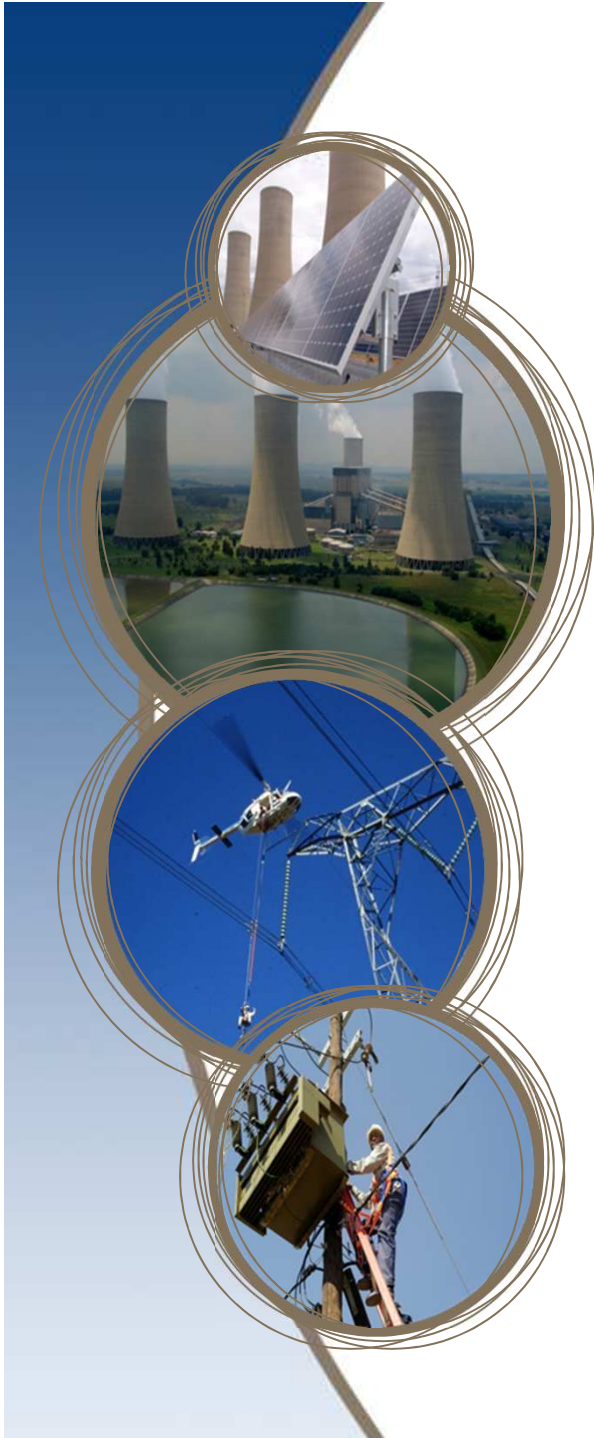




GENERATION CONNECTION CAPACITY ASSESSMENT (GCCA – 2022 Update summary) Noddy Guide and Results

Presented by: SIPHESIHLE SATIMBURWA

Date: October 2018



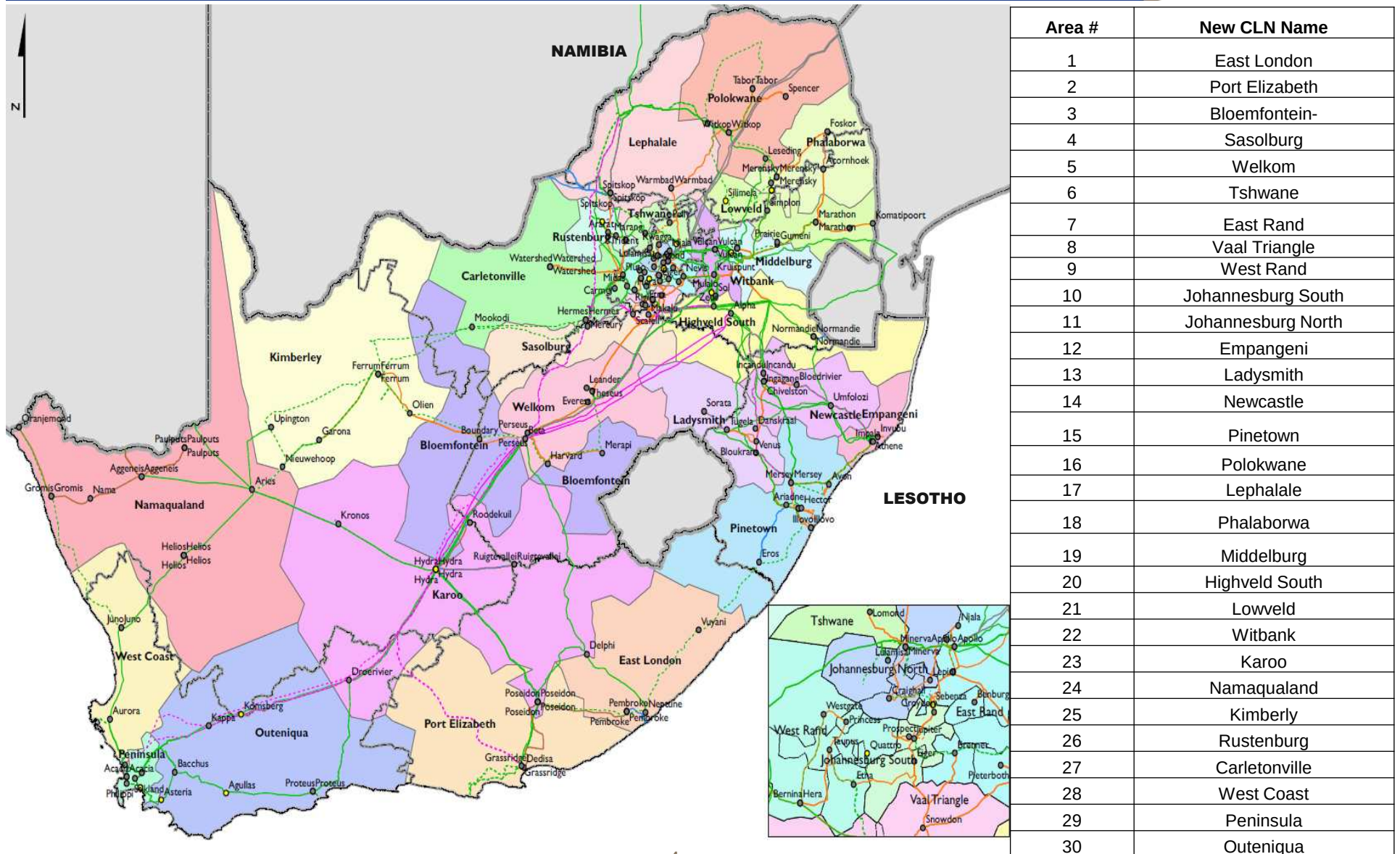
- Introduction
- Eskom CLN boundaries
- How to read the GCCA – 2022 Update results
- Available Generation Connection Capacity Results per CLN (30 CLNs)
- Conclusion

Introduction

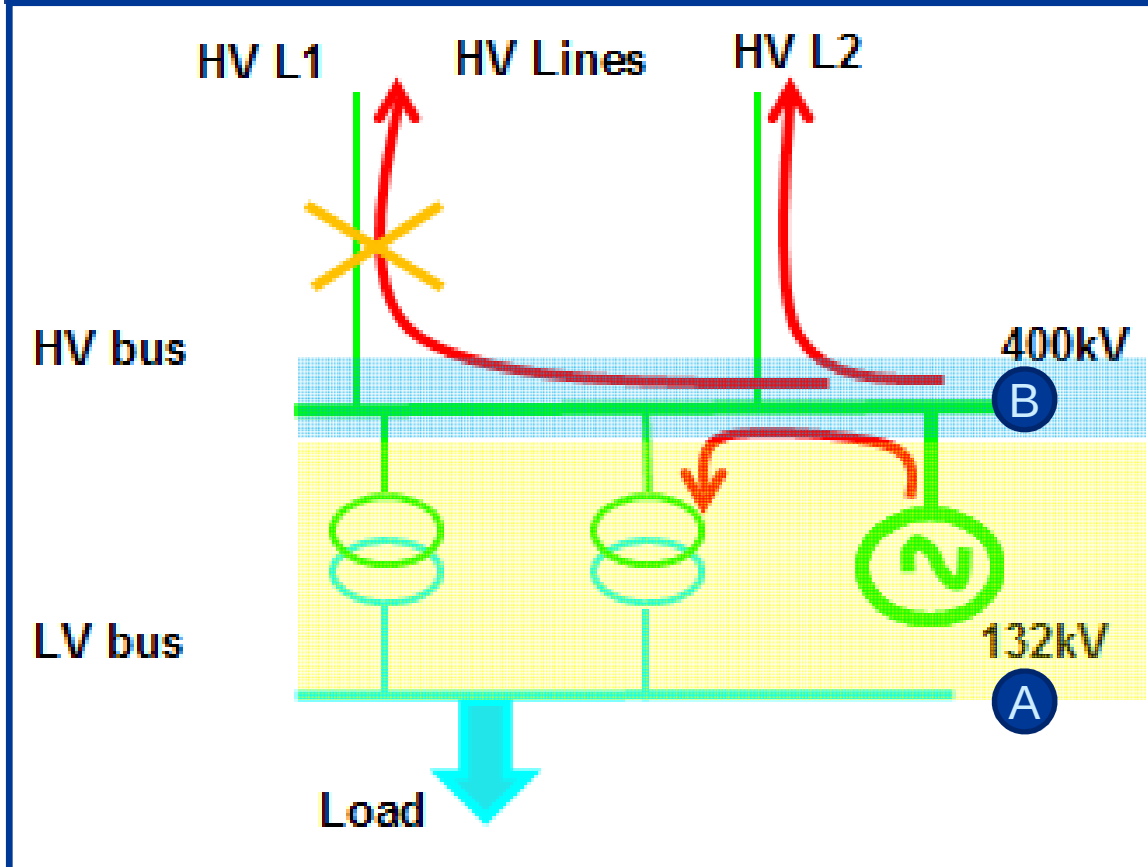


- This guide has the results and an explanation for reading the available generation connection capacity at all Transmission substations in the country in year 2022
- It assumed that all IPPs up to round 4B will already be connected by 2022 and all projects planned to be commissioned in 2022 will be commissioned
- The results are presented in Customer Load Network(CLN) groupings
- The results are in table form representing maximum generation that can be connected (available capacity)
- The available capacity is beyond what has already been connected **(i.e. remaining capacity after Round 4B IPP connections)**
- This is to compliment the **GCCA – 2022 Update** report published in the Eskom website
- The detailed report can be downloaded for more detail on the methodology used in conducting the studies

Eskom CLN Boundaries



How To Read the GCCA Results: Substation Level

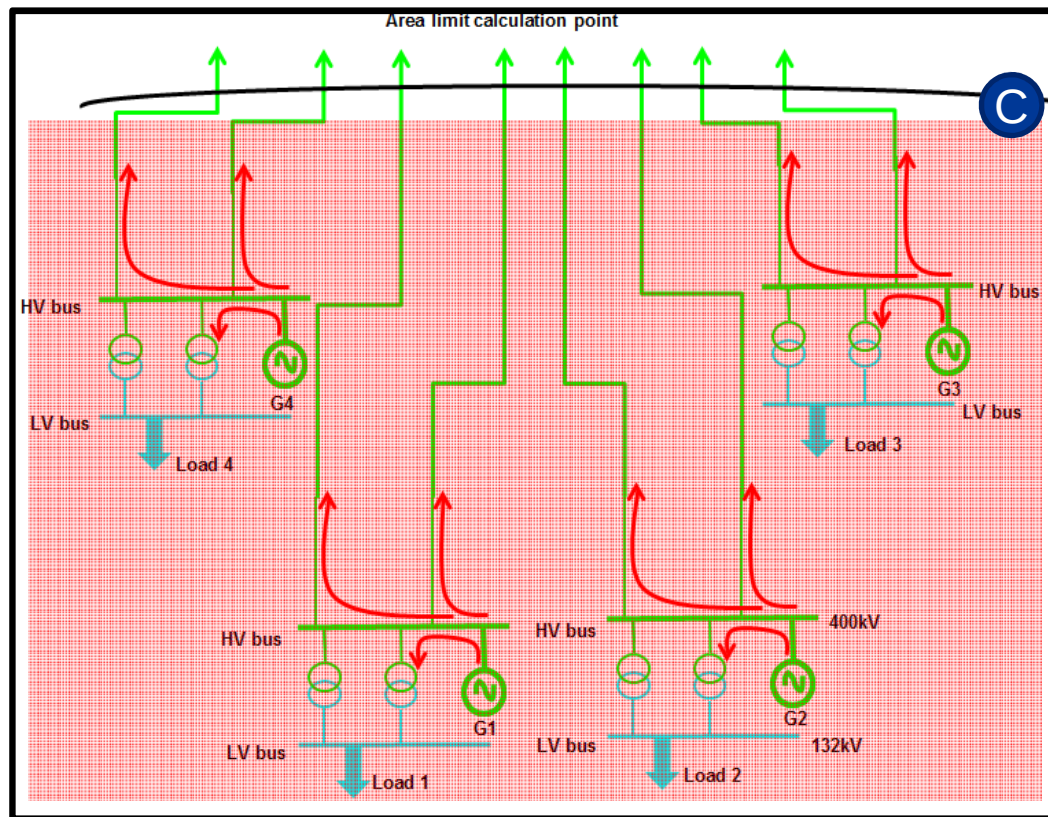


Reading the table of results:

- A Transformer MV Limit**
 - This is the capacity remaining on the transformers in a substation (considering already connected IPPs in 2022)
 - This is colour coded **yellow** in the table
- B Substation HV Limit**
 - This is the capacity on the primary side of the substation (HV), colour coded **blue**
 - If the HV limit exceeds the LV limit, **an additional transformer** will be required to realize the capacity
- C CLN Limit (diagram overleaf)**
 - This is the limit remaining in the whole area when IPP are distributed at all substations proportionately
 - This is colour coded **red** .../continue overleaf

Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Lephalale	Spitskop	400/132	2	315	630	0	0	0	92	709	2150	2900
Lephalale	Spitskop	275/132	3	500	1500	0	0	0	128	980	4050	
Lephalale	Spitskop	275/132	2	800	1600	0	0	0	0	980	4050	
Lephalale	Warmbad	400/132	2	125	250	0	0	0	1	246	750	
Lephalale	Warmbad	400/275	2	40	80	0	0	0	5	83	83.4	
Lephalale	Borutho	400/132	2	500	1000	0	0	0	120	980	3600	

How To Read the GCCA Results: CLN Limit



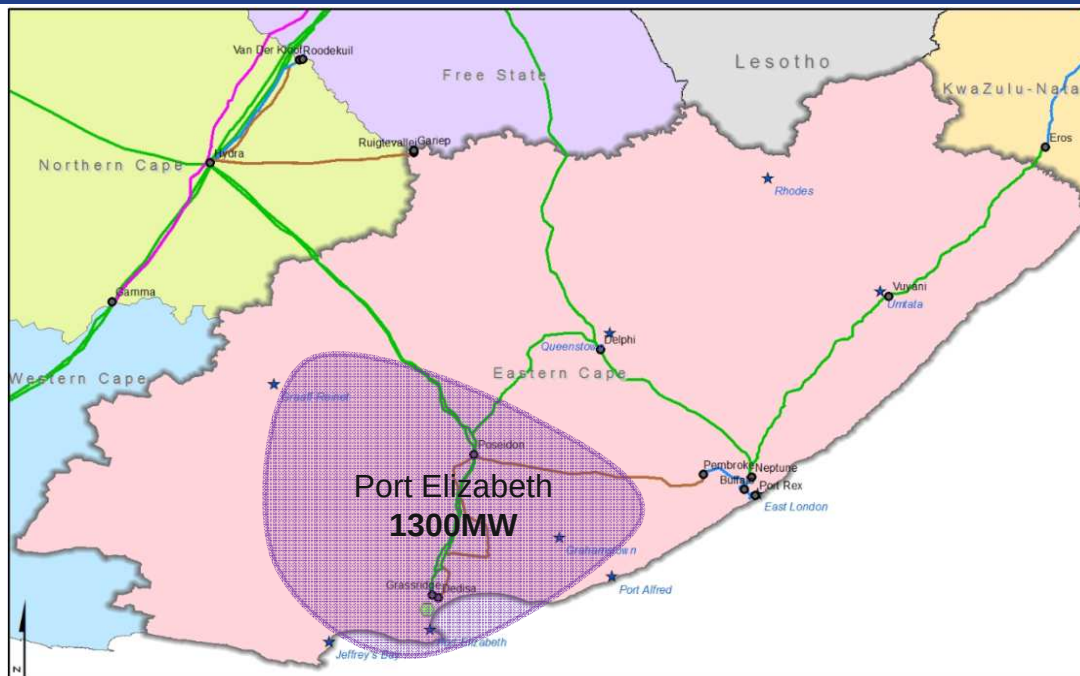
- C CLN Limit**
 - This limit is the deciding limit for the maximum generation to be connected in the area
 - It overrides all the other available capacities
 - ❖ If the MV or HV limit exceeds the CLN limit, then use the CLN limit
 - ❖ A limit of 980MW applies to all the Substations including all previous rounds (no more than 980MW can be connected in a single substation)
 - ❖ A power factor of 0.98 is used in the transformer calculations

Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Lephalale	Spitskop	400/132	2	315	630	0	0	0	92	709	2150	2900
Lephalale	Spitskop	275/132	3	500	1500	0	0	0	128	980	4050	
Lephalale	Spitskop	275/132	2	800	1600	0	0	0	0	980	4050	
Lephalale	Warmbad	400/132	2	125	250	0	0	0	1	246	750	
Lephalale	Warmbad	400/275	2	40	80	0	0	0	5	83	83.4	
Lephalale	Borutho	400/132	2	500	1000	0	0	0	120	980	3600	

Eastern Cape – East London CLN

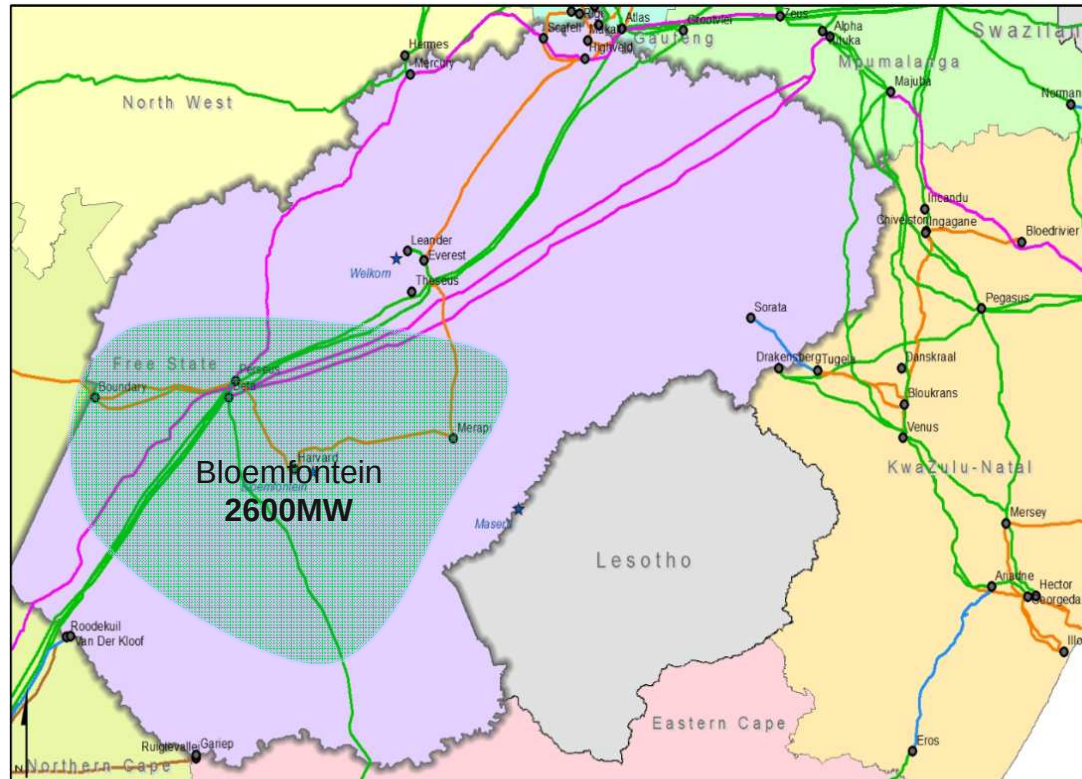


Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
East London	Delphi	400/132	3	120	360	0	97	97	32	288	1950	550
East London	Neptune	400/132	2	500	1000	0	0	0	24	980	1600	
East London	Pembroke	132/66	1	160	160	0	0	0	13	170	0	
East London	Pembroke	220/66	0	9	0	0	0	0	0	0	0	
East London	Pembroke	220/132	0	0	0	0	53	53	0	0	0	
East London	Pembroke	400/132	1	500	500	0	0	0	13	503	200	
East London	Vuyani	400/132	2	250	500	0	0	0	61	551	1500	



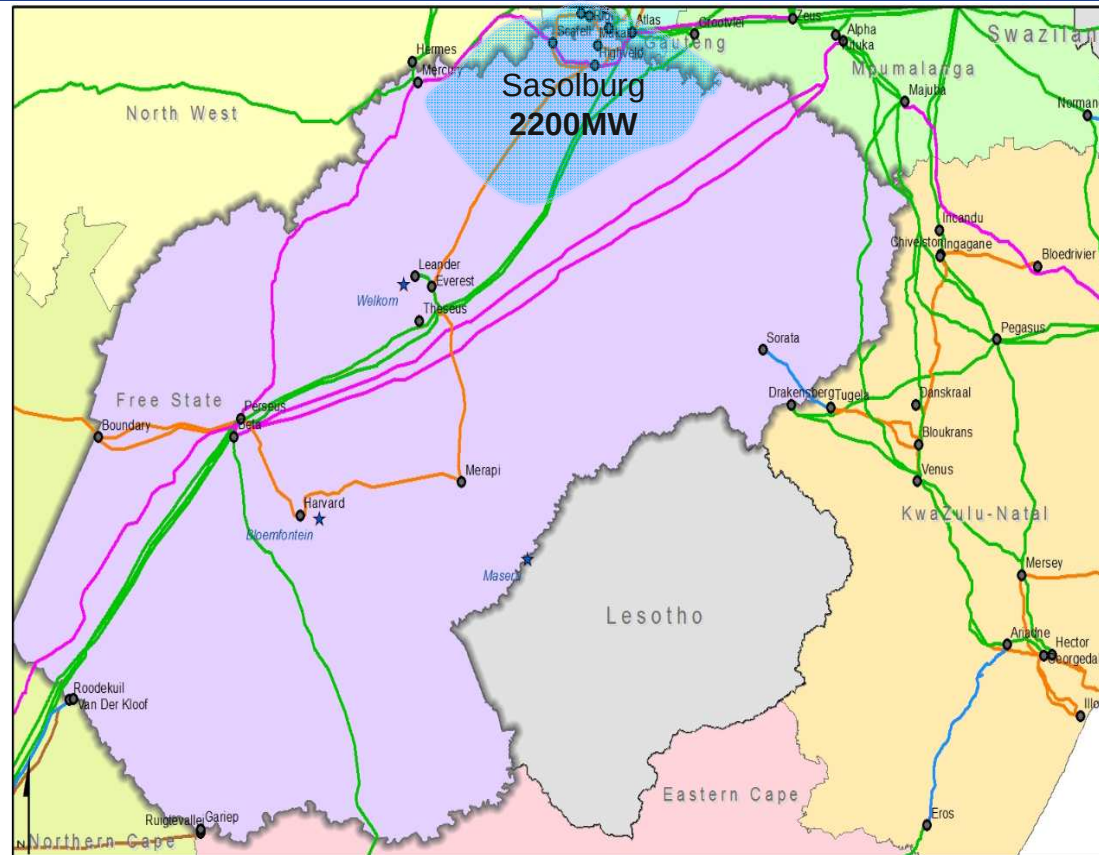
Supply Area	Substation	Transformer Voltages	2022 No. of Tranformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Port Elizabeth	Dedisa	400/132	3	500	1500	0	0	0	85	980	1300	1300
Port Elizabeth	Grassridge	220/132	2	360	720	0	26	26	0	338	750	
Port Elizabeth	Grassridge	400/132	4	500	2000	0	616	616	167	338	1300	
Port Elizabeth	Poseidon	220/66	1	40	120	0	0	0	0	118	1000	
Port Elizabeth	Poseidon	220/132	2	125	250	0	158	158	0	87	1000	
Port Elizabeth	Poseidon	400/132	1	500	500	0	481	481	24	*33	1300	
Port Elizabeth	Poseidon	400/220	2	500	1000	0	0	0	0	*0	1300	

Free State – Bloemfontein CLN



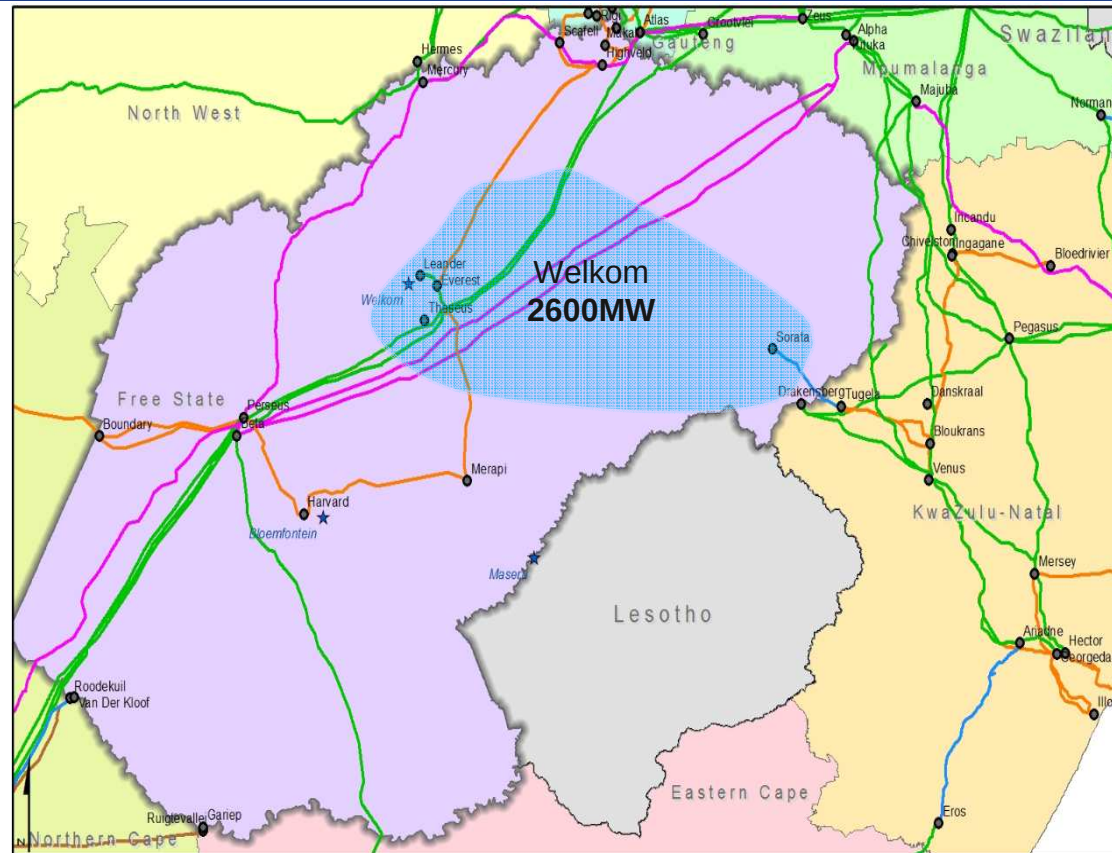
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Bloemfontein	Boundary	275/132	2	250	500	228	0	228	83	345	1150	2600
Bloemfontein	Harvard	275/132	2	500	1000	64	0	64	88	916	1050	
Bloemfontein	Merapi	275/132	2	250	500	0	0	0	42	532	800	

Free State – Sasolburg CLN



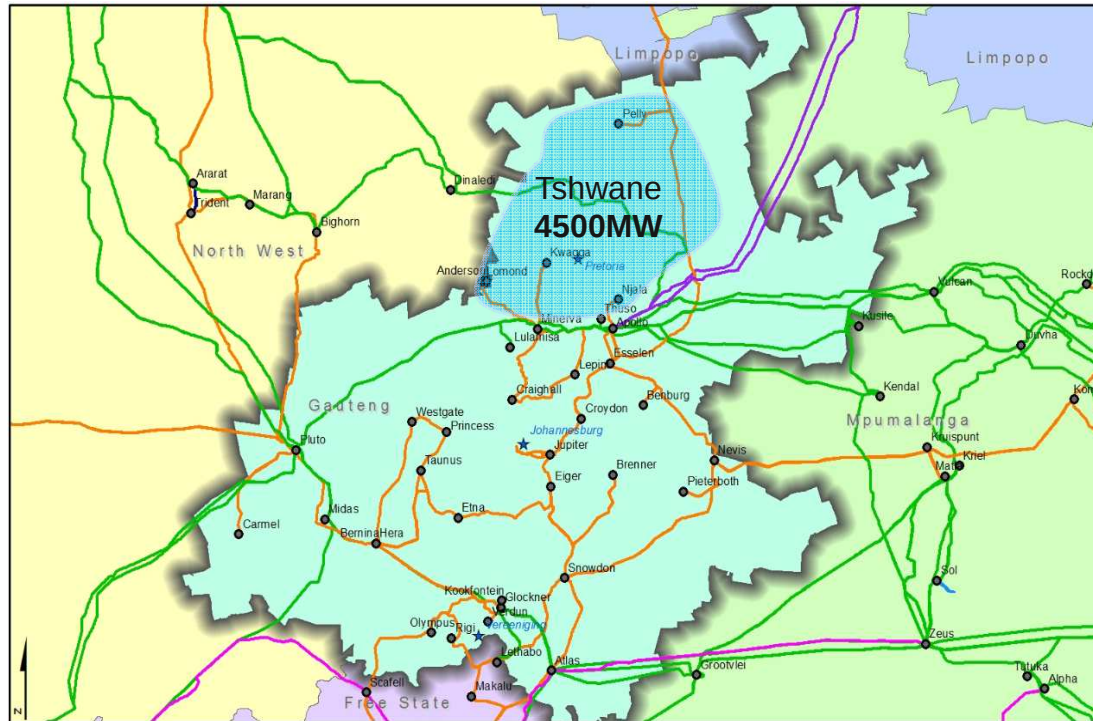
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPP Gen Allocated (MW)	Wind REIPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Sasolburg	Mercury	400/132	2	500	1000	67.9	0	68	40	912	2250	2200
Sasolburg	Makalu	275/88	4	160	640	0	0	0	117	744	2550	
Sasolburg	Scafell	275/132	2	135	270	0	0	0	19	284	900	

Free State – Welkom CLN



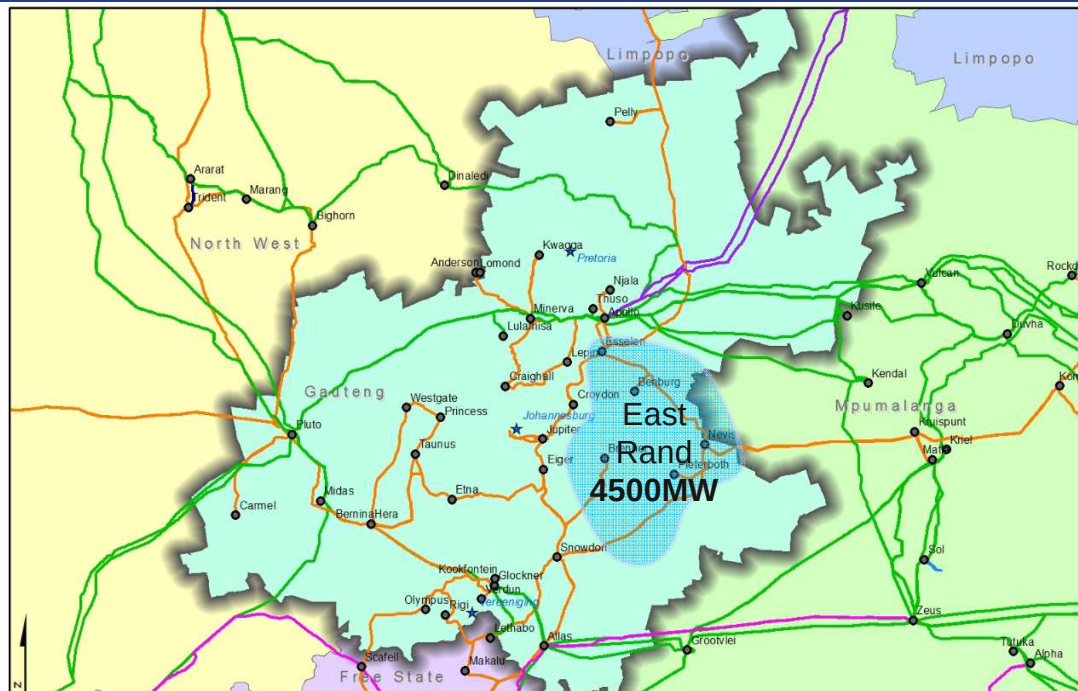
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Welkom	Everest	275/132	2	500	1000	0	0	0	20	980	1400	2600
Welkom	Leander	400/132	2	500	1000	0	0	0	134	980	1650	
Welkom	Sorata	275/132	1	250	250	0	0	0	28	273	0	
Welkom	Theseus	400/132	2	500	1000	0	0	0	172	980	1675	

Gauteng – Tshwane CLN



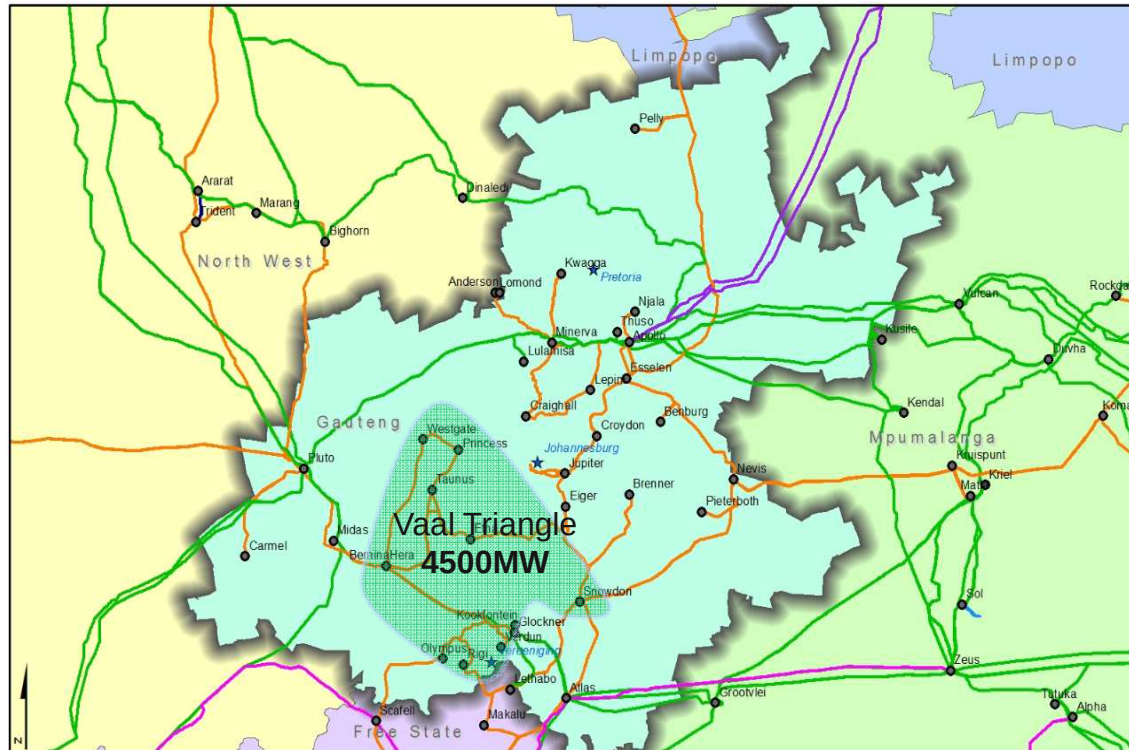
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Tshwane	Lomond	275/88	2	315	630	0	0	0	75	692	900	4550
Tshwane	Pelly	275/132	2	250	500	0	0	0	58	548	1050	
Tshwane	Thuso (Verwoedburg)	400/132	2	250	500	0	0	0	51	541	750	
Tshwane	Wilbees	400/132	2	315	630	0	0	0	33	650	1450	
Tshwane	Njala	275/132	4	250	1000	0	0	0	129	980	1550	

Gauteng – East Rand CLN



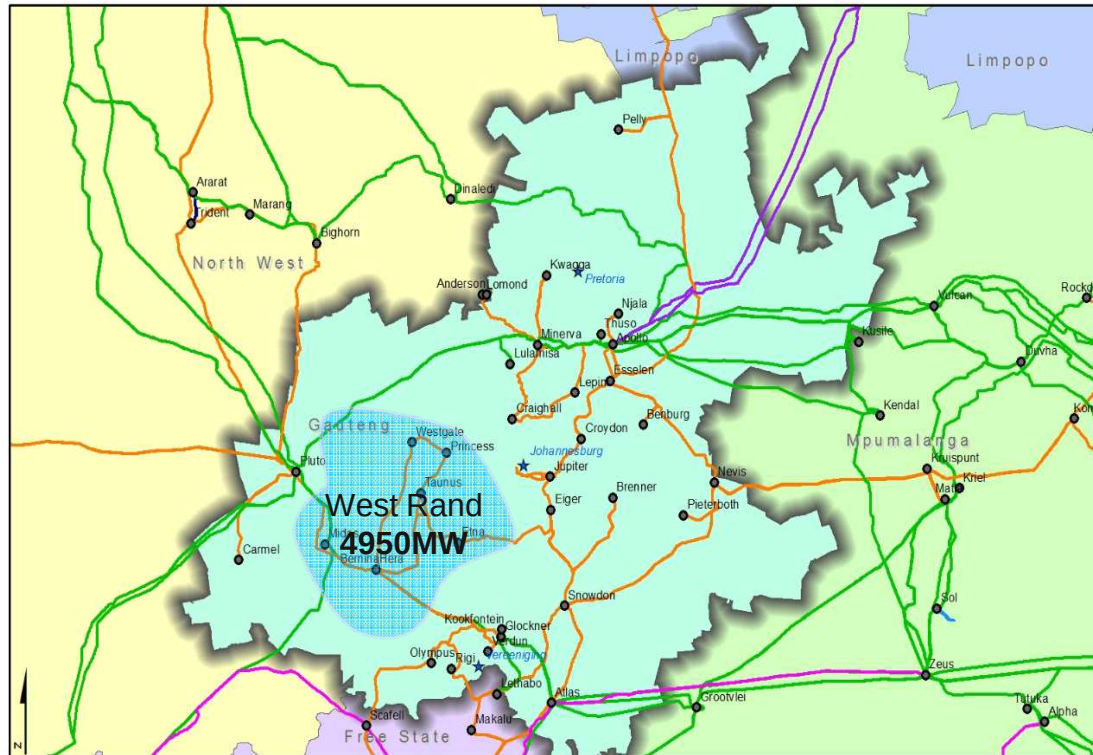
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
East Rand	Benburg	275/132	3	250	750	0	0	0	96	831	950	4500
East Rand	Brenner	275/88	3	315	945	0	0	0	126	980	3050	
East Rand	Esselen	132/88	1	160	160	0	0	0	0	157	156.8	
East Rand	Esselen	275/132	1 2	250 180	610	0	0	0	69	667	3100	
East Rand	Esselen	275/88	2	315	630	0	0	0	0	617	3100	
East Rand	Nevis	275/132	2	500	1000	0	0	0	132	980	3100	
East Rand	Pieterboth	275/132	2	315	630	0	0	0	85	702	1650	

Gauteng – Vaal Triangle CLN



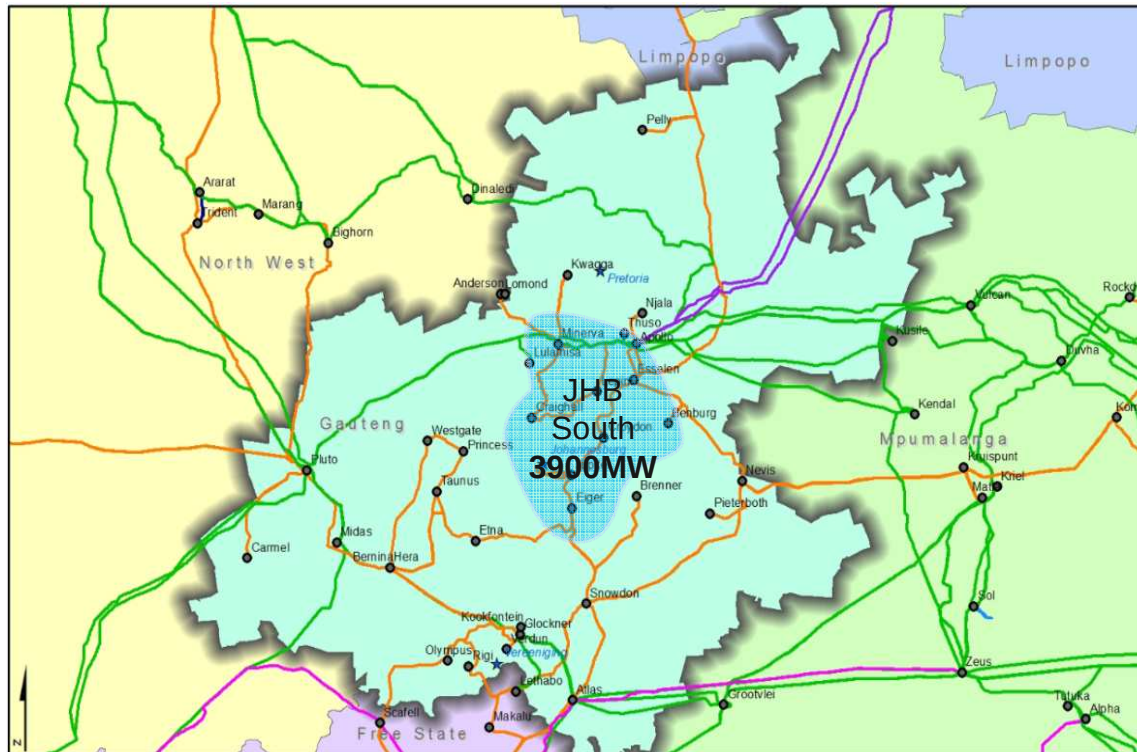
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Vaal Triangle	Kookfontein	275/88	3	315	945	0	0	0	56	980	750	4500
Vaal Triangle	Olympus	275/132	2	250	500	0	0	0	35	525	850	
Vaal Triangle	Rigi	275/88	3	315	945	0	0	0	134	980	1750	
Vaal Triangle	Snowdon	275/88	3	160	480	14	0	0	68	538	3200	

Gauteng – West Rand CLN



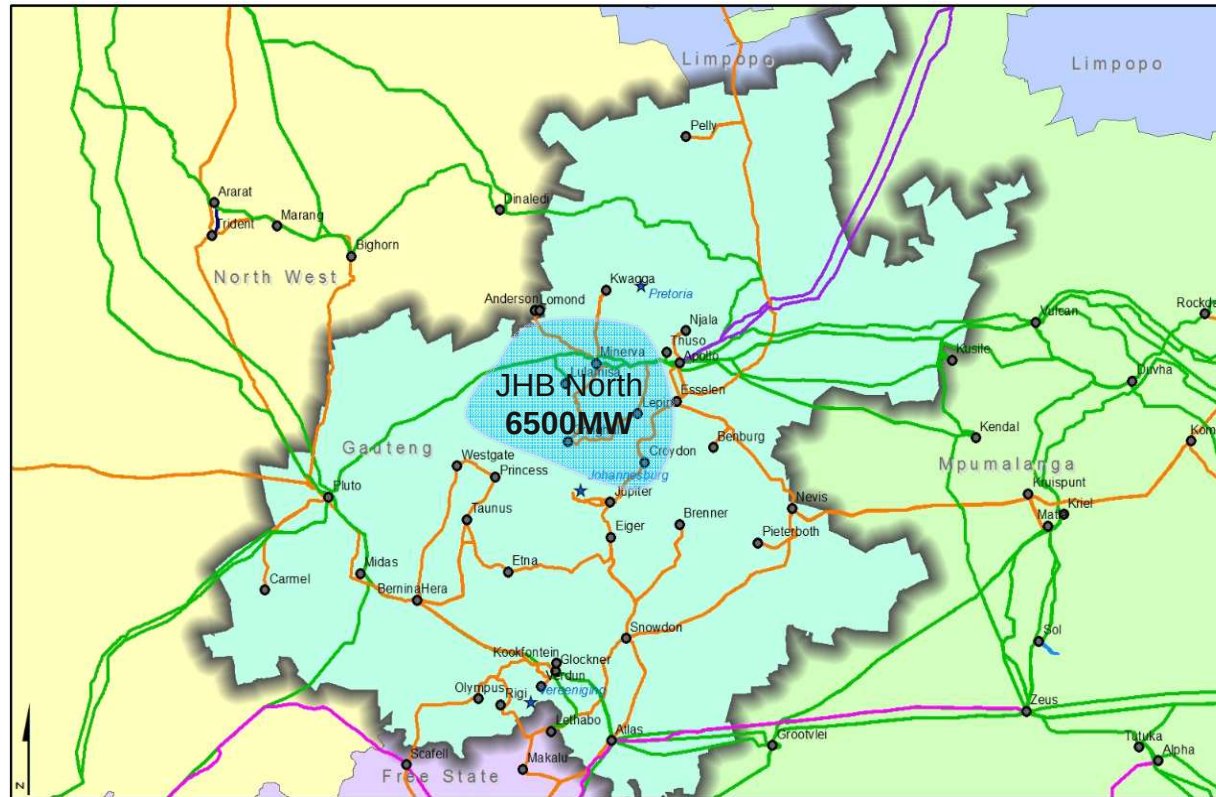
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
West Rand	Bernina	275/132	4	240	960	0	0	0	127	980	2100	4950
West Rand	Etna	275/88	2	315	630	0	0	0	71	688	2650	
West Rand	Princess	275/88	3	315	945	0	0	0	106	980	1100	
West Rand	Quattro	275/132	2	500	1000	0	0	0	65	980	2150	
West Rand	Taunus	275/132	3	500	1500	0	0	0	185	980	2800	
West Rand	Westgate	275/132	2	500	1000	0	0	0	233	980	1200	

Gauteng – Johannesburg South CLN



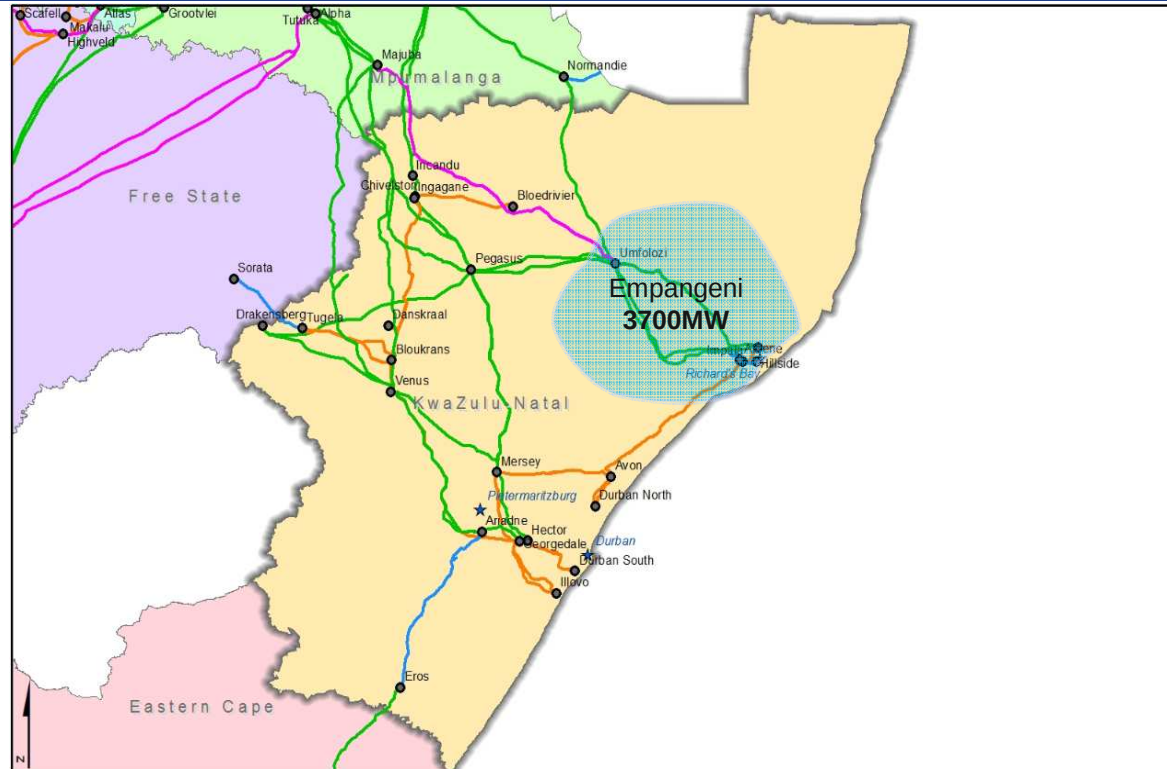
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Johannesburg South	Croydon	275/132	3	250	750	0	0	0	17	752	1050	3900
Johannesburg South	Eiger	275/88	3	315	945	0	0	0	30	956	2800	
Johannesburg South	Jupiter	275/88	3	180	540	0	0	0	120	649	1400	
Johannesburg South	Prospect	275/88	4	250	1000	0	0	0	134	980	1150	

Gauteng – Johannesburg North CLN



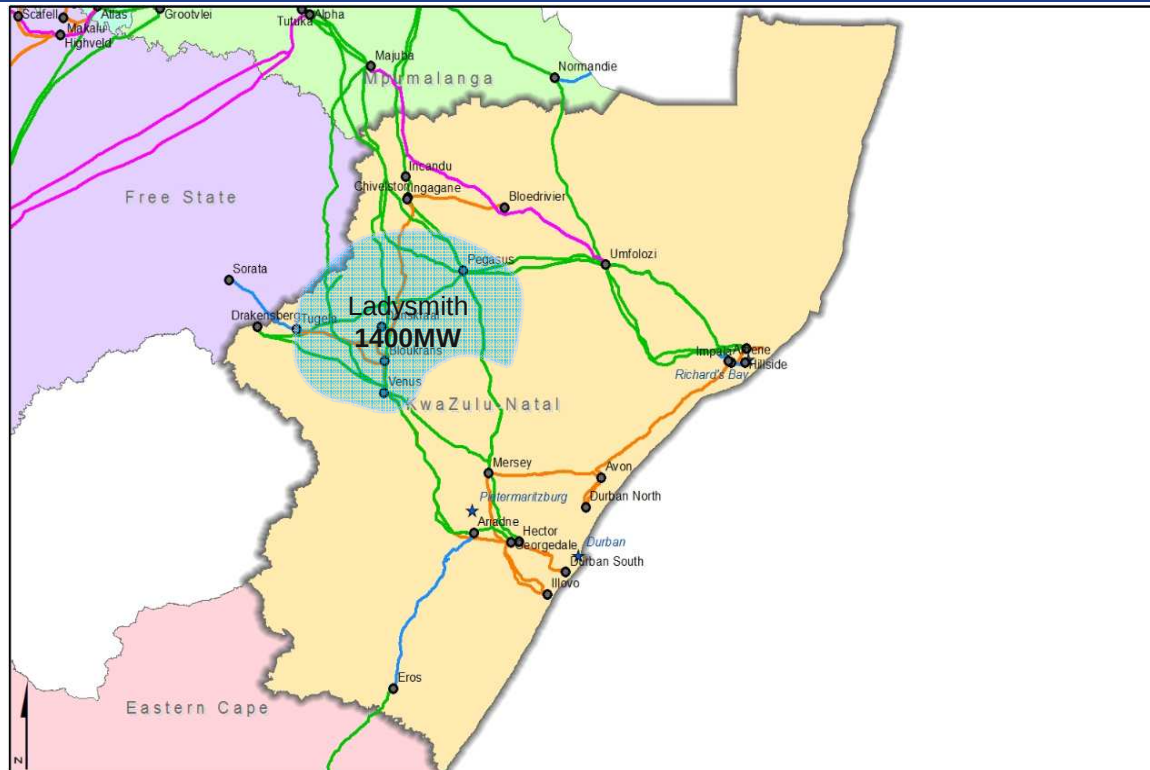
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Johannesburg North	Craighall	275/88	3	315	945	0	0	0	112	980	1750	4400
Johannesburg North	Lepini	275/88	4	315	1260	0	0	0	162	980	1700	
Johannesburg North	Lulamisa	400/88	3	315	945	0	0	0	224	980	2300	

Kwa-Zulu Natal – Empangeni CLN



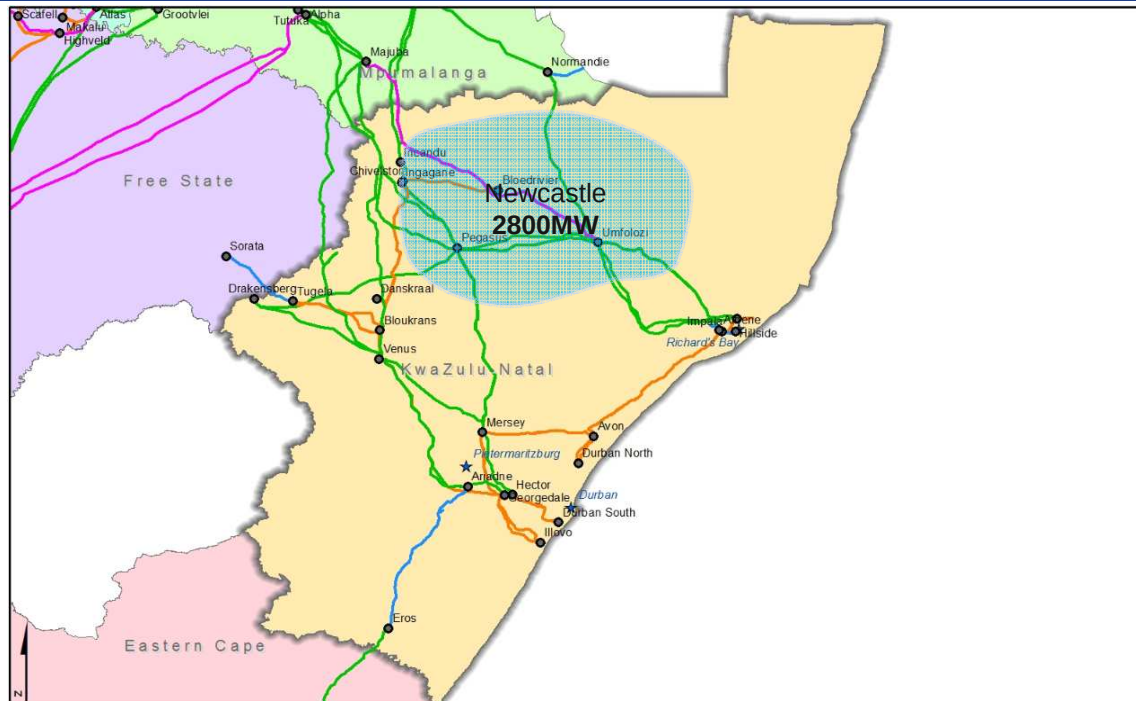
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Empangeni	Athene	400/132	4	500	2000	0	0	0	689	980	3800	3700
Empangeni	Impala	275/132	4	250	1000	0	0	0	131	980	1250	

Kwa-Zulu Natal – Ladysmith CLN



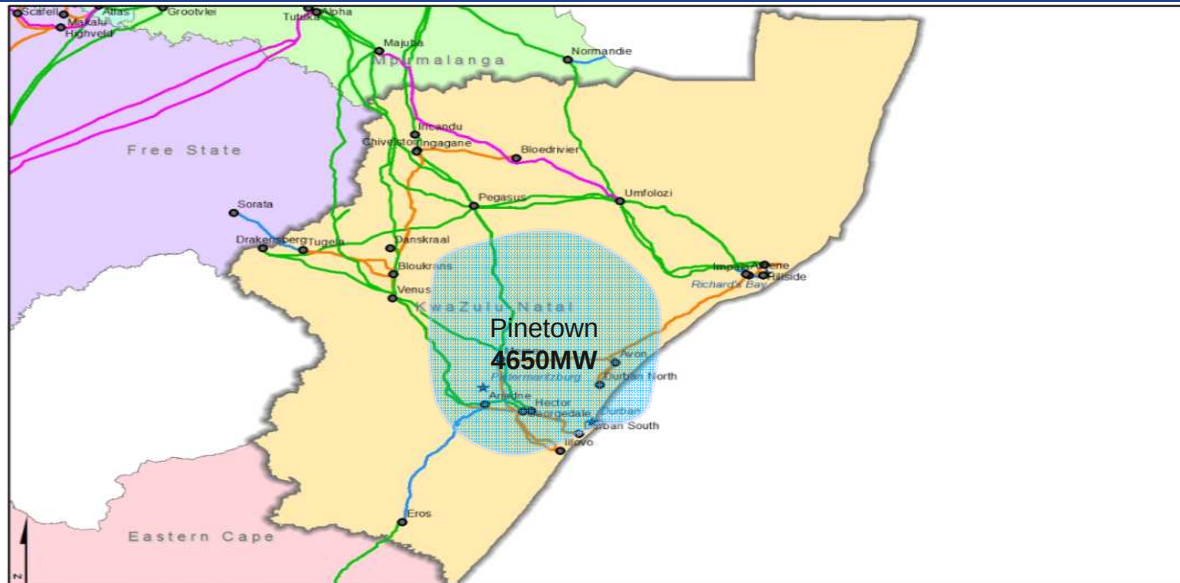
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Ladysmith	Bloukrans	275/132	2	250	500	0	0	0	52	542	450	1400
Ladysmith	Danskraal	275/132	2	125	250	0	0	0	25	270	550	
Ladysmith	Tugela	275/132	2	180	360	0	0	0	12	365	700	

Kwa-Zulu Natal – Newcastle CLN



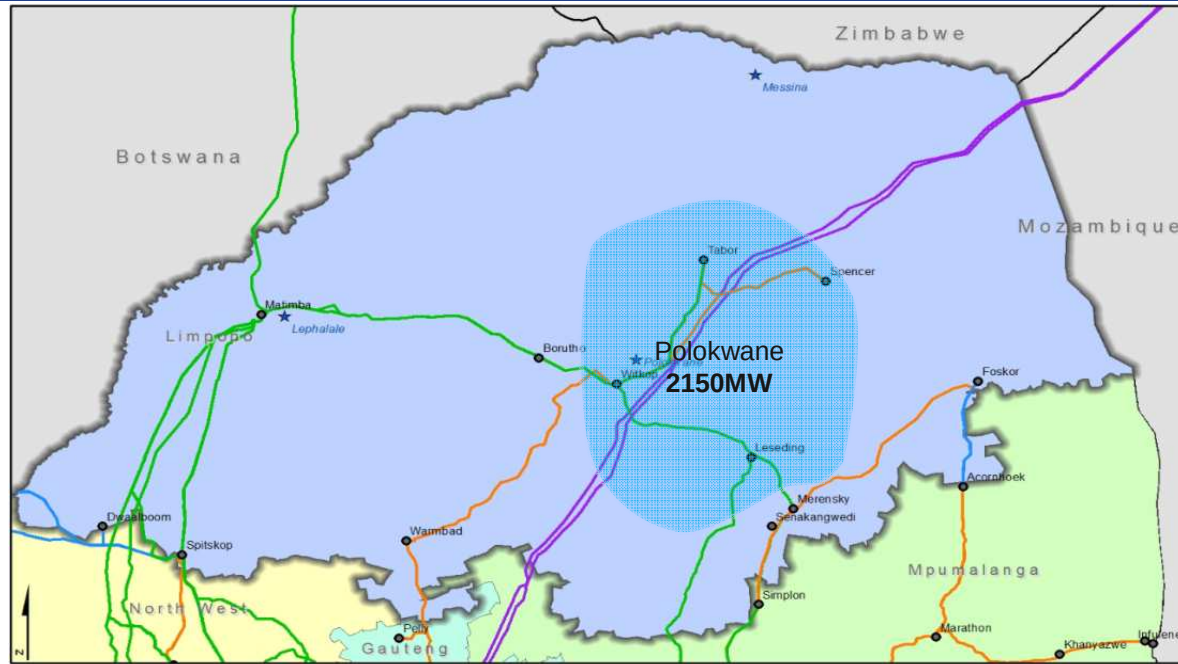
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Newcastle	Bloedrivier	275/88	2	160	320	0	0	0	24	338	750	2800
Newcastle	Incandu	400/132	1 2	500 315	1130	0	0	0	133	980	1800	
Newcastle	Ingagane	400/275	2	160	320	0	0	0	29	343	1250	
Newcastle	Umfolozi	275/132	2	160	320	0	0	0	38	352	4450	

Kwa-Zulu Natal – Pinetown CLN



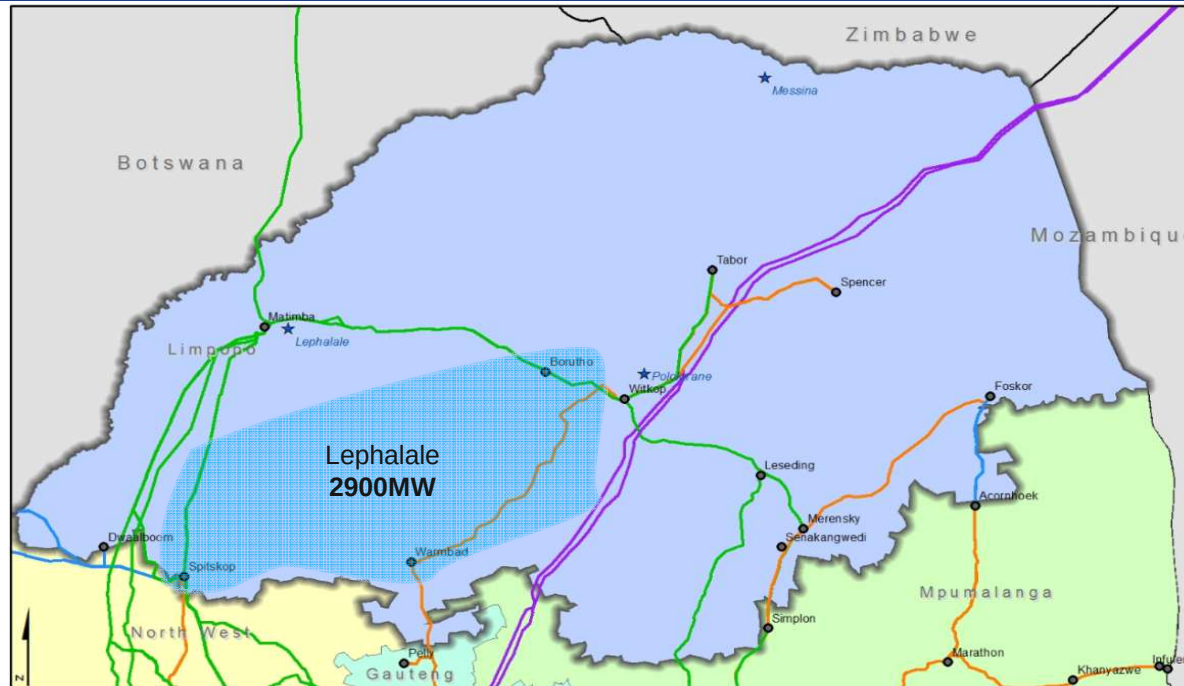
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Pinetown	Ariadne	132/66	2	500	1000	0	0	0	114	83	2900	4650
Pinetown	Avon	400/132	3	250	750	0	0	0	0	735	1500	
Pinetown	Eros	275/88	2	500	1000	0	0	0	98	338	2675	
Pinetown	Georgedale	400/132	2	45	90	0	0	0	32	120	112	
Pinetown	Georgedale	275/88	1 1	150 250	400	0	0	0	32	424	1500	
Pinetown	Illovo	400/88	1	80	80	0	0	0	0	78	80	
Pinetown	Illovo	400/132	2	250	500	0	0	0	0	490	1900	
Pinetown	Mersey	275/132	2	250	500	0	0	0	61	551	3200	
Pinetown	Mersey	400/132	3	800	2400	0	0	0	0	980	5100	

Limpopo – Polokwane CLN



Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Polokwane	Leseding	132/88	2	500	1000	0	0	0	215	120	2150	2150
Polokwane	Spencer	275/132	2	250	500	0	0	0	70	560	950	
Polokwane	Tabor	132/88	2	250	500	0	0	0	96	586	800	
Polokwane	Tabor	275/132	1	500	500	28	0	28	96	558	500	
Polokwane	Witkop	275/132	2	400	800	0	0	0	0	784	1450	
Polokwane	Witkop	400/275	3	500	1500	30	0	30	170	950	1350	

Limpopo – Lephalale CLN



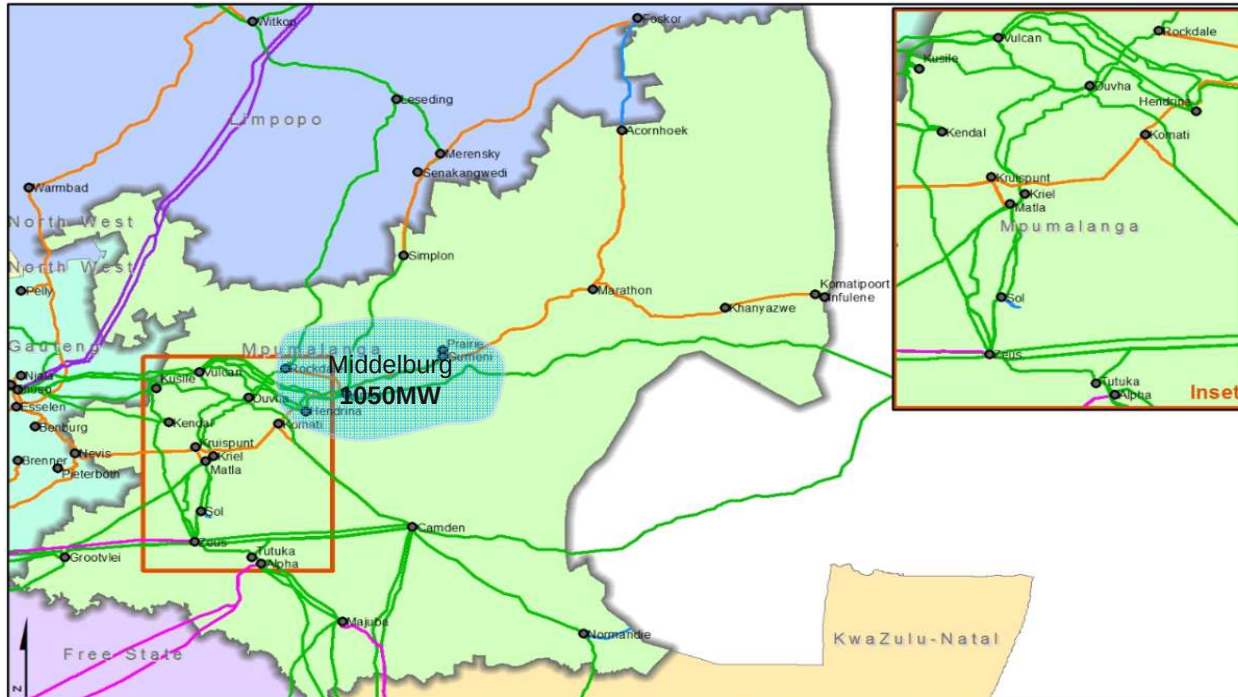
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Lephalale	Spitskop	400/132	2	315	630	0	0	0	92	709	2150	2900
Lephalale	Spitskop	275/132	3	500	1500	0	0	0	128	980	4050	
Lephalale	Spitskop	275/132	2	800	1600	0	0	0	0	980	4050	
Lephalale	Warmbad	400/132	2	125	250	0	0	0	1	246	750	
Lephalale	Warmbad	400/275	2	40	80	0	0	0	5	83	750	
Lephalale	Borutho	400/132	2	500	1000	0	0	0	120	980	3600	

Limpopo – Phalaborwa CLN



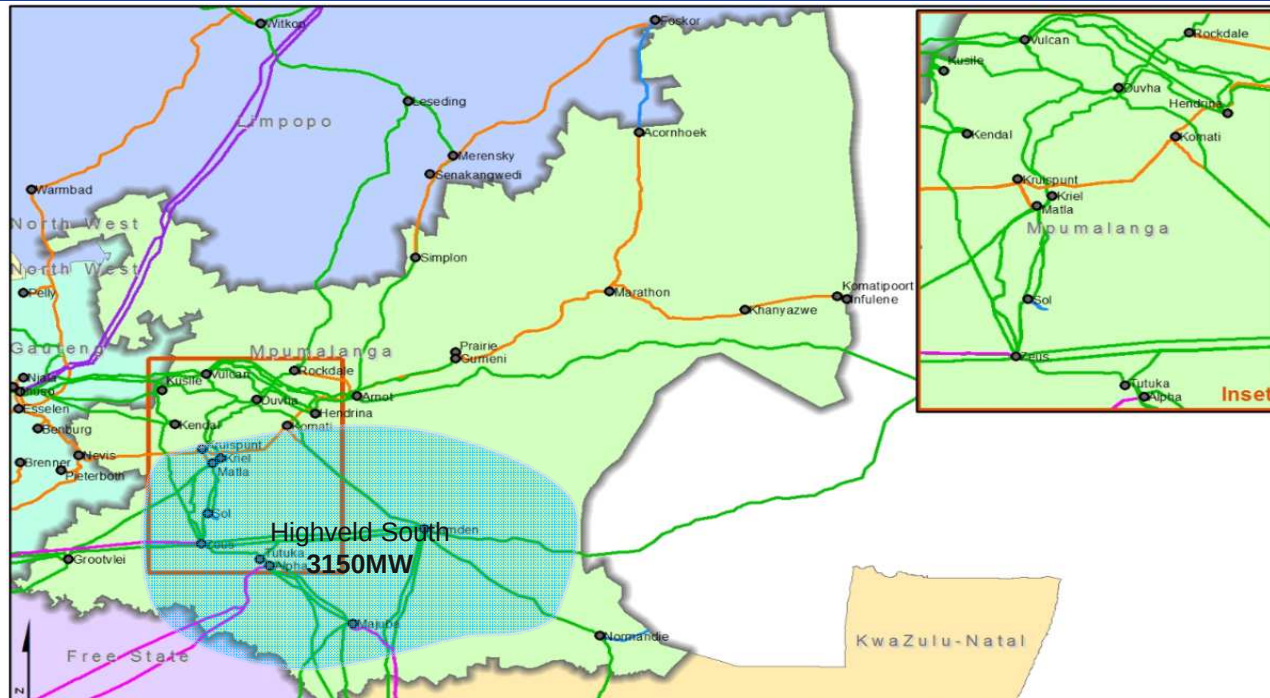
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Phalaborwa	Acornhoek	275/132	2	125	250	0	0	0	35	280	1000	3600
Phalaborwa	Foskor	275/132	3	250	750	0	0	0	133	868	900	
Phalaborwa	Merensky	275/132	2	250	500	0	0	0	55	545	2450	
Phalaborwa	Merensky	400/132	1	500	500	0	0	0	0	490	3150	
Phalaborwa	Merensky	400/275	3	400	1200	0	0	0	0	980	3150	
Phalaborwa	Senakangwedi	275/22	2	180	360	0	0	0	41	394	1450	
Phalaborwa	Silimela	400/132	2	500	1000	0	0	0	39	980	2150	

Mpumalanga – Middelburg CLN



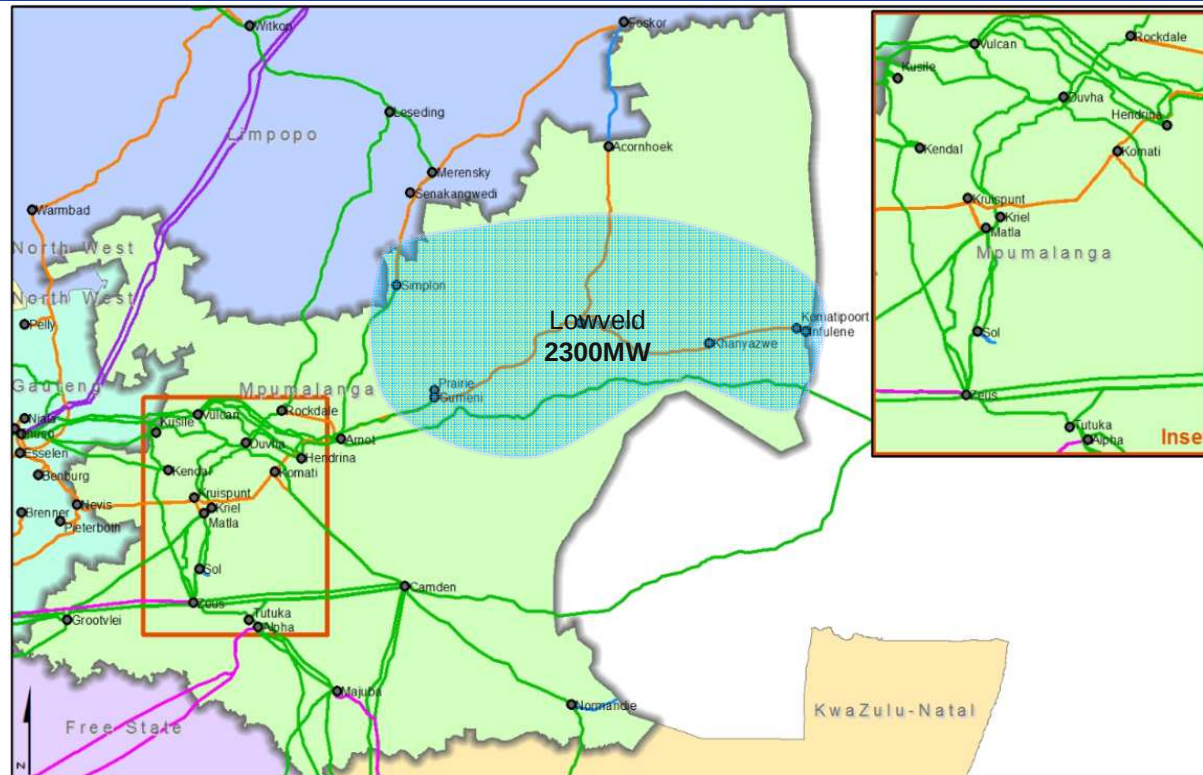
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Middelburg	Rockdale	132/88	1 3	80 30	170	0	0	0	16	183	183	1050
Middelburg	Rockdale	275/132	2	500	1000	0	0	0	0	980	500	
Middelburg	Emkhiweni (Rockdale B)	400/132	2	500	1000	0	0	0	175	980	1500	

Mpumalanga – Highveld South CLN



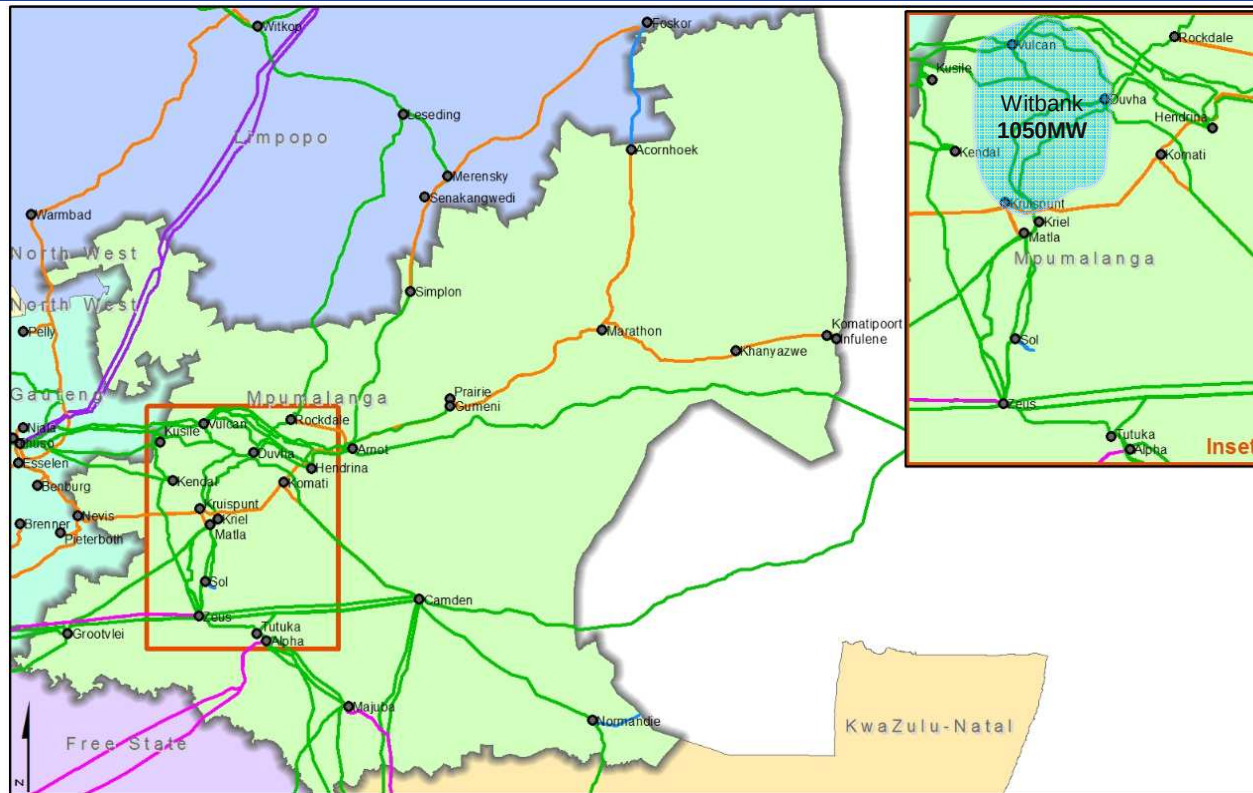
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Highveld South	SolB4	400/132	4	500	2000	0	0	0	687	980	2200	3150
Highveld South	Normandie	132/88	1	160	160	0	0	0	0	157	1650	
Highveld South	Normandie	400/88	2	160	320	0	0	0	15	329	2300	
Highveld South	Normandie	400/132	2	250	500	0	0	0	38	528	2300	

Mpumalanga – Lowveld CLN



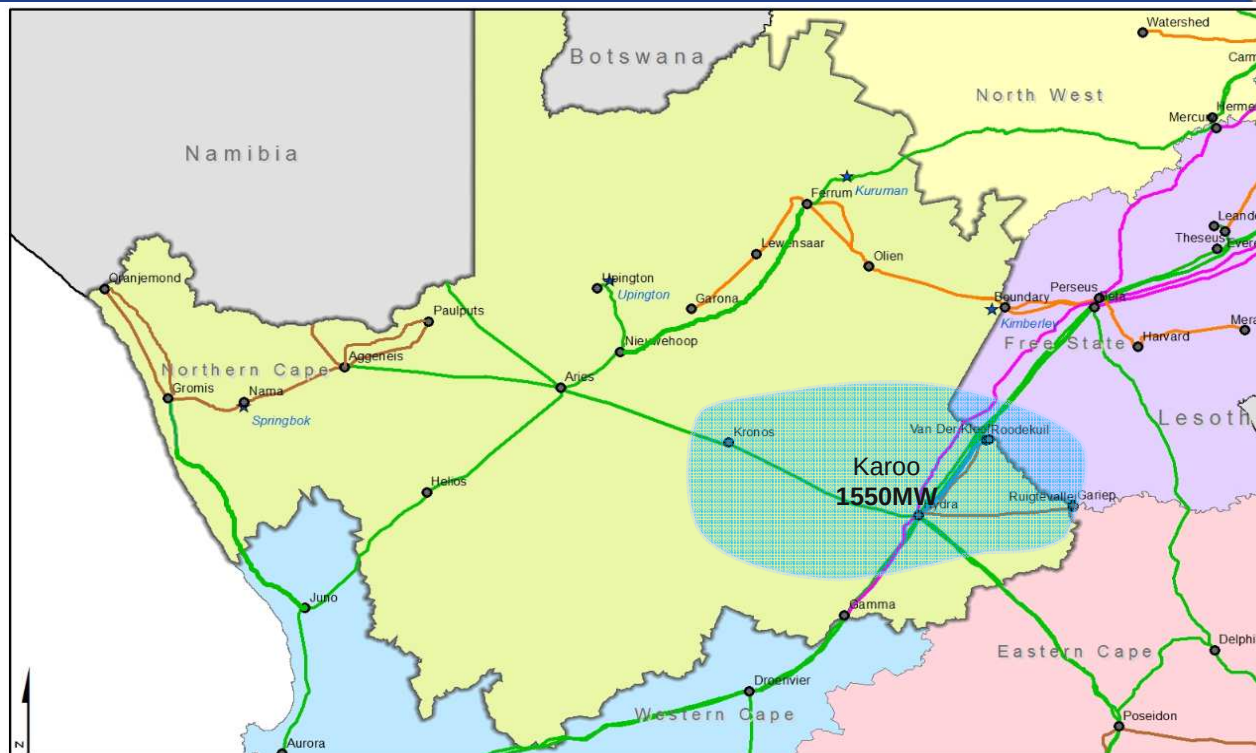
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Lowveld	Gumeni	400/132	2	500	1000	0	0	0	25	980	2300	2300
Lowveld	Khanyazwe	275/132	1	250	250	0	0	0	10	255	800	
Lowveld	Komatipoort	275/132	2	125	250	0	0	0	37	282	750	
Lowveld	Marathon	132/66	2	40	80	0	0	0	25	103	103	
Lowveld	Marathon	275/132	2	500	1000	0	0	0	88	980	1850	
Lowveld	Prairie	275/132	2	240	480	0	0	0	9	479	1550	
Lowveld	Simplon	275/132	2	250	500	0	0	0	40	530	1000	

Mpumalanga – Witbank CLN



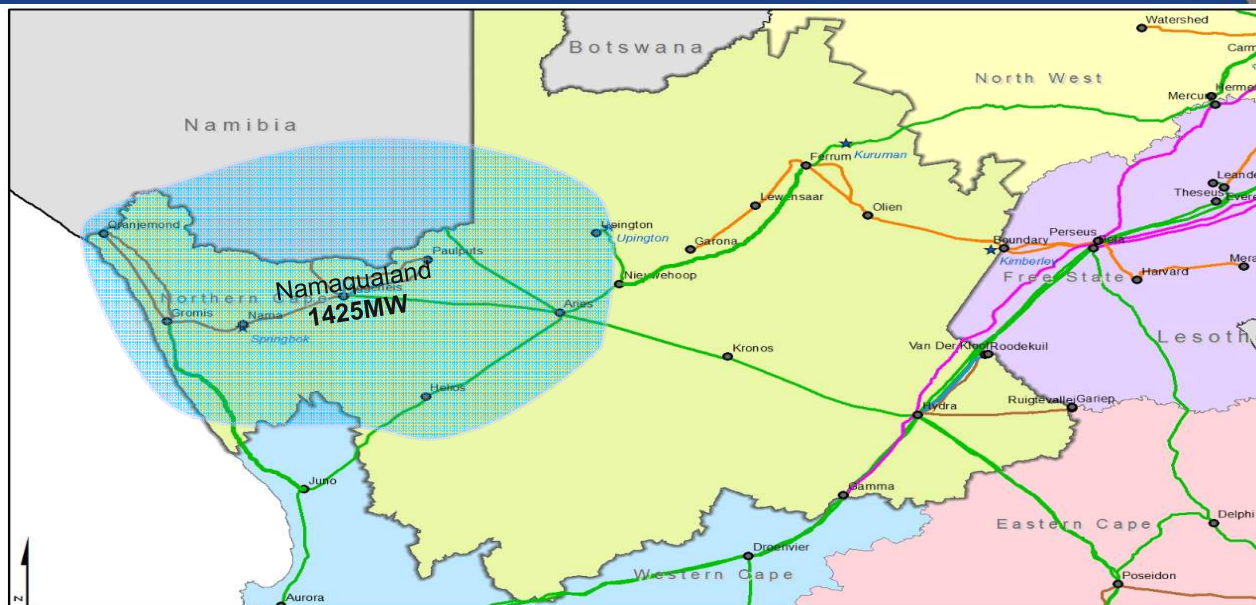
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Witbank	Vulcan	400/132	2	500	1500	0	0	0	125	980	4400	2350
Witbank	Kruispunt	275/132	4	250	1000	0	0	0	137	980	1150	

Northern Cape – Karoo CLN



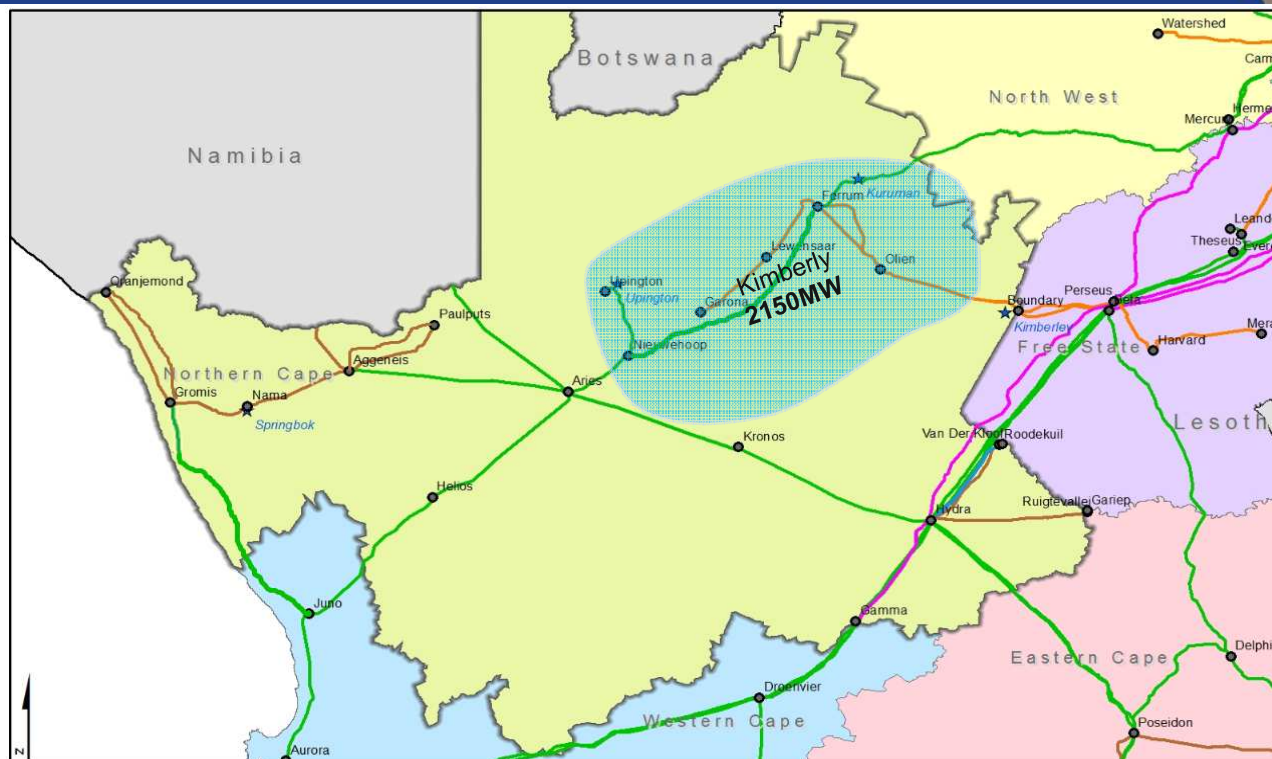
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Karoo	Hydra	400/220	2	315	630	0	0	0	0	617	700	1550
Karoo	Hydra	400/132	2	240	480	318	387	705	45	275	700	
Karoo	Hydra	400/132	1	500	500						700	
Karoo	Hydra B	400/132	1	500	500	0	0	0	0	0	0	
Karoo	Kronos	400/132	2	250	500	224.9	238	463	0	27	1700	
Karoo	Roodekuil	220/132	1	125	125	0	0	0	11	0	0	
Karoo	Ruigtevallei	132/66	3	20	60	0	0	0	25	84	0	
Karoo	Ruigtevallei	220/132	1	250	250	69.9	0	70	25	200	0	

Northern Cape – Namaqualand CLN



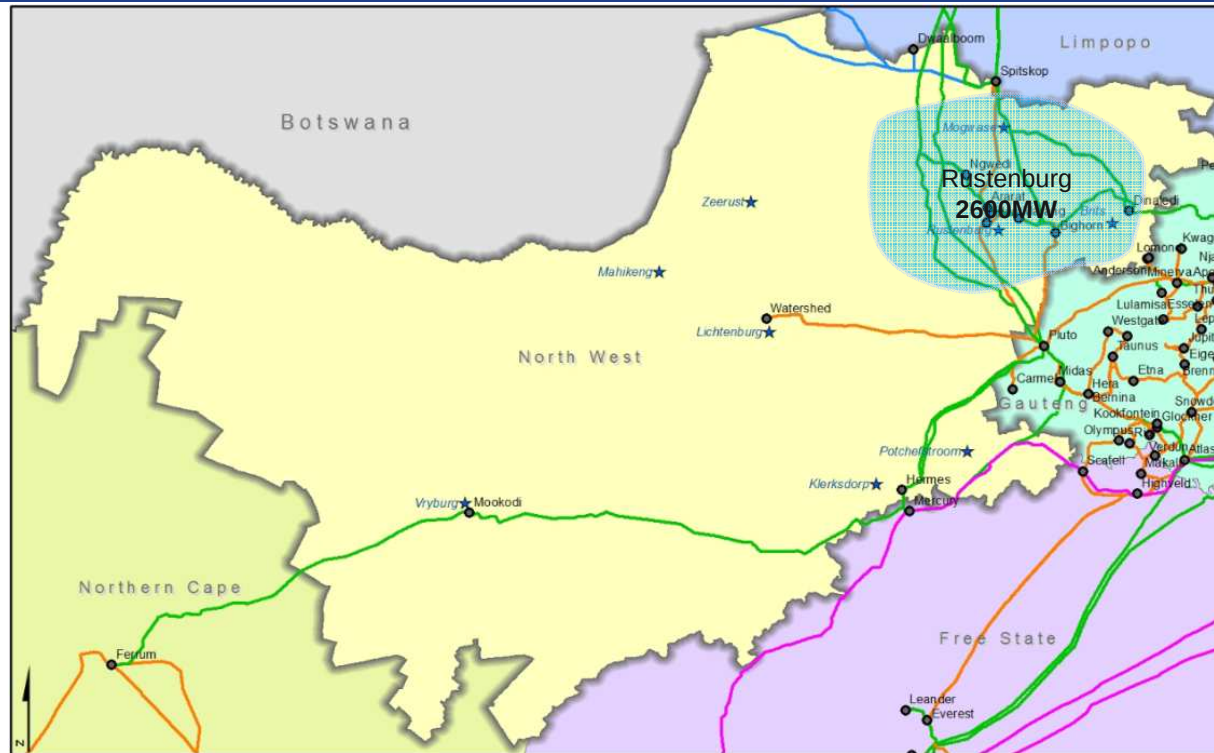
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Namaqualand	Aggeneis	220/66	2	40	80	40	0	40	23	61	600	1425
Namaqualand	Aggeneis	400/220	2	315	630	0	137	137	23	504	550	
Namaqualand	Aries	400/22	1	45	45	0	0	0	0	44	1425	
Namaqualand	Gromis	220/66	2	40	80	0	0	0	1	79	400	
Namaqualand	Gromis	400/220	1	315	315	0	0	0	1	310	700	
Namaqualand	Nama	220/66	2	80	160	0	0	0	5	162	175	
Namaqualand	Oranjemond	220/66	2	80	160	0	0	0	8	165	700	
Namaqualand	Paulputs	132/22	1	10	10	0	0	0	3	13	13	
Namaqualand	Paulputs	220/132	1	125	375	285	0	285	3	86	425	
Namaqualand	Helios	22/66	1	10	10	0	0	0	0	10	10	
Namaqualand	Helios	132/66	1	20	20	0	0	0	0	20	20	
Namaqualand	Helios	400/22	1	45	45	0	0	0	13	57	700	
Namaqualand	Helios	400/132	3	500	1500	75	276	351	0	629	700	

Northern Cape – Kimberley CLN



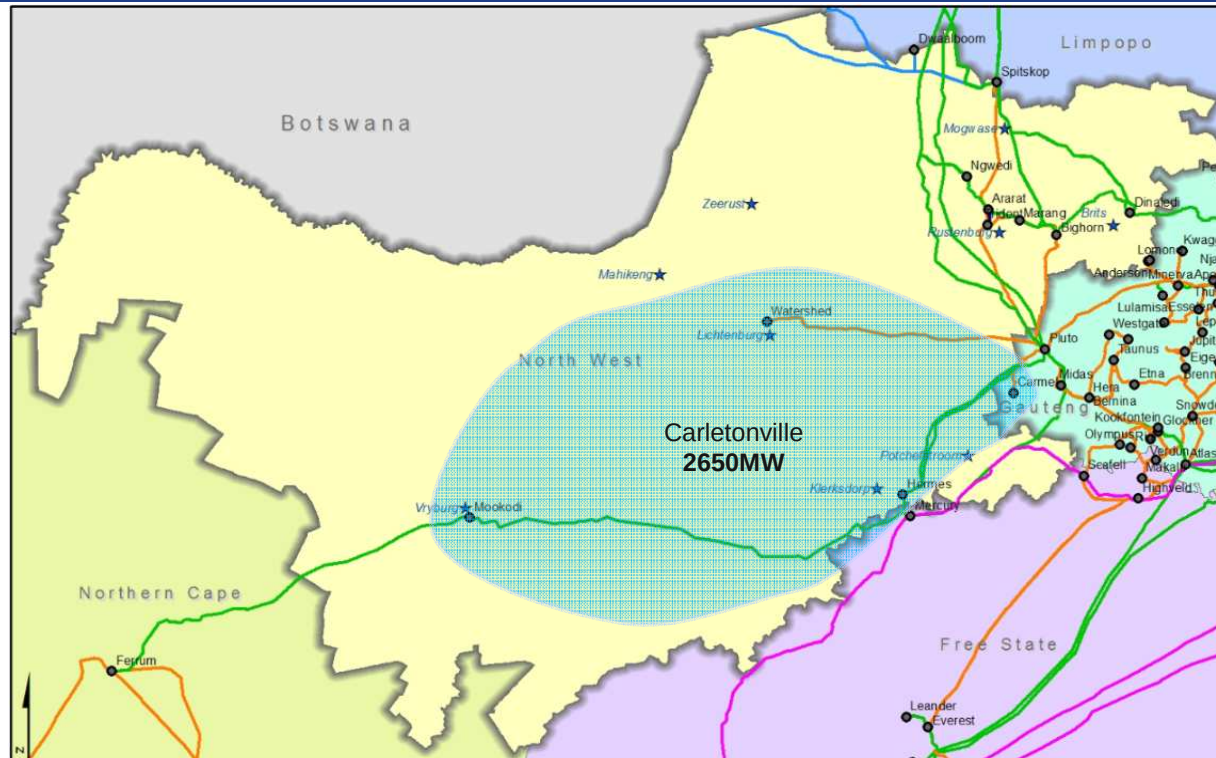
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Kimberly	Upington	400/132	2	500	1000	383.9	0	384	0	596	900	2150
Kimberly	Ferrum	132/66	3	80	240	0	0	0	24	259	259	
Kimberly	Ferrum	275/132	2	250	500	224	0	224	0	266	1450	
Kimberly	Ferrum	400/132	2	500	1000	100	0	100	15	895	1775	
Kimberly	Garona	275/132	1	125	125	50	0	50	5	78	1250	
Kimberly	Nieuwehoop	400/132	1	500	500	0	0	0	0	490	1000	
Kimberly	Olien	275/132	2	150	300	239	0	239	53	108	1350	

North West – Rustenburg CLN



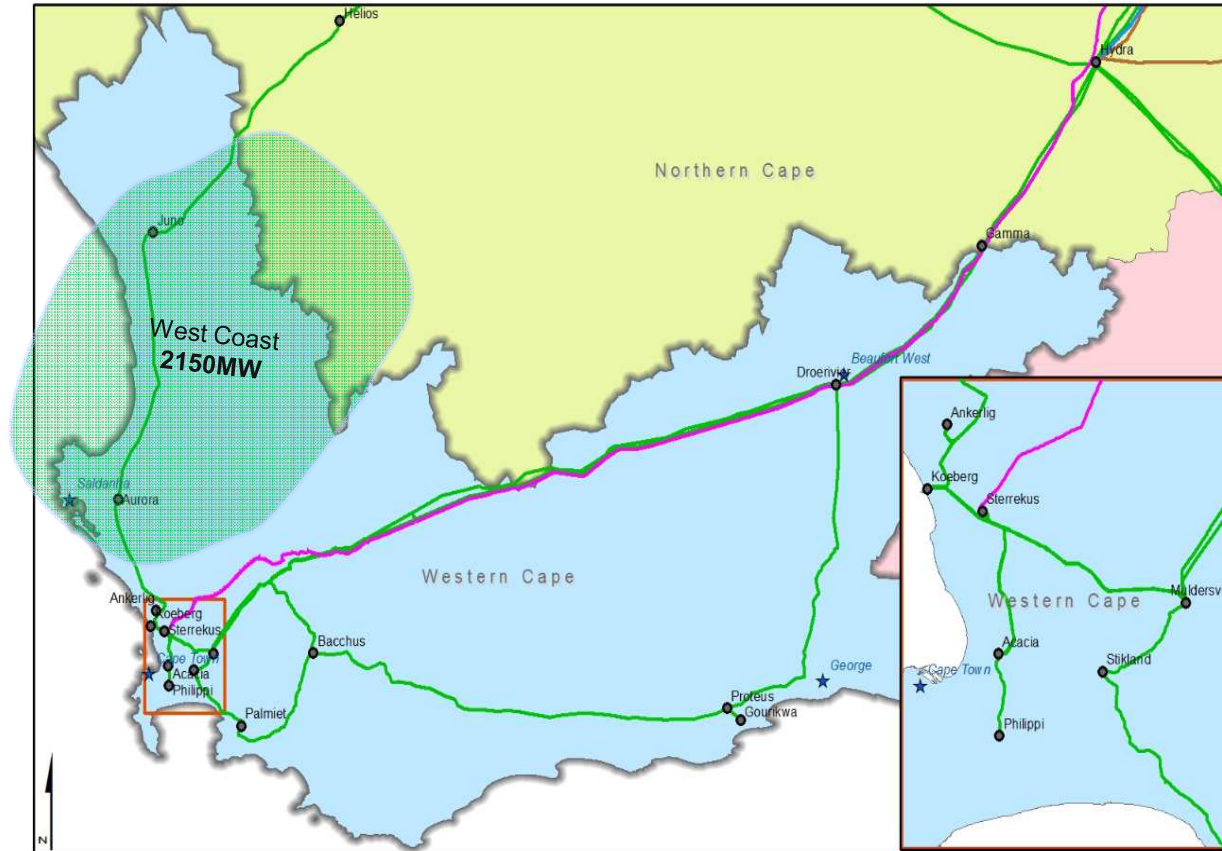
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Rustenburg	Ararat	275/88	3	315	945	0	0	0	95	980	850	2600
Rustenburg	Bighorn	275/88	3	315	945	0	0	0	210	980	2300	
Rustenburg	Bighorn	400/275	2	800	1600	0	0	0	0	980	4200	
Rustenburg	Dinaledi	400/132	3	500	1500	0	0	0	142	980	4050	
Rustenburg	Marang	400/88	4	315	1260	0	0	0	88	980	2700	
Rustenburg	Ngwedi (Mogwase)	400/132	2	500	1000	0	0	0	87	980	3300	
Rustenburg	Trident	275/88	2	315	630	0	0	0	153	770	1550	

North West – Carletonville CLN



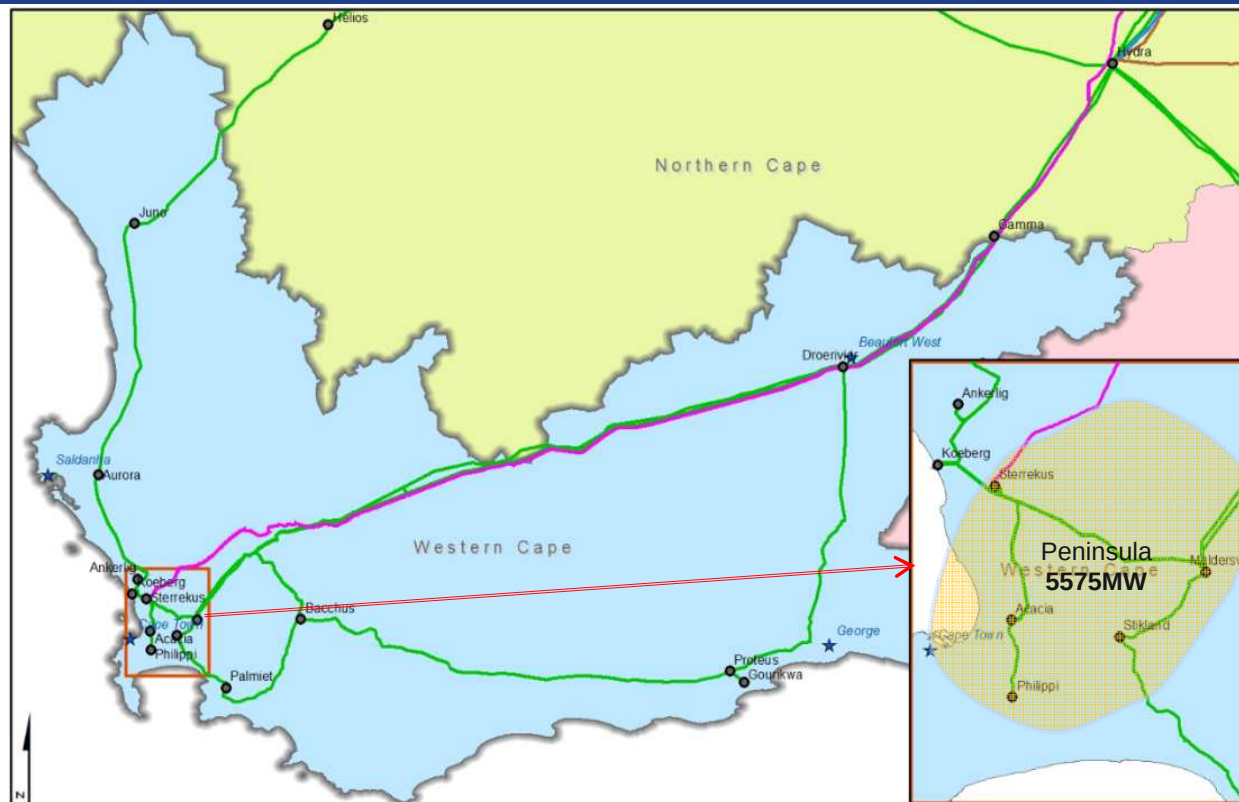
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Carletonville	Carmel	275/132	2	500	1000	0	0	0	60	980	1000	2650
Carletonville	Hermes	132/88	3	180	540	0	0	0	0	529	529	
Carletonville	Hermes	400/132	3	500	1500	0	0	0	67	980	2400	
Carletonville	Midas	400/132	2	500	1000	0	0	0	162	980	2550	
Carletonville	Mookodi	400/132	2	500	1000	75	0	75	90	905	1525	
Carletonville	Watershed	275/132	1	250	250	75	0	75	82	252	850	
Carletonville	Watershed	132/88	2	180	360	0	0	0	14	367	367	
Carletonville	Watershed	275/88	2	315	630	0	0	0	0	617	0	

Western Cape – West Coast CLN



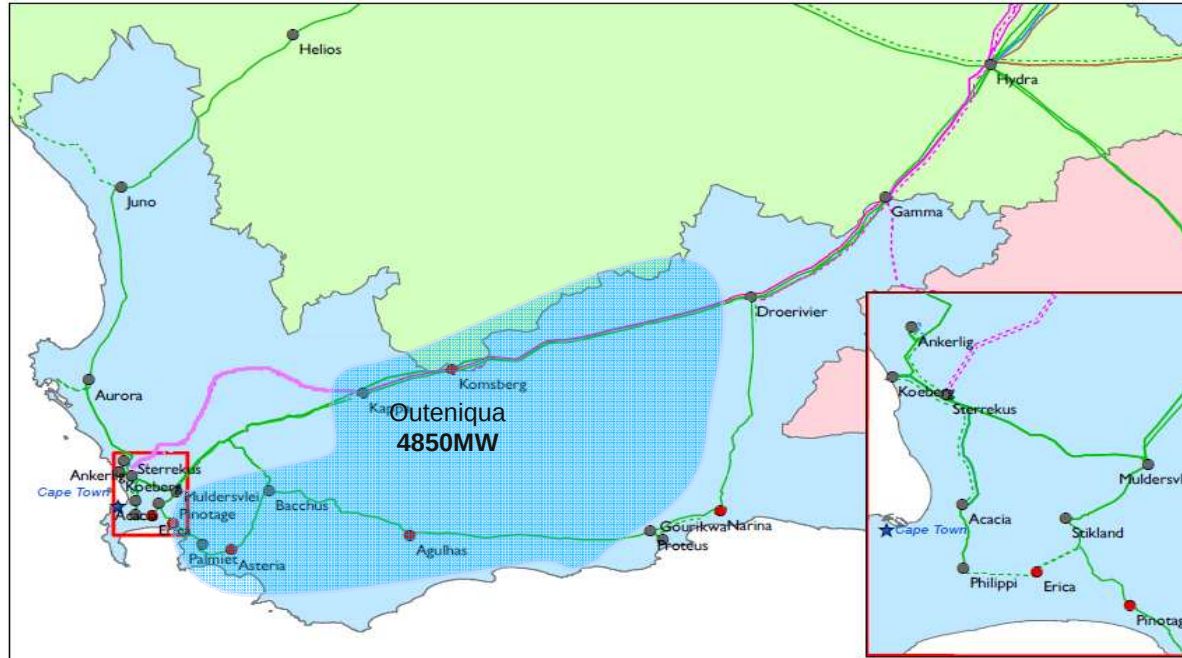
Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
West Coast	Aurora	400/132	2	500	1000	89	161	250	0	720	1650	2150
West Coast	Juno6	132/66	2	80	160	0	0	0	2	159	159	
West Coast	Juno1	400/132	2	500	1000	0	0	0	1	980	2100	

Western Cape – Peninsula CLN



Supply Area	Substation	Transformer Voltages	2022 No. of Tranformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Peninsula	Acacia	132/66	2	120	240	0	0	0	0	235	235	5575
Peninsula	Acacia	400/132	3	500	1500	0	0	0	210	980	3700	
Peninsula	Muldersvlei	132/66	2	80	160	0	0	0	0	157	4750	
Peninsula	Muldersvlei	400/132	3	500	1500	0	138	138	170	842	4750	
Peninsula	Philippi	400/132	2	500	1000	0	0	0	215	980	1950	
Peninsula	Pinotage	400/132	2	500	1000	0	0	0	108	980	1500	
Peninsula	Stikland	400/132	3	500	1500	0	0	0	210	980	3100	

Western Cape – Outeniqua CLN



Supply Area	Substation	Transformer Voltages	2022 No. of Transformers	2022 Transformer Size (MVA)	2022 Installed Transformer (MVA)	Solar REIPPP Gen Allocated (MW)	Wind REIPPP Gen Allocated (MW)	Total IPPs connected	Light load	Transformer MV Limit	Substation HV Limit	Customer Load Network (CLN) Limit
Outeniqua	Asteria	400/132	2	500	1000	0	0	0	51	980	1650	4850
Outeniqua	Bacchus	400/132	2	500	1000	36	58	94	58	886	3300	
Outeniqua	Droerivier	400/132	2	120	240	0	0	0	19	254	4875	
Outeniqua	Proteus	132/66	2	80	160	0	0	0	45	202	160	
Outeniqua	Proteus	400/132	2	500	1000	0	0	0	105	980	1200	
Outeniqua	Komsberg	400/132	1	500	500	0	419	419	0	71	1300	

Conclusion



- The GCCA 2022 assessed the available generation capacity for the Transmission Network in 2022
- These are indicative results to provide the public a high level view of the Transmission network
- It assumes that all projects planned to be commissioned in 2022 will be commissioned
- Aim of the GCCA
 - ✓ To provide the public with the available generation connection capacity at each transmission substation country wide
 - ✓ Assist developers in selecting a suitable location to built their generation plant close to substations with capacity
 - ✓ Developers may start planning without having to go to Eskom to find out about capacities
- It should however be noted that the developer still needs to apply to Eskom for connection at which point a detailed assessment would be conducted for that specific project
- The advantage is that they (developer) would have been informed of substations with available capacity