ElectraNet's TNSP Economic Benchmarking Data Templates

Estimate Information

3.1.2 Historical opex categories and cost allocations

TOPEX0101A	Maintenance Communications	$'000	452.000	785.000	1,912.000	1,070.000	1,433.000	1,429.000	2,070.000	1,910.000
TOPEX0102A	Maintenance Lines	$'000	3,684.000	3,475.000	6,696.000	4,530.000	5,562.000	9,500.000	13,762.000	9,274.000
TOPEX0103A	Maintenance Secondary Systems	$'000	3,996.000	2,905.000	729.000	2,050.000	2,752.000	1,651.000	2,017.000	1,705.000
TOPEX0104A	Maintenance Substations	$'000	7,953.000	12,437.000	9,251.000	10,110.000	11,543.000	11,775.000	11,919.000	12,782.000
TOPEX0105A	Maintenance Easements	$'000	966.000	1,108.000	421.000	1,520.000	1,640.000	1,595.000	1,538.000	1,599.000
TOPEX0106A	Field Support	$'000	6,149.000	6,559.000	5,828.000	9,280.000	8,137.000	9,216.000	9,196.000	9,989.000
TOPEX0107A	Operations	$'000	1,691.000	1,738.000	2,248.000	2,300.000	2,100.000	2,147.000	2,559.000	2,582.000
TOPEX0108A	Asset Manager Support	$'000	5,123.000	4,911.000	6,130.000	6,340.000	5,990.000	7,120.000	7,163.000	5,613.000
TOPEX0109A	Insurance	$'000	4,162.000	4,102.000	4,259.636	3,553.000	3,640.000	4,102.000	4,404.000	4,773.000
TOPEX0110A	Corporate Support	$'000	10,007.000	9,955.000	7,421.000	9,340.000	9,930.000	9,217.000	11,476.000	12,932.000
TOPEX0111A	Network Support	$'000	4,248.000	4,955.000	4,549.000	4,760.000	4,840.000	6,618.000	6,480.000	7,368.000
TOPEX0112A		$'000								
TOPEX0113A		$'000								
TOPEX0114A		$'000								
TOPEX0115A		$'000								
TOPEX0116A		$'000								
	[Add rows as required for other opex categories here. For each added row, specify the opex category and add a variable code]									
TOPEX01A	*Total opex*	$'000	48,431.000	52,930.000	49,444.636	54,853.000	57,567.000	64,370.000	72,584.000	70,527.000

Table 3.2 Provisions

For each provision report:

TOPEX02	**Annual leave**									
	Annual leave - opex									
TOPEX0201	Opening balance	$'000	705.460	735.632	765.018	756.257	871.000	970.181	1,014.391	1,170.314
TOPEX0202	Increases to the provision	$'000	529.693	560.010	559.981	750.743	891.220	1,069.420	1,022.495	1,276.629
TOPEX0203	Amounts used (that is, incurred and charged against the provision) during the period	$'000	(499.521)	(530.624)	(568.743)	(636.000)	(799.220)	(923.842)	(902.050)	(1,025.847)
TOPEX0204	Unused amounts reversed during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0205	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0206	Closing balance	$'000	735.632	765.018	756.257	871.000	963.000	1,115.759	1,134.836	1,421.096
	Annual leave - capex									
TOPEX0207	Opening balance	$'000	705.460	735.632	765.018	756.257	871.000	955.819	1,200.609	1,307.686
TOPEX0208	Increases to the provision	$'000	529.693	560.010	559.981	750.743	891.220	1,053.588	1,210.200	1,426.480
TOPEX0209	Amounts used (that is, incurred and charged against the provision) during the period	$'000	(499.521)	(530.624)	(568.743)	(636.000)	(799.220)	(910.165)	(1,067.644)	(1,146.262)
TOPEX0210	Unused amounts reversed during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0211	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0212	Closing balance	$'000	735.632	765.018	756.257	871.000	963.000	1,099.241	1,343.164	1,587.904
TOPEX02A	**Long service leave**									
	Long service leave - opex									
TOPEX0201A	Opening balance	$'000	1,306.034	1,514.846	1,579.408	1,629.888	2,018.000	2,346.872	2,506.439	3,070.776
TOPEX0202A	Increases to the provision	$'000	355.843	241.437	108.213	429.373	366.921	482.131	479.898	260.535
TOPEX0203A	Amounts used (that is, incurred and charged against the provision) during the period	$'000	(147.031)	(176.875)	(57.733)	(59.500)	(64.771)	(67.692)	(60.613)	(80.479)
TOPEX0204A	Unused amounts reversed during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0205A	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	$'000	0.000	0.000	0.000	18.239	9.350	(4.404)	51.960	(11.924)
TOPEX0206A	Closing balance	$'000	1,514.846	1,579.408	1,629.888	2,018.000	2,329.500	2,756.907	2,977.685	3,238.908
	Long service leave - capex									
TOPEX0207A	Opening balance	$'000	1,306.034	1,514.846	1,579.408	1,629.888	2,018.000	2,312.128	2,966.561	3,431.224
TOPEX0208A	Increases to the provision	$'000	355.843	241.437	108.213	429.373	366.921	474.993	567.995	291.117
TOPEX0209A	Amounts used (that is, incurred and charged against the provision) during the period	$'000	(147.031)	(176.875)	(57.733)	(59.500)	(64.771)	(66.690)	(71.740)	(89.925)
TOPEX0210A	Unused amounts reversed during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0211A	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	$'000	0.000	0.000	0.000	18.239	9.350	(4.338)	61.499	(13.323)
TOPEX0212A	Closing balance	$'000	1,514.846	1,579.408	1,629.888	2,018.000	2,329.500	2,716.093	3,524.315	3,619.092
TOPEX02B	**Retirement benefit obligations**									
	Retirement benefit obligations - opex									
TOPEX0201B	Opening balance	$'000	5,586.205	2,811.781	1,271.196	769.140	7,466.853	8,441.540	7,117.829	16,137.812
TOPEX0202B	Increases to the provision	$'000	521.073	486.522	312.888	366.937	542.082	656.789	870.974	1,186.716
TOPEX0203B	Amounts used (that is, incurred and charged against the provision) during the period	$'000	(943.965)	(733.862)	(502.899)	(505.861)	(726.823)	(850.990)	(1,011.452)	(1,064.241)
TOPEX0204B	Unused amounts reversed during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0205B	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	$'000	(2,351.532)	(1,293.245)	(312.045)	6,836.637	1,096.943	(418.228)	8,671.244	(8,412.674)
TOPEX0206B	Closing balance	$'000	2,811.781	1,271.196	769.140	7,466.853	8,379.054	7,829.111	15,648.594	7,847.614
	Retirement benefit obligations - capex									
TOPEX0207B	Opening balance	$'000	5,586.205	2,811.781	1,271.196	769.140	7,466.853	8,316.568	8,424.488	18,032.075
TOPEX0208B	Increases to the provision	$'000	521.073	486.522	312.888	366.937	542.082	647.066	1,030.864	1,326.013
TOPEX0209B	Amounts used (that is, incurred and charged against the provision) during the period	$'000	(943.965)	(733.862)	(502.899)	(505.861)	(726.823)	(838.392)	(1,197.130)	(1,189.162)
TOPEX0210B	Unused amounts reversed during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0211B	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	$'000	(2,351.532)	(1,293.245)	(312.045)	6,836.637	1,096.943	(412.036)	10,263.072	(9,400.157)
TOPEX0212B	Closing balance	$'000	2,811.781	1,271.196	769.140	7,466.853	8,379.054	7,713.206	18,521.293	8,768.770
TOPEX02C	**Self insurance**									
	Self insurance - opex									
TOPEX0201C	Opening balance	$'000	0.000	0.000	0.000	0.000	1,753.000	3,503.150	4,271.150	5,338.084
TOPEX0202C	Increases to the provision	$'000	0.000	0.000	0.000	1,753.000	1,750.150	1,874.000	1,066.934	(1,679.957)
TOPEX0203C	Amounts used (that is, incurred and charged against the provision) during the period	$'000	0.000	0.000	0.000	0.000	0.000	(1,106.000)	0.000	0.000
TOPEX0204C	Unused amounts reversed during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0205C	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0206C	Closing balance	$'000	0.000	0.000	0.000	1,753.000	3,503.150	4,271.150	5,338.084	3,658.126
	Self insurance - capex									
TOPEX0207C	Opening balance	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0208C	Increases to the provision	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0209C	Amounts used (that is, incurred and charged against the provision) during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0210C	Unused amounts reversed during the period	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0211C	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOPEX0212C	Closing balance	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

4. Assets (RAB) worksheet

Variable_Code	Variable	Unit	2006	2007	2008	2009	2010	2011	2012	2013
	Regulatory year		2006	2007	2008	2009	2010	2011	2012	2013
	Table 4.1 Regulatory Asset Base Values									
	For total asset base:									
TRAB0101	***Opening value***	$'000	972,255.647	1,044,740.502	1,100,079.894	1,260,834.232	1,296,024.734	1,293,760.572	1,369,197.438	1,639,883.941
TRAB0102	***Inflation addition***	$'000	29,018.590	25,454.906	46,665.712	31,093.323	37,430.317	43,125.352	21,696.303	41,038.137
TRAB0103	***Straight line depreciation***	$'000	(45,791.849)	(50,958.501)	(48,204.850)	(55,008.877)	(60,040.105)	(63,337.178)	(66,722.899)	(73,303.014)
TRAB0104	***Regulatory depreciation***	$'000	(16,773.260)	(25,503.595)	(1,539.138)	(23,915.555)	(22,609.787)	(20,211.825)	(45,026.597)	(32,264.877)
TRAB0105	***Actual additions (recognised in RAB)***	$'000	89,258.114	80,842.987	162,293.477	59,106.056	20,345.625	97,061.100	315,713.099	178,283.855
TRAB0106	***Disposals***	$'000	0.000	0.000	0.000	0.000	0.000	(1,412.408)	0.000	0.000
TRAB0107	***Closing value for asset value***	$'000	1,044,740.502	1,100,079.894	1,260,834.232	1,296,024.734	1,293,760.572	1,369,197.438	1,639,883.941	1,785,902.919
	Check									
	Table 4.2 Asset value Roll forward									
	For overhead transmission assets:									
TRAB0201	Opening value	$'000	436,052.849	458,979.271	476,717.676	485,419.995	501,807.834	497,430.017	504,352.031	490,882.861
TRAB0202	Inflation addition	$'000	13,007.678	11,179.877	20,220.673	11,970.900	14,492.645	16,581.001	7,991.962	12,284.356
TRAB0203	Straight line depreciation	$'000	(17,480.323)	(19,765.244)	(21,996.345)	(17,535.650)	(19,463.748)	(20,078.746)	(20,943.024)	(21,265.317)
TRAB0204	Regulatory depreciation	$'000	(4,472.645)	(8,585.367)	(1,775.672)	(5,564.750)	(4,971.103)	(3,497.746)	(12,951.061)	(8,980.961)
TRAB0205	Actual additions (recognised in RAB)	$'000	27,399.068	26,323.771	10,477.991	21,952.589	593.286	10,419.760	(518.109)	47,690.163
TRAB0206	Disposals	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRAB0207	Closing value for overhead transmission asset value	$'000	458,979.271	476,717.676	485,419.995	501,807.834	497,430.017	504,352.031	490,882.861	529,592.062
	For underground transmission assets:									
TRAB0301	Opening value	$'000	13,635.814	34,321.644	33,828.514	12,849.938	12,324.283	11,924.361	11,666.284	107,784.339
TRAB0302	Inflation addition	$'000	406.763	836.011	1,434.886	316.891	355.936	397.479	184.864	2,697.306
TRAB0303	Straight line depreciation	$'000	(786.824)	(1,329.142)	(1,361.560)	(704.999)	(718.862)	(738.671)	(765.441)	(3,233.343)
TRAB0304	Regulatory depreciation	$'000	(380.061)	(493.131)	73.326	(388.108)	(362.926)	(341.193)	(580.577)	(536.037)
TRAB0305	Actual additions (recognised in RAB)	$'000	21,065.891	0.000	(21,051.901)	(137.547)	(36.997)	83.116	96,698.632	1,188.301
TRAB0306	Disposals	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRAB0307	Closing value for underground asset value	$'000	34,321.644	33,828.514	12,849.938	12,324.283	11,924.361	11,666.284	107,784.339	108,436.602
	For transmission switchyards, substations									
TRAB0401	Opening value	$'000	338,966.602	360,284.355	382,357.839	429,291.555	443,525.110	447,655.405	492,615.715	643,340.374
TRAB0402	Inflation addition	$'000	10,111.546	8,775.853	16,218.263	10,585.760	12,797.223	14,962.887	7,773.535	15,977.376
TRAB0403	Straight line depreciation	$'000	(16,884.271)	(18,025.673)	(13,097.149)	(17,007.507)	(17,880.334)	(18,584.819)	(20,247.720)	(24,024.506)
TRAB0404	Regulatory depreciation	$'000	(6,772.725)	(9,249.820)	3,121.114	(6,421.747)	(5,083.112)	(3,621.932)	(12,474.185)	(8,047.130)
TRAB0405	Actual additions (recognised in RAB)	$'000	28,090.478	31,323.303	43,812.603	20,655.302	9,213.406	48,582.242	163,198.845	91,030.038
TRAB0406	Disposals	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRAB0407	Closing value for transmission switchyards, substations etc	$'000	360,284.355	382,357.839	429,291.555	443,525.110	447,655.405	492,615.715	643,340.374	726,323.283
	For easements:									
TRAB0501	Opening value	$'000	8,813.561	10,598.461	11,517.519	87,745.070	91,880.593	94,530.170	97,644.230	99,202.400
TRAB0502	Inflation addition	$'000	278.622	265.139	492.758	2,163.873	2,653.591	3,151.006	1,547.270	2,482.543
	Straight line depreciation									
	Regulatory depreciation		278.622	265.139	492.758	2,163.873	2,653.591	3,151.006	1,547.270	2,482.543
TRAB0503	Actual additions (recognised in RAB)	$'000	1,506.277	653.920	75,734.793	1,971.649	(4.014)	(32.578)	10.900	(14,727.184)
TRAB0504	Disposals	$'000	0.000	0.000	0.000	0.000	0.000	(4.368)	0.000	0.000
TRAB0505	Closing value for "other" asset value	$'000	10,598.461	11,517.519	87,745.070	91,880.593	94,530.170	97,644.230	99,202.400	86,957.758
	For "other" assets with long lives:									
TRAB0601	Opening value	$'000	170,033.398	177,356.524	193,439.283	212,102.551	217,858.705	220,136.366	244,118.588	278,916.486
TRAB0602	Inflation addition	$'000	5,072.183	4,320.073	8,205.008	5,231.604	6,304.115	7,296.838	3,900.757	7,102.125
TRAB0603	Straight line depreciation	$'000	(8,526.589)	(9,514.865)	(10,686.929)	(10,302.406)	(11,299.211)	(12,098.942)	(14,494.456)	(17,628.206)
TRAB0604	Regulatory depreciation	$'000	(3,454.406)	(5,194.791)	(2,481.921)	(5,070.802)	(4,995.096)	(4,802.104)	(10,593.699)	(10,526.081)
TRAB0605	Actual additions (recognised in RAB)	$'000	10,777.532	21,277.551	21,145.188	10,826.956	7,272.757	30,192.366	45,391.597	40,316.941
TRAB0606	Disposals	$'000	0.000	0.000	0.000	0.000	0.000	(1,408.041)	0.000	0.000
TRAB0607	Closing value for "other" asset (long life) value	$'000	177,356.524	193,439.283	212,102.551	217,858.705	220,136.366	244,118.588	278,916.486	308,707.346
	For "other" assets with short lives:									
TRAB0701	Opening value	$'000	4,753.422	3,200.246	2,219.063	33,425.123	28,628.209	22,084.254	18,800.592	19,757.482
TRAB0702	Inflation addition	$'000	141.797	77.952	94.125	824.294	826.807	736.142	297.914	494.431
TRAB0703	Straight line depreciation	$'000	(2,113.842)	(2,323.578)	(1,062.868)	(9,458.315)	(10,677.949)	(11,835.998)	(10,272.259)	(7,151.641)
TRAB0704	Regulatory depreciation	$'000	(1,972.045)	(2,245.626)	(968.743)	(8,634.021)	(9,851.142)	(11,099.856)	(9,974.345)	(6,657.209)
TRAB0705	Actual additions (recognised in RAB)	$'000	418.869	1,264.443	32,174.803	3,837.107	3,307.187	7,816.194	10,931.234	12,785.596
TRAB0706	Disposals	$'000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TRAB0707	Closing value for "other" asset (short life) value	$'000	3,200.246	2,219.063	33,425.123	28,628.209	22,084.254	18,800.592	19,757.482	25,885.869
	Table 4.3 Total disaggregated RAB asset values									
TRAB0801	Overhead transmission assets (wires and towers/poles etc)	$'000	447,516.060	467,848.474	481,068.835	493,613.914	499,618.925	500,891.024	497,617.446	510,237.461
TRAB0802	Underground transmission assets (cables, ducts etc)	$'000	23,978.729	34,075.079	23,339.226	12,587.111	12,124.322	11,795.322	59,725.311	108,110.470
TRAB0803	Substations, switchyards, Transformers etc with transmission function	$'000	349,625.479	371,321.097	405,824.697	436,408.333	445,590.257	470,135.560	567,978.045	684,831.829
TRAB0804	Easements	$'000	9,706.011	11,057.990	49,631.295	89,812.831	93,205.381	96,087.200	98,423.315	93,080.079
TRAB0805	Other assets with long lives (please specify)	$'000	173,694.961	185,397.903	202,770.917	214,980.628	218,997.535	232,127.477	261,517.537	293,811.916
TRAB0806	Other assets with short lives (please specify)	$'000	3,976.834	2,709.655	17,822.093	31,026.666	25,356.232	20,442.423	19,279.037	22,821.675
	Table 4.4 Asset lives									
	4.4.1 Asset Lives – estimated service life of new assets									
TRAB0901	Overhead transmission assets	number of years	52.13	52.39	53.76	50.63	51.15	51.54	51.89	52.37
TRAB0902	Underground transmission assets	number of years	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
TRAB0903	Switchyard, substation and transformer assets	number of years	49.01	48.77	48.39	48.34	48.42	48.46	48.26	47.79
TRAB0904	"Other" assets with long lives	number of years	25.23	25.53	25.63	25.10	24.77	24.97	24.53	22.08
TRAB0905	"Other assets with short lives	number of years	4.71	4.52	4.27	4.15	4.15	4.09	4.51	4.11
	4.4.2 Asset Lives – estimated residual service life									
TRAB1001	Overhead transmission assets	number of years	29.26	29.29	31.17	29.85	29.27	29.17	28.51	27.63
TRAB1002	Underground transmission assets	number of years	18.92	18.31	17.32	16.32	15.33	14.35	37.01	36.17
TRAB1003	Switchyard, substation and transformer assets	number of years	30.98	32.10	33.25	32.92	32.29	32.31	34.66	36.25
TRAB1004	Other assets with long lives	number of years	18.73	19.60	19.67	18.68	17.49	17.98	18.08	16.00
TRAB1005	Other assets with short lives	number of years	3.39	2.89	2.95	2.90	2.61	2.80	3.86	3.13

ElectraNet

Basis of Preparation

AER Benchmarking

April 2014

Version FINAL RESPONSE

FOR IDENTIFICATION ONLY
PwC
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Revision Record

Date	Version	Description	Author	Checked By	Approved By

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Tables

1. Introduction

On 28 November 2013, ElectraNet Pty Limited was served with a Regulatory Information Notice pursuant to Division 4 of Part 3 of the National Electricity (South Australia) Law (the RIN).

A requirement of the Benchmarking RIN set out in the Instructions and Definitions accompanying the RIN, is that ElectraNet in addition to providing to the AER a completed data template, must provide a 'Basis of Preparation' which explains for each variable inputted to the data template the basis upon which the input has been prepared.

In accordance with the requirements of the RIN, the following sections of this report provides ElectraNet's basis of preparation for all variables inputted to the data template accompanying this report. Consistent with the Instructions and definitions this basis of preparation addresses the following:

- How the information provided is consistent with the requirements of the notice;
- Explains the source from which ElectraNet obtained the information provided;
- Explains the methodology ElectraNet applied to provide the required information, including any assumptions ElectraNet made;
- Where ElectraNet could not provide an input for a variable using actual information and an estimate was required:
  - Why an estimate was required, including why is was not possible for ElectraNet to use actual information; and
  - The basis for the estimate, including the approach used, assumptions made and reasons why the estimate is ElectraNet's best estimate, given the information sought in the notice.
- In the case of financial information, an explanation if applicable, of the nature and impact of any accounting changes adopted by ElectraNet which have materially changed during any of the regulatory years covered by the notice.

Note that this basis of preparation relates to ElectraNet's 'first response' and as such under the notice, the AER does not require the numbers to be audited or verified by statutory declaration. ElectraNet are still in the process of obtaining assurance sign-off and therefore this basis of preparation and accompanying data remains subject to change.

In accordance with the requirements of the RIN, ElectraNet will submit a final audited and verified version of the data template and Basis of Preparation and accompanying audit report on 30 April 2014.

2. Revenue

2.1 Revenue grouping by chargeable quantity (TREV0101-TREV0110)

2.1.1 Data requirement

ElectraNet is required under the instructions and definitions for the final economic benchmarking RIN to report revenues allocated to the chargeable quantity that most closely reflects the basis upon which the revenue was charged by ElectraNet to customers.

Consistent with the RIN instructions and definitions, ElectraNet has reported revenue by chargeable quantity on the following basis:

- Revenues from Exit services where they are bill on a fixed annual charge based on location only 'From Fixed Customer (Exit Point) charges' (TREV0101),
- Revenues from Entry services where they are bill on a fixed annual charge based on location only 'From Fixed Generator (Entry Point) charges' (TREV0103),
- Revenues from TUOS Usage services (also referred to as TUOS Locational from 2009-10) where they are bill on a locational "nominated / agreed" demand basis against 'From Fixed Energy Usage Charges (Charge per day basis)' (TREV0105),
- Revenues from Common Service and TUOS General charges (also referred to TUOS Non-location from 2009-10) where they are billed on an energy accumulation basis against 'From Energy based Common Service and TUOS General Charges' (TREV0107);
- Revenues from Common Service and TUOS General charges (also referred to TUOS Non-location from 2009-10) where they are billed on a "nominated / agreed" demand basis against 'From Fixed Demand based Usage Charges' (TREV0108); and
- Revenues from other source, is revenue from Settlements Residues Auction (SRA) Proceeds, intra-regional settlement residues, under/over recovery of revenue from previous years plus interest (TREV0110).

Please note that ElectraNet does not charge revenue from the following groups:

- From Variable customer (Exit Point) charges, TREV0102;
- From Variable Generator (Entry Point), TREV0104;
- From Variable Energy Usage Charges (Charge per day basis), TREV0106; and
- From Variable Demand based Usage Charges TREV0109.

2.1.2 Data source and methodology

ElectraNet has sourced the revenue information for table 2.1 directly from the Regulatory Financial Reports for the respective years.

Removal of Murraylink revenue (not ElectraNet's revenue): TREV0105, TREV0107 and TREV0108

ElectraNet is the Co-ordinating Network Service Provider for South Australia and collects both ElectraNet's and the Murraylink Transmission Company (MTC)'s regulated revenue entitlements via ElectraNet's prescribed transmission service prices.

As the Regulatory Financial Reports show revenue charge categories that are inclusive of revenue collected by ElectraNet on behalf of MTC, ElectraNet have adjusted the impacted categories.

MTC is required to advise ElectraNet annually of the Aggregate Annual Revenue Requirement (AARR) and optimised replacement cost (ORC) for its transmission system assets which are used to provide prescribed transmission services within the South Australian region. MTC's revenue must be removed from the revenue groupings. Given revenue charged is calculated using the AARR and ORC, we have used this to remove the revenue on the same basis from the relevant categories in table 2.1 of the data template. Revenue amount for Murraylink for each financial year is shown in Table 2-1: Notification of Murraylink revenue amount for each financial year below:

Table 2-1: Notification of Murraylink revenue amount for each financial year

MTC Allocation by Class of Service (GST exclusive)	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Entry service ORC	-	-	-	-	-	-	-	-
Exit service ORC	-	-	-	-	-	-	-	-
TUOS Service ORC	43,652,411	43,652,411	43,652,411	43,652,411	43,652,411	43,652,411	43,652,411	43,652,411
Common Service ORC	2,678,689	2,678,689	2,678,689	2,678,689	2,678,689	2,678,689	2,678,689	2,678,689
Total ORC	46,311,100	46,311,100	46,311,100	46,311,100	46,311,100	46,311,100	46,311,100	46,311,100
AARR	4,845,520	4,977,972	5,084,766	5,147,603	5,420,161	5,386,652	5,463,472	5,549,744

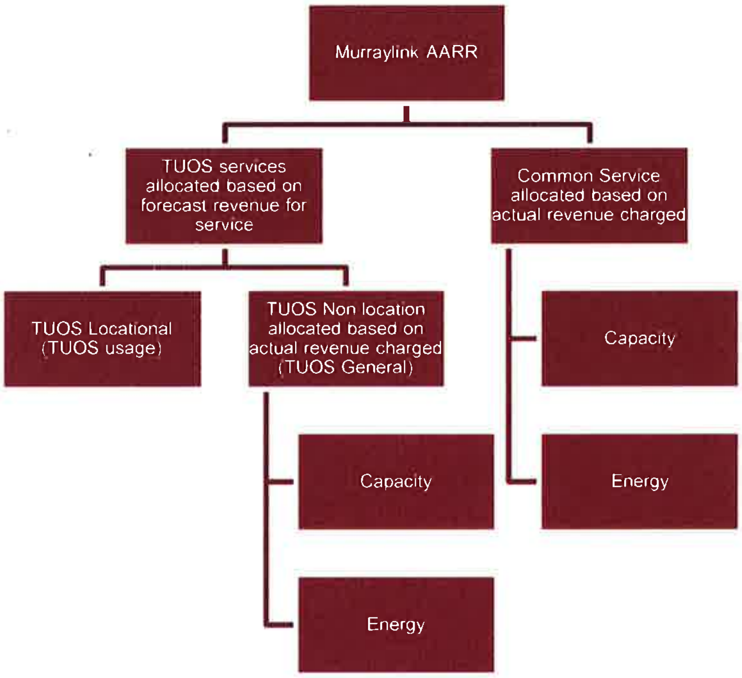
Split of Common service charges and TUOS general charges in line with the RIN revenue categories

Common service charges and TUOS general charges as reported in the Regulatory Financial Report for each respective year includes both "Energy based Common Service and General Charges" (TREV0107) and "Fixed Demand based Usage Charges" (TREV0108).

The split between TREV0107 and TREV0108 have been sourced from customer invoices where these charges are individually identified.

Overall, after factoring in the MTC adjustment (detailed above), the sum of Common service charges and TUOS general charges per the Regulatory Financial Reports agree to the sum of variables TREV0107 and TREV0108. The breakdown of MTC AARR service charges is presented in Figure 2-1: MTC service charges below:

Figure 2-1: MTC service charges



2.1.3 Basis of estimation

There is no estimation involved in table 2.1.

2.1.4 Changes to accounting policies

There has been no change to accounting policies that impact revenue by chargeable quantities.

2.2 Revenue grouping by type of connected equipment (TREV0201-0205)

2.2.1 Data requirement

ElectraNet is required under the instructions and definitions for the final economic benchmarking RIN to report in accordance with the type of connection equipment.

External project work and gross proceeds from the sale of assets where related to Prescribed Transmission Services were reported as "other revenue (TREV0205)."

Consistent with the RIN instructions and definitions, ElectraNet has reported revenue by chargeable quantity on the following basis:

- From other connected transmission networks (TREV0201), ElectraNet does not have any other regulated connections to transmission networks thus this is zero for all years.
- From Distribution networks (TREV0202), is revenue charged to the South Australian Distribution Network Service Provider (DNSP) they are referred to as ETSA Utilities or ETSA Transmission Service Charges in the Customer totals sheets for the respective years
- From Directly Connected end users (TREV0203), is revenue charged to directly connected customer of the ElectraNet network it does not contain the Distribution networks customer.
- Revenues from Generators (TREV0204) is the same as (TREV0103), Entry services where they are bill on a fixed annual charge based on location only 'From Fixed Generator (Entry Point) charges' as generators are only charged Entry Services.
- Other revenue (TREV0205) is the same as (TREV0110), Revenues from other sources, this is revenue from SRA Auction Proceeds intra-regional settlement residues, under/over recovery of revenue from previous years plus interest.

2.2.2 Data source and methodology

ElectraNet has sourced the revenue information for TREV0202 through to TREV0204 from customer invoices. Based on customer invoice information, ElectraNet have summarised revenue by type of charge on an annual basis for each customer. The total revenue by charge has been reconciled to the total revenue reported in the Regulatory Financial reports.TREV0205 has been sourced directly from the respective Regulatory Financial Reports.

As stated in 2.1, these revenue numbers contain the revenue collected for both ElectraNet and MTC, thus MTC's revenue must be removed for the purposes of this RIN. ElectraNet collect revenue on behalf of MTC from only Distribution Networks and directly connected end-users (TREV0202 and TREV0203).

The adjustment required to TREV0202 and TREV0203 to remove the AARR for MTC is on the same basis as detailed in section 2.1.2 of this document. The split of revenue collected on behalf of MTC (as advised in the annual AARR letters) between TREV0202 and TREV0203 is based on actual revenue charged by connected equipment type. No estimation or assumptions are involved.

As TREV0204 relates only to entry charges, this line item does not need to be adjusted, nor does the TREV0205 need to be adjusted for Murraylink's revenue.

2.2.3 Basis of estimation

There is no estimation involved in table 2.2.

2.2.4 Changes to accounting policies

There has been no change to accounting policies that impact revenue by chargeable quantities.

2.3 Revenue (penalties) allowed (deducted) through incentive schemes (TREV0301-TREV0303)

2.3.1 Data requirement

ElectraNet is required under the instructions and definitions for the final economic benchmarking RIN to report penalties or rewards of incentive schemes.

Consistent with the RIN instructions and definitions, revenues and penalties from incentives schemes are reported in the year in which the penalty or reward was applied as opposed to the year it was gained.

2.3.2 Data source and methodology

ElectraNet has reported revenue on the following basis from the following sources:

- EBSS (TREV0301), ElectraNet obtained these figures directly from Table 7.9 AER's final decision on annual building block revenue requirement ($m, nominal) labelled Opex efficiency (glide path) allowance from the Final decision ElectraNet transmission determination 2008-09 to 2012-13 dated 11 April 2008.
- STIPS (TREV0302), is the additional revenue or penalty the AER approved as part of the annual Transmission service standards review. The source of the data is taken directly from the letters provided by the AER to ElectraNet annual. The letters are as follows:
  - Letter dated 3 May 2006 – Service standard review for 2005, revenue for the financial year 2006-07
  - Letter dated 24 April 2007 – Transmission service standards compliance review for 2006, revenue for the financial year 2007-08
  - Letter dated 28 April 2008 – Transmission service standards compliance review for 2007, revenue for the financial year 2008-09
  - Letter dated 28 April 2009 – Transmission service standards review for 2008, revenue for the financial year 2009-10
  - Letter dated 30 April 2010 – Transmission service standards review for 2009, revenue for the financial year 2010-11
  - Letter dated 20 April 2011 – Transmission service standards review for 2010, revenue for the financial year 2011-12
  - Letter dated 23 April 2012 – Transmission service standards review for 2011, revenue for the financial year 2012-13
- Other (TREV0303) ElectraNet does not have any other schemes

2.3.3 Basis of estimation

There is no estimation involved in table 2.3.

2.3.4 Changes to accounting policies

There has been no change to accounting policies that impact revenue through incentive schemes.

3. Operating Expenditure ('Opex')

3.1 Operating expenditure categories (TOPEX0101-TOPEX0103A)

3.1.1 Data requirement

As per the AER's RIN requirements, given that ElectraNet's cost allocation approach, basis of preparation for its regulatory accounting statements, or response to the information guidelines have not changed across the Benchmarking reporting period, ElectraNet have not filled out table 3.1.1 but rather used table 3.1.2 for section 3.1.

Table 3.1.2 requires ElectraNet to report Opex activities (for example: network, operations, asset management support and field maintenance) reported in its Information Guidelines response for individual Regulatory Year. For the avoidance of doubt this means that

- The accounting principles applied by the NSP to complete its regulatory Financial Statements for each individual Regulatory Year must be applied when reporting Opex for that Regulatory Year.
- Opex reported must be prepared in a consistent manner to that of Opex reported in the Regulatory Financial Statements.
- Opex line items reported in Table 3.1.2 should equal Opex line items reported in the Regulatory Accounting Statements for each Regulatory Year.

ElectraNet must report, for all Regulatory Years, Opex in accordance with its Cost Allocation Approach and the Regulatory Accounting Statements that were in effect for the relevant Regulatory Year.

Opex must be reported in accordance with the categories for the relevant Regulatory Year and should directly reconcile to the Opex in ElectraNet's response to the Information Guidelines for that year.

The information provided by ElectraNet is sourced from regulatory reporting for the 2009-2013 regulatory period and agrees to the regulatory financial reports for each reported year. Comparable information is provided for the 2006-2008 period.

3.1.2 Data source and methodology

ElectraNet has sourced the opex information from the Regulatory Financial Reports – Historic Opex by Expenditure Category schedule for the years 2009 to 2013. For the 2006 to 2008 years, ElectraNet has compiled comparable information from the historical data available.

3.1.3 Basis of estimation

No estimates have been made in the compilation of this information. Estimates and judgements may be required in accordance with the Transmission Network Service Providers Information Guidelines when compiling the underlying data within the relevant regulatory financial reports. ElectraNet notes that there have been changes to the

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business structure and improvements to financial systems which have occurred during the reported period. After any change, ElectraNet has endeavoured to ensure that reported regulatory opex data is as consistent as possible with reset decisions and reporting in prior years.

3.1.4 Changes to accounting policies

There has been a change to the accounting for retirement benefit obligations which was first applied from 1 July 2011. The nature and impact of this change to opex is disclosed in detail within section 3.2.4 Provisions – Changes to accounting policy.

There have been no changes to ElectraNet's cost allocation approach and regulatory accounting principles or policies which affect historical opex reporting.

3.2 Provisions (TOPEX02-TOPEX0212)

3.2.1 Data requirement

ElectraNet must report, for all Regulatory Years, Financial Information on provisions for Prescribed Transmission Services in accordance with the Cost Allocation Approach and the Information Guidelines that were in effect for the relevant Regulatory Year.

ElectraNet must report Financial Information for each of its provisions.

Provisions must be reported in accordance with the regulatory principles and policies within the Information Guidelines for each Regulatory Year.

Financial information on provisions should reconcile to the reported amounts for provisions in the Regulatory Financial Reports for each Regulatory Year.

3.2.2 Data source and methodology

Information on annual and long service leave and self-insurance provisions has been sourced from the Regulatory Financial Report for each financial year.

Information on the retirement benefit obligation provision has been extracted from ElectraNet's Statutory Financial Reports for each financial year. Information has been extracted from the Statutory Financial Reports as there is more detailed information provided to satisfy the data requirements of the RIN (e.g. variables TOPEX0205B and TOPEX0211B).

<u>Leave provisions</u>

The information extracted from the Regulatory Financial Reports is tabled for each year from the Provisions Reconciliation – Prescribed Transmission Services.

Each year there is calculation of the proportion of ElectraNet's cost applicable to prescribed network services. This proportion varies each year. The amounts tabled are the balances and movements applicable to prescribed network services.

Given the proportion of prescribed network services to total network services changes each year, an adjustment is made to the "increases to provisions' row to ensure the opening balance of the current year is equal to the closing balance of the preceding year. The adjustment is made up of the difference in the current and prior year's prescribed network services percentage, multiplied by the closing value of the preceding year.

To derive the split of provisions between capital expenditure (capex) and opex, ElectraNet have made an estimation based on the labour activity allocation to capex and opex costs. For further details of the estimation refer to 3.2.3 Basis of Estimation.

For long service leave (LSL), for each year from 2009 onwards, ElectraNet has calculated the provision movement due to the change in the annual discount rate applied to the leave accrued for employees who have not reached the full LSL entitlement period of seven years. The previous year's discount rate has been substituted into each annual LSL calculation of the current year to derive the liability using the previous discount rate. The recalculated provision amount is subtracted from the current year's actual calculation to derive the movement.

ElectraNet uses the Commonwealth Government five year bond rate as the annual discount rate. The movement due to the discount rate is shown in TOPEX205A for opex and TOPEX211A for capex, with a corresponding offset in TOPEX202A and TOPEX208A.

Retirement benefit obligation

Information is extracted from the detailed notes which form part of the annual ElectraNet Statutory Financial Reports. The statutory information is more comprehensive than the information disclosed in the annual Regulatory Financial Report.

The information extracted from the ElectraNet Statutory Financial Report is adjusted to the portion applicable to prescribed network services based on the prescribed network services percentage disclosed in the Regulatory Financial Report. Opening and closing balances of the retirement benefit obligation provision agrees with the Regulatory Financial Report balances for each year.

The detailed extracted information is summarised in the format required in table 3.2 of the data template in accordance with the mapping shown in Figure 3-1: Retirement benefit obligations mapping on the following page:

Figure 3-1: Retirement benefit obligations mapping

TOPEX02B Retirement benefit obligations analysis

RIN analysis			
Opex	**Capex**	**Description**	**Statutory financial report analysis**
TOPEX0201B	TOPEX0207B	Opening balance	Net defined benefit liability/(asset) at start of year
TOPEX0202B	TOPEX0208B	Increases to the provision	Current service cost Interest cost Expected return on plan assets Interest income Contributions by scheme participants Benefits paid Taxes & premiums paid
TOPEX0203B	TOPEX0209B	Amounts used (that is, incurred and charged against the provision) during the period	Employer contributions
TOPEX0204B	TOPEX0210B	Unused amounts reversed during the period	N/A
TOPEX0205B	TOPEX0211B	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	Actuarial gains/(losses) demographic assumption changes Actuarial gains/(losses) financial assumption changes Fair value actuarial gains/(losses) Present value actuarial gains/(losses) Transfers in
TOPEX0206B	TOPEX0212B	Closing balance	Net defined benefit liability/(asset) at end of year

Increase in the retirement benefit obligation provision reflects movements that have been included within historical opex reported.

Amounts used reflect payments by ElectraNet in relation to the retirement benefit obligation.

The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate includes items presented in other comprehensive income within the Statutory Financial Reports which are not included in reported historical opex.

Each year ElectraNet calculates the proportion of cost applicable to prescribed network services. This proportion varies each year. The amounts tabled are the balances and movements applicable to prescribed network services.

Given the proportion of prescribed network services to total network services changes each year, an adjustment is made to the “increases to provisions’ row to ensure the opening balance of the current year is equal to the closing balance of the preceding year. The adjustment is made up of the difference in the current and prior year’s prescribed network services percentage, multiplied by the closing value of the preceding year.

Self-insurance

This provision has been reported from 2008/09 onwards and is reported only in each year’s Regulatory Financial Report.

Self-insurance is only applicable to opex and therefore no apportionment has been applied between capex and opex.

3.2.3 Basis of estimation

Estimates and judgements are required when compiling the underlying data within the relevant statutory financial reports for leave and retirement benefit obligation provisions. These are made in accordance with the relevant Australian Accounting Standards.

Estimates and judgements may be required in accordance with the Information Guidelines when compiling the underlying data for self-insurance provisions disclosed in the relevant regulatory financial reports.

ElectraNet has calculated a capex and opex split for provisions for the years 2011 to 2013. The cost allocation is derived from the ElectraNet cost accounting system in which labour activities are allocated to capex and opex cost collectors. Using standard SAP report S_ALR_87013611, ElectraNet has analysed primary costs by activity postings to capex and opex, to derive the annual apportionment.

Prior to 2011 ElectraNet operated a less detailed costing system and therefore the same estimation methodology cannot be applied. For the years 2006 to 2010 a 50/50 split has been assumed which was applied during the last revenue reset determination for 2009 to 2013.

3.2.4 Changes to accounting policies

Effective 1 July 2011, ElectraNet adopted the revised *AASB 119 Employee Benefits* standard as issued by the Australian Accounting Standards Board within their Statutory Financial Reports.

The revised accounting standard changed the way retirement benefit obligations were measured and disclosed.

ElectraNet obtained actuary reports which measured the impact of the change in the accounting standard for 2011 & 2012. The impact of these changes is summarised in

Figure 3-2: Retirement benefit obligations analysis on the following page:

Figure 3-2: Retirement benefit obligations analysis

TOPEX02B	Retirement benefit obligations analysis	With AASB119 revision	Before AASB119 revision		With AASB119 revision	Before AASB119 revision	
RIN analysis		Reported in RIN	Restated	Change	Restated	Reported in RIN	Change
Opex	Description	2012	2012	2012	2011	2011	2011
TOPEX0201B	Opening balance	7,118	7,118	0	8,320	8,320	0
TOPEX0202B	Increases to the provision	871	496	375	1,078	647	431
TOPEX0203B	Amounts used (that is, incurred and charged against the provision) during the period	(1,011)	(1,011)	0	(839)	(839)	0
TOPEX0204B	Unused amounts reversed during the period	0	0	0	0	0	0
TOPEX0205B	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	8,671	9,046	(375)	(843)	(412)	(431)
TOPEX0206B	Closing balance	15,649	15,649	0	7,716	7,716	0

		Reported in RIN	Restated	Change	Restated	Reported in RIN	Change
Capex	Description	2012	2012	2012	2011	2011	2011
TOPEX0207B	Opening balance	8,424	8,424	0	8,438	8,438	0
TOPEX0208B	Increases to the provision	1,031	587	444	1,094	657	437
TOPEX0209B	Amounts used (that is, incurred and charged against the provision) during the period	(1,197)	(1,197)	0	(851)	(851)	0
TOPEX0210B	Unused amounts reversed during the period	0	0	0	0	0	0
TOPEX0211B	The increase during the period in the discounted amount arising from the passage of time and the effect of any change in the discount rate.	10,263	10,707	(444)	(855)	(418)	(437)
TOPEX0212B	Closing balance	18,521	18,521	0	7,826	7,826	0

4. Assets (RAB)

4.1 Regulatory asset base values

Table 4.1 in the template is the aggregate of the Asset value roll forward information in Table 4.2.

For details of the data requirement, source, methodology, basis of estimation and changes to accounting policies, refer to the details below within 4.2 Asset value roll forward.

4.2 Asset value roll forward

4.2.1 Data requirement

ElectraNet must report RAB values in accordance with the standard approach per the RIN and the Assets (RAB) Financial Reporting Framework.

RAB Financial Information must be allocated from, and reconcile to, the 'as commissioned' RAB. RAB Financial Information must reconcile to:

- For years prior to any AER determination of RAB values, determinations made in relation to RAB values made by the previous jurisdictional regulator.
- Any decision that the AER has made in relation to RAB values unless that decision incorporates forecasts (for example, for the last year of the previous regulatory period) in which case those forecast values should be replaced with actual values where possible. Actual values must reconcile to amounts reported in the response to the Information Guidelines.
- For years where the AER has not made a decision on values for the RAB, RAB values must be prepared in accordance with the RAB Framework. In this circumstance, actual additions (recognised in the RAB) and disposals must reconcile to amounts reported in the response to the Information Guidelines.

4.2.2 Data source

The information provided by ElectraNet is sourced from the Roll Forward Models (RFM) for the 2003-2008 and 2008-2013 revenue reset periods which have previously been submitted to the AER as part of their revenue determinations.

Forecast values for the year ended 30 June 2013 have been replaced with actual commissioned values that were used in determining the incurred additions in the regulatory financial report submitted to the AER for the period then ended.

Forecast values for the year ended 30 June 2008 have been replaced with actual values and adjusted for during the 30 June 2013 regulatory year as reported in the RFM 2008 – 2013 submitted to the AER.

4.2.3 Methodology

ElectraNet has extracted the RFM information for opening balances, additions, disposals, inflation, depreciation and closing balances directly from the 2003-2008 and 2008-2013 RFMs, and the values used in preparing the regulatory financial report for the year ended 30 June 2013

ElectraNet has mapped the regulatory asset classes shown in the RFM to the RIN categories as shown in Table 4-1: Mapping regulated asset classes to RIN asset categories below:

Table 4-1: Mapping regulated asset classes to RIN asset categories

RIN asset category	Regulated asset class
Overhead transmission assets	Transmission lines - Overhead Refurbishment
Underground transmission assets	Transmission lines - Underground
Transmission switchyards, substations	Substation Establishment Substation Primary Plant Refurbishment Projects 2008-2013 Land - Substations Accelerated Depreciation
Easements	Easements
Other assets with long lives	Substation Secondary Systems - Electromechanical Substation Secondary Systems - Electronic Substation Demountable Buildings Substation Fences Communications - Civil Communications - Other Commercial Buildings Land - Other long life assets Office furniture, movable plant, and misc Capital Work in Progress Equity Raising Cost - 2003 Opening RAB and 2003-08 capex Equity Raising Cost 2013-2018
Other assets with short lives	Network Switching Centres Computers, software, and office machines

The classes of assets previously reported in the 2003-2008 and 2008-2013 RFMs, and the regulatory financial report for the year ended 30 June 2013 are consistent with the RIN asset categories above, except for Land.

Split of land to satisfy the RIN asset categories

The RIN requires Land to be split by, Land – Substations and Land – Other long life assets.

Substation land is included in the "Transmission switchyards and substations" RIN asset category. Other land is included in the "Other assets with long lives" RIN asset category. Other land comprises commercial land for offices and parking, in addition to strategic land purchased in advance of provision of substation assets.

ElectraNet have allocated each parcel of land per ElectraNet's SAP fixed asset register between the two classes based on the actual land use.

This is the most accurate basis of splitting land values between the RIN asset categories given it is based on the actual use of land – i.e. for substations or other purposes. ElectraNet have not adopted the standard approach per the RIN Instructions and Definitions document as the depreciated replacement cost estimates are not applicable to land, and there is insufficient information in the RAB to do so.

4.2.4 Basis of estimation

In some instances, a parcel of land per ElectraNet's fixed asset register comprises substation and other commercial land. Therefore an apportionment is required in order to allocate the value of the parcel of land between the two RIN asset categories. This has been performed based on the land area and its use per area apportionment from survey or the ElectraNet geographical information system (GIS).

This is the best available estimate as it relies on historical accounting records for the book value of the total parcel of land. Two apportionments rely on titles and independent land survey information. The third apportionment relies on the land title and a GIS area calculation.

ElectraNet has calculated an apportionment percentage of total land additions from its fixed asset register between "Transmission switchyards and substations" and "Other assets with long lives". The apportionment percentage is applied to the RFM land additions. Due to the "Difference Between Actual and Forecast Net Capex" and the "Return on Difference – Net Capex" relating to 2008 which are adjusted for in 2013 year within the RFM, the calculation allows for the land asset additions and related CPI inflation for the 2008 year to be adjusted out of the 2008 to 2012 years and to be added into the 2013 land asset category in the RAB. These 2008 land additions were included in the "Difference Between Actual and Forecast Net Capex" in the 2008-2013 RFM. The related "Return on Difference – Net Capex" has also been apportioned between "Transmission switchyards and substations" and "Other assets with long lives" and adjusted in the 2013 year.

A minor adjustment is required to the additions apportionment to reconcile to the closing balance split of land between "Transmission switchyards and substations" and "Other assets with long lives". This adjustment is required to ensure the closing balance of land apportioned to "Transmission switchyards and substations" and "Other assets with long lives" for each year is equal to the closing balances derived by adding through opening balance, additions, disposals and regulatory depreciation.

The land values apportioned to the "Transmission switchyards and substations" and "Other assets with long lives" categories are shown in

Table 4-2: Land value apportionment on the following page:

Table 4-2: Land value apportionment

Closing value ($'000)	2006	2007	2008	2009	2010	2011	2012	2013
Land - transmission switchyards & substations	9,629	9,934	10,502	10,867	11,625	11,954	12,354	24,783
Land - other assets with long lives	1,138	1,174	1,241	1,329	1,948	667	3,386	27,440
Land total	10,767	11,108	11,743	12,196	13,573	12,621	15,739	52,223
Substation land %	89.4%	89.4%	89.4%	89.1%	85.6%	94.7%	78.5%	47.5%

4.2.5 Changes to accounting policies

There are no changes to accounting policies which impact ElectraNet's RAB values.

4.3 Total disaggregated RAB asset values

4.3.1 Data requirement

ElectraNet must report average RAB Asset values that have been disaggregated into the categories in this table. These must be calculated as the average of the opening and closing RAB values for the relevant Regulatory Year for each of the RAB Asset categories and should be directly reconcilable to the opening and closing values in Table 4.2 per the template for the relevant categories.

The information provided by ElectraNet is sourced from the Roll Forward Models for the 2003-2008 and 2008-2013 revenue reset periods.

4.3.2 Data source

ElectraNet has sourced the opening and closing balances for each of the RIN asset categories as reported in table 4.2 of the data template, asset value roll forward.

4.3.3 Methodology

ElectraNet has averaged the opening and closing balances for each of the RIN asset categories in table 4.2 of the data template, asset value roll forward, in accordance with the RIN requirements.

4.3.4 Basis of estimation

No estimation has been applied to calculate the data presented in table 4.3 of the data template.

4.3.5 Changes to accounting policies

There are no changes to accounting policies which impact ElectraNet's RAB values.

4.4 Asset lives

4.4.1 Data requirement

In relation to Table 4.4.1 'Asset Lives – estimated service life of new assets' and Table 4.4.2 'Asset lives – estimated residual service life', ElectraNet must report asset lives for all RAB Assets in accordance with the category definitions provided in chapter 9 in the RIN.

The information provided by ElectraNet is sourced from the detailed asset records to which regulated service lives have been applied and remaining lives calculated.

4.4.2 Data source

ElectraNet has extracted detailed asset information from its SAP fixed asset register.

Regulatory asset lives used are approved by the AER.

4.4.3 Methodology

ElectraNet has used the detailed asset information contained in its fixed asset register for these calculations. This allows a standard basis of calculation for service and remaining lives whereas the RAB contains an averaged remaining service life for each asset class, which would allow a service life calculation but not an average remaining life calculation.

ElectraNet has mapped its asset register asset classes to RFM asset classes and then to the RIN asset categories.

Work in progress assets are excluded from the calculations. These assets are not complete and their cost is not yet allocated to asset classes in ElectraNet's fixed asset register.

Land and easement assets are excluded from the calculations, because they do not have a finite life.

Equity raising costs and accelerated depreciation costs are excluded. These assets are not physical assets with a service life and are not incorporated in ElectraNet's fixed asset register.

The RFM accelerated depreciation asset class is used for reclassifying assets which are intended to be replaced in the next regulatory period (2013-2018). This does not reflect the historical service or residual service lives of those assets and consequently these assets are included in their original asset class.

<u>Table 4.4.1</u>

Regulated asset class service lives have been applied to individual assets. For each financial year covered by the RIN, the service years are multiplied by the asset net book values (NBV) to calculate $_service_years for each asset. For each RIN asset category, the $_service_years are aggregated then divided by the aggregated NBV, to give an average service life in years.

<u>Table 4.4.2</u>

Regulated asset class service lives have been applied to individual assets. For each year covered by the RIN, the remaining regulated life of each individual asset is calculated with reference to the asset register acquisition date and the RFM asset class service life. For each financial year the remaining lives in years are multiplied by the asset net book values (NBV) to calculate $_remaining_years for each asset. For each RIN asset category, the $_remaining_years are aggregated then divided by the aggregated NBV, to give an average remaining life in years.

4.4.4 Basis of estimation

ElectraNet has used the regulated lives per the RAB asset classes. No estimation is involved.

4.4.5 Changes to accounting policies

There are no changes to accounting policies which impact ElectraNet's asset lives.

5. Operational Data

5.1 Energy delivery (TOPED0101-TOPED0103)

5.1.1 Data requirement

According to Economic Benchmarking RIN for Transmission Network Services Provider Instructions and Definitions November 2013 Chapter 5 Section 5.1 ElectraNet are required to report the amount of electricity transported through ElectraNet's network in the relevant Regulatory Year (measured in GWh). This must be as metered at the downstream settlement location rather than the import location to ElectraNet's network. Energy delivered must be actual energy delivered data, unless this is unavailable.

Energy delivery 'To other connected transmission networks' (TOPED0101) must include both imported and exported energy.

Where energy delivery 'To directly connected end–users' (TOPED0103) is confidential, in the public version of the RIN Templates, cells associated with this Variable should be blacked out and energy delivered that would otherwise be reported as part of TOPED0103 must be included in energy delivered 'To Distribution networks' (TOPED0102).

5.1.2 Data source and methodology

National Grid Metering (NGM) data on which the NEM financial settlement is based has been used. This has been previously Quality Controlled by the Metering Data Agent (meter reader) and by the Australian Energy Market Operator (AEMO) prior to use in NEM settlement. It is also checked weekly by ElectraNet's internal processes for reasonableness of Transmission Loss Factor.

NGM Data is extracted from the ElectraNet Oracle database by classification of:

- Generators;
- Interconnectors; and
- Load connections: Wholesale (directly connected end-users) and Distribution.

The extracted data is used to calculate the required RIN parameters on yearly basis via appropriate formulae, following Chapter 9 Definitions of the RIN Instructions and Definitions wherever appropriate.

5.1.3 Basis of estimation

N/A

5.1.4 Changes to accounting policies

N/A – Information reported within 5.1 of the data template relates to non-financial information.

5.2 Connection point numbers

5.2.1 Data requirement

Connection point numbers must be reported as the average of connection point numbers in the relevant Regulatory Year under system normal conditions. The average is calculated as the average of the number of connection points on the first day of the Regulatory Year and on the last day of the Regulatory Year.

ElectraNet must report the number of entry and exit points at each voltage level. ElectraNet must add additional rows as necessary to Table 5.2 to report each voltage level for entry or exit points.

5.2.2 Data source and methodology

Information on all ElectraNet substations was extracted from ElectraNet's SAP Network Statistics report to establish functional location, name, substation start-up date and voltage of the.

System switching diagrams (SSDs) were downloaded from ElectraNet's drawing management system, SPF and the number of unique customers was identified on the SSDs to determine Entry and Exit connection points.

The Network Statistics report was used to identify the SSDs to ensure all substations were captured.

Where multiple voltages for entry and exits exist, new records were manually added and any additional commentary prepared based on the review of single line diagrams.

5.2.3 Basis of estimation

For the basis of this estimation, Connection Point is defined as each unique customer. In the case where a substation has transformers feeding different subsystems, each subsystem has been counted as a separate connection point.

The connection point count includes both regulated and unregulated connection points.

Connection point voltage has been taken to mean the voltage at the high side of the connection transformer, that is, the voltage seen on the ElectraNet side or if applicable the voltage of the line or cable where it is the connection between customers or subsystems.

ElectraNet notes that an alternate basis of estimation would be to count the number of network metering identifiers which are at the physical point of connection to customers. This would result in a materially higher number than the methodology chosen. We have been guided in our choice of estimation methodology by the by the list of connection points in the South Australian Electricity Transmission Code.

Consistent with the email correspondence provided by Andrew Ley from the AER on 12 February 2014, interconnectors have been treated as an exit point.

5.2.4 Changes to accounting policies

N/A – Information reported within 5.2 of the data template relates to non-financial information.

5.3 System demand (TOPSD0101-TOPSD0308)

5.3.1 Annual system maximum demand characteristics (TOPSD0101-TOPDS0206)

5.3.1.1 Data requirement

Table 5.3 of the data template must be completed in accordance with the Economic Benchmarking RIN for Transmission Network Services Provider Instructions and Definitions November 2013 Chapter 9. ElectraNet must provide inputs for these cells if it calculates historical Weather Adjusted Maximum Demands.

Where ElectraNet does not calculate Weather Adjusted Maximum Demands it may estimate the historical Weather Adjusted data or shade the cells black. For Subsequent Regulatory Years ElectraNet will be required to provide Weather Adjusted Maximum Demand on an ongoing basis in accordance with best regulatory practice weather adjustment methodologies.

5.3.1.2 Data source and methodology

National Grid Metering (NGM) data on which the NEM financial settlement is based has been used. This has been previously Quality Controlled by the Metering Data Agent (meter reader) and by AEMO prior to use in NEM settlement. It is also checked weekly by ElectraNet's internal processes for reasonableness of Transmission Loss Factor.

NGM Data is extracted from the ElectraNet Oracle by classification of:

- Interconnectors; and
- Load connections: Wholesale (directly connected end-users) and Distribution.

The extracted data is used to calculate the required RIN parameters via appropriate formulae, following Chapter 9 Definitions of the RIN Instructions and Definitions wherever appropriate.

Both calculations on National Metering Identifier level and Substation level have been considered and we believed that the Substation level base calculation satisfies the intent of the requirement.

The interconnector contribution to maximum MW demand has been included only for those half hours when the interconnector is acting as a load (export to Victoria).

The interconnector contribution to maximum MVA demand has been included only for those half hours when the interconnector is acting as a load (MW half hour exporting to Victoria).

5.3.1.3 Basis of estimation

<u>TOPSD0201 and TOPSD0204</u>

Six of the 212 ElectraNet connection points do not have the kVAR values metered. These are minor connection points in terms of energy consumed. The impact of this lack of actual metered data on the calculation of MVA has been estimated to be of the order of 0.5%. The impact of this on MVA is operationally minimal. As such and considering the accuracy of any estimation method no estimation has been made on these missing KVAR values.

5.3.1.4 Changes to accounting policies

N/A – Information reported within 5.3 of the data template relates to non-financial information.

5.3.2 Power factor (TOPSD0301-TOPSD0308)

5.3.2.1 Data requirement

ElectraNet must report the power factor to allow for conversion between MVA and MW measures for each voltage. If both MVA and MW demand for a network are available then the power factor is the total MW divided by the total MVA. ElectraNet must provide a power factor for each voltage level and for the network as a whole. The average overall power factor conversion (TOPSD0301) is the total MW divided by the total MVA.

If either the MW or MVA measure is unavailable the average power factor conversion can be calculated as an approximation based on best engineering estimates.

When completing the Templates for Regulatory Years subsequent to the 2013 Regulatory Year, if ElectraNet can provide Actual Information for Table 5.3.3 it must do so; otherwise ElectraNet must provide estimated information.

5.3.2.2 Data source and methodology

Data source for this section is from ElectraNet's Subsload database, this contains 30 minute instantaneous SCADA figures. This is used to extract voltage, real power and reactive power.

The data extracted was for every Line that reports either a voltage or real power or reactive power for that day.

The data extracted does not differentiate between regulatory and non-regulatory lines, or the owner of those lines. Therefore, the data may include some SAPN 66kV or BHP 275kV that we have SCADA information for. This is arguably a more accurate picture of the network.

The voltage is shown for the first half hour of each day and this is used for the classification of the line. As system voltage may vary, ranges have been used to determine the nominal voltage of the line. These are:

- Between 50-100 kV = 66kV
- Between 100-200 kV = 132kV

- Between 200-350 kV = 275 kV
- Between 50-350 kV = overall network

As it is the voltage at the first half hour that determines classification if the line is off (i.e. zero) or low voltage (<50kV) this day of calculated power factors for that line is excluded.

There is some small chance of misclassifying a higher voltage line during de-energisation, if the snapshot (first half hour of the day) catches during the voltage going down.

This query will also capture the metering (line CT's) at both ends of a line.

Power factor for a line can have 4 quadrants of operation with lines usually measured at both ends. Convention being that positive is outwards from the bus end and negative is towards the bus, with P being real power and Q being reactive power.

- P+,Q+ = lagging
- P-,Q- = lagging
- P+,Q- = leading
- P-,Q+ = leading

Power factor = P / S (definition as per Instructions) where S = sqrt(P^2 + Q^2).

If power factor is lagging give a negative sign to P / S (usually dimensionless) and if power factor is leading give a positive sign to P / S (usually dimensionless) i.e. + = leading and - = lagging.

In an excel spreadsheet, unity power factor is 1 and to do a proper average of a line that may have reactive power swinging back and forth we need to average around 1, hence we used the following formulas below:

```
=IF(E3=0,"NA",IF(E3="null","NA",IF(E3=-1,1,IF(E3=1,1,E3))))
```

The formula above normalises the -1 figure and removes 0's and nulls from the average.

```
=IF(BB3="NA","NA",IF(BB3<0,BB3*-1,1+(1-BB3)))
```

The formula above creates a power factor range centred on 1 (unity) if it is greater than 1 = leading, if it is < 1 = lagging. If the power factor is leading this number must be subtracted from 1 and then added back to 1 as a power factor can only range between zero and one.

An average is calculated for all the power factors (every 30min) for that line for a day, then an average determined from that daily average power factor for all lines within the voltage range.

This is the figure ElectraNet have reported in the data template. This number will not reconcile with total MW divided by the total MVA (TOPSD0101/ TOPSD0201) as the AER definitions and instructions specifically ask for power factor on lines whereas TOPS0101 and TOPS0201 relate to loads.

5.3.2.3 Basis of estimation

N/A

5.3.2.4 Changes to accounting policies

N/A – Information reported within 5.3.3 of the data template relates to non-financial information.

6. Physical Assets

6.1 Transmission system capacities variables – Overhead Circuit Length (TPA0101-TPA06)

6.1.1 Data requirement

ElectraNet is required to report overhead network length of circuit at each voltage level. The network length of circuit is the circuit length (measured in kilometres) of lines in service (the total length of lines including interconnectors, backbones and spurs). A double circuit line counts as twice the length. Length does not take into account vertical components such as sag.

6.1.2 Data source

The primary source used to report overhead circuit length and voltage is ElectraNet's Line Schedule database, which contains structure and span information. The information sourced from the database included overhead span lengths, circuits, voltage and section build dates. This is a live database and therefore data downloaded reflects the network status at that moment in time.

SAP, ElectraNet's integrated business and asset management system was used to provide a list of all ElectraNet built sections historically for the network. This was required to provide historical structural and span information and also the date of any lines removed/scrapped.

The Network Statistics Report from the ElectraNet Grazer asset management reporting tool provided an additional source of asset information as well providing a data cross-check for overhead span lengths and voltage by built section including for removed and scrapped lines.

The list of built sections extracted from SAP was reconciled against the built section list in the Line Schedules database and with the Network Statistics Report. This was to ensure only regulated lines were included in the line asset list and to identify what lines were decommissioned and when.

Note that to determine circuit length, Line Schedules data was used.

From the reconciled asset list, line length for each built section at each voltage was then summed to determine total overhead network length of circuit for each voltage type.

6.1.3 Basis of estimation

Some assumptions were made based on the available data to estimate overhead circuit length including:

<u>Date of build</u>

In some instances, the structures and spans in the line schedules did not include start-up/build dates due to some inconsistencies with the data analysed. If these dates were unavailable, the date was estimated on the one of the basis below depending on availability of information:

1. The date as found in line schedules which is consistent with rest of the built section;
   (a) By definition, a built section is a consistent section of line built at the same time
2. The SAP start-up date;
   (a) Although SAP is not ElectraNet's primary database for line details for some items it may include start-up dates.
3. The terminal substation start-up date from SAP.
   (a) Generally a line is built to reach a substation (certainly for a radial)

As identified in the previous section, the preferred approach if applicable was to use the date found in the Line Schedules data as this information is actively maintained.

<u>Length of circuits within a substation</u>

Consistent with ElectraNet's internal procedures for determining circuit length, information on the length of circuits within a substation is not currently maintained. These have been excluded from the data presented as ElectraNet defines a transmission line as from the substation gantry structure to another substation gantry structure.

Consistent with the AER's data requirement, double circuit lines were counted as twice the length.

The lengths reported in the data templates are in kilometres and are classified by the kV ratings and year.

<u>De-energised lines</u>

De-energised line circuit lengths are included in the provided figures. This is as these lines can be returned to service quickly with minor works and these sections are still maintained.

<u>Decommissioned lines</u>

For scrapped and decommissioned lines the SAP decommissioning date (changed on date) is used for date of line removal and for length and spans of removed lines. For lines removed, old archived historical line schedules were used to determine line length.

6.1.4 Changes to accounting policies

N/A – Information reported within 6.1.1 of the data template relates to non-financial information.

6.2 Underground cable circuit length at each voltage (TPA0201 – TPA0207)

6.2.1 Data requirement

ElectraNet is required to report underground cable circuit length at each voltage level. The underground cable circuit length is the circuit length (measured in kilometres) of lines in service (the total length of lines including interconnectors, backbones and spurs).

6.2.2 Data source and methodology

The primary source used to report underground circuit length and voltage is SAP, ElectraNet's integrated business and asset management system. This database provided a list of all ElectraNet underground built sections over the history of the network, cable circuit length and voltage and section build date. The database also provided the date of any lines removed or scrapped.

Note that unlike for overhead circuit lengths, for underground cables there is no line schedules database as there are no spans and structures. Therefore it was determined that the SAP data available provides the most reliable basis for determining underground circuit length, voltage and asset start-up date.

Google Earth and information from the Network Stats Report was used to establish circuit length for 66kV cable sections.

All other assumptions regarding underground circuit length were consistent with the methodology (only regulated etc.) applied for overhead circuit length described in section 6.1 of this report.

6.2.3 Basis of estimation

Length of circuits within a substation

The length of circuit within substations is not maintained. These have been excluded from the data presented as ElectraNet defines a transmission cable as from substation cable bushing to another substation cable bushing. For 66kV only the end point is classed as the substation fence.

The lengths reported in the data templates are in kilometres and are classified by the kV ratings and year.

66kV Cables

66kV cables have been included based on Google Earth measured lengths, as there is no available data in either the Lines Schedules database or SAP.

6.2.4 Changes to accounting policies

N/A – Information reported within 6.1.2 of the data template relates to non-financial information.

6.3 Estimated overhead network weighted average MVA capacity by Voltage class (TPA0301 – TPA0307)

6.3.1 Data requirement

ElectraNet must provide estimated typical or weighted average capacities for each of the listed voltage classes under normal circumstances taking account of limits imposed by thermal or by voltage drop considerations as relevant.

This information will be used to calculate an overall MVA x km 'carrying capacity' for each voltage class under normal circumstances. ElectraNet is required to provide summer Maximum Demands for summer peaking assets and winter Maximum Demands for winter peaking assets. If ElectraNet's peak has changed from winter to summer (or vice versa) over the time period, winter ratings should be applied for those years where there was a winter peak and summer ratings for those years where there were summer peaks.

Where circuits travel both overhead and underground and the capacity of the overhead and underground components is not available separately, ElectraNet may split the circuit capacity by the ratio of the network that is overhead and underground to form estimates of the overhead capacity and underground capacity components.

6.3.2 Data source and methodology

Base information including circuit length, voltage, energisation date and regulated/unregulated status were derived from the Network Statistics Report that extracts data from SAP.

ElectraNet used the internal Plant and Line Rating database as the source to determine the seasonal thermal normal ratings for all regulated lines.

Where information was not available, usually for decommissioned lines, the historical ratings as per the AEMO ratings workbooks was used as a basis for seasonal thermal normal ratings. If this information was not available a rating was applied that was consistent with those for a line of similar conductor type and design temperature.

All other assumptions in this section are consistent with section 6.1.1 of the data template unless otherwise stated in the basis of estimate in the following section.

6.3.3 Basis of estimation

ElectraNet has provided weighted average capacity by distance. Only summer overhead network weighted Average MVA capacity by voltage has been reported, as ElectraNet is a summer peak demand network.

In the event that the maximum rating achievable at any time during the year was used, consistent with the winter rating, a materially higher number would result.

In preparing weighted average MVA, ElectraNet assumed that all uprating's are from the 1st January each year if no better information is available.

Ratings have been prepared on a per circuit basis. Therefore if a single built section is changed this does not change the commissioning date (commissioning date is defined as the oldest built section in the circuit) or the ratings for the line (limited by lowest rated built section, if this is changed will be captured as an uprating).

There are some small sections of 66 kV which is underground as well as overhead, but the underground component is immaterial and therefore all of the circuit is assumed to be overhead.

Where information was not available, usually for older lines, the historical ratings as per the AEMO ratings workbooks was used as a basis for seasonal thermal normal ratings. If this information was not available a rating was applied that was consistent with those for a line of similar conductor type and design temperature.

De-energised lines were included if the line has a rating in the Plant and Line Rating database.

In some instances, the Network Statistics Report did not include start-up/build date or length of the circuit. This was mainly due to some data lookup errors to do with line tees where there may be different rated circuits that all report to the same feeder number. If these are unavailable, ratings were estimated using either the Line Schedules database or within SAP.

The preferred approach if applicable was to use the data found in the Line Schedules database as opposed to SAP as this information is actively maintained.

6.3.4 Changes to accounting policies

N/A – Information reported within 6.1.3 of the data template relates to non-financial information.

6.4 Estimated underground network weighted average MVA capacity by Voltage class (TPA0401 – TPA0407)

6.4.1 Data requirements

ElectraNet is required to provide estimated typical or weighted average capacities for each of the listed voltage classes under normal circumstances taking account of limits imposed by thermal or by voltage drop considerations as relevant.

This information will be used to calculate an overall MVA x km 'carrying capacity' for each voltage class under normal circumstances. ElectraNet is required to provide summer Maximum Demands for summer peaking assets and winter Maximum Demands for winter peaking assets. If a ElectraNet's peak has changed from winter to summer (or vice versa) over the time period, winter ratings should be applied for those years where there was a winter peak and summer ratings for those years where there were summer peaks.

Where circuits travel both overhead and underground and the capacity of the overhead and underground components is not available separately, ElectraNet may split the circuit capacity by the ratio of the network that is overhead and underground to form estimates of the overhead capacity and underground capacity components.

From the 2015 Regulatory Year onwards ElectraNet is required to report actual overhead and underground capacity.

6.4.2 Data source and methodology

As described in the previous section, base information including circuit length, voltage, energisation date and regulated/unregulated status were derived from ElectraNet's Network Statistics Report. ElectraNet used the internal Plant and Line Rating database as the source to determine ratings for all regulated underground lines.

All other assumptions in this section are consistent with those used in 6.1.2 and 6.1.3 of the data template unless otherwise stated in the basis of estimate.

6.4.3 Basis of estimation

There are some small sections of 66 kV which is underground as well as overhead, but the underground component is immaterial and therefore all of the circuit is assumed to be overhead. This results in a zero for variable TPA0406.

Note that underground cables do not have seasonal ratings so only normal ratings have been reported.

6.4.4 Changes to accounting policies

N/A – Information reported within 6.1.4 of the data template relates to non-financial information.

6.5 Installed transmission system transformer capacity (TPA0501 – TPA0505)

6.5.1 Data requirements

ElectraNet must report transformer capacity involved in transformation levels indicated within the table. For the purposes of these measures the transmission system includes transformers, overhead and underground lines and cables in service that serve a transmission function. The transformer capacities Variables must be reported inclusive of Cold Spare Capacity.

For each level, report the summation of normal assigned continuous capacity or rating (with forced cooling or other capacity improving factors included if relevant). Also include capacity of tertiary windings as relevant. Assigned rating must be, if available, the rating determined from results of temperature rise calculations from testing or otherwise the nameplate rating. Do not include step-up transformers at generation connection location.

For category the 'Transformer Capacity for Directly Connected End–Users Owned by the End–User' (TPA0504), report transformer capacity at connection point to directly connected end user where the capacity is owned by the directly connected end user. Where ElectraNet knows what the directly connected customer's transformer capacity is, it should include that information. Where this information is not available to ElectraNet, a summation of non-coincident individual Maximum Demands of each such directly connected customer whenever they occur (i.e. the summation of a single annual Maximum Demand for each customer) is used as a proxy for capacity within the customer's installation. The Variable should be the sum of the direct information where this is available and of the proxy MVA measure where the direct measure is not available.

Where ElectraNet utilises installed transformer capacity which is not included in the other categories within this table, report this transformer capacity against 'other installed transformer capacity' (TPA0506) and specify its type.

Interconnector Capacity

This is ElectraNet's Network thermal capacity available for network interconnector purposes to another network – i.e. regarding other network as an export capacity required on the source network.

ElectraNet has provided a data response consistent with the requirement described in the AER's Instructions and Definitions. However, it should be noted that NSPs generally refer to Interconnector capacity on the basis of MWs (real power flow), that is, the power that is capable of doing actual work. Murraylink (V_SA MNSP1) interconnector is a DC interconnector and MVA is only really useful in the context of AC power. Therefore for the purpose of providing capacity data for Murraylink, ElectraNet have assumed MW = MVA assuming the power factor is unity.

6.5.2 Data source and methodology

TPA0501-04

Capacities provided are normal continuous ratings (with forced cooling if available (ODAF)) from nameplate.

The primary source used for transformer capacity information was SAP, ElectraNet's integrated Business and Asset Management System. This database provided all transformer (inc. spares) sizes and dates of energisation and where applicable decommissioning. Note that figures are given as asserts in commission as at 30 June of the reporting year.

ElectraNet's System Switching Diagrams were used to determine if the substation is a transmission transformer substation, if the customer is the DNSP or not, if ElectraNet or a direct connect customer own the transformer and the size of non ElectraNet (customer) Transformers.

The ElectraNet Networks report was used to establish the list of ElectraNet substations and their energisation dates for installed transmission system transformer capacity.

TPA0505 Interconnector capacity

ElectraNet Transmission-Annual Planning Reports was used to source interconnector transfer capacities each year. This is a publicly available document that ElectraNet is required to produce annually under the Rules.

The given figure for the variable TPA0505 is the thermal capacity information for the two interconnectors that connect South Australia to the rest of the NEM.

This figure is comprised of 220 MW at the receiving end from the Murraylink interconnector, this comes from information from the Asset owner, APA Group. The capacity is limited by the power electronics within the HVDC link when working as an inverter.

This figure is comprised of 460 MW from the South East Interconnector (also known as Heywood Interconnector). This information comes from the Asset owner and planner, SPAusnet and AEMO. The capacity is limited by the two Heywood 500/275 kV transformers that are rated at 525 MVA (short term). These transformers set the limit for the interconnector at 460 MW bi-directionally. This is an N-1 capacity.

Note that many other factors can limit the interconnector flow to less than the thermal capacity quoted, including:

- Thermal limitations and voltage stability in the South Australian Network;
- Thermal limitations and transient stability in the Victorian Network; and
- Oscillatory stability limits.

6.5.3 Basis of estimation

To convert MW measure to MVA in relation to Interconnector capacity, ElectraNet assumed MVA = MW assuming power factor is unity.

Station supply (auxiliaries) transformers are excluded as they do not perform a transmission function. SVC transformers are included as transmission transformers.

As the energisation dates and sizes of non-ElectraNet transformers are not known, ElectraNet has assumed the energisation date (from ElectraNet Network Report) of the associated substation or line (as per Line schedules) as a proxy and size as per the Substation Switching Diagrams as this is the best available information.

Tertiary winding capacity is not considered relevant as this capacity is already captured in the nameplate primary to secondary capacity. Capacity taken from the tertiary is normally subtracted from the primary to secondary capacity.

ElectraNet has provided the size of directly connected transformers that are owned by the direct connect customer; this information is based on reporting from the customer, and may be confidential. The onus is on the customer to notify ElectraNet of any changes in size.

For the variable TPA0503, Transformer capacity for directly connected end–users owned by the TNSP, the input includes both regulated and unregulated transformers.

For variables TPA0503, Transformer capacity for directly connected end–users owned by the TNSP and TPA0504, Transformer capacity for directly connected end–users owned by the end–user, generator step up transformers are included. Power station house supply (auxiliaries) transformers are excluded.

For variable TPA0501, Transmission substations and TPA0502, Terminal points to DNSP systems, spare transformers are included.

For variable TPA0504, Transformer capacity for directly connected end–users owned by the end–user only end user, transformers at the boundary between networks is counted (not transformers deeper within their networks)

For all variables, regulators are excluded; this is as the capacity of the fixed tap transformer is captured and this is the capacity of the flow path.

6.5.4 Changes to accounting policies

N/A – Information reported within 6.1.5 of the data response relates to non-financial information.

6.6 Cold Spare capacity (TPA06)

6.6.1 Data requirements

Report the capacity of spare transformers owned by ElectraNet but not currently in use.

6.6.2 Data source and methodology

The primary source used to report cold spare capacity is SAP, ElectraNet's integrated business and asset management system. This provided all transformer (inc. spares) sizes and energisation and decommissioning dates. Regulators have been excluded.

In SAP search query IH06 was used on equipment functional location "TSP" (transmission spare) with functional location description "TF". The functional locations identified were then searched on to identify the transformers within them using query IH08 with equipment description "TRANS."

To identify scrapped spares, search IH08 on equipment description "SPARE" excluding "REG" and technical object type SUBS0028, TRF* excluding the deleted flag was performed in SAP.

For decommissioned spares, a count was performed from start-up to valid from date. For regular spares, a count from valid from date was performed. Ratings and dates were as per the SAP information.

6.6.3 Basis of estimation

As per 6.1.5 in the data template, spare regulators have been excluded; this is as the capacity of the fixed tap transformer is captured and this is the capacity of the flow path.

6.6.4 Changes to accounting policies

N/A – Information reported within 6.1.6 relates to non-financial information.

7. Quality of Services

"Quality of services must be reported in accordance with the definitions specified in the December 2012 electricity transmission network service providers service target performance incentive scheme documents dated December 2012 (the STPIS documents)"

7.1 Service component

7.1.1 Service parameter 1 – Average circuit outage rate (TQS0101-TQS0115)

7.1.1.1 Data requirement

'Outage' means 'loss of connection' rather than loss of supply by a connected system or customer. To allow summation into an overall Average Circuit outage rate, both numerator (No. of Events with defined circuits unavailable per annum) and denominator (Total No. of defined circuits) are needed as well as the calculated percentage rate for each item.

'Number of lines fault outages' (TQS0102) and 'number of defined lines' (TQS0103) must be reported as the amounts used to calculate the "Lines outage rate - fault" (TQS0101).

'Number of Transformer fault outages' (TQS0105) and 'Number of defined Transformers' (TQS0106) must be reported as the amounts used to calculate the 'Transformers outage rate - fault' (TQS0104).

'Number of Reactive plant fault outages' (TQS0108) and 'Number of defined reactive plant'

(TQS0109) must be reported as the amounts used to calculate 'Reactive plant outage rate - fault' (TQS0107).

'Number of Lines forced outages' (TQS0111) must be reported as the amount used to calculate the 'Lines outage rate – forced outage' (TQS0110).

'Number of Transformers forced outages' (TQS0113) must be reported as the amount used to calculate the 'transformer outage rate – forced outage' (TQS0112).

'Number of reactive plant forced outages' (TQS0115) must be reported as the amount used to calculate 'Reactive plant outage rate – forced outage' (TQS0115).

Prior to 2013, the Average Outage Circuit Rate was not required to be submitted to the AER as it was not a service component under the STPIS (data however was being captured within the Events Database). A new worksheet was created in 2013 (within the Workbook - Monthly Report Calendar Year YYYY.xlsm) for the purpose of reporting the new Service Parameter 1 – Average Circuit Outage Rate parameter. This new worksheet was used to generate the figures for the years 2006 to 2013.

7.1.1.2 Data source and methodology

ElectraNet's Events database is the single source of raw data for use in calculating the service components. Exclusions, defined by the AER's "Final Electricity transmission network service providers Service target performance incentive scheme" document, are set within the Events Database against the raw data.

The figures used for the 2014 RIN submission are the actual figures generated out of the Events database, not the annually submitted figures to the AER even though some years the figures will align.

The data relating to SM and AOD is highly dependent on the determination of the events fault cause code. As post fault event analysis to determine the confirmed cause code can take lengthy periods of time, in some cases greater than six months, it is possible, that at the time of the yearly AER submission, not all fault events will have had their cause code determined. At the time of the yearly submission, a fault event that had been included in the STPIS submission due to its initial cause code, is now not included. For example, a fault event that was included at the time of submission, reclassified as 3rd Party post submission, would now be excluded as per the AER STPIS definition for exclusions.

Considering this, ElectraNet have used Events database actual data has and are of the opinion that this will provide the best available source of data into the future.

For service components TQS0101, TQS0102, TQS0104, TQS0105, TQS0107, TQS0108, TQS0110, TQS0111, TQS0112, TQS0113, TQS0114 and TQS0115, the following data sources were used:

1. Workbook - Monthly Report Calendar Year YYYY.xlsm
2. Worksheet – Average Circuit Outage Rate
3. E-Terra Archive Report (database query) - 391Circuit Outage Rates.

For service component TQS0103 (Number of defined lines), the following data sources were used:

1. Workbook - Monthly Report Calendar Year YYYY.xlsm
2. Worksheet – Average Circuit Outage Rate
3. E-Terra Archive Report (database query) – 359 All Enet Lines.

Prior to 2013, where the AER has accepted the STPIS yearly submissions, they have by default, accepted the total number of lines. This is because the total number of lines is required for calculating the "S1 - Transmission Availability Circuit" indicator as part of the yearly STPIS submission. The submissions for 2006 – 2012 have been accepted by the AER under then "Service Standards Compliance Reviews" documentation for each calendar year. These documents can be found on the AER's web site via the link below, but will only show the final submitted, audited and accepted figures which do not include total number of lines. Note that the total number of lines was not required as a separate figure for the yearly submissions.

http://www.aer.gov.au/taxonomy/term/319?order=title&sort=asc&field_type_value=354&field_sector_value=4&field_segment_value=All

Service Components - TQS0106 (number of defined transformers), TQS0109 (number of defined reactive plant)

1. The total number of defined transformers and reactive plant for 2006 – 2013 has been derived from ElectraNet's asset information system, SAP.
2. Total Reactive Plant is the summation of Reactors, Capacitors and SVC's.
3. Assets not providing prescribed transmission services have been excluded (as stated in final STPIS document December 2012 page 22 under the exclusions section).

7.1.1.3 Basis of estimation

N/A – the data used is actual data.

7.1.1.4 Changes to accounting policies

N/A – Information reported within 7.1.1 of the data template relates to non-financial information.

7.1.2 Service parameter 2 – Loss of supply event (TQS0116-TQS0117)

7.1.2.1 Data requirement

ElectraNet must enter the loss of supply event frequency thresholds x and y. Where the loss of supply event frequency thresholds have changed, ElectraNet must specify all loss of supply event frequency thresholds that applied in the period and the years to which they applied.

Prior to 2013, the Average Outage Circuit Rate was not required to be submitted to the AER as it was not a service component under the STPIS (data however was being captured within ElectraNet's Events Database). A sub component of the database was created in 2013 for the purpose of reporting the new Service Parameter 1 – Average Circuit Outage Rate parameter. This was used to generate the figures for the years 2006 to 2013.

For Service Parameter 2 – Loss of supply event frequency – number in ranges specified follow the same definitions as stated in the "Final Electricity transmission network service providers Service target performance incentive scheme December 2012" document.

7.1.2.2 Data source and methodology

As noted in 7.1.1.2, ElectraNet's Events Database is the single source of raw data for use in calculating the service components.

The figures used for the 2014 RIN submission are the actual figures generated out of the Events database, not the annually figures previously audit by the AER. Accordingly some annual figures may not align due to information on primary cause which has come to light post annual audit.

The data relating to SM and AOD is highly dependent on the determination of the events fault cause code. As post fault event analysis to determine the confirmed cause code can take extended periods of time, in some cases greater than six months, it is possible, that at the time of the yearly AER submission, not all fault events will have had their cause code determined. At the time of the yearly submission, a fault event that had been included in the STPIS submission due to its initial cause code, is now not included. For example, a fault event that was included at the time of submission, reclassified as 3rd Party post submission, would now be excluded as per the AER STPIS definition for exclusions.

X & y values for the period 2003 to 2008 were derived from the AER Web site, "Decision – South Australian Transmission Network Revenue Cap 2003-2007/08" dated 11 December 2002, page 98

X & y values for the period from 2008 to 2013 were derived from the AER Web site, "Final - ElectraNet transmission determination 2008-09 to 2012-13" dated 11 April 2008, page 96.

ElectraNet have included the x and y value applied in each year of the reporting period in the data template as a comment for each input cell.

For the service components TQS0116 and TQS0117 the following data sources were used:

1. Workbook - Monthly Report Calendar Year YYYY.xlsm

2. Worksheet – ETerra Sys Mins (Filtered)

3. E-Terra Archive Report (database query) - 119 System minutes - Filtered.

Within the monthly Eterra System Minutes section of the database ElectraNet entered the start and end dates. The E-Terra Archive query was then used to establish correct number of system minutes.

For the 2008 reporting period the x and y values of 2008H2 were used for the calculation of the 2008 calendar year figures. This provides consistent x and y values across the majority of the reporting periods (2008H2-2013H1 and 2013H1-2018H2) compared to the minority periods (2006 and 2007).

For the 2013 half year reporting the x and y values of 2013 H2 were used for calculation of the 2013 calendar figures. This is purely administrative since the x and y values did not change between the period 2008H2-2013H1 and 2013H2-2018H1.

7.1.2.3 Basis of estimation

N/A – the data used is actual data.

7.1.2.4 Changes to accounting policies

N/A – Information reported within 7.1.2 of the data template relates to non-financial information.

7.1.3 Service parameter 3 – Average outage duration (TQS0118)

7.1.3.1 Data requirement

Service Parameter 3 – Average outage duration the data reported prior to 2013 follow the same definitions as stated in the "Final Electricity transmission network service providers Service target performance incentive scheme December 2012" document.

7.1.3.2 Data source and methodology

As noted in 7.1.1.2, ElectraNet's Events Database is the single source of raw data for use in calculating the service components. As noted in section 7.1.2.2 above, not all outages are determined at the time of the yearly AER submission. Therefore, ElectraNet are of the opinion that the Events database will provide the best available source of actual data into the future for service components TQS0118, the following supporting documentation was used:

1. Workbook - Monthly Report Calendar Year YYYY.xlsm
2. Worksheet – ETerra Sys Mins (Filtered)
3. E-Terra Archive Report (database query) - 119 System minutes - Filtered.

Start and end dateswere defined to establish average outage durations.

7.1.3.3 Basis of estimation

N/A – the data used is actual data.

7.1.3.4 Changes to accounting policies

N/A – Information reported within 7.1.3 of the data template relates to non-financial information.

7.1.4 System parameter – Proper operation of equipment – number of failure events (TQS0119-TQS0121)

7.1.4.1 Data requirement

Quality of services must be reported in accordance with the definitions specified in the December 2012 electricity transmission network service providers service target performance incentive scheme documents dated December 2012 (the STPIS documents).

<u>Number of failures of protection systems (TQS0119)</u>

As defined on page 26 of the STPIS documents::

> *"Protection system failure events" are those events where the relevant protection equipment does not operate for a fault event as designed or where the relevant equipment operates when there is no relevant fault rate.*

Material failure of SCADA system (TQS0120)

As defined on page 26 of the STPIS documents:

> *The number of SCADA failures per annum as notified to the TNSP by the Australian Energy Market Operator (AEMO) on a monthly basis in the SCADA Minutes Lost report.*

Incorrect operational isolation of primary or secondary equipment (TQS0121)

As defined on page 26 of the STPIS documents:

> *The number of "incorrect operational isolation events" per annum where "incorrect operational isolation events" are those events where primary or secondary equipment was not been properly isolated during scheduled or emergency maintenance, irrespective of whether an outage occurred as a result.*

ElectraNet has provided data on quality of services on the basis above which is consistent with the requirements of the AER Benchmarking regulatory information notice.

7.1.4.2 Data source and methodology

Number of failures of protection systems (TQS0119)

A network event is managed by ElectraNet's System Monitoring and Switching Centre (SMSC) who log the event in ElectraNet's Events Database. ElectraNet's fault investigation team review the event and record the results in a fault investigation report. The root cause analysis (RCA) in the fault investigation report identifies if the event is a failure of a protection system.

The Incorrect Protection Operation Count from WebQuery run each month on the Events Database to extract all failure events that occurred. The number of events that occurred for the month is entered in the monthly STPIS and MITC performance reports. The number of events identified in the monthly STPIS performance report for each calendar year has been totalled to determine the total per annum events for the each period.

Material failure of SCADA system (TQS0120)

AEMO provides to ElectraNet on a monthly basis the SCADA minutes lost report which is reported in ElectraNet's monthly STPIS and MITC performance reports. The number of events identified in the monthly STPIS performance report for each calendar year has been totalled to determine the total per annum events for the each period.

Incorrect operational isolation of primary or secondary equipment (TQS0121)

Suspected switching incidents associated with primary plant are advised by field technicians to ElectraNet's System Monitoring and Switching Centre (SMSC) who in turn advise the ElectraNet Switching Committee that a switching incident may have occurred. The Switching Committee's role is to investigate reported events to establish if a switching incident has actually occurred.

In the case that a switching incident where primary plant is not isolated has occurred, it is reported in the monthly STPIS and MITC performance reports. The number of events identified in the monthly STPIS performance report for each calendar year has been totalled to determine the total per annum events for the each period.

Incorrect isolation events associated with secondary systems are recorded in ElectraNet's Events Database. The SMSC daily log managed within the Events Database records the details of any event where secondary equipment has not been isolated.

To establish the number of incorrect operational isolation events per annum associated with secondary systems, ElectraNet reviewed the SMSC daily log within the Events Database. For each calendar year the number of identified incorrect isolation events identified associated with secondary systems was totalled.

7.1.4.3 Basis of estimation

Number of failures of protection systems (TQS0119)

Prior to the 1st of January 2013 ElectraNet were not required to report protection system failure events as per the definition set out in the December 2012 electricity transmission network service providers service target performance incentive scheme (STPIS) document.

As ElectraNet have historically not been required to report this information, the number of protection system failure events available in the Events Database prior to calendar year 2012 will not be consistent with the current STPIS definition. Historically the protection system failure events were captured for internal purposes, but the information was based on different criteria than that defined in the December 2012 STPIS document.

Therefore, to provide an estimate of the number of protection system failures over the historical period, ElectraNet reviewed the number of protection system failure events against the total failure events for calendar year 2013. ElectraNet then assumed the same proportion as for 2013 calendar year of protection system failure events to total failure events to estimate the number of protection system failure events for prior periods.

Material failure of SCADA system (TQS0120)

No estimations have been made in the compilation of the number of material SCADA system failure events. Whilst material SCADA system failure events historically have not been a performance parameter applicable to TNSPs under STPIS, this information has been collected on a monthly basis over the benchmarking RIN back-cast period as part of existing business performance reporting.

Incorrect operational isolation of primary or secondary equipment (TQS0121)

No estimations have been made in the compilation of the number of incorrect isolation events. Whilst incorrect operational isolation of primary and secondary events historically have not been a performance parameter applicable to TNSPs under STPIS, this information has been collected on a monthly basis over the benchmarking RIN back-cast period as part of existing business performance reporting.

7.1.4.4 Changes to accounting policies

N/A – Information reported within 7.1.4 of the data template relates to non-financial information.

7.2 Market impact component

7.2.1 Data requirement

ElectraNet is required to report the MIC Data in accordance with the definitions specified in the December 2012 Electricity Transmission Network Service Providers Service Target Performance Incentive Scheme (STPIS) document December 2012 Version 4. The difference with respect to MIC between earlier Versions and Version 4 is that "Coordinated Generator Outages" are excludable in earlier Versions but not in Version 4.

7.2.2 Data source and methodology

ElectraNet's MITC Events Database is the source of data from which the report "AER Submission Details by Date Range" is produced on a yearly basis. The "AER Submission Details by Date Range" report summarises the included and excluded constraint Dispatch Intervals in a year. The number of "Coordinated Generator Outage" (CGO) related dispatch intervals that have been excluded per Version 3 or earlier was worked out by applying appropriate data filter to the "AER Submission Details by Date Range" report.

The number of dispatch intervals that excluded Coordinated Generator Outages (CGO) (per Version 3 or earlier) was obtained from Page 40 of AER Explanatory Statement – STPIS – September 2012 for 2006 to 2011. For 2012 it was obtained from the outcome of AER's Service Standards Compliance Review. For 2013, the actual MIC submitted to AER is used. The number of Generator Coordinated Outage related dispatch intervals was worked out by applying data filter for this exclusion.

ElectraNet's "AER Submission Details by Date Range" yearly report has been used to find, by filtering, the number of "Coordinated Generator Outages" related Dispatch Intervals that have been excluded in the year. This number is added to the corresponding Version 3 or earlier MIC data as approved by the AER to work out the Version 4 data.

The process is applied to the Version 3 or earlier MIC data for 2006 – 2012.

For 2013, because the AER changed the MIC submission template in late 2013 ElectraNet has not yet been able to modify the MIC database structure for automatic reporting according to the new template. So for 2013 RIN MIC data the "AER Submission Details by Date Range" report is unavailable. Instead the actual 2013 MIC Submission to the AER is used. The number of "Coordinated Generator Outages" related Dispatch Intervals has been captured for each half year in two versions of the submission, one with the relevant DIs included and one with them excluded. These can be inspected by checking the inclusion and exclusions in each spreadsheet filter.

7.2.3 Basis of estimation

ElectraNet has not captured the data to the STPIS guideline which was produced in 2012 and not scheduled to apply to ElectraNet until the 2018-2023 regulatory control period.

The substantive difference between the 2012 version of the scheme and the previous version is the treatment of exclusions for "Coordinated Generator Outages" from the MIC parameter. Prior to 2012 these outages were excluded entirely whereas under the 2012 version these outages are not excluded.

An appropriate basis for estimation is to add the number of "Coordinated Generator Outages" in each period to the annual performance previously reported to the AER in accordance with the pre 2012 definitions. In addition in the case of the 2013 calendar year data has not yet been approved by the AER.

7.2.4 Changes to accounting policies

N/A

7.3 System losses

7.3.1 Data requirement

ElectraNet must report system losses in accordance with the definitions specified in the Economic Benchmarking RIN for Transmission Network Services Providers Instruction and Definitions November 2013 Chapter 7 Section 7.3 System losses.

7.3.2 Data source and methodology

National Grid Metering (NGM) data on which the NEM financial settlement is based has been used. This has been previously Quality Controlled by the Metering Data Agent (meter reader) and by AEMO prior to use in NEM settlement. It is also checked weekly by ElectraNet's internal processes for reasonableness of Transmission Loss Factor.

NGM Data is manually extracted from the ElectraNet Oracle database through the SA Market V2.0 application to an Excel spreadsheet on yearly basis.

The Electricity Inflow, Electricity Outflow, again on yearly basis, is calculated using the extracted data and appropriate formulae following the formula specified in RIN Instructions and Definitions Chapter 7 Section 7.3.

7.3.3 Basis of estimation

No estimations have been required.

7.3.4 Changes to accounting policies

N/A

8. Operating Environment

8.1 Terrain factors (TEF010-TEF0108)

8.1.1 Data requirement

Complete the table in accordance with the definitions provided in chapter 9.

If ElectraNet records poles rather than spans, the number of spans is the number of poles less one.

We require five years of back cast data for the terrain factors and the following Variables have the most recent Regulatory Year shaded yellow and the remaining four years shaded orange:

- Number of vegetation Maintenance Spans (TEF0101)
- Average Number Of Trees Per Maintenance Span (TEF0103)
- Average number of Defects per vegetation Maintenance Span (TEF0104)
- Tropical proportion (TEF0105)
- Standard Vehicle Access (TEF0106)
- Altitude (TEF0107)
- Bushfire risk (TEF0108)

If ElectraNet has Actual Information, ElectraNet must report all years of available data. If ElectraNet does not have actual information on these variables, then it must estimate data for the most recent Regulatory Year.

<u>Number of vegetation Maintenance Spans</u>

The total count of spans in the network that are subject to vegetation management practices in the relevant year. If ElectraNet records towers rather than spans, the number of spans is the number of towers less one. A maintenance span is defined as a span in ElectraNet's network that is subject to active vegetation management practices in the relevant year. Active vegetation management practices do not include Inspection of vegetation Maintenance Spans.

<u>Average vegetation maintenance span cycle</u>

If there is no available data for the 'average vegetation maintenance span cycle' variable (TEF0102), ElectraNet is required to estimate five years of back cast data. The average vegetation Maintenance Span Cycle (defined as the planned number of years between which cyclic vegetation maintenance is performed) can be calculated based on a simple average of all the Maintenance Span Cycles.

Average number of trees per vegetation Maintenance Span

ElectraNet must report the average number of trees per maintenance span. If ElectraNet does not have actual information for the average number of Trees per Maintenance Span it must, estimate this Variable using one or a combination of the following data sources:

- Encroachment Defects (e.g. ground or aerial Inspections, LiDAR) and/or records of vegetation works scoping, or GIS vegetation density data;
- Field surveys using a sample of Maintenance Spans within each vegetation management zone to assess the number of mature trees within the maintenance corridor. Sampling must provide a reasonable estimate and consider the nature of Maintenance Spans in urban versus rural environments in determining reasonable sample sizes.
- Vegetation data such as:
    - the Normalised Difference Vegetation Index (NDVI) grids and maps available from the Bureau of Meteorology (BOM);
    - data from the National Vegetation Information System (VIS data) overlaid on network GIS data to assess the density of vegetation in the direct vicinity of the Maintenance Spans; or
    - Similar data from other sources such as Geoscience Australia or commercial suppliers of satellite imagery overlaid on network GIS data records.
- Any other data source based on expert advice.

ElectraNet must outline its estimation approach for the Average Number of Trees per Maintenance Span in its Basis of Preparation.

When completing the Templates for Regulatory Years subsequent to the 2013 Regulatory Year, if ElectraNet can provide Actual Information for the average number of trees per vegetation maintenance span it must do so; otherwise ElectraNet must provide Estimated Information.

Average number of Defects per vegetation Maintenance Span

ElectraNet must report the average number of vegetation related Defects that are recorded per Maintenance Span in the relevant year.

In its Basis of Preparation, ElectraNet must specify whether it records the total number of Defects for each vegetation Maintenance Span, or whether it records Defects on a vegetation Maintenance Span as one, regardless of the number of Defects on the span.

When completing the Templates for Regulatory Years subsequent to the 2013 Regulatory Year, if ElectraNet can provide Actual Information for the average number of defects per vegetation maintenance span it must do so; otherwise ElectraNet must provide Estimated Information.

Tropical spans

The tropical spans are the approximate total number of urban and rural Maintenance Spans in the Hot Humid Summer and Warm Humid Summer regions as defined by the Australian Bureau of Meteorology Australian Climatic Zones map (based on temperature and humidity).

When completing the Templates for Regulatory Years subsequent to the 2013 Regulatory Year, if ElectraNet can provide Actual Information for tropical spans it must do so; otherwise ElectraNet must provide Estimated Information.

Standard vehicle access

Areas with Standard Vehicle Access are serviced through made roads, gravel roads and open paddocks (including gated and fenced paddocks). An area with no Standard Vehicle Access would not be accessible by a two wheel drive vehicle. The intended unit of measure for the in the economic benchmarking RIN is the km of route line length that does not have standard vehicle access.

Altitude

The Route Line Length that is 600 metres above sea level.

Bushfire risk

The bushfire risk Variable is the number of Maintenance Spans in high bushfire risk areas as classified by a person or organisation with appropriate expertise on fire risk. This includes but is not limited to:

- ElectraNet's jurisdictional fire authority
- local councils
- insurance companies
- ElectraNet's consultants
- Local fire experts

When completing the Templates for Regulatory Years subsequent to the 2013 Regulatory Year, if ElectraNet can provide Actual Information for bushfire risk it must do so; otherwise ElectraNet must provide Estimated Information.

Note that for TEF0101 and TEF0103 to TEF0108, ElectraNet are not required to provide historical data for the regulatory period 2006-12 as ElectraNet does not currently measure the information in accordance with the variable requirement and it would be unnecessarily burdensome to estimate and it is illogical to enter'0'.

8.1.2 Data source and methodology

Number of Vegetation Maintenance Spans (TEF0101)

ElectraNet in establishing total number of vegetation maintenance spans, average number of trees per span and defects relied on information estimated by the vegetation maintenance contractor, Vemco.

A maintenance Span is defined as a span in ElectraNet's network that is subject to active vegetation management practices during the relevant year. ElectraNet has included spans requiring tree trimming, removal or scrub removal, but does not include inspection or measuring of vegetation in spans. This is based on expert advice from ElectraNet's vegetation maintenance contractor, Vemco.

To establish the total number of maintenance spans, ElectraNet have been advised that Vemco reviewed an Access database which contains collated data from Vemco inspector and cutting crew worksheets for the 2013 regulatory year. This data provided the number of spans that are actively managed by Vemco during the year.

<u>Average vegetation maintenance span cycle (TEF0102)</u>

ElectraNet operates under more than one vegetation maintenance span cycle. Routinely, ElectraNet actively manages all spans on a 3 year cycle. However, for spans in bushfire and high bushfire risk areas, ElectraNet also performs pre-bushfire season vegetation maintenance on an annual basis.

Therefore to reasonably estimate the average vegetation maintenance span cycle, the number of bushfire spans as a proportion of total spans for the 2013 regulatory year was determined and a weighted average span cycle calculated for all spans.

The proportion of bushfire spans to total spans for the 2013 regulatory year was then used to estimate a weighted average span cycle for prior regulatory years.

It is ElectraNet's opinion that this is reasonable as the ratio of bushfire to non-bushfire spans has not changed significantly over the period as it is estimated that the total number of spans has only grown by around 2% over the back-cast period.

<u>Average number of trees per vegetation maintenance span (TEF0103)</u>

Average number of trees per span has been estimated based on expert advice from Vemco. ElectraNet were advised that Vemco sourced information on number of trees per span from an Access database which provides collated information from daily worksheets from inspectors and cutting crews for the 2013 regulatory year.

To estimate the number of trees per vegetation span, ElectraNet were advised that Vemco took the number of trees actively maintained (trimmed, removed or scrub removal) divided by the number of spans requiring vegetation maintenance.

<u>Average number of defects per vegetation maintenance span (TEF0104)</u>

Average number of defects per span was estimated based on advice from Vemco advice. Vemco estimated the average number of defects per vegetation maintenance span by reviewing information for the 2013 regulatory year in an Access database which provides collated daily worksheet information from inspectors and cutting crews.

Note that ElectraNet records the total number of defect for each vegetation maintenance span. Vemco's records identified the total number of defect spans inspected and total number of trees actively maintained (removed or scrub removed) in each defect span. Total number of trees actively maintained within defect spans was divided by the number of defect spans to estimate number of defects per maintenance span.

Tropical Proportion (TEF0105)

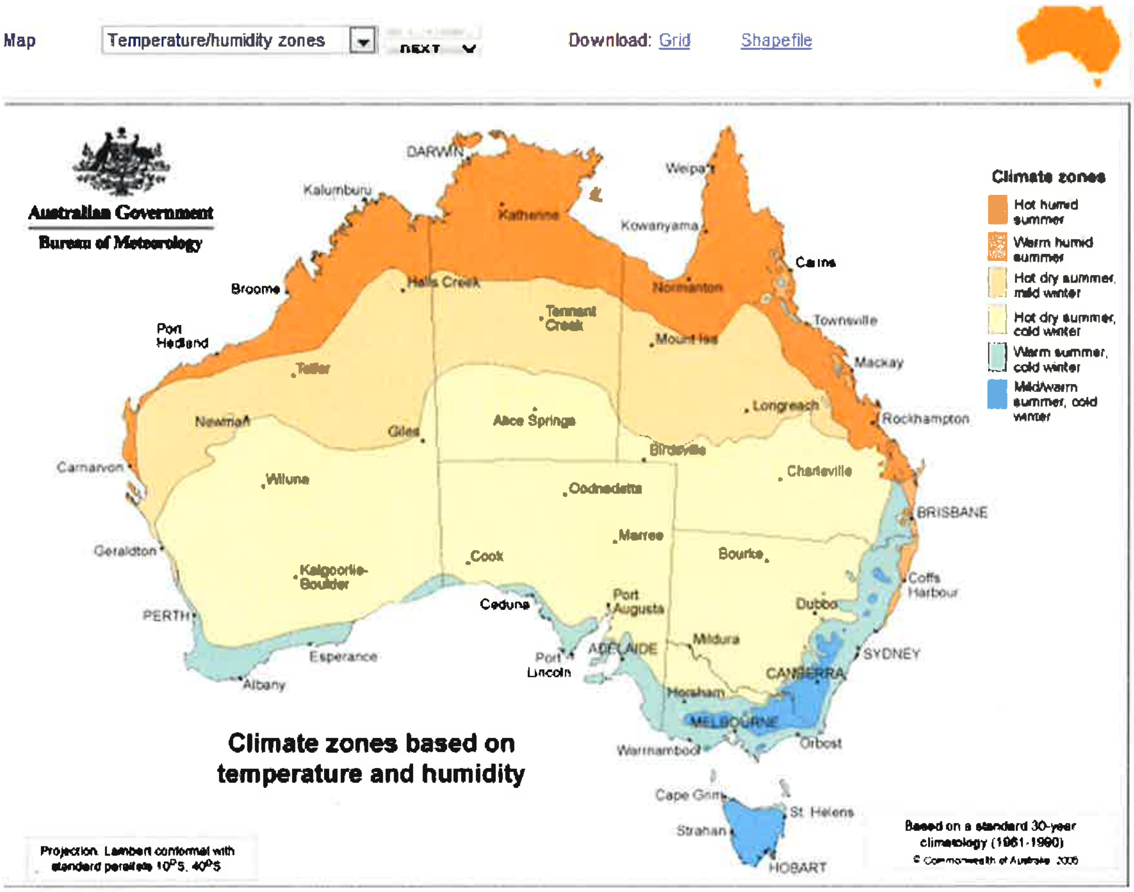
The Australian Bureau of Meteorology (BOM) Australian Climatic Zones map (based on temperature and humidity) was used to determine the number of spans in hot humid summer and warm humid summer regions. Link to the zone map is below:

http://www.bom.gov.au/jsp/ncc/climate_averages/climate-classifications/index.jsp

ElectraNet reviewed the Climatic Zone map to assess the number of spans ElectraNet has within hot humid summer or warm humid summer climate zones. Based on this assessment, ElectraNet can confirm that 0% proportion of spans is in in hot humid summer and warm humid summer regions.

A copy of the Australian Climatic Zones map used to review the ElectraNet network is included as Figure 8-1: Climate Zones Based on Temperature and Humidity below:

Figure 8-1: Climate Zones Based on Temperature and Humidity



'roduct Code: IDCJCM0000

Standard vehicle access - kms

Information for standard vehicle access was sourced from road information from South Australian Government Data Directory (once loaded into the GIS) as well as ElectraNet's internal network data for the GIS system.

Note that reporting standard vehicle access kilometres in ElectaNet's case is likely to be of limited value to the AER as all ElectraNet's access easements are only accessible by diesel vehicles due to bushfire risk consistent with ElectraNet poilcy. ElectraNet's vehicle fleet is almost entirely made up of diesel 4WD vehicles and these are the only type of vehicle used by ElectraNet and its contractors to access asset easements.

However, for the purposes of this response, ElectraNet have calculated standard vehicle access as being the route length that is not able to be accessed by a 2WD vehicle.

As all ElectraNet access (easement) tracks are 4WD only, all Government roads except those that cannot support 2WD access for inspecting line assets are included to calculate the number of kilometres of standard vehicle access. Government roads excluded were roads with a bus thoroughfare as vehicles are not allowed to traverse the bus lane, freeways as they do not enable vehicles to stop to inspect lines and 4WD tracks as these do not enable standard vehicle access. These roads are the nearest access available to a standard vehicle (2WD) to ElectraNet lines. From these 2WD accessible roads a 50m buffer either side of a road is created in the GIS system. The total distance of road contained within this buffer zone is subtracted from the total route length, residual amount of route line length taken to be accessible for a 2WD vehicle. 50m is used as the criteria as this is approximately the longest distance from which it is reasonably possible to inspect a line from the ground clearly (insulator string intact).

Route line length is calculated using a consistent methodology as with TEF0201 (route line length) described in section 8.2 of this response. The calculation includes the regulated network only and excludes lines not owned by ElectraNet.

<u>Altitude (TEF0107)</u>

Altitude information is sourced from the Line Schedules spreadsheet as described in section 6.1 of this response. The spreadsheet is filtered to show the structures that are greater than 600m in altitude. A review was then performed over structures identified as being over 600m in altitude and obvious data anomalies were removed from the list.

Examples of exclusions are structure heights greater than the highest point in South Australia, heights recorded as being over 600m in known low lying areas and structures with no height value entered. We note the number of excluded items and data anomalies is sufficiently small as to be immaterial for the purposes of this calculation.

From the listing, the route length either side of each identified structure is divided by two and summed to calculate a total route line length for this variable.

<u>Bushfire Risk (TEF0108)</u>

The Line Schedule database (using the same preparation methods and assumptions as described in section 6.1 of this response) in the Grazer asset management reporting tool was used as a source for this variable.

To identify bushfire risk areas, ElectraNet relied on the classifications of the Government of South Australia, Office of the Technical Regulator (SA OTR)defined schedule 4 of the Electricity (Principles of Vegetation Clearance) Regulations 2010. Each section in ElectraNet's Line Schedule is historically assigned a bushfire risk, based on data from the SA OTR.

The Line Schedules spreadsheet was filtered to show bushfire risk area by built section. The number of structures assigned as having a bushfire risk was then summed to give the total variable value.

Unregulated and non-ElectraNet owned lines are excluded, which is consistent with the assumptions used for the TEF0204 variable. As ElectraNet is using poles rather than spans for this section, the number of spans is the number of poles less one.

8.1.3 Basis of estimation

The above methodology represents ElectraNet's best estimate of the requirements.

As ElectraNet contracts out vegetation maintenance activities, for TEF0101-TEF0104, ElectraNet have had to rely on estimated information from the contractor to provide the data requirements.

Average number of trees per vegetation maintenance span (TEF0103)

Note that this is an approximation to the nearest thousand and therefore this parameter is not provided to 4 significant figures.

Average number of defects per vegetation maintenance span (TEF0104)

Number of trees (collated through daily worksheets from inspectors/cutting crews for the period) is an approximation to the nearest ten. Hence this parameter is not provided to 4 significant figures.

8.1.4 Changes to accounting policies

N/A – Information reported within 8.1 of the data template relates to non-financial information.

8.2 Network characteristics

8.2.1 Data requirement

Route line length

ElectraNet must input the route line length of lines for ElectraNet's network. This is based on the distance between line segments and does not include vertical components such as line sag. The route line length does not necessarily equate to the circuit length as the circuit length may include multiple circuits.

Variability of Dispatch

ElectraNet must input the Variability of dispatch. This is the proportion of energy dispatch from non-thermal generators.

Concentrated load distance

ElectraNet must input the concentrated load distance. This is the greatest distance (Route Line Length) from node having at least 30 per cent of generation capacity to node having at least 30 per cent of load, where a node is a connection point from a generation source or location to the (transmission) network at source end and a connection point to a load or distribution system at the destination end.

Where there is no concentrated source or load above 30 per cent, respond relative to the largest concentrated source and load and indicate the generation and load magnitudes.

Total number of spans

ElectraNet must input the total number of spans.

8.2.2 Data source and methodology

Route line length (TEF0201)

Route line length data has been sourced from the same spreadsheet as the circuit length pivot sheet as described in ElectraNet's response in section 6.1. Single circuit kilometres were totalled for each voltage. Note that double and triple circuits were excluded from the listing, as per the AER requirement to report true route line length (not necessarily equal to circuit length).

The filtered spreadsheet only included route line length for regulated lines and de-energised lines. Cables have been excluded from the calculation.

Variability of Dispatch (TEF0202)

A grid entry metering report was run from SAMarket which is an SQL database viewer, which shows thermal versus non-thermal energy generation for each half hour time period for the regulatory year. Non thermal energy generation is taken as a percentage of total energy generation for each of the reporting years.

ElectraNet divided all Wind Farm energy generation by the sum of all Wind Farm energy generation and Power Station energy (as classified in SA Market) generation at every half hour and then averaged these half hours across the year. This analysis excluded the Interconnector. All generators included in the report are listed in Figure 8-2: SA Generators on the following page:

Figure 8-2: SA Generators

- Power Stations
  - Canowie (Hallet)
  - Dry Creek Power Station
  - Ladbroke Grove Power Station
  - Mintaro Power Station
  - Northern Power Station
  - OCPL
  - Pelican Point Power Station
  - Playford Power Station
  - Port Lincoln Power Station
  - Quarantine Power Station
  - Snuggery Power Station
  - Torrens Island A Power Station
  - Torrens Island B Power Station
- Wind Farms
  - Canowie (Hallet)
  - Cathedral Rocks
  - Clements Gap Windfarm
  - Hallett Hill Windfarm
  - Mayurra
  - Mt Millar
  - North Brown Hill
  - Porcupine Range (Bluff) WF
  - Snowtown WF Stage 1
  - Snowtown WF Stage 2
  - Waterloo East Windfarm
  - Wattle Point

Concentrated Load Distance (TEF0203)

It is unclear what purpose the Concentrated Load Distance (TEF0203) serves in an SA network context. The largest load AMD connection point is the Metro Southern Suburbs (as per T-APR 2013). The largest generation node (by nameplate capacity) is Torrens Island (also SA's Regional Reference Node), which is also metro generation (this generates into the Metro Western suburbs); and these metro nodes can be meshed. For this reason 0km has been entered as the nodes are effectively coincident.

ElectraNet suggests that a more appropriate figure may be the South East Interconnector to Metro Area (approximately 350 km line of sight). This would reflect SA's increased energy reliance on the South East Interconnector.

The Northern generating node (Northern and Playford power stations) to the Metro Area (approximately 250 km line of sight) may also be more appropriate. This is the largest conventional generation centre outside the metro area.

Total Number of Spans (TEF0204)

Total number of spans is calculated from the same spreadsheet as circuit lengths as described in section 6.1 of this response. The spreadsheet was filtered to identify the number of individual spans which were then totalled to identify the total number of spans for each regulatory year.

The filtered spreadsheet only included route line length for regulated lines and de-energised lines only. Cables and have been excluded from the calculation.

8.2.3 Basis of estimation

N/A

8.2.4 Changes to accounting policies

N/A – Information reported within 8.2 of the data template relates to non-financial information.

8.3 Weather stations

8.3.1 Data requirement

ElectraNet must input the weather station number, post code, suburb/locality for all weather stations in its service area. The weather station details are available from the BOM.

Where ElectraNet considers weather data from a weather station is not relevant to the management of its network, ElectraNet must input a 'no' in the 'Materiality' column and provide supporting evidence (in its Basis of Preparation) as to why the weather station is not relevant. For all other weather stations, ElectraNet must input a 'yes' in the 'Materiality' column.

ElectraNet must also input a Variable code for each weather station (for example, TEF03001 for the first weather station).

ElectraNet must add (or remove) rows from Table 8.3 such that all weather stations within its network will be included.

8.3.2 Data source and methodology

ElectraNet reviewed a number of data sources to prepare a list of weather stations in accordance with the requirements set out in the instructions and definitions. ElectraNet used the GIS system to identify all ElectraNet weather stations in ElectraNet's service area.

To establish BOM weather stations used in the management of the network, ElectraNet reviewed weather station data from the Australian Bureau of Meteorology (BOM) to identify the weather station name, location and weather station type.

ElectraNet downloaded BOM weather station data from the link identified below as a text file that was pasted into an excel spreadsheet. The data in the spreadsheet was filtered to identify all active South Australian stations:

http://www.bom.gov.au/climate/cdo/about/sitedata.shtml - All BOM stations

The South Australian Government Data Directory suburbs data available at the link below was then used to apply suburb names to each weather station based on the weather station location in the spreadsheet:

http://data.sa.gov.au/dataset/suburb-boundaries/

Suburb names were then matched to postcodes in the spreadsheet using the Australian Bureau of Statistics post code data available as per the link below:

http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/33A877E7086CA98FCA25731A00217F82/$File/2923030001poa06aaust.zip

This provided a list included in the data template which includes all in-service BOM weather stations in ElectraNet's service area.

The BOM weather text file used to derive base BOM weather site information was uploaded to ElectraNet's GIS system. Two spatial intersection queries were produced, BOM site to post code and BOM site to post code to suburb and exported to an excel spreadsheet.

8.3.3 Basis of estimation

A weather station is classed as material if it is within 50km of the ElectraNet network (including unregulated and non-ElectraNet lines, this is as the weather does not change due to classification and the use of power at the end of a non-ElectraNet line due to local weather will affect ElectraNet's network). The 50km figure is chosen as it gives a reasonable representation of the conditions experienced by the network (distance at which weather (temp and wind) is likely to be consistent).

Note that weather sites situated over water or in the Far North West of SA will not have a suburb or postcode.

Note that as a post code can exist across multiple suburbs. To produce a unique list of BOM weather stations to postcode to suburb, the first Post code suburb match was used.

8.3.4 Changes to accounting policies

N/A – Information reported within 8.3 of the data template relates to non-financial information.

STATUTORY DECLARATION

I, IAN FRANCIS STIRLING
(Full Name)

of 52-55 EAST TERRACE ADELAIDE
(Address)

in the State of South Australia CHIEF EXECUTIVE OFFICER
do solemnly and sincerely declare that: (Occupation)

1. I am an officer, for the purposes of the *National Electricity (South Australia) Law* (**NEL**), of ElectraNet Pty Limited (ACN 094 482 416), a regulated network service provider for the purposes of section 28D of the NEL. I am authorised by ElectraNet Pty Limited to make this statutory declaration as part of the response of ElectraNet Pty Limited (**ElectraNet**) to the Regulatory Information Notice dated 28 November 2013 (**Notice**) served on ElectraNet by the Australian Energy Regulator (**AER**).

2. Having had regard to the Notice, I say that the actual information provided in ElectraNet's response to the Notice is, to the best of my information, knowledge and belief:

   (a) in accordance with the requirements of the Notice; and

   (b) true and accurate.

3. Where it is not possible to provide actual information to comply with the Notice, ElectraNet has, to the best of my information, knowledge and belief, for the purposes of complying with the Notice:

   (a) provided ElectraNet's best estimate of the information in accordance with the requirements of the Notice; and

   (b) provided the basis for each estimate, including assumptions made and reasons why the estimate is the best estimate, given the information sought in the Notice.

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act, 1936.

Signature

Declared and subscribed at ADELAIDE

in the said State by the said IAN STIRLING

this 14th day of APRIL, 2014

Before me:

DOROTHY ANNE SHORNE J.P 23893

Note– This Declaration must be signed before a Justice of the Peace, a Commissioner for Taking Affidavits, or a Notary Public.
Any alteration made must be initialled by both the applicant and the Justice of the Peace.

DOROTHY SHORNE
JUSTICE of the PEACE 23893

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[redacted]

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[redacted]