
To	Stephanie McDougall and Robert Alcaro – Transgrid
From	Ann Whitfield, Martin Chow and Nick Twort – HoustonKemp
Subject	Transgrid's ICT expenditure
Date	11 October 2022

Transgrid has asked us to analyse the trend in its information and communication technology (ICT) expenditure over time and compared to its proposed ICT expenditure for its upcoming 2023-2028 regulatory period. We understand that the Australian Energy Regulator's (AER's) draft decision found that Transgrid had not provided sufficient evidence for its proposed increase in ICT expenditure in the 2023-28 regulatory period, in light of Transgrid's reclassification of Software-as-a-Service (SaaS) expenditure moving from capex to opex, and that the AER's consultant, EMCa, noted concerns about the prudence and efficiency of Transgrid's forecast ICT capex.¹

In this note we set out the analysis we have undertaken with respect to Transgrid and other transmission network service providers' (TNSPs') ICT expenditure. We focus on ICT total expenditure (totex) due to the shift between capex and opex for SaaS, as well as ICT unit metrics, by comparing ICT totex to the ICT annual descriptor metrics typically included in the Regulatory Information Notices (RIN) provided to the AER, ie:

- employee numbers;
- user numbers; and
- number of devices.

The AER uses Partial Productivity Indices (PPIs) in its benchmarking of TNSP expenditure, to provide a general indication of comparative performance in delivering one type of output.² The unit metrics approach we have adopted is similar but focuses on elements of output which we expect to be more relevant as a driver of ICT expenditure.

In undertaking the analysis, we have had regard to Transgrid's ICT totex performance over time, including relative to other TNSPs.

Transgrid has provided us with its most recent ICT expenditure forecasts³ and annual descriptor metrics forecasts. We set out this information at appendix A1.

Overall, our analysis shows that:

- Transgrid is proposing an increase in its ICT totex for the upcoming regulatory period. However, on a trend basis, when increases in employee numbers, user numbers and the number of devices are taken into account (particularly as forecast over the upcoming regulatory period) there is a decline in Transgrid's ICT expenditure over time. For example, over the period 2009 to 2028:
 - > Transgrid's ICT totex is expected to decrease by around \$436 per device per year (or 2.02 per cent per year⁴); while

¹ AER, *Transgrid transmission determination 2023 to 2028*, Draft decision, Attachment 5 capital expenditure, September 2022, p 13.

² See: AER, *Annual benchmarking report, electricity transmission network service providers*, November 2021, section 4.2.

³ We understand that Transgrid's forecast is the same as in its initial revenue proposal but with updated inflation estimates applied.

⁴ Average annual growth rate, 2009-2028 from linear trend line.

- > Transgrid's ICT totex is expected to decrease by around \$100 per user per year (or 0.33 per cent per year⁵); and
- Transgrid's ICT totex benchmarks well when compared to other TNSPs. In particular, over the last five years (2017-2021), Transgrid's ICT totex expenditure:
 - > per employee was the lowest across all TNSPs;
 - > per user was the second lowest, with only Powerlink having a lower cost; and
 - > per device was the second lowest to TasNetworks and approximately equal to Powerlink.

We have also considered the trend in Transgrid's proposed ICT capex alone. Transgrid's proposed increase in ICT capex (excluding SaaS) for its upcoming regulatory period is coincident with forecast increases in employee numbers, user numbers and the number of devices, such that per unit ICT capex (excluding SaaS) is expected to fall over 2023-2028, continuing a declining trend since 2009.

1. ICT totex metrics over time

Transgrid's updated ICT totex forecast is for an approximately 5 per cent increase in real ICT totex on average for the 2023-28 period, compared to outturn and forecast expenditure for the current regulatory period (ie, 2018-23).

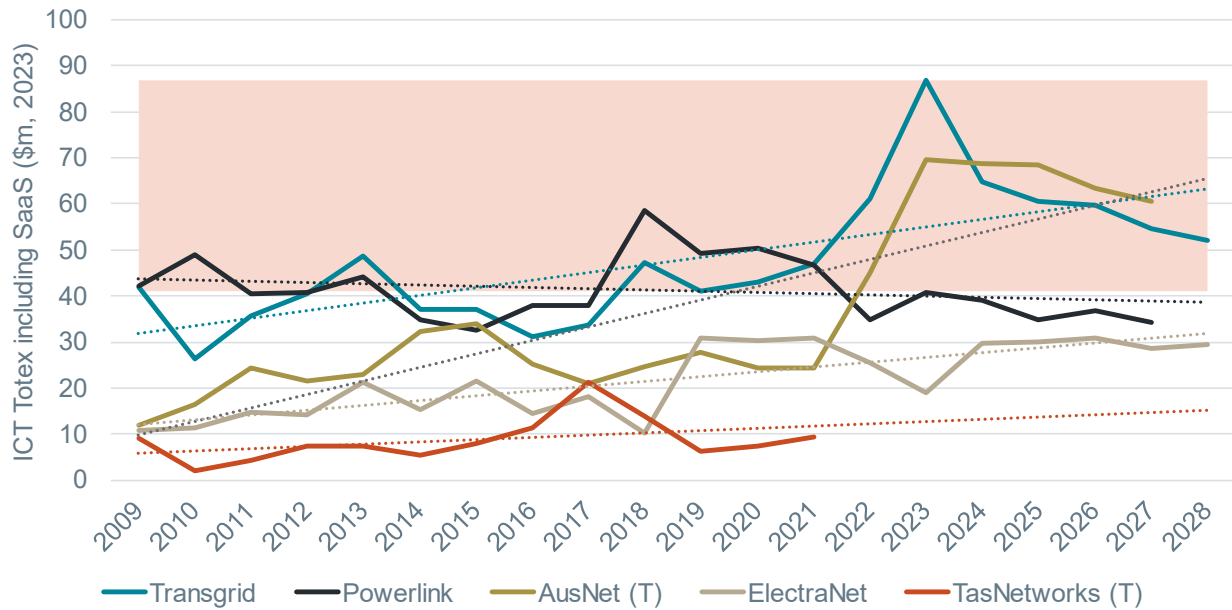
Figure 1.1 below shows that Transgrid's ICT costs are expected to peak in FY23 (ie, the last year of the current regulatory period) before declining relatively sharply to FY28. The dotted lines on figure 1.1 represent linear trendlines over this time period. On average across the whole period 2009-2028, Transgrid's ICT totex is expected to increase by around \$1.65 million per year.⁶ This equates to an increase of 3.66 per cent per year,⁷ which is higher than Powerlink's trend annual decrease but lower than for the other three TNSPs.

⁵ Average annual growth rate, 2009-2028 from linear trend line.

⁶ Calculated as the slope of a linear regression line.

⁷ Average annual growth rate, 2009-2028 from linear trend line.

Figure 1.1: TNSP ICT totex over time (\$m, 2023)



Sources: All TNSPs FY09 to FY21: RIN responses.
 Transgrid FY22-FY28 provided by Transgrid.
 Powerlink, ElectraNet, AusNet FY22-FY27 from RIN forecasts in revenue proposals.
 Values converted to real FY23 terms using Transgrid updated inflation series.

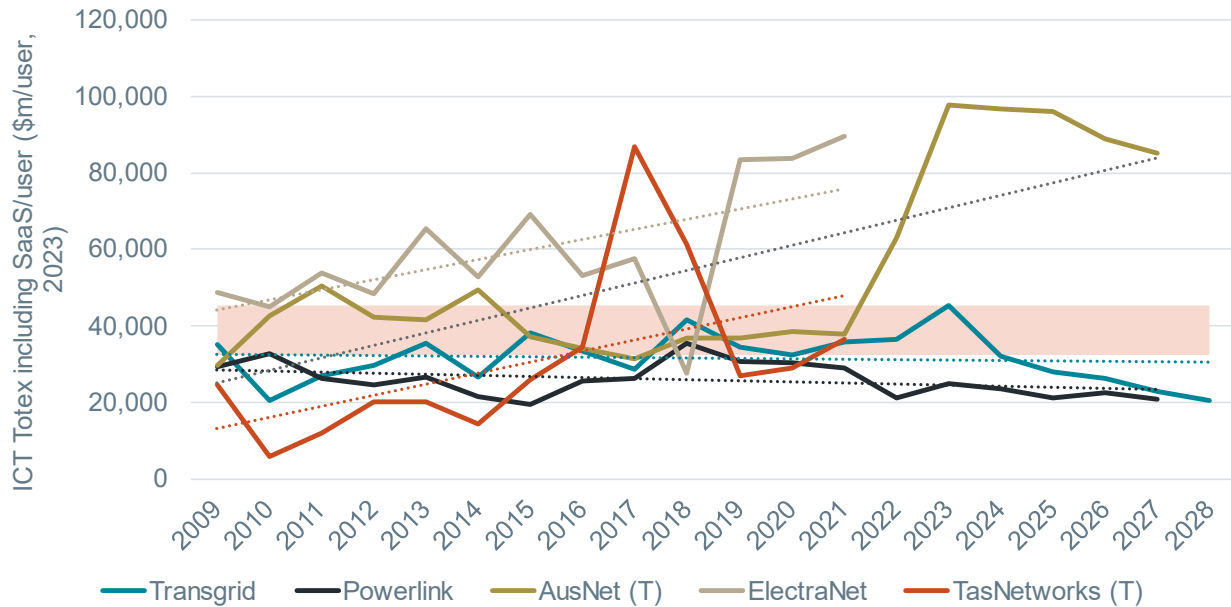
Note: Pink shaded band represents the maximum and minimum values for Transgrid over the period FY19 to FY23, ie, the current regulatory period.

Figure 1.2 shows that Transgrid currently ranks highly on ICT totex per ICT user – on average over the last five years (2017-2021), Transgrid’s expenditure is lower than ElectraNet and TasNetworks, approximately in line with AusNet, and slightly higher than Powerlink. Transgrid’s ICT totex per user is expected to be lower in every year during the upcoming regulatory period than in the current regulatory period. On average across the whole period 2009-2028, Transgrid’s ICT totex per user is expected to decrease by around \$100 per user per year.⁸ This equates to a decrease of 0.33 per cent per year,⁹ which is higher than Powerlink but less than the other three TNSPs.

⁸ Calculated as the slope of a linear regression line.

⁹ Average annual growth rate, 2009-2028 from linear trend line.

Figure 1.2: TNSP ICT totex per user over time (\$/user, 2023)



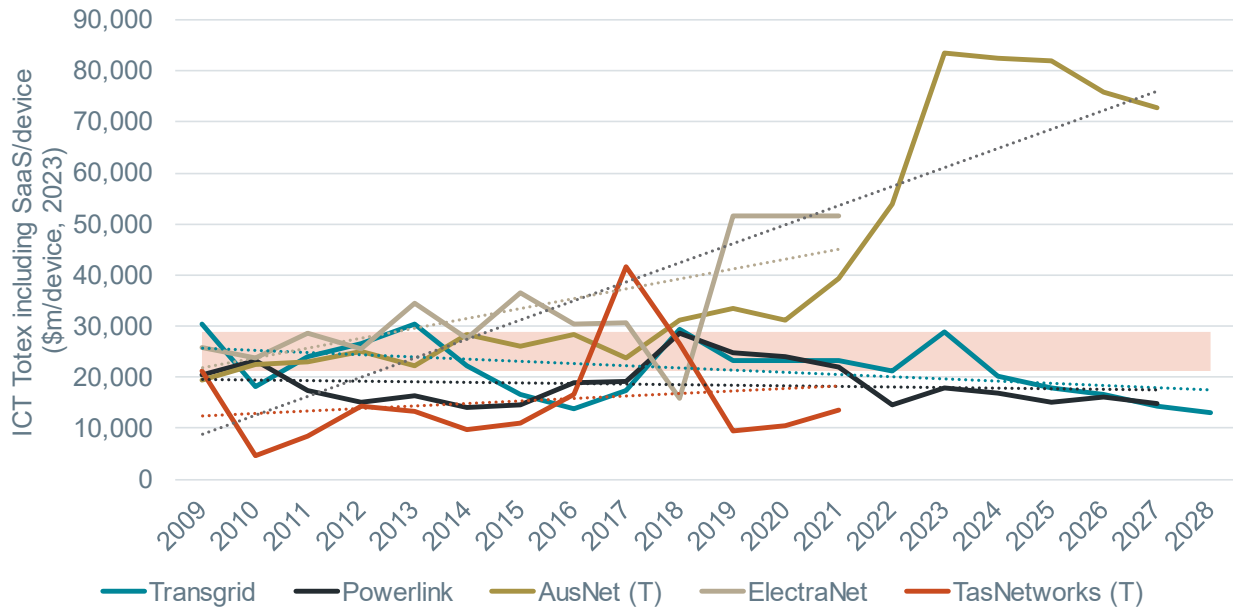
Sources: All TNSPs FY09 to FY21: yearly RIN responses.
 Transgrid FY22-FY28 provided by Transgrid, see appendix A1 below.
 Powerlink, ElectraNet, AusNet FY22-FY27 from RIN forecasts in revenue proposals.

Figure 1.3 presents ICT totex per device and shows a similar narrative to the ICT totex per user depicted in figure 1.2. On average over the last five years (2017-2021), Transgrid’s expenditure per device is lower than AusNet and ElectraNet, approximately in line with Powerlink and slightly higher than TasNetworks. On average across the whole period 2009-2028, Transgrid’s ICT totex per device is expected to decrease by around \$436 per device per year.¹⁰ This equates to a decrease of 2.02 per cent per year,¹¹ which represents the largest decrease across all TNSPs and contrasts with increases for ElectraNet, AusNet and TasNetworks. Transgrid’s ICT totex per device is expected to be lower in every year during the upcoming regulatory period than in the current regulatory period.

¹⁰ Calculated as the slope of a linear regression line.

¹¹ Average annual growth rate, 2009-2028 from linear trend line.

Figure 1.3: TNSP ICT totex per device over time (\$/device, 2023)

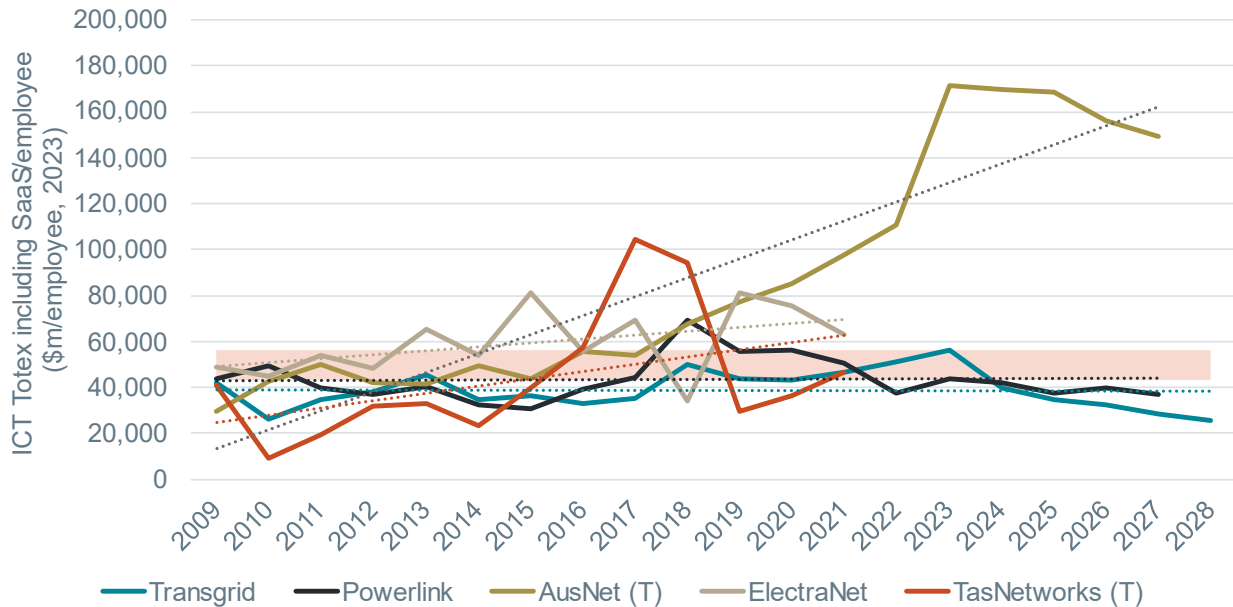


Sources: All TNSPs FY09 to FY21: yearly RIN responses.
 Transgrid FY22-FY28 provided by Transgrid, see appendix A1 below.
 Powerlink, ElectraNet, AusNet FY22-FY27 from RIN forecasts in revenue proposals.

Figure 1.4 below show that, on average over the last five years (2017-2021), Transgrid's ICT totex per employee was the lowest across all TNSPs. Transgrid expects to reduce its per employee ICT totex over the upcoming regulatory period. On average across the whole period 2009-2028, Transgrid's ICT totex per employee is expected to decrease by around \$12 per year.¹² This equates to a decrease of 0.03 per cent per year, which is similar to Powerlink and smaller than the increases for the other TNSPs.

¹² Calculated as the slope of a linear regression line.

Figure 1.4: TNSP ICT totex per employee over time (\$/employee, 2023)



Sources: All TNSPs FY09 to FY21: yearly RIN responses.
 Transgrid FY22-FY28 provided by Transgrid, see appendix A1 below.
 Powerlink, ElectraNet, AusNet FY22-FY27 from RIN forecasts in revenue proposals.

2. Transgrid's capex excluding SaaS

Transgrid's updated ICT capex forecast (excluding SaaS) is for an increase in real ICT capex (excluding SaaS) for the 2023-28 period compared to outturn and forecast expenditure for the current regulatory period (ie, 2018-23) – see figure 2.1.

However, the increase in ICT capex (excluding SaaS) is coincident with forecast increases in employee numbers, devices and users. Figure 2.2 shows that ICT capex (excluding SaaS) on a unit basis is expected to fall by more than 20 per cent from the current regulatory period to the upcoming 2023-28 period, continuing a downward trend present across the entire period (ie, 2009-2028).

Figure 2.1: Transgrid ICT capex, excluding SaaS, over time (\$m, 2023)

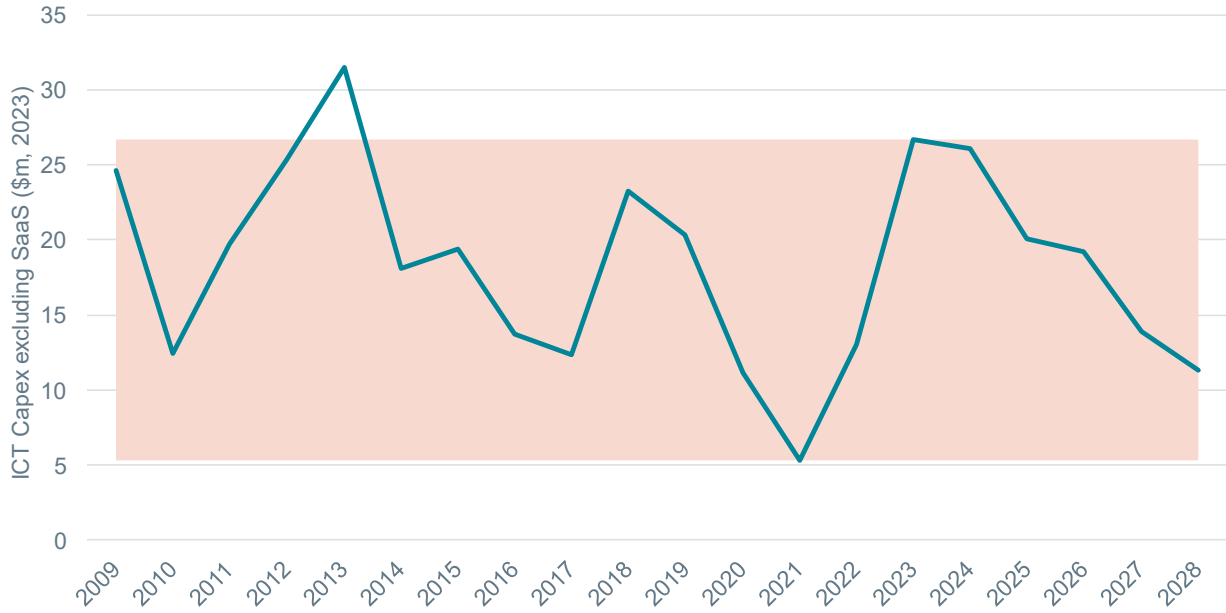
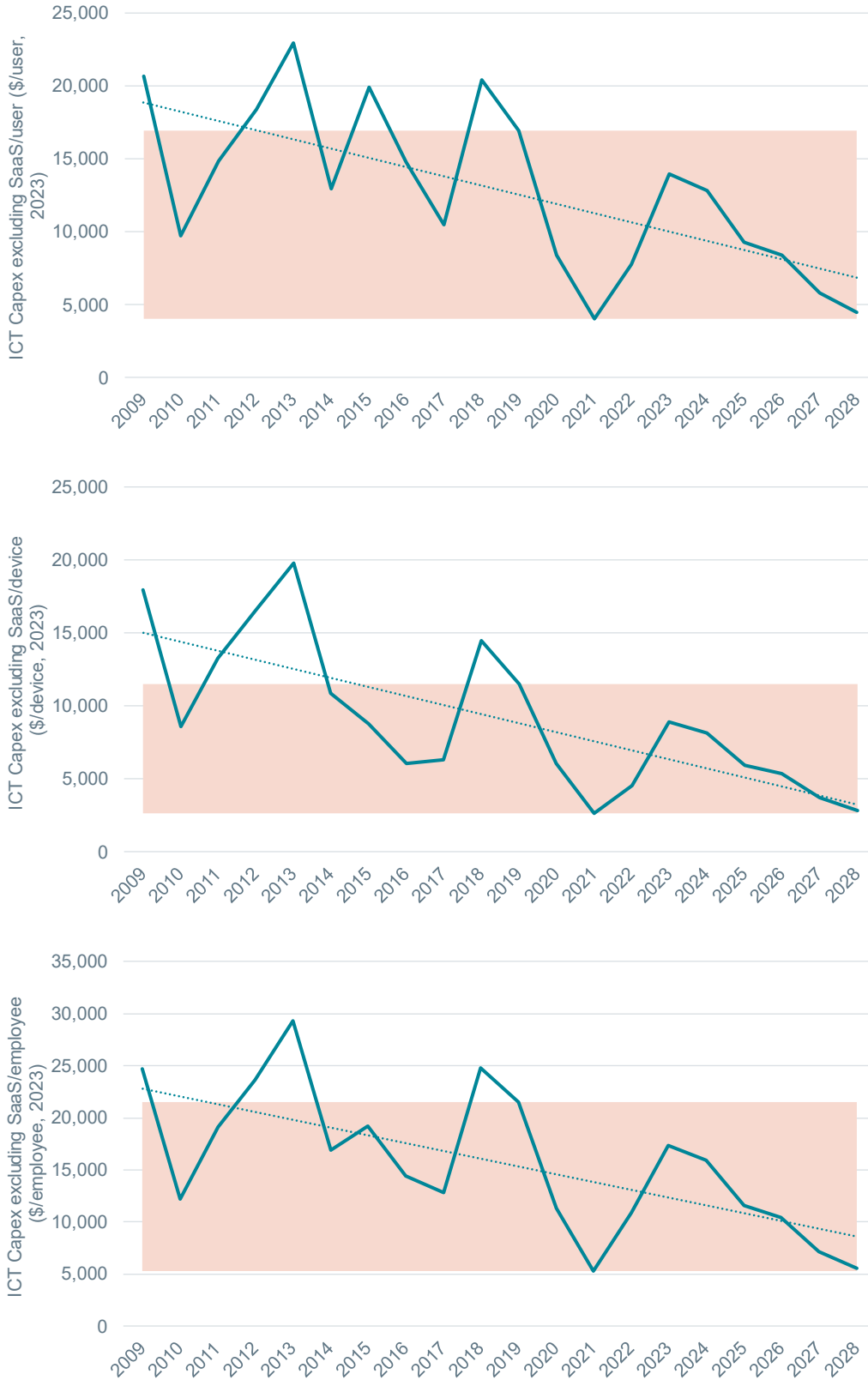


Figure 2.2: Transgrid ICT capex, excluding SaaS, per user/device/employee over time (\$, 2023)



A1. Transgrid inputs

Table A1.1: Transgrid ICT expenditure historical and forecast

Item	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Opex (\$m, nominal)				29.03	33.36					
Opex (\$m, 2023)						38.81	40.35	40.53	40.71	40.87
Capex excluding SaaS (\$m, 2023)	22.00	11.80	5.40	13.00	26.70	26.10	20.10	19.20	13.90	11.30
SaaS capex (\$m, 2023)	1.80	10.60	16.00	17.40	26.70	-	-	-	-	-

Source: *ICT opex_sent to HK_26 Sep 2022.xlsx; Transgrid, Transgrid - 2023-28 RIN Workbook 1 Forecast - 31 Jan 2022 - PUBLIC.xlsm; Email from R Alcaro to M Chow, 21 September 2022 11:53am.*

Table A1.2: Transgrid annual ICT descriptor metrics forecast

Item	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Employee numbers	1,192	1,537	1,637	1,737	1,837	1,937	2,037
User numbers	1,678	1,911	2,036	2,160	2,284	2,409	2,533
Number of devices	2,882	3,000	3,195	3,390	3,586	3,781	3,976

Source: *Email from R Alcaro to N Twort, 10 October 2022, 9:16pm.*