

AER's annual productivity benchmarking

Electricity transmission industry

What is productivity benchmarking?

Key points

- *Each year the AER measures the productivity of the five transmission network businesses in the national electricity market that operate the infrastructure that deliver electricity to your home or business.*
- *We compare or 'benchmark' the industry and networks' productivity and publish the results [here](#) in our Annual Benchmarking Report.*

To measure transmission network productivity, we compare the quantity of inputs the networks use to transport electricity from generators to distribution networks in urban and regional areas (i.e. the amount of transformers, overhead and underground lines, operating costs etc.), with the quantity of outputs the networks provide (i.e. the amount of reliable electricity transported to electricity consumers).

We measure transmission network productivity in three main ways:

- **Total factor productivity (TFP)**, which we use to understand if the transmission industry or a specific network has become more or less productive over time compared to its past performance.
- **Multilateral total factor productivity (MTFP)**, which we use to understand 'relative productivity' which is whether a transmission business is more or less productive over time and compared to other transmission networks.
- **Partial performance indicators (PPIs)**, which we use to understand whether a transmission business uses one particular input more or less productively over time and compared to other transmission businesses.

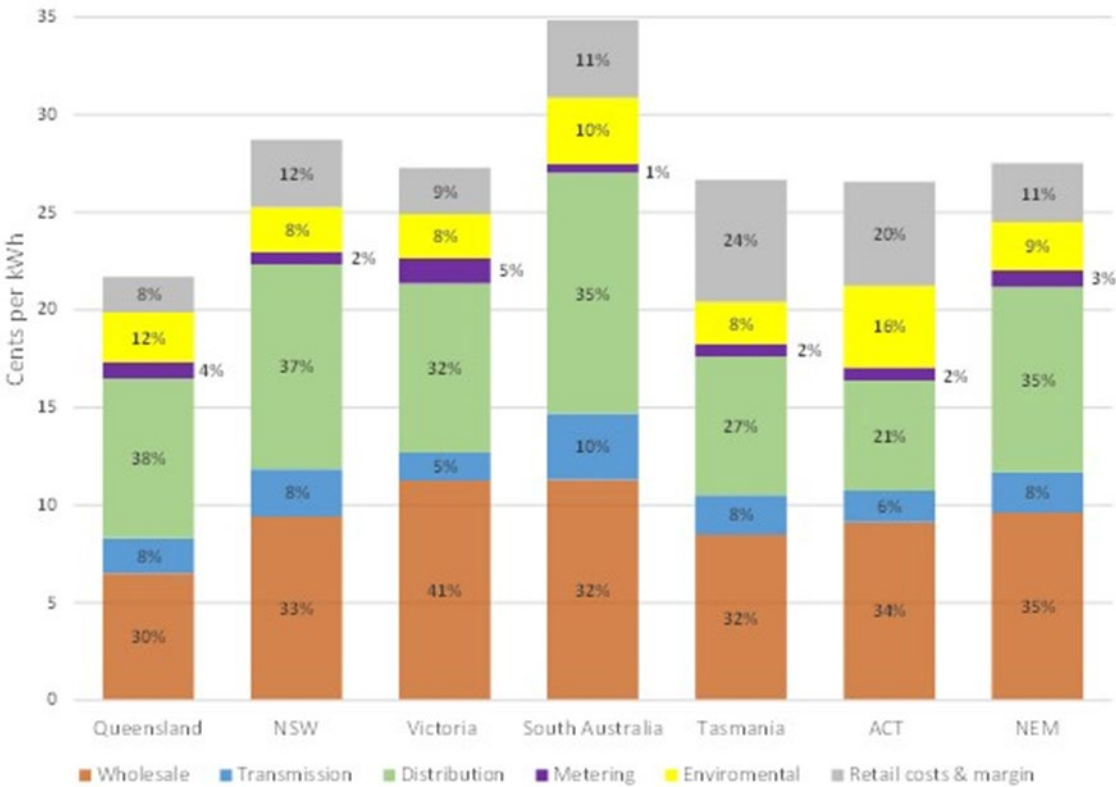
More information on our productivity benchmarking and how we use it can be found in sections 1 and 2 and Appendix B of the transmission report [here](#).

Why does the AER measure electricity network productivity?

Key points from Figure 1

- *The costs of operating the transmission (and distribution) networks that deliver electricity to your home or business make up between a quarter and almost a half of your electricity bill, depending on the state or territory you live in.*
- *If your electricity networks are more productive, this should contribute to downward pressure on network costs and your electricity bill.*

Figure 1 shows the proportion of your electricity bill that is due to transmission and distribution network costs in 2021 in different states and territories.



Source: AEMC, Residential electricity price trends 2021, Final Report, December 2021.

The AER’s benchmarking reports help put downward pressure on network costs and your electricity bill by:

- providing the AER with information on the efficiency of network costs, helping us identify where to target our assessments of proposed expenditure and whether we should reduce the amount of money a network can recover from you through your electricity bill.
- providing network owners and investors with information on how productive their business is, which along with our incentive schemes, provides them with a financial and reputational incentive to improve their efficiency.
- providing consumers with accessible information about the relative efficiency of the electricity networks they rely on.
- providing government policy makers with information about the impacts of regulation on network costs, productivity and electricity prices.

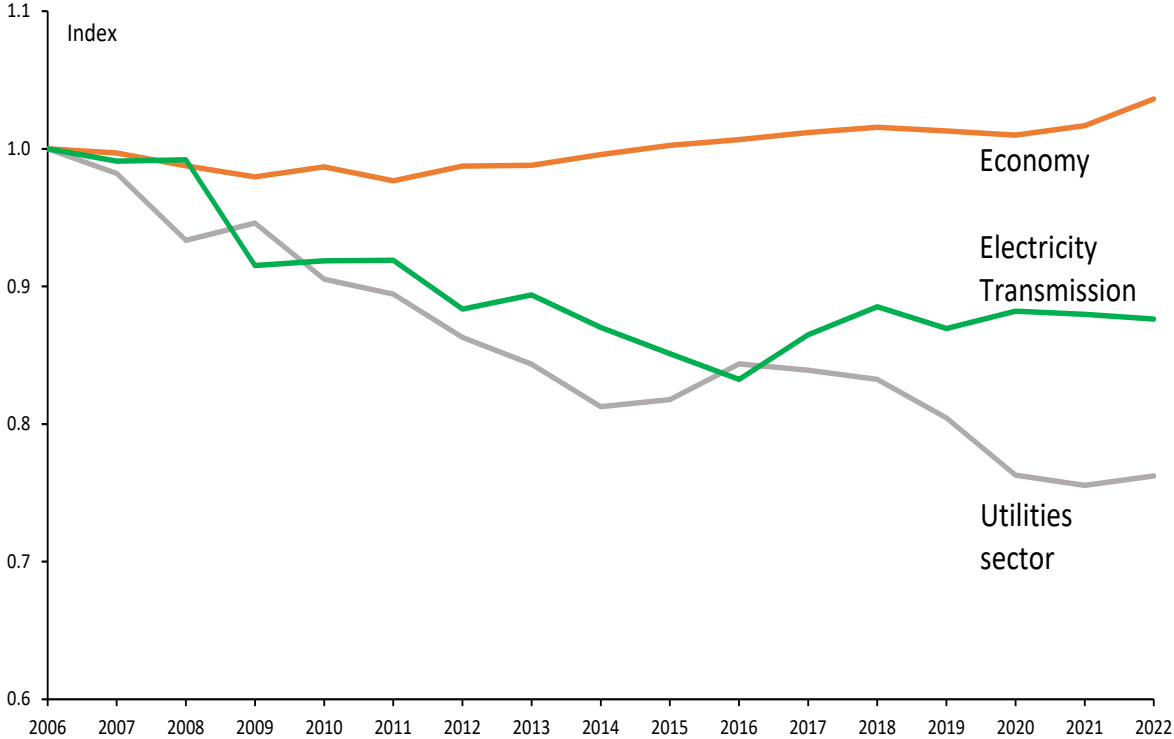
This year we used our benchmarking results to analyse the productivity of a number of transmission networks and inform our assessment of the efficiency of their proposed expenditures, including operating expenditures for our final decisions for ElectraNet in South Australia and Transgrid in NSW, and our draft decision for TasNetworks in Tasmania.

How has the productivity of the transmission industry changed over time?

Key points from Figure 2

- From 2006 to 2022, productivity of the electricity transmission industry declined by 0.8% per year. This performance was worse than that of the Australian economy but significantly better than the utilities sector overall (i.e. electricity, gas, water and waste services).
- The long-term decline in transmission industry productivity abated in 2016 and has trended upward since then, outperforming productivity growth in the Australian economy and the utility sector generally. This improvement since 2016 is generally due to reductions in operating expenditure and slower growth in capital assets relative to earlier years.
- In 2022, the productivity of the electricity transmission industry decreased slightly by 0.4%. This was primarily due to a reduction in reliability from increased storm activity and an increase in operating expenditure. This slight decline in 2022 was in contrast to the increased productivity in the overall Australian economy (1.9%) and the utilities sector (0.9%) over 2022.

Figure 2 shows how productivity (TFP) in the electricity transmission industry, utilities generally and the Australian economy overall has changed from 2006 to 2022.



Source: AER’s Annual Benchmarking Report for transmission, 2023.

Which transmission networks were more and less productive in 2022?

Key points from Table 1

- *TasNetworks maintained first place ranking in 2022 as the most productive transmission network in the national electricity market. This was despite a decrease in its productivity due to a decrease in reliability caused by increased outages from storms.*
- *ElectraNet's ranking fell from second in 2021 to fifth in 2022 also mainly due to a decrease in reliability from outages caused by storm activity.*
- *AusNet, Powerlink and Transgrid each improved their productivity rankings by one position in 2022 compared to 2021. AusNet's productivity increased primarily due to improved reliability, Powerlink's increased mainly due to a decrease in operating expenditure, while Transgrid saw an increase primarily due to a decline in transformer inputs.*
- *Our transmission benchmarking accounts for some but not all possible differences in operating environment factors in the measured productivities across businesses. Therefore, these results should only be considered as indicative of the business' relative performance. Further information on the limitations of the AER's benchmarking can be found in Section 2.2 of the transmission report [here](#).*

Table 1 shows transmission networks ranked from most to least productive based on 2022 productivity scores (MTFP), their 2021 scores and the % change from 2021.

Transmission network	Rank 2022	Rank 2021	MTFP Score 2022	MTFP Score 2021	Change between 2021 and 2022
TasNetworks (Tasmania)	1	1	0.99	1.03	-4.2%
AusNet (Victoria)	2↑	3	0.80	0.78	2.4%
Powerlink (Queensland)	3↑	4	0.77	0.75	2.1%
Transgrid (NSW and ACT)	4↑	5	0.75	0.73	1.8%
ElectraNet (South Australia)	5↓	2	0.74	0.80	-8.4%

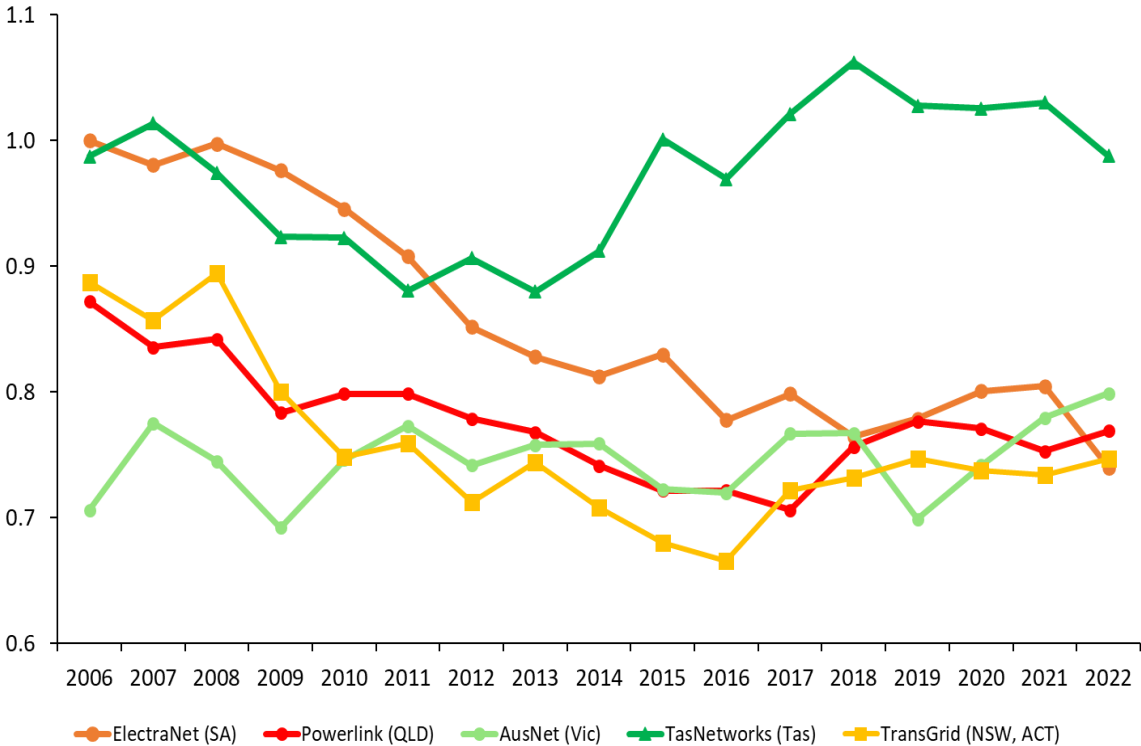
Source: AER's Annual Benchmarking Report for transmission, 2023.

How has the relative productivity of transmission networks changed over time?

Key points from Figure 3

- TasNetworks' relative productivity began declining from 2006 but has trended upwards since 2013 to be the highest ranked transmission network. This likely reflects efficiencies resulting from the merger of Tasmanian distribution and transmission networks in 2014.
- AusNet's relative productivity fluctuated around the lower range of network businesses over time but has trended up since 2019 to be ranked second by 2022, and above the level it achieved in 2006.
- The relative productivity of Powerlink, Transgrid and ElectraNet has generally fallen over the 17-year period from 2006 to 2022, and is significantly lower in 2022 for each network than it was in 2006.
- Viewed over a shorter time frame, Transgrid's and Powerlink's relative productivity has trended upwards since 2016 and 2017, respectively, to be ranked fourth and third respectively by 2022.
- ElectraNet's relative productivity began trending upwards in 2018 but declined significantly in 2022 to be ranked fifth due to lower reliability from storm related outages.

Figure 3 below shows changes in relative productivity levels (MTFP) of the five transmission networks from 2006 to 2022.



Source: AER's Annual Benchmarking Report for transmission, 2023.

Future development of our transmission productivity benchmarking

We continue to undertake work to refine our productivity benchmarking. A key area for this is reviewing and improving the inputs and outputs used in our transmission benchmarking models. This is particularly relevant in the context of the changes occurring in the transmission environment, with investment to connect large-scale renewable generation and to manage the transmission system so it operates reliably. We are closely monitoring this area and future benchmarking development work includes ensuring this investment is appropriately captured by our benchmarking inputs, and understanding whether the current outputs remain relevant or if new outputs are required. Where new inputs or outputs are appropriate, data availability will be a further issue to consider. We also plan to undertake further work to review the weights applied to the current outputs in our MTFP benchmarking.

Further information on our benchmarking development program can be found in Section 1.2 of the transmission report [here](#).

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