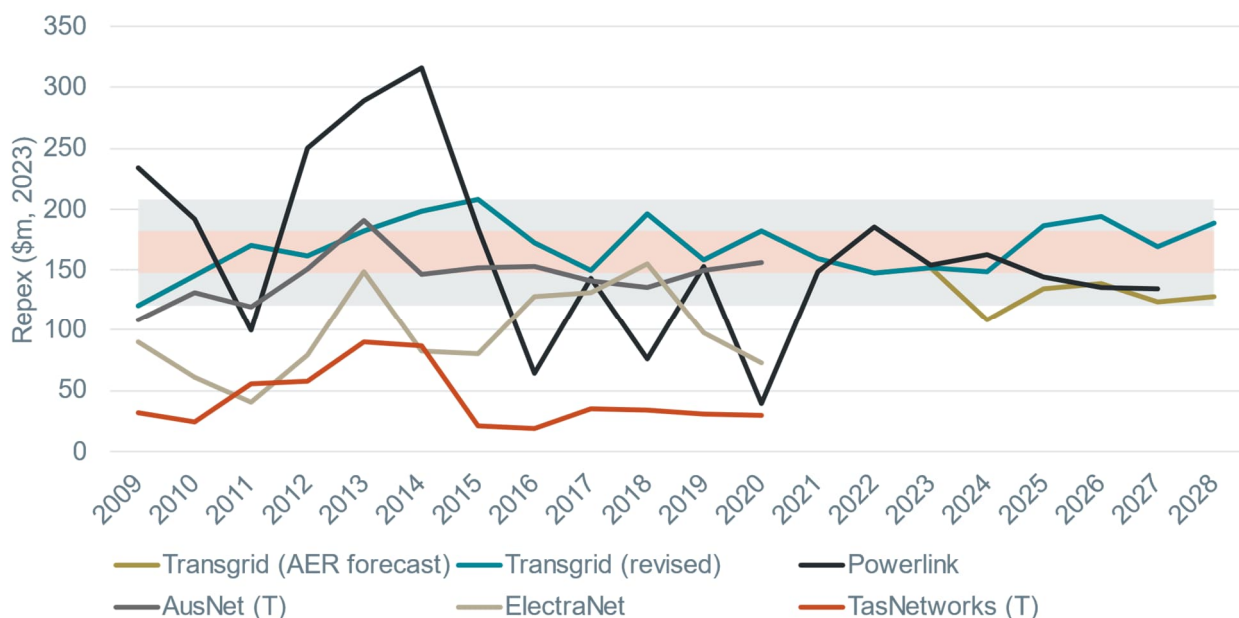
Transgrid’s revised replex forecast is for an approximately 11 per cent increase in real replex on average for the 2023-28 period, compared to outturn and forecast replex for the current regulatory period (ie, 2018-23). Transgrid’s revised replex forecast results in an annual replex allowance within the bounds of Transgrid’s historical variation in replex (since 2009) and slightly higher than the range of replex in the current regulatory period.

### 1.1 Total replex

Outturn, forecast and AER replex allowances for each TNSP are set out in figure 1.1 below.

The AER’s adjustment to Transgrid’s replex for the forthcoming regulatory period would give rise to replex levels which are not consistent with Transgrid’s current level of expenditure, ie, which are below the range of replex Transgrid has incurred in the current regulatory period (shown by the pink shaded band in figure 1.1). The allowance would represent Transgrid’s lowest replex allowance in real terms since 2009/2010.

Figure 1.1: TNSP replex over time



Sources: All TNSPs replex FY09 to FY20: AER, Electricity TNSP operational performance data, 2006-2020.  
Powerlink replex FY21: Powerlink, Powerlink - Capex Model - January 2021, tab 'Totals by driver', table 'Real 21/22, as

<sup>4</sup> See: AER, Powerlink Queensland transmission determination 2022 to 2027, Final decision, April 2022; Powerlink, Powerlink - Revised proposal- Capital expenditure model - November 2021, tab 'Totals by driver', table 'Real 21/22, as incurred, \$m'.

<sup>5</sup> We have not been able to calculate replex per customer number for Powerlink, as forecast customer numbers for Powerlink are not publicly available for this period.

incurred, \$m’.

Powerlink repex FY22 to FY27: Powerlink, Powerlink - Revised proposal- Capital expenditure model - November 2021, tab ‘Totals by driver’, table ‘Real 21/22, as incurred, \$m’.

Transgrid repex FY21 to FY23: Transgrid, Repex overview paper, January 2022, p 14.

Transgrid (AER forecast): 20 per cent reduction on Transgrid proposed repex from Transgrid, Repex overview paper, January 2022, p 32.

Transgrid (revised): provided by Transgrid.

Values converted to real FY23 terms using Transgrid updated inflation series.

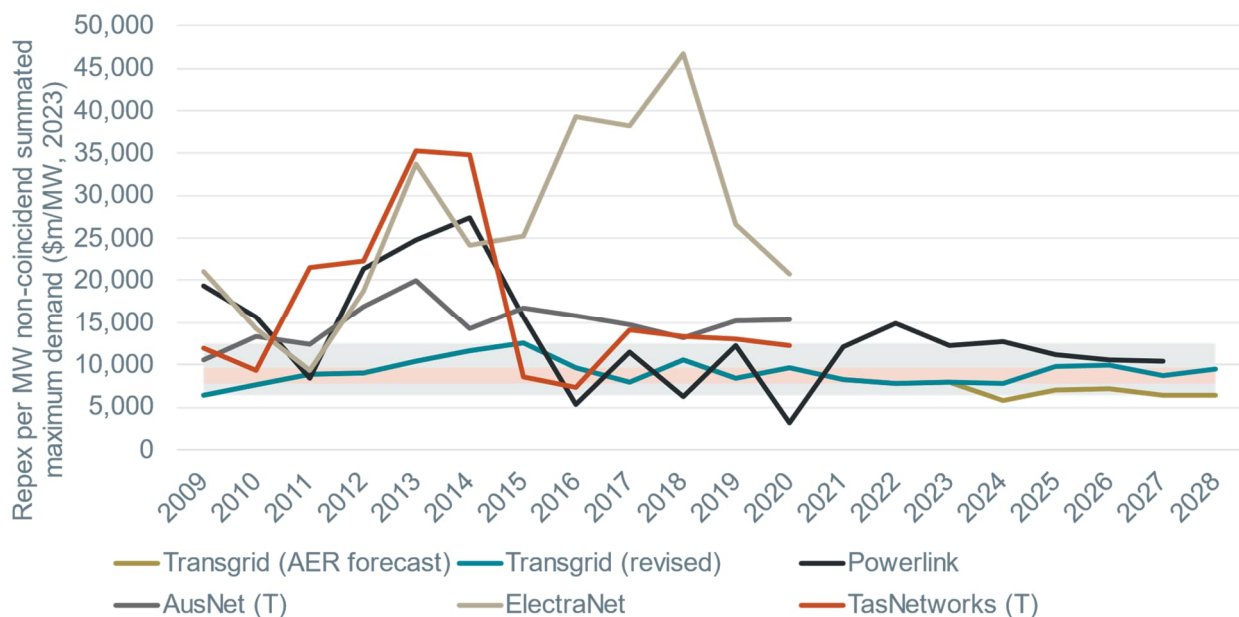
Note: Grey shaded band represents the maximum and minimum values for Transgrid over the period FY09 to FY23, ie, the start of the series to the end of the current regulatory period. Pink shaded band represents the maximum and minimum values for Transgrid over the period FY19 to FY23, ie, the current regulatory period.

## 1.2 Repex metrics

Figure 1.2 below shows that Transgrid currently ranks highly on repex per MW non-coincident summated maximum demand.

Based on Transgrid’s revised forecast, repex per MW would be around nine per cent higher than in the current regulatory period, on average, but would remain within the historical variations since 2009 (and since 2018, which is the last ‘peak’ on this metric and lower than Transgrid’s highest repex per MW maximum demand in 2015). The AER’s adjustment would result in Transgrid’s repex per MW maximum demand falling to its lowest levels since 2009.

Figure 1.2: Repex per MW non-coincident summated maximum demand



Sources: Repex – see figure 1.1.

Non-coincident summated maximum demand FY09 to FY20: AER, AER – Transmission data – partial performance indicators.

Powerlink maximum demand FY21 to FY27: Powerlink, TRP 2022-27 - RIN - Workbook 1 - Forecast - January 2021.

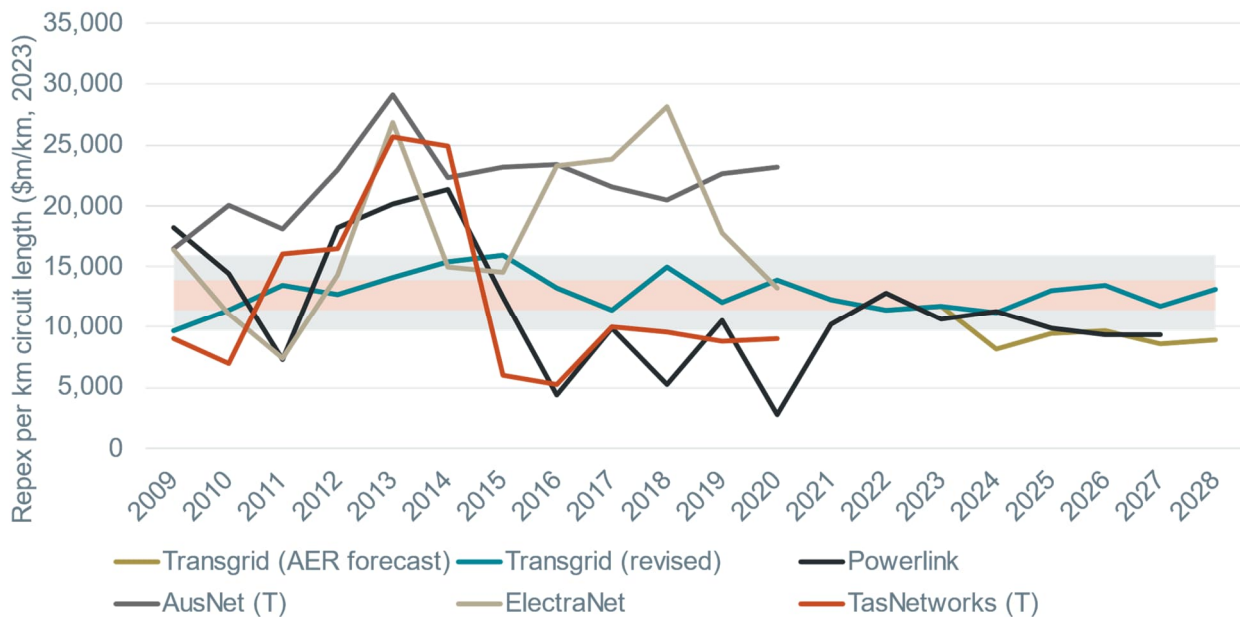
Transgrid maximum demand FY21 to FY27: provided by Transgrid.

Note: Historical maximum demand uses TOPSD0204. Forecast maximum demand uses TOPSD0206 because there is no forecast for TOPSD0204.

Figure 1.3 below shows that Transgrid currently ranks around the middle of the TNSPs on repex per circuit length.

Transgrid’s revised forecast repex would raise repex per km to be around 1.8 per cent higher than in the current regulatory period, on average, but remaining within the range for this metric in the current regulatory period. The AER’s adjustment would result in Transgrid’s repex per circuit length being lower in every year than Transgrid’s lowest levels by this metric (in 2009).

Figure 1.3: Repex per km circuit length

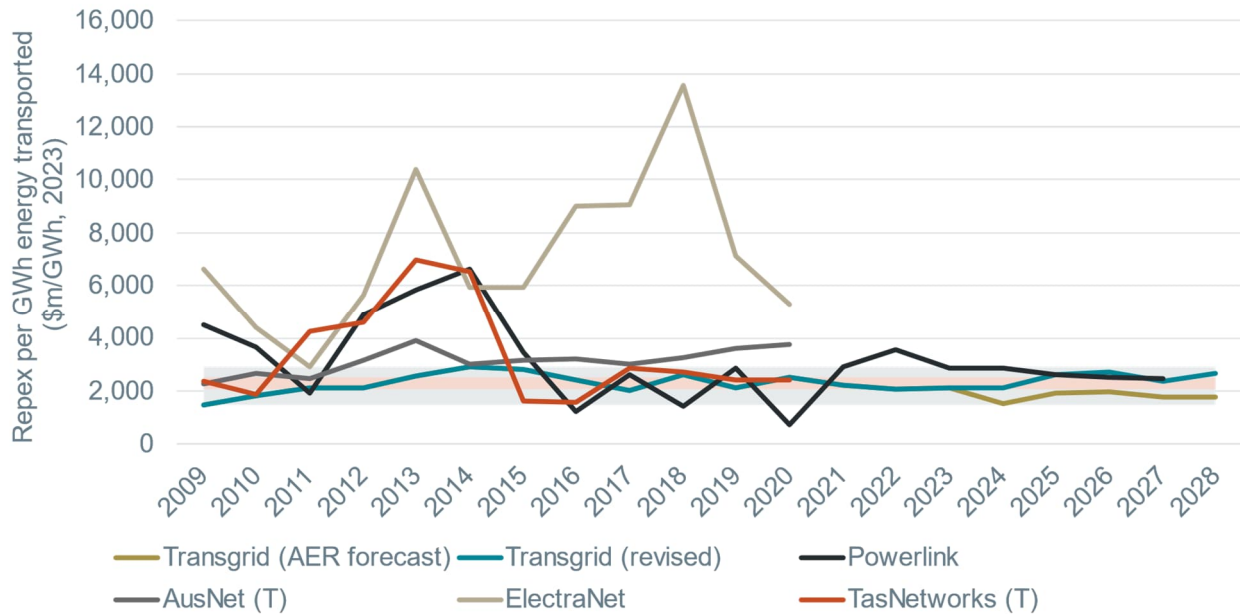


Sources: Repex – see figure 1.1. Circuit length – same sources as repex/MW in figure 1.2.

Figure 1.4 below shows that Transgrid currently ranks strongly on repex per GWh energy transported compared against the other TNSPs.

Transgrid’s revised forecast repex would result in repex per GWh energy transported being at the upper end for this metric in the current regulatory period. The AER’s adjustment would result in Transgrid’s repex per GWh energy transported being lower than in Transgrid’s current regulatory period, representing Transgrid’s lowest allowance by this metric since 2010.

Figure 1.4: Repex per GWh energy transported

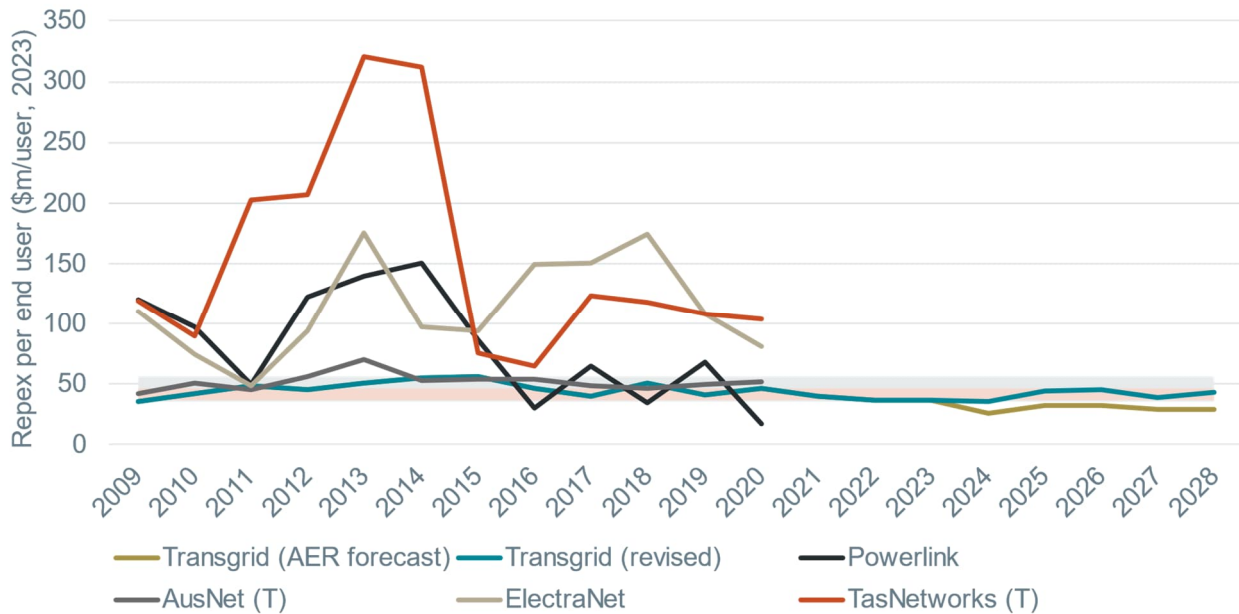


Sources: Repex – see figure 1.1. Energy transported – same sources as repex/MW in figure 1.2.

Figure 1.5 shows repex per end user. Transgrid currently ranks highly (first or second to Powerlink, depending on the year) in repex per end user.

Based on Transgrid’s revised forecast, repex per end user would be around 3.5 per cent higher in the forthcoming regulatory period compared to the current regulatory period, on average, but would remain within the range of this metric for the current regulatory period. The AER’s adjustment would result in repex per end user being lower in every year than Transgrid’s lowest levels by this metric (ie, in 2009).

Figure 1.5: Repex per end user



Sources: Repex – see figure 1.1. End users – same sources as repex/MW in figure 1.2.

Note: Powerlink forecast of end users not publicly available.

### 1.3 Comparison between the AER's determination for Powerlink and the AER's draft decision for Transgrid

The repex forecast accepted by the AER for Powerlink for its current regulatory period (FY23-FY27) is an increase on Powerlink's outturn historical repex. We note that the AER considered that Powerlink's repex practices could be improved, but did accept its total capex forecast, noting Powerlink's stakeholder engagement on its capex.<sup>6</sup>

For Transgrid's upcoming regulatory period, comparing Transgrid's revised repex forecast to the AER's allowance for Powerlink (see figure 1.6), the repex forecast for Transgrid would represent:

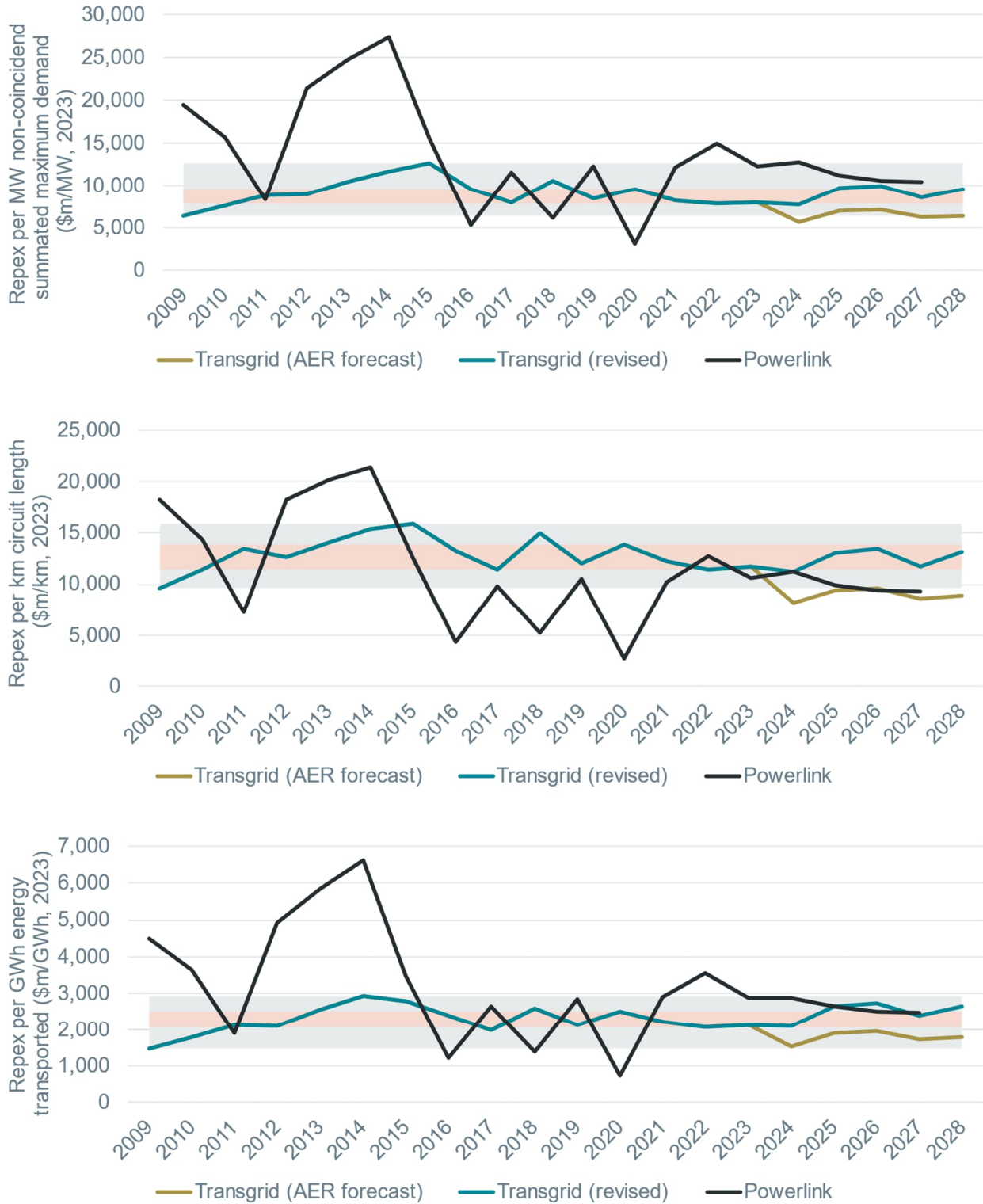
- a lower amount than for Powerlink on repex per MW (compared to roughly comparable at present);
- around the same amount as for Powerlink on repex per GWh delivered (compared to lower than Powerlink at present) – higher in some years and lower in others; and
- a higher amount than Powerlink on repex per km circuit length.

In contrast, for Transgrid's upcoming regulatory period, comparing the AER's allowance for Transgrid in its draft decision to the AER's allowance for Powerlink, the repex forecast for Transgrid would represent:

- a significantly lower amount than for Powerlink on repex per MW and repex per GWh delivered; and
- around the same amount as for Powerlink on repex per km circuit length.

<sup>6</sup> See: AER, *Powerlink Queensland transmission determination 2022 to 2027*, Final decision, April 2022, section 2.5 capital expenditure.

Figure 1.6: Comparison of Transgrid and Powerlink repex metrics



Source: See figure 1.2, figure 1.3 and figure 1.4.