

Electricity Transmission Network Service Provider Performance Data

Introduction



This workbook contains performance data for electricity transmission businesses in the National Energy Market (NEM). The charts and data are presented for a range of financial and network performance measures.

Interpretation

The data covers the regulatory years from 2006 to 2018. It is reported on an end of year basis. All transmission businesses report on a financial year basis, hence the label 2015 refers to data collected for the year ending 30 June 2015 (or 31 March 2015 for AusNet (T)). Exceptions to this are tables 6,7 and 8, which are reported on a calendar year basis, in line with STPIS reporting timeframes.

All financial values have been converted to June 2018 dollars (or March 2018 dollars for AusNet (T)).

These data series are provided to facilitate general stakeholder engagement in the AER's regulatory processes. The data is subject to revisions, arising from changes from improved data collation, or regulatory updates that apply from time to time. Information to aid interpretation of the data is available with the transmission businesses RIN responses, and AER Guidelines and Explanatory material associated with our models and data collections - available on the AER website.

Sources

Data is classified as actual or forecast data.

Actual data is generally sourced from individual annual responses to regulatory information notices (RINs), including economic benchmarking and category analysis RINs, or historical data provided at the time of regulatory determinations. The RIN responses of the transmission businesses are available on the AER website.

Forecast data is generally sourced from the final regulatory determinations made by the AER for each of the businesses, updated for decisions by the Australian Competition Tribunal, and other allowed adjustments.

Detailed data sources are listed in each of the worksheets.

VERSION RECORD

Version	Publication date	Data range/updates		
3	Jul 2019	Financial years	2005-06 to 2017-18	Data as at 27 June 2019
2	Aug 2018	Financial years	2005-06 to 2016-17	Amended Opex data to remove Easement Tax for AusNet (T)
1	Feb 2018	Financial years	2005-06 to 2016-17	

Electricity Transmission Network Service Provider Performance Data

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Datasheet

Transmission total

Important: Please click in cell to use drop-down list to see transmission total or individual TNSP statistics

Summary statistics

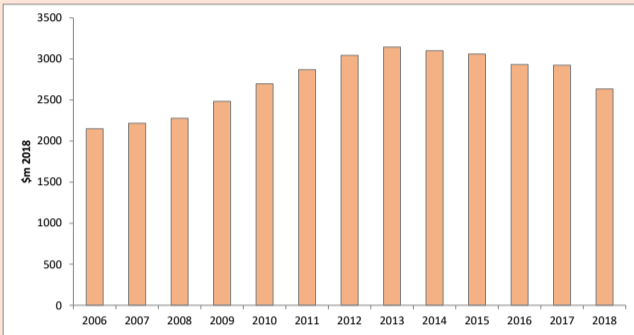
	2018 value	5 year trend
Actual revenue	\$2,634m	
Actual closing RAB	\$20,718m	
Forecast closing RAB	\$20,988m	
Actual annual capex	\$744m	
Forecast annual capex	\$708m	
Actual annual opex	\$550m	
Forecast annual opex	\$618m	
Loss of supply events*	12 events	
Average outage duration*	not calculated	
Market impact indicator*	not calculated	
Maximum demand	not calculated	
Energy delivered	177,260GWh	
Circuit length - total	43,308km	
Circuit length - overhead	43,145km	
Circuit length - underground	163km	
Return on assets, including incentive scheme penalties or rewards	ot calculated	
Return on assets, excluding incentive scheme penalties or rewards	ot calculated	
Real pre-tax WACC	ot calculated	

* 2018 data unavailable

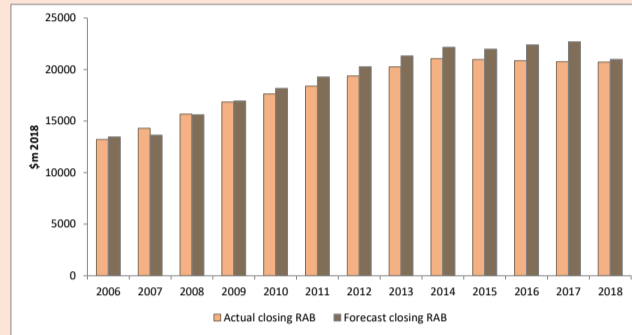


Financials

Annual revenue



Closing RAB

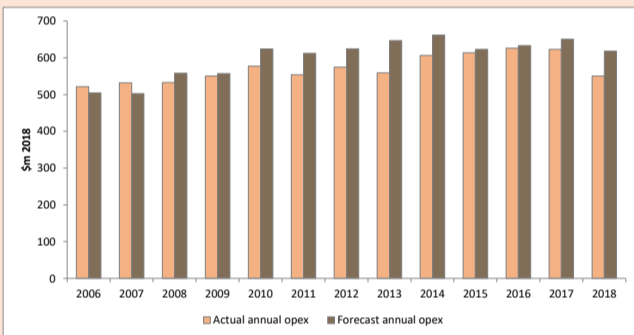


Return on Assets

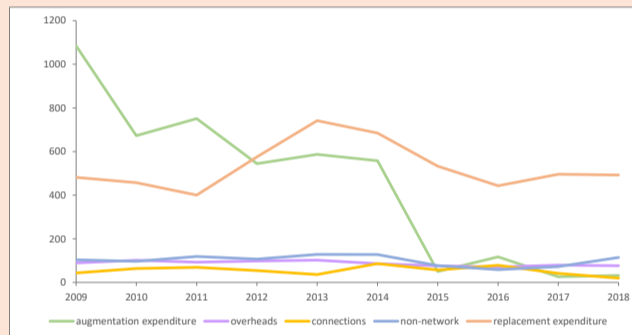
No data for Transmission total - Return on assets

Expenditure

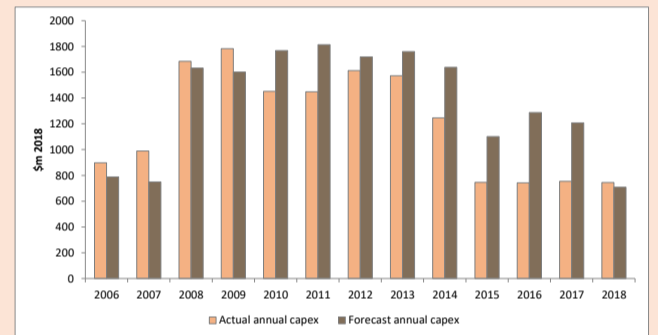
Opex



Capex By Driver



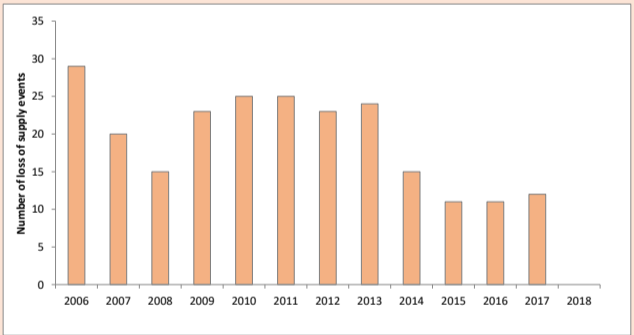
Capex



Service Performance

Reliability - outage events

No Data for 2018



Reliability - outage duration

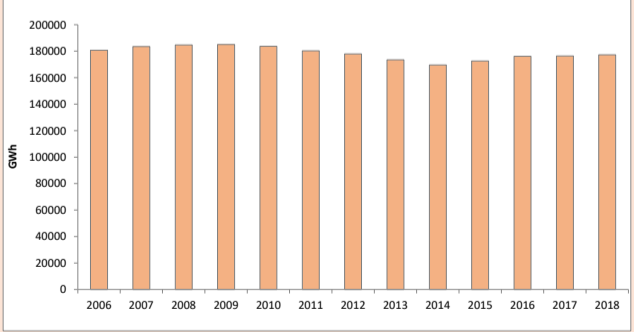
No data for Transmission total - Outage duration

Market impact

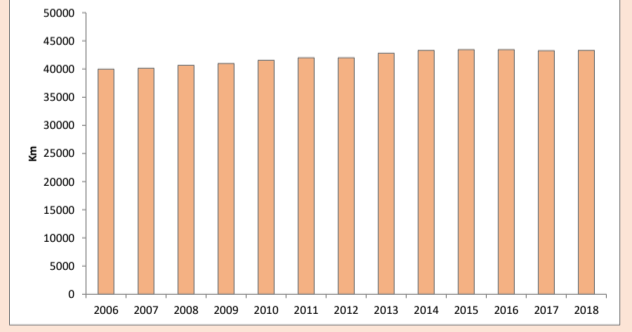
No data for Transmission total - Market impact

Network Descriptors

Energy delivered



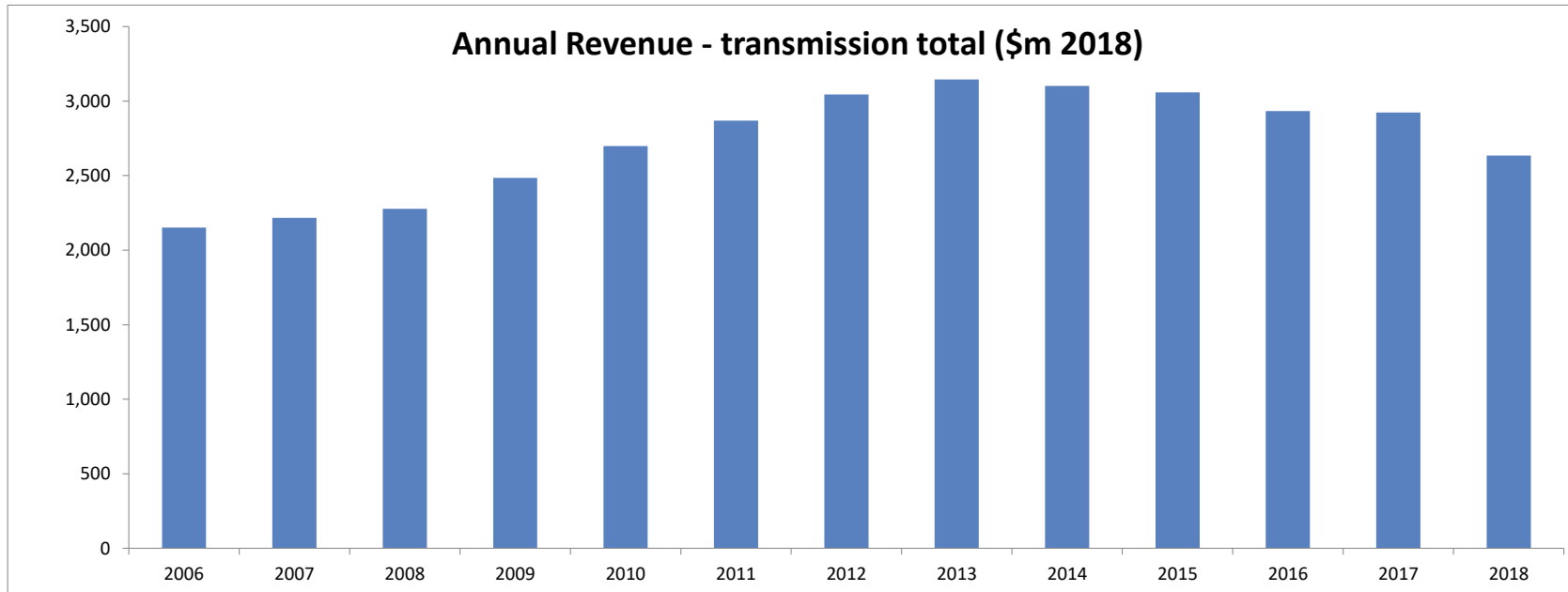
Circuit Length



Maximum demand

No data for Transmission total - Maximum demand

Revenue



Actual revenues are reported by the transmission businesses and include all components of their revenue associated with delivering prescribed transmission services. Transmission businesses are regulated via a revenue cap, which limits the revenues that can be earned in any year.

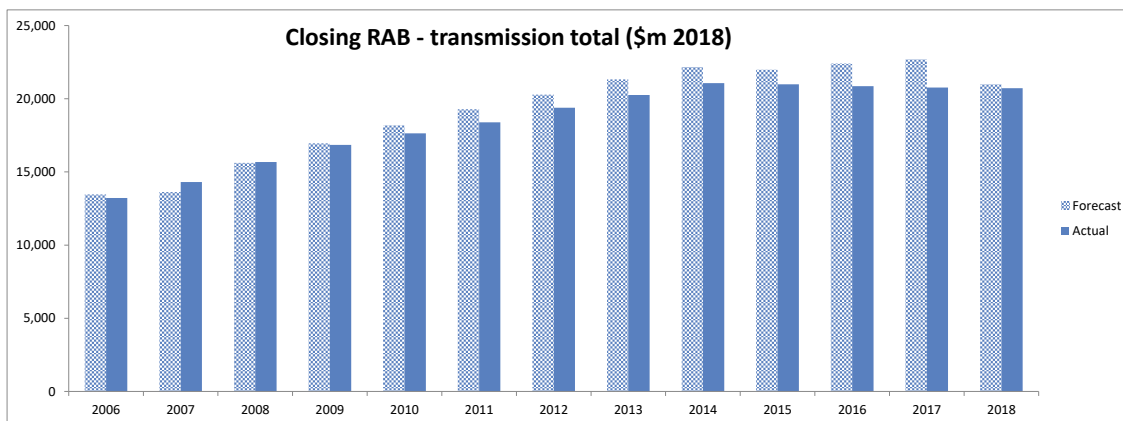
Actual Revenue

\$m 2018	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	641	675	688	742	787	848	936	951	978	1,015	1,028	1,072	787
Transgrid	NSW	622	641	664	704	811	862	918	964	953	906	775	747	720
AusNet (T)	VIC	501	502	523	576	601	608	612	625	630	612	594	584	594
ElectraNet	SA	230	236	238	284	299	318	338	361	308	322	335	341	353
TasNetworks (T)	TAS	157	163	166	178	199	234	240	243	233	204	200	180	181
Total		2,151	2,217	2,278	2,484	2,698	2,870	3,044	3,144	3,101	3,059	2,932	2,924	2,634

Sources:

Economic Benchmarking RIN responses, 2006-13, 2014, 2015, 2016, 2017, 2018

Regulatory Asset Base



The regulatory asset base (RAB) represents the value of the network at a given point in time. The value of the network changes each year due to capital expenditures, depreciation, and disposal of assets.

Actual Closing RAB

\$m 2018	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	4,006	4,880	5,549	6,107	6,425	6,688	7,247	7,531	7,638	7,542	7,400	7,204	7,114
Transgrid	NSW	4,306	4,424	4,665	5,141	5,424	5,647	5,840	6,174	6,499	6,510	6,499	6,406	6,371
AusNet (T)*	VIC	2,550	2,539	2,762	2,748	2,750	2,743	2,758	2,811	3,081	3,087	3,079	3,228	3,243
ElectraNet	SA	1,371	1,408	1,636	1,693	1,767	1,974	2,104	2,276	2,337	2,364	2,433	2,485	2,560
TasNetworks (T)	TAS	983	1,056	1,062	1,160	1,266	1,342	1,434	1,470	1,509	1,480	1,447	1,438	1,430
Total		13,216	14,307	15,674	16,847	17,632	18,394	19,382	20,261	21,064	20,982	20,858	20,761	20,718

Sources:

Actual closing RAB has been taken from Roll forward models developed as part of final regulatory decisions, as made by the AER or jurisdictional regulators, and as updated by the Australian Competition Tribunal. Where a final decision for a regulatory period is not yet available, draft decisions or regulatory proposals have been used. If no RFM is available we have used the forecast RAB data from the Post Tax Revenue Models (Powerlink 2018, and AusNet (T) 2018).

Forecast Closing RAB

\$m 2018	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	3,994	3,931	5,626	6,260	6,592	6,970	7,244	7,796	8,183	8,352	8,552	8,807	7,114
Transgrid	NSW	4,406	4,556	4,886	5,119	5,598	5,946	6,430	6,838	7,064	6,521	6,583	6,556	6,531
AusNet (T)*	VIC	2,659	2,645	2,629	2,780	2,783	2,809	2,839	2,842	2,890	3,094	3,136	3,173	3,243
ElectraNet	SA	1,421	1,440	1,413	1,739	1,902	2,122	2,271	2,290	2,427	2,505	2,605	2,638	2,597
TasNetworks (T)	TAS	981	1,055	1,061	1,057	1,301	1,436	1,494	1,552	1,606	1,508	1,520	1,516	1,504
Total		13,461	13,627	15,614	16,954	18,177	19,283	20,279	21,318	22,169	21,980	22,397	22,690	20,988

Sources:

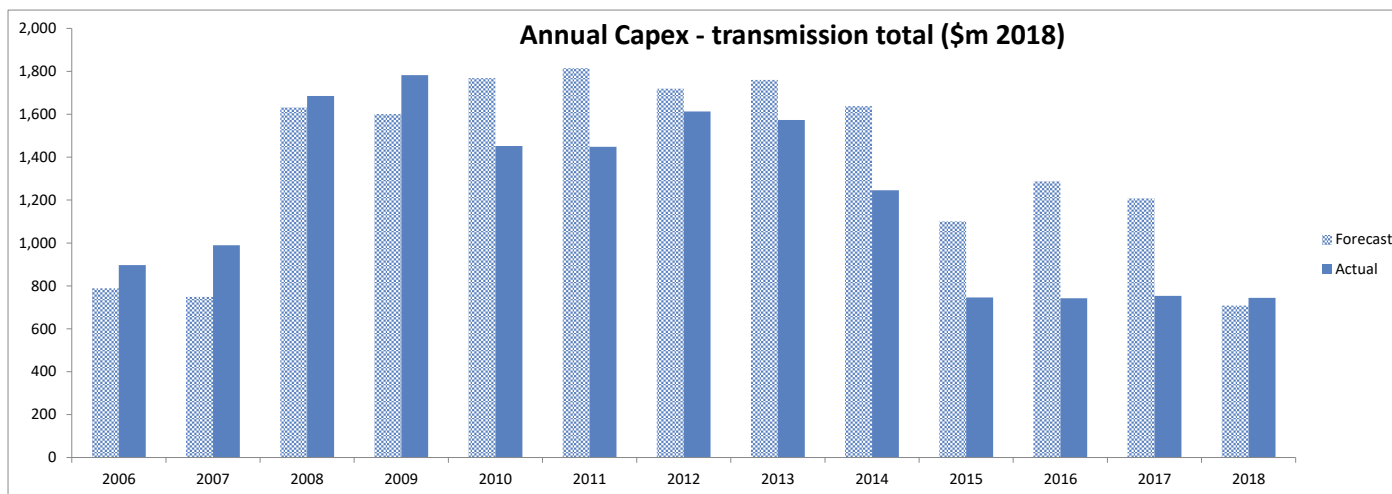
Forecast closing RAB is sourced from post tax revenue models determined as part of final regulatory decisions, as made by the AER or jurisdictional regulators, and as adjusted by the Australian Competition Tribunal. Updates to the model are also taken into account.

Notes:

AusNet (T) - differences between actual and forecast closing RAB arise due to the treatment of augmentation capital works (Group 3 assets). These assets are included in Actual RAB data, but are not included in forecasts. The AER's Final decision on Ausnet (T)'s RAB explains the issue and advises:

During a regulatory control period, AEMO or a distribution business may request AusNet Services to provide augmentations to the transmission network or distribution connection services. While the assets constructed due to these requests provide prescribed transmission services, the forecast capex associated with these assets sit outside of the revenue determination. This is because AusNet Services is not responsible for the planning of these capex. AusNet Services and AEMO refer to the assets that provide these services as 'Group 3' assets. Group 3 assets sit outside of the RAB and are governed by commercial contracts until such time as they are rolled into the RAB, usually at the next revenue reset.

Capital expenditure



Capital expenditure (capex) measures the new investments in the transmission networks. This includes expenditure for augmentation of the network, replacement of assets, new connections, improving network reliability and non-network investments (e.g. buildings). All data is reported on an as-incurred basis.

Actual annual capex

\$m 2018	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	361	324	844	765	533	493	717	498	343	169	139	177	151
Transgrid	NSW	210	285	408	702	486	422	399	539	519	268	258	190	230
AusNet (T)	VIC	138	141	139	113	132	128	150	192	158	162	146	180	135
ElectraNet	SA	92	106	214	120	141	270	205	249	143	121	174	155	176
TasNetworks (T)	TAS	95	133	79	83	159	135	143	95	84	27	26	52	53
Total		897	989	1,685	1,783	1,452	1,448	1,613	1,573	1,246	746	743	753	744

Sources:

Actual capex has been taken from Roll forward models developed as part of final regulatory decisions, as made by the AER or jurisdictional regulators, and as updated by the Australian Competition Tribunal. The latest available RFM has been used, and if no RFM data is available, Category analysis RIN responses are used.

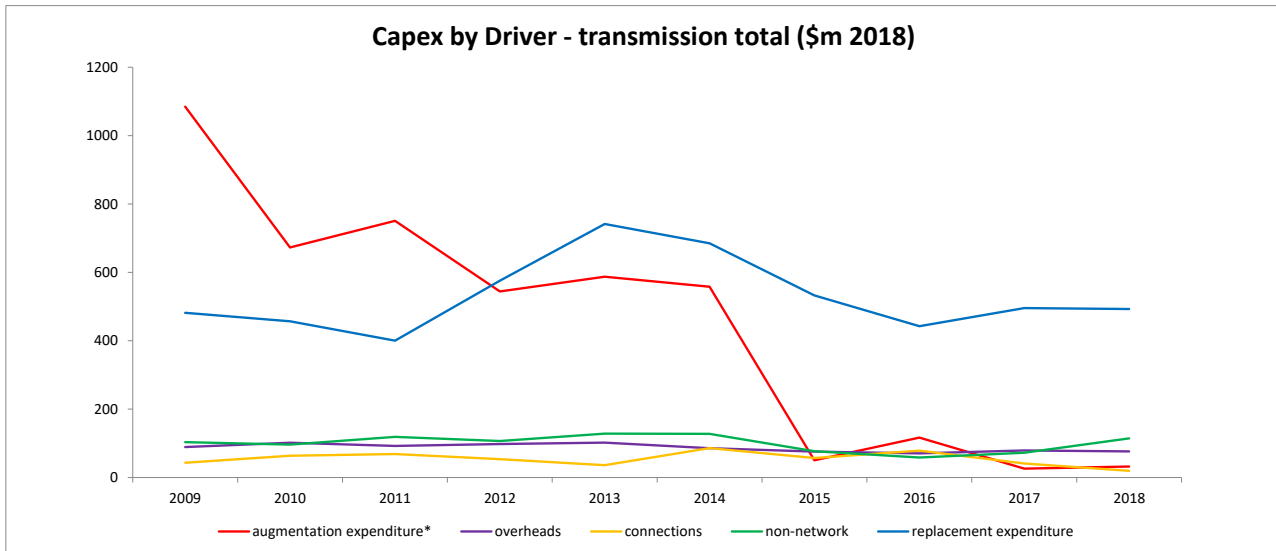
Forecast annual capex

\$m 2018	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	271	121	921	840	557	614	524	757	625	445	495	560	168
Transgrid	NSW	255	307	485	406	655	558	687	631	474	273	326	252	235
AusNet (T)	VIC	75	102	103	147	141	166	176	154	188	161	195	194	184
ElectraNet	SA	116	102	67	162	222	284	219	97	230	167	203	145	74
TasNetworks (T)	TAS	71	117	55	46	194	191	114	120	120	54	69	56	48
Total		788	749	1,632	1,601	1,768	1,814	1,719	1,760	1,638	1,101	1,287	1,208	708

Sources:

Forecast capex is sourced from post tax revenue models determined as part of final regulatory decisions, as made by the AER or jurisdictional regulators, and as adjusted by the Australian Competition Tribunal. Updates to the models are also taken into account.

Capital expenditure by driver



Transmission businesses are required to report their capital expenditure annually by driver. This shows how the transmission businesses investment's were split between the various drivers.

Capex by Driver

(\$m 2018)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
augmentation expenditure*	1,084.8	672.9	751.0	544.3	587.3	557.9	50.2	117.0	26.0	32.2
overheads	89.1	101.7	92.6	97.8	102.1	85.9	76.0	70.6	79.1	76.2
connections	43.1	63.5	68.8	53.9	35.8	86.0	57.1	78.8	41.0	19.6
non-network	103.4	96.4	119.0	106.8	128.4	127.7	77.2	58.5	72.4	114.3
replacement expenditure	481.8	457.0	400.3	575.8	741.6	685.1	532.7	442.8	495.6	492.6

Notes:

The Category Analysis RIN may result in some expenditures being classified into more than one driver. (For example, some connections capex may also be reported under augmentation capex). As such the total capex by driver may not reconcile with the total capex shown on worksheet 3. Capex.

*Does not include Victorian augmentation expenditure

Sources:

Category Analysis RINs 2008-13, 2014, 2015, 2016, 2017, 2018

Powerlink

(\$m 2018)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
augmentation expenditure	471.9	227.4	306.3	211.9	200.0	275.2	10.2	12.2	0.0	2.2
overheads	35.7	28.7	26.3	25.5	25.0	20.7	13.2	7.4	12.3	8.4
connections	18.5	4.6	4.7	6.4	3.1	5.4	1.5	0.0	0.0	0.0
non-network	30.2	38.3	38.5	32.6	35.4	13.8	8.0	13.5	17.8	35.0
replacement expenditure	193.1	158.5	82.0	205.9	237.9	260.2	152.1	52.9	117.9	63.2

Transgrid

(\$m 2018)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
augmentation expenditure	530.1	295.4	219.8	188.4	292.5	244.8	23.0	55.4	4.9	4.5
overheads	29.8	45.9	33.2	38.5	42.1	34.5	34.5	30.4	31.7	32.1
connections	0.0	0.0	0.0	0.0	0.0	3.0	2.6	1.8	0.8	0.3
non-network	40.2	26.0	30.6	45.2	55.9	73.9	36.8	21.6	23.5	29.9
replacement expenditure	99.4	119.5	140.6	133.0	149.6	163.8	171.3	142.5	123.3	161.8

AusNet (T)

(\$m 2018)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
augmentation expenditure*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
overheads	12.4	13.3	14.3	15.5	17.7	15.5	13.7	18.1	13.7	9.9
connections	9.3	27.8	6.5	4.2	16.9	61.7	33.3	74.6	36.7	19.0
non-network	13.7	11.0	16.2	13.3	18.3	23.0	22.7	10.5	8.4	11.2
replacement expenditure	89.2	108.4	98.1	124.2	157.6	120.8	125.6	126.3	116.7	111.6

Notes:

*Augmentation of Vic transmission networks is carried out by AEMO, hence \$0 expenditure reported by AusNet (T)

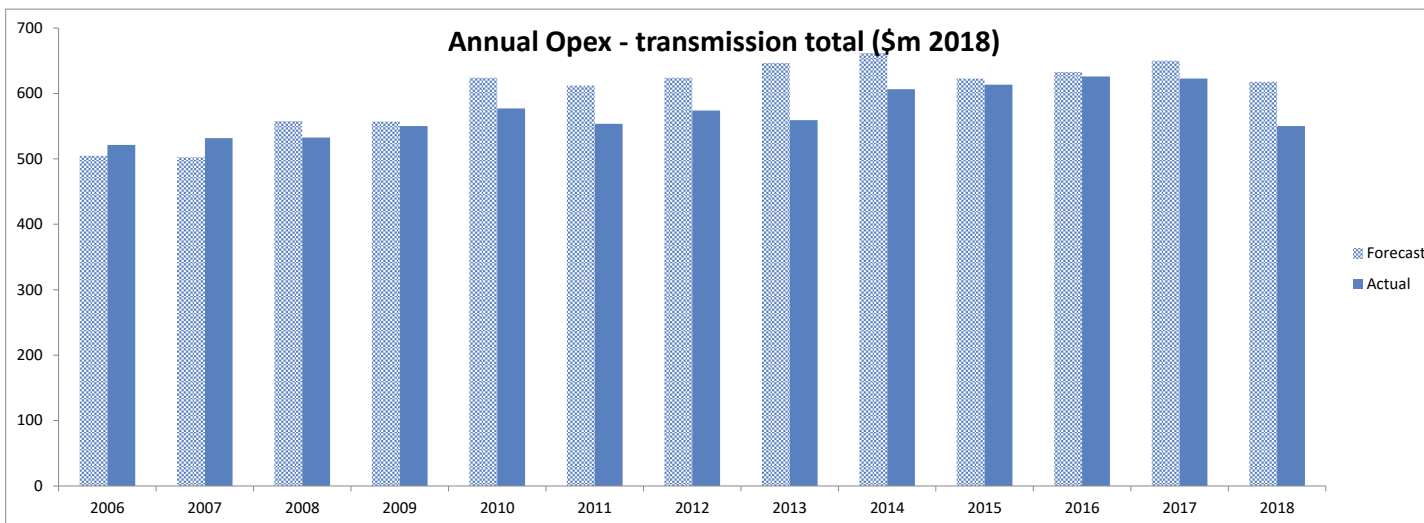
ElectraNet

(\$m 2018)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
augmentation expenditure	14.5	46.3	182.9	89.2	83.8	33.3	16.9	49.1	19.9	22.2
overheads	7.4	9.8	14.3	14.9	14.4	12.4	11.7	10.2	10.5	14.3
connections	14.7	23.7	31.4	16.6	13.6	15.9	19.8	2.4	3.5	0.3
non-network	8.5	10.0	8.4	7.9	12.9	11.3	6.3	7.5	12.3	28.5
replacement expenditure	74.1	50.4	33.5	65.1	122.4	68.2	66.0	105.9	108.5	128.1

TasNetworks (T)

(\$m 2018)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
augmentation expenditure	68.2	103.8	42.0	54.8	11.0	4.7	0.1	0.3	1.3	3.3
overheads	3.8	4.0	4.5	3.4	2.9	2.7	2.9	4.5	10.9	11.4
connections	0.6	7.3	26.1	26.7	2.2	0.1	0.0	0.0	0.0	0.0
non-network	10.8	11.2	25.3	7.7	5.9	5.6	3.4	5.5	10.3	9.7
replacement expenditure	26.0	20.1	46.1	47.5	74.1	72.1	17.7	15.3	29.2	27.9

Operating expenditure



Operating expenditure (opex) includes network operation, maintenance and other non-capital costs incurred by the transmission businesses. Easement taxes applicable to AusNet (T) have been removed.

Actual annual opex

\$m 2018	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	161	169	184	176	182	176	182	186	196	224	228	233	189
Transgrid	NSW	163	162	153	153	172	161	173	159	191	178	177	175	155
AusNet (T)	VIC	84	82	75	96	96	88	83	85	90	90	93	90	83
ElectraNet	SA	65	70	63	68	69	75	82	79	80	84	89	92	94
TasNetworks (T)	TAS	48	50	59	58	57	54	53	50	49	37	39	33	29
Total		521	532	533	550	577	554	574	559	607	614	626	623	550

Sources:

Economic Benchmarking RIN responses, 2006-13, 2014, 2015, 2016, 2017, 2018

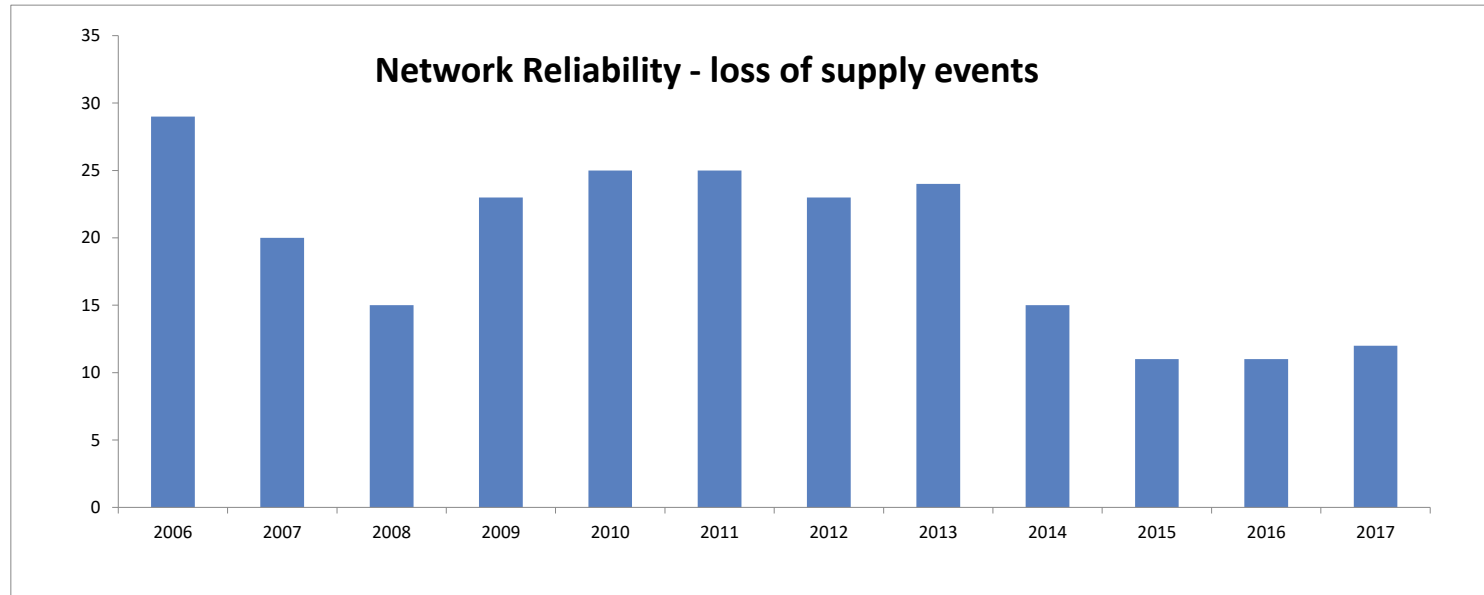
Forecast annual opex

\$m 2018	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	123	123	182	183	196	188	193	200	207	213	221	227	201
Transgrid	NSW	164	163	163	163	193	186	191	202	204	182	181	186	179
AusNet (T)	VIC	104	104	104	103	103	103	101	101	99	90	93	93	94
ElectraNet	SA	70	70	70	70	72	74	78	81	88	91	93	98	98
TasNetworks (T)	TAS	44	43	39	39	61	61	61	64	63	47	46	47	47
Total		505	502	558	557	624	612	624	647	662	623	633	650	618

Sources:

Forecast opex is sourced from post tax revenue models determined as part of final regulatory decisions, as made by the AER or jurisdictional regulators, and as adjusted by the Australian Competition Tribunal. Updates to the models are also taken into account. The forecast opex excludes efficiency carryovers, capex efficiencies items and easement tax.

Network Reliability - Outage events



Reliability is an important component of network performance. Network performance measures form part of the service target performance incentive scheme (STPIS) relevant to the transmission businesses.

Loss of supply events measure the number of times energy is not available for set periods of times to transmission network customers. These thresholds vary for each business between 0.05 and 1.0 system minutes, as outlined in published AER STPIS decisions.

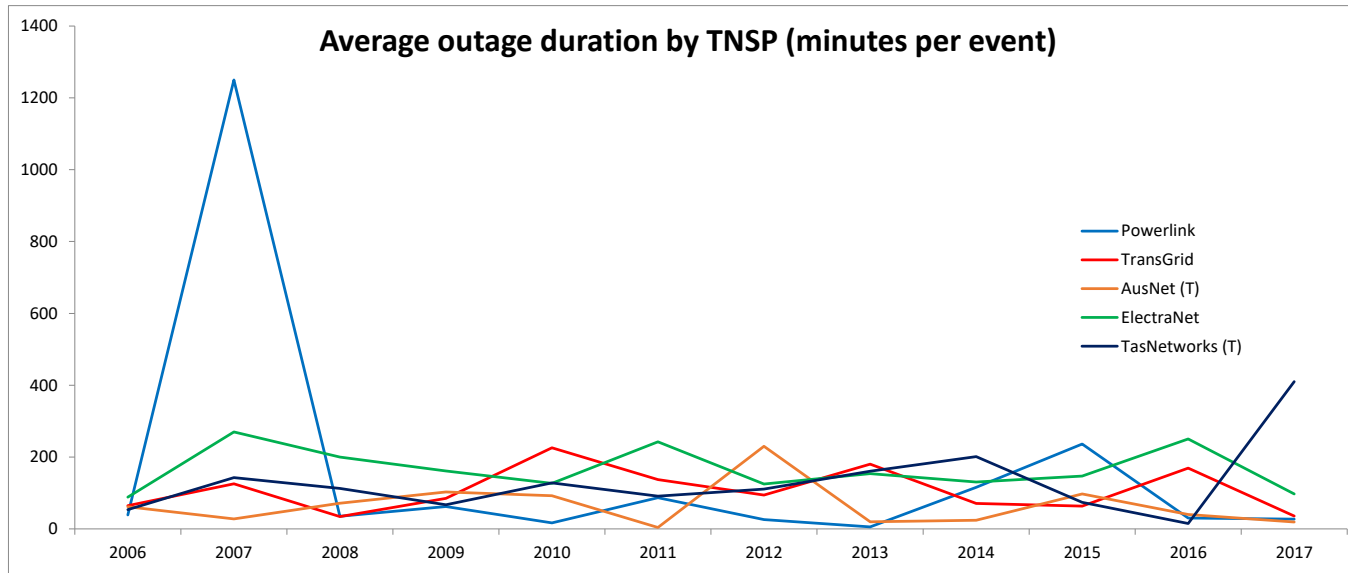
Loss of supply events

	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Powerlink	QLD	2	2	2	2	0	4	1	0	3	1	0	3
TransGrid	NSW	2	5	2	3	3	3	3	4	3	4	2	1
AusNet (T)	VIC	5	2	1	6	1	0	2	5	1	2	3	0
ElectraNet	SA	4	1	4	4	12	7	7	5	4	1	5	4
TasNetworks (T)	TAS	16	10	6	8	9	11	10	10	4	3	1	4
Total		29	20	15	23	25	25	23	24	15	11	11	12

Sources:

Economic Benchmarking RIN responses, 2006-13, 2014, 2015, 2016, 2017, 2018

Network Reliability - Outage Duration



Reliability is an important component of network performance. Network performance measures form part of the service target performance incentive scheme (STPIS) relevant to the transmission businesses.

Average outage duration shows the average length of time of unplanned outages on the transmission network that resulted in a loss of supply event. This includes emergency and extreme events and outages with less than 24 hours notice to affected customers. Outages caused by third party systems, at the direction of emergency services/AEMO, planned outages or transient interruptions of less than a minute are not included in this data.

Average outage duration is calculated as the total duration of outages divided by the number of events for each network.

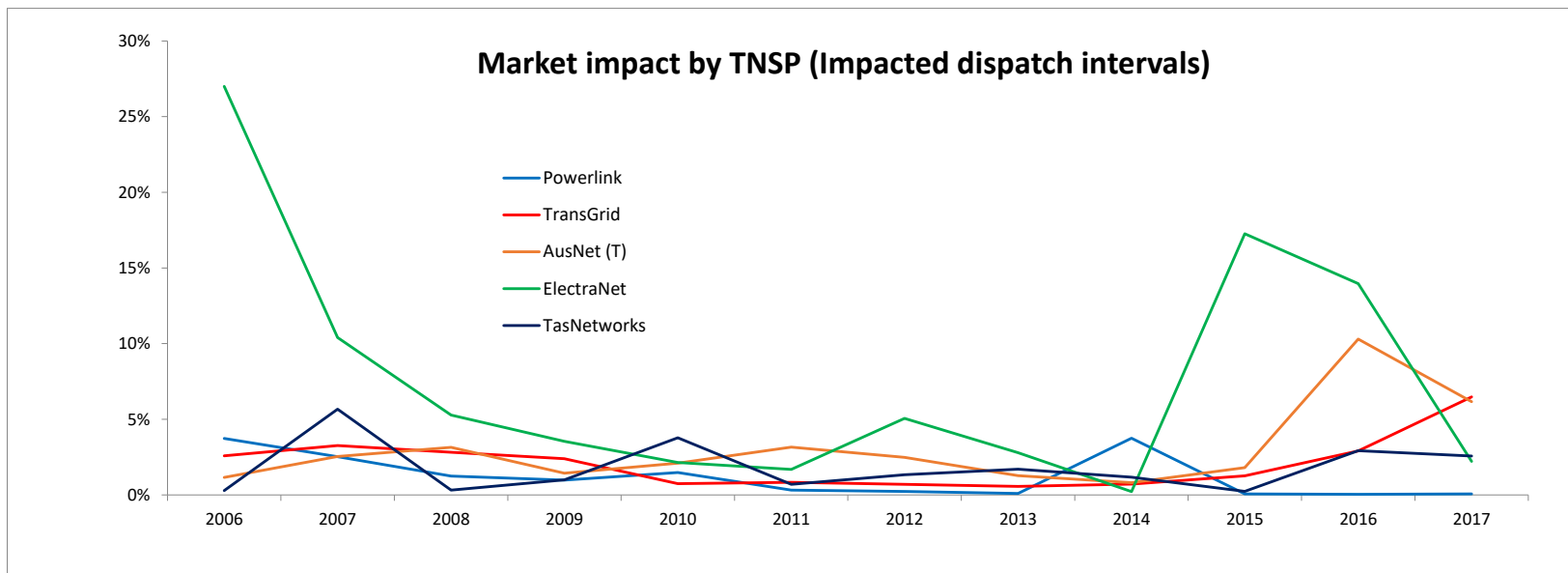
Average outage duration

	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Powerlink	QLD	39	1250	35	62	17	87	26	6	116	236	30	27
TransGrid	NSW	65	125	34	85	226	137	94	180	71	64	169	36
AusNet (T)	VIC	62	28	72	103	93	4	230	20	24	98	40	19
ElectraNet	SA	88	270	200	161	127	242	125	154	131	147	251	97
TasNetworks (T)	TAS	54	143	113	67	128	91	111	161	201	74	15	410

Sources:

Economic Benchmarking RIN responses, 2006-13, 2014, 2015, 2016, 2017, 2018

Quality of Services - Market impact



Market impact measures the relative disruption of outages on customers. The relative disruption is determined by estimating the impact on energy price in the NEM - if an outage increases the energy price by more than \$10/MWh it is counted in the market impact measure. The chart shows the percentage of dispatch intervals where a transmission outage impacted on the energy price.

The data excludes outages caused by force majeure events, resulting from third party systems, required to maintain personal safety or security, and other specific exclusions.

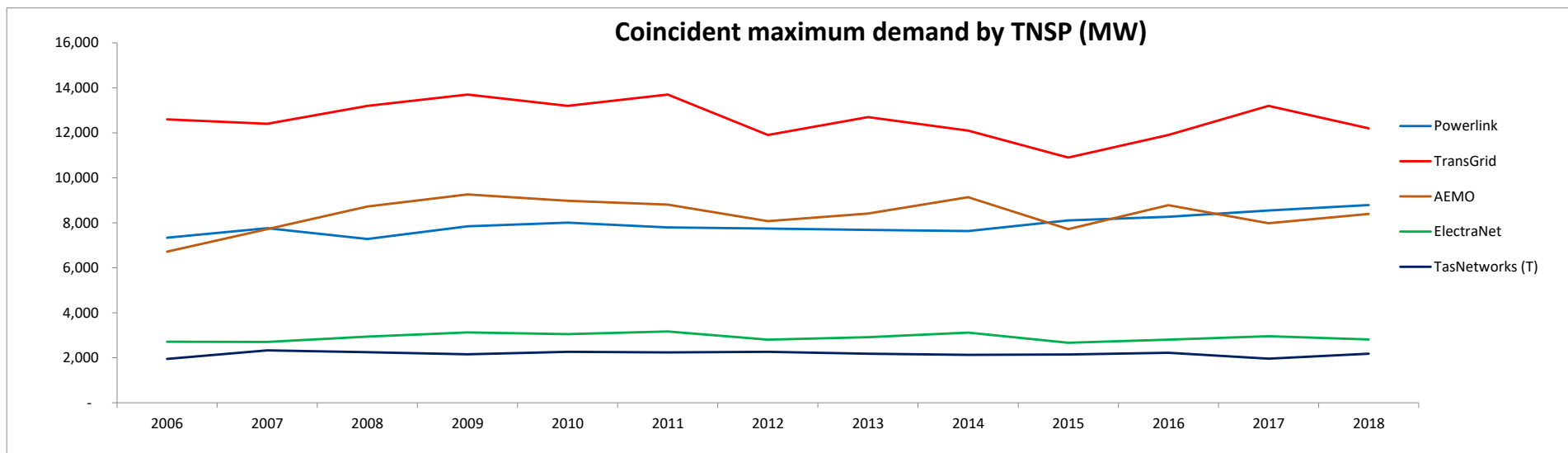
Market impact indicator

	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Powerlink	QLD	4%	3%	1%	1%	1%	0%	0%	0%	4%	0%	0%	0%
TransGrid	NSW	3%	3%	3%	2%	1%	1%	1%	1%	1%	1%	3%	6%
AusNet (T)	VIC	1%	3%	3%	1%	2%	3%	2%	1%	1%	2%	10%	6%
ElectraNet	SA	27%	10%	5%	4%	2%	2%	5%	3%	0%	17%	14%	2%
TasNetworks	TAS	0%	6%	0%	1%	4%	1%	1%	2%	1%	0%	3%	3%

Sources:

Economic Benchmarking RIN responses, 2006-13, 2014, 2015, 2016, 2017, 2018

Maximum demand



Maximum demand is reported as the coincident maximum demand on each transmission network. That is, the overall demand at the point in time when demand on the network was at its highest. Maximum demand information can be used to inform expenditure decisions, and is one of the indicators of demand that the AER uses to assess expenditure proposals.

Maximum demand (MW)

	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	7,337	7,758	7,281	7,849	8,003	7,797	7,740	7,681	7,638	8,105	8,272	8,548	8,789
TransGrid	NSW	12,600	12,400	13,200	13,700	13,200	13,700	11,900	12,700	12,100	10,900	11,900	13,200	12,200
AEMO	VIC	6,718	7,719	8,721	9,260	8,975	8,813	8,071	8,411	9,137	7,715	8,780	7,980	8,394
ElectraNet	SA	2,717	2,707	2,940	3,128	3,055	3,169	2,808	2,914	3,115	2,668	2,804	2,955	2,812
TasNetworks (T)	TAS	1,950	2,330	2,245	2,154	2,267	2,239	2,264	2,185	2,132	2,143	2,219	1,964	2,185

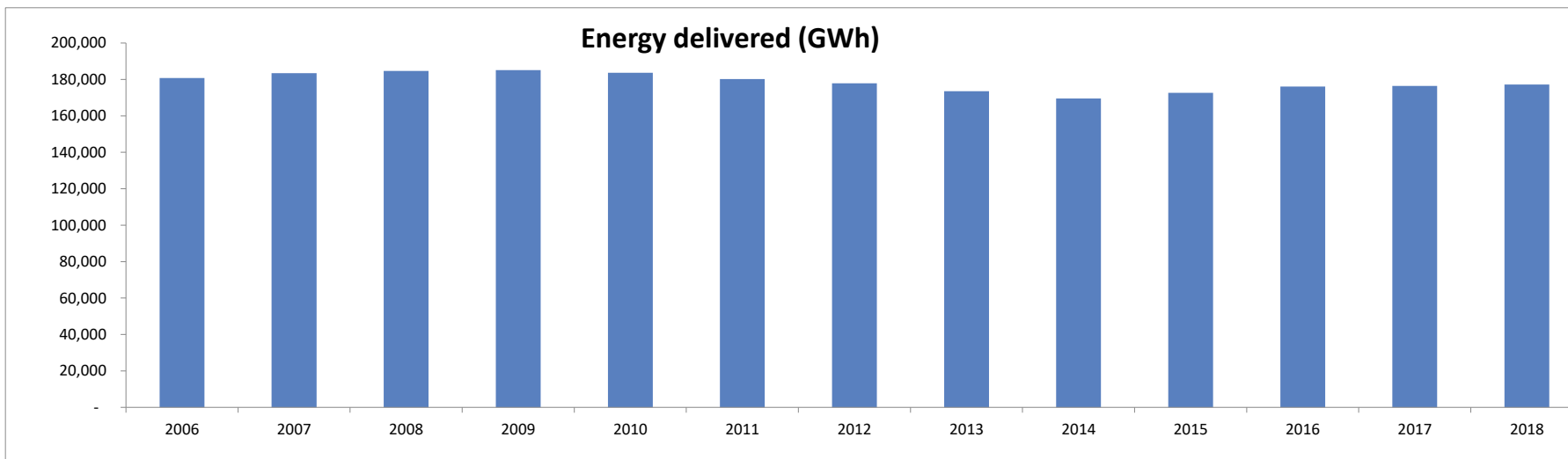
Notes:

AEMO 2007 - this data is an average of the reported amounts in 2006 and 2008. AEMO did not provide maximum demand information for 2007.

Sources:

Economic benchmarking RIN responses, 2006-13, 2014, 2015, 2016, 2017, 2018; AEMO

Energy delivered



Energy delivered is a measure of total energy transported through the transmission networks in each year. The information reported includes energy delivered to distribution networks and directly connected end users. Energy delivered to other transmission networks is excluded.

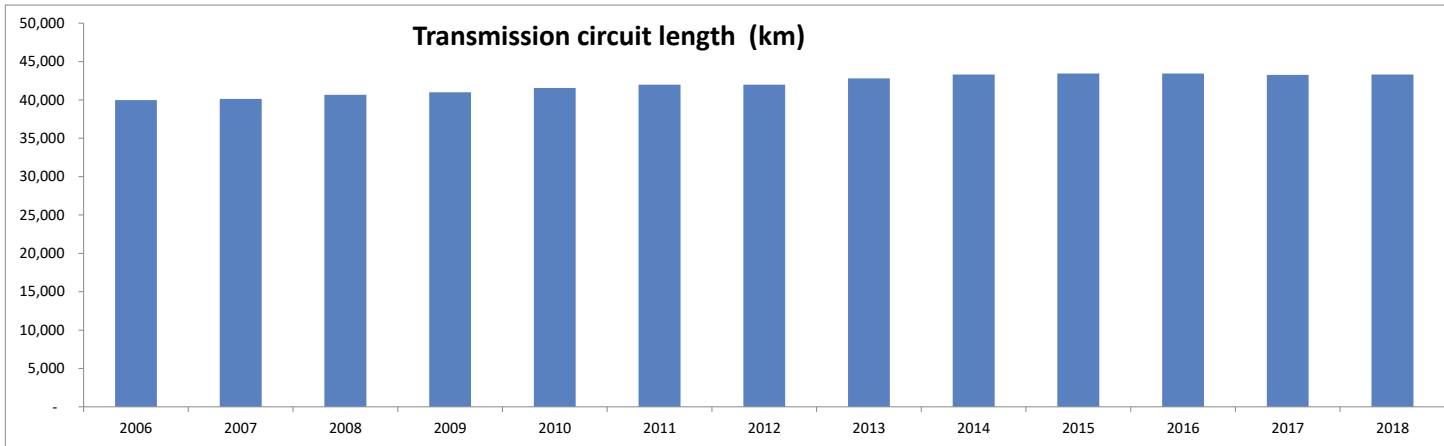
Energy delivered (GWh)

	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	45,060	45,382	45,653	46,907	46,927	45,241	45,394	45,651	45,145	46,783	49,089	49,875	48,730
TransGrid	NSW	68,438	69,428	69,632	69,326	68,026	67,031	65,246	61,548	59,450	62,950	63,300	65,100	64,900
AEMO	VIC	44,577	45,321	45,600	44,832	44,951	44,021	44,017	43,180	42,632	40,806	41,408	39,594	41,497
ElectraNet	SA	12,571	13,107	13,107	13,327	13,266	13,362	12,992	12,928	12,341	11,952	12,326	11,817	11,749
TasNetworks (T)	TAS	10,085	10,238	10,738	10,688	10,522	10,610	10,268	10,193	9,984	10,125	10,030	10,012	10,384
Total		180,731	183,477	184,730	185,080	183,694	180,266	177,917	173,500	169,553	172,617	176,153	176,397	177,260

Sources:

Economic Benchmarking RIN responses, 2006-13, 2014, 2015, 2016, 2017, 2018

Circuit length



The circuit length data is measured at the end of each regulatory year. It includes both overhead lines and underground cables. Circuit length is always greater than or equal to route length, as a double circuit line that traverses 10 kms is counted as 20 km of circuit length.

Circuit length

Km	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	11,701	11,893	12,429	12,865	13,321	13,738	13,702	14,314	14,773	14,755	14,756	14,533	14,528
TransGrid	NSW	12,517	12,526	12,524	12,523	12,682	12,682	12,697	12,894	12,930	13,025	13,039	13,078	13,089
AusNet (T)	VIC	6,573	6,573	6,573	6,573	6,573	6,573	6,573	6,573	6,573	6,573	6,559	6,560	6,624
ElectraNet	SA	5,601	5,519	5,519	5,504	5,502	5,505	5,526	5,527	5,529	5,521	5,524	5,520	5,522
TasNetworks (T)	TAS	3,581	3,622	3,622	3,520	3,481	3,493	3,493	3,503	3,504	3,564	3,564	3,564	3,545
Total		39,973	40,133	40,666	40,985	41,560	41,991	41,992	42,811	43,308	43,438	43,442	43,254	43,308

Circuit length - overhead

Km	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	11,685	11,877	12,413	12,848	13,304	13,717	13,681	14,292	14,751	14,733	14,734	14,511	14,506
TransGrid	NSW	12,469	12,479	12,476	12,475	12,635	12,634	12,649	12,846	12,878	12,943	12,957	12,997	13,008
AusNet (T)	VIC	6,562	6,562	6,562	6,562	6,562	6,562	6,562	6,562	6,562	6,562	6,548	6,551	6,615
ElectraNet	SA	5,592	5,510	5,510	5,495	5,493	5,496	5,499	5,500	5,502	5,494	5,497	5,492	5,495
TasNetworks (T)	TAS	3,568	3,609	3,609	3,507	3,468	3,480	3,480	3,480	3,480	3,540	3,540	3,540	3,521
Total		39,876	40,036	40,569	40,887	41,461	41,889	41,871	42,680	43,173	43,272	43,276	43,091	43,145

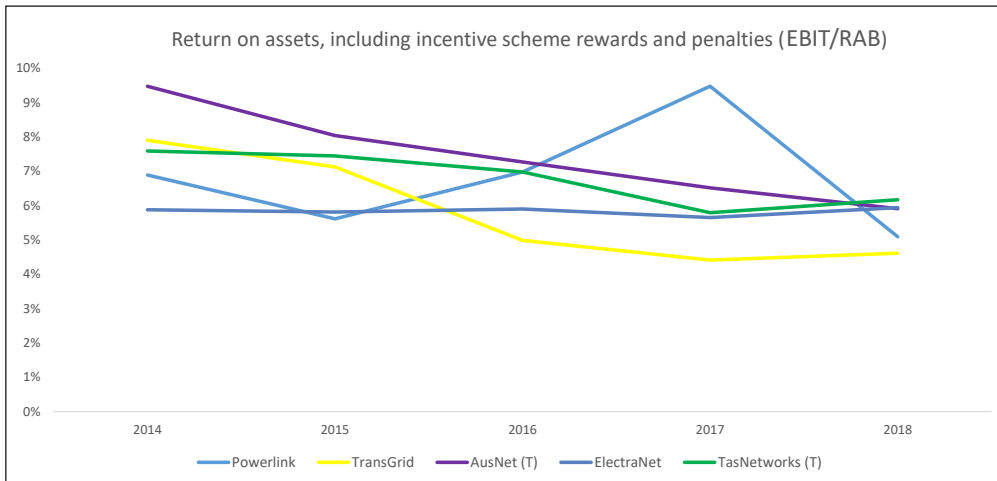
Circuit length - underground

Km	State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Powerlink	QLD	16	16	16	17	17	21	21	22	22	22	22	22	22
TransGrid	NSW	48	48	48	48	48	48	48	48	51	82	82	82	82
AusNet (T)	VIC	11	11	11	11	11	11	11	11	11	11	11	9	9
ElectraNet	SA	9	9	9	9	9	9	27	27	27	27	27	27	27
TasNetworks (T)	TAS	13	13	13	13	13	13	13	23	24	24	24	24	24
Total		97	97	97	98	98	102	121	131	135	166	166	163	163

Sources:

Economic benchmarking RIN responses, 2006-13, 2014, 2015, 2016, 2017, 2018

Return on assets



The return on assets data shown includes the impact of incentive scheme rewards and penalties. It is a ratio of earnings before interest and tax (EBIT) compared to the asset base (RAB) for each transmission business. When considering the return on assets (ROA) data, please review the AER's explanatory note on interpretation of regulatory ROA ratios.

[Return on Assets for electricity network businesses - Explanatory Note](#)

Return on assets, including incentive scheme penalties or rewards

	%	State	2014	2015	2016	2017	2018
Powerlink		QLD	6.89%	5.61%	6.98%	9.48%	5.09%
TransGrid		NSW	7.90%	7.13%	4.99%	4.41%	4.61%
AusNet (T)		Vic	9.48%	8.04%	7.27%	6.52%	5.91%
ElectraNet		SA	5.88%	5.81%	5.90%	5.65%	5.94%
TasNetworks (T)		Tas	7.59%	7.45%	6.98%	5.79%	6.17%

Return on assets, excluding incentive scheme penalties or rewards

	%	State	2014	2015	2016	2017	2018
Powerlink		QLD	6.62%	5.37%	6.89%	9.18%	4.77%
TransGrid		NSW	7.81%	6.64%	4.57%	3.97%	4.17%
AusNet (T)		Vic	9.01%	7.23%	6.33%	5.86%	5.61%
ElectraNet		SA	5.98%	5.83%	5.65%	5.53%	5.76%
TasNetworks (T)		Tas	7.54%	6.46%	6.13%	4.89%	5.66%

Real pre-tax WACC

	%	State	2014	2015	2016	2017	2018
Powerlink		Qld	6.13%	6.13%	6.13%	6.13%	3.97%
TransGrid		NSW	8.04%	4.88%	4.79%	4.71%	4.61%
AusNet (T)		Vic	7.66%	5.62%	5.62%	5.62%	3.72%
ElectraNet		SA	5.18%	5.18%	5.18%	5.18%	5.18%
TasNetworks (T)		Tas	7.93%	4.39%	4.29%	4.25%	4.19%

Sources:

Roll forward Model
Post tax revenue model
Economic benchmarking RIN responses, 2014 - 2018
Transmission regulatory accounts 2014 to 2018

Notes:

We have calculated the regulatory return on assets (EBIT) measure for each transmission network service provider using the formulae used in our profitability measures review (i.e. EBIT/RAB). The approach and data sources used are detailed below:

- Revenue and expenditures are sourced from the annual Regulatory Accounts (TNSPs) and relate to the core regulated service.
- Revenue is adjusted to exclude capital contributions and interest income.
- Expenditure is adjusted to exclude depreciation, finance charges and impairment losses.
- The depreciation reported in the annual regulatory accounts has been replaced by straight line depreciation.
- The closing regulatory asset base is on an as-incurred basis for both DNSPs and TNSPs.
- The straight line depreciation recognises assets on an as-commissioned basis and is sourced from the final decision roll forward models (RFM), where available for the relevant regulatory years. In cases where no RFM is available we applied the nominal straight-line depreciation values from the economic benchmarking RIN. Note we will update our analysis as the RFMs become available.
- The closing regulatory asset base is sourced from the final decision roll forward models (RFM), where available for the relevant regulatory years. If a final decision RFM is not available then we have used the businesses regulatory proposal RFM for the relevant years. In cases where no RFM is available we have used a final decision / updated PTRM for the relevant regulatory years. Note we will update our analysis as the RFMs become available.
- Incentive payments/penalties have been sourced from the revenue sheet of the economic benchmarking RIN and the return on assets measure has been calculated both with and without incentives so that the impact of incentives on returns can be observed.
- The pre-tax real WACC is sourced from the final decision PTRM or an updated PTRM. As noted in our draft position paper we consider actual Return on Assets can be compared against the pre-tax real WACC.
- All inputs are in nominal dollar values.

Additional comments provided by Powerlink:

1. From FY2015 there was a change in the accounting treatment of regulated revenues to report them on an 'as collected' basis. Therefore, EBIT reflects the outcome of under / over collections and the impact of IRSR's. Total undercollections in 2014/15 were \$88 M which were subsequently recovered from customers in 2016/17 in accordance with the regulatory framework. This resulted in a lower EBIT in 2014/15 and a higher result in 2016/17 with a further \$50 M of IRSR's received during the 2016/17 financial year.
2. Due to lower demand than forecast in the AER Final Determination for 2012/13 to 2016/17, Powerlink underspent its capex allowance. This has resulted in a lower RAB and higher return on assets during the regulatory period.