Weekly System Status Report – 2023 Week 30 (24/07/2023 – 30/07/2023)

Introduction

This document is intended to provide a general picture of the Adequacy of the National Electricity Supply System in the medium term. The Report will be updated weekly, on Tuesdays and circulated Wednesdays, thereafter, published on the Eskom website, updated on Wednesdays. The values contained in this report are unverified and not official yet and can change at any time.

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Historic Daily Peak System Capacity/Demand

Date	Available Dispatchable Generation (MW)	Non-commercial Generation (MW)	Residual Load Forecast (MW)	Actual Residual Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (Residual Demand)
Mon 24/Jul/2023	29,540	0	31,435	31,629	-6.6%	-6.6%	-0.6%
Tue 25/Jul/2023	31,099	0	31,233	31,371	-0.9%	-0.9%	-0.4%
Wed 26/Jul/2023	29,271	0	30,592	31,308	-6.5%	-6.5%	-2.3%
Thu 27/Jul/2023	28,701	0	31,567	31,554	-9.0%	-9.0%	0.0%
Fri 28/Jul/2023	28,295	0	27,967	28,181	0.4%	0.4%	-0.8%
Sat 29/Jul/2023	28,338	0	27,567	27,088	4.6%	4.6%	1.8%
Sun 30/Jul/2023	29,883	0	29,409	29,188	2.4%	2.4%	0.8%

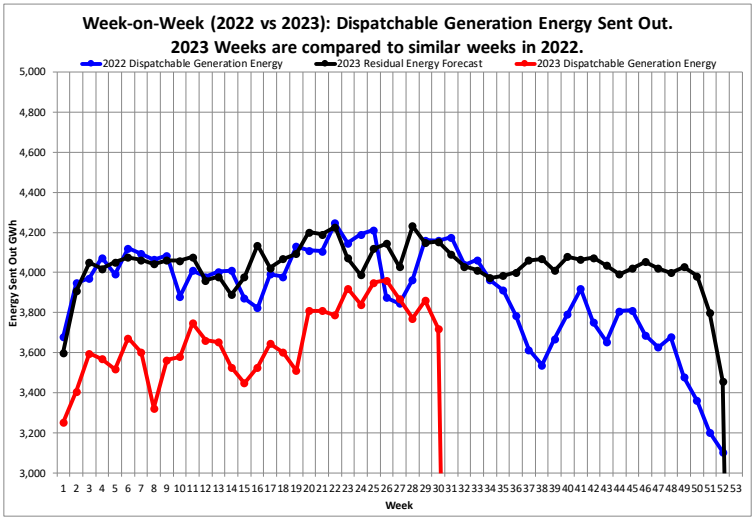
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 24/Jul/2023	30,393	0	32,397	32,483	-6.4%	-6.4%	-0.3%
Tue 25/Jul/2023	32,295	0	32,203	32,568	-0.8%	-0.8%	-1.1%
Wed 26/Jul/2023	30,343	0	31,820	32,381	-6.3%	-6.3%	-1.7%
Thu 27/Jul/2023	29,509	0	32,085	32,362	-8.8%	-8.8%	-0.9%
Fri 28/Jul/2023	30,164	0	30,027	30,050	0.4%	0.4%	-0.1%
Sat 29/Jul/2023	31,673	0	30,130	29,605	7.0%	7.0%	1.8%
Sun 30/Jul/2023	32,610	0	32,072	31,915	2.2%	2.2%	0.5%

Notes:

1. Available Dispatchable Generation means **all generation resources** that can be dispatched by Eskom and includes capacity available from all emergency generation resources.
2. RSA Contracted Load Forecast is the total official day-ahead hourly forecast. Residual Load Forecast excludes the expected generation from renewables.
3. Actual Residual Demand is the aggregated metered hourly sent-out generation and imports from dispatchable resources and includes demand reductions. The Actual RSA Contracted Demand includes renewable generation.
4. Net Maximum Dispatchable Capacity (including imports and emergency generation resources) = 49 191 MW.
5. These figures do not include any demand side products.
6. The peak hours for the residual demand can differ from that of the RSA contracted demand, depending on renewable generation.

Week-on-Week Dispatchable Generation Energy Sent Out

[2023 weeks compared to similar 2022 weeks]



Week 30 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,719	GWh
Week-on-Week Growth	-10.58	%
Year-on-Year Growth (Year-to-Date) Annual	-9.14	%

Note:

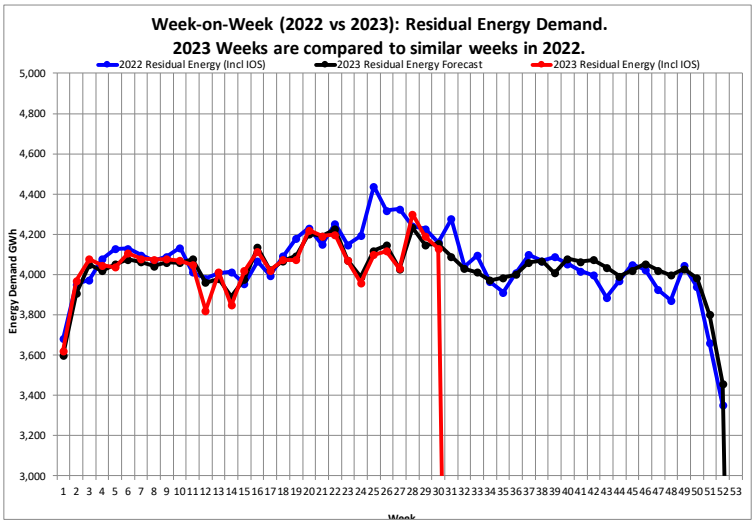
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Dispatchable Generation Energy Sent Out Statistics			
Year	**01 Jan to 30 Jul Energy**	**Annual Energy (01 Jan to 31 Dec)**	**Unit**
2018	130,629	224,202	GWh
2019	128,482	219,575	GWh
2020	118,898	206,725	GWh
2021	123,251	210,022	GWh
2022	121,100	202,847	GWh
2023 (YTD)	110,126		GWh

Week-on-Week Residual Energy Demand

[2023 weeks compared to similar 2022 weeks]



Week 30 : Residual Energy Demand Statistics		
Energy Demand	4,131	GWh
Week-on-Week Growth	-0.74	%
Year-on-Year Growth (Year-to-Date) Annual	-1.32	%

Note:

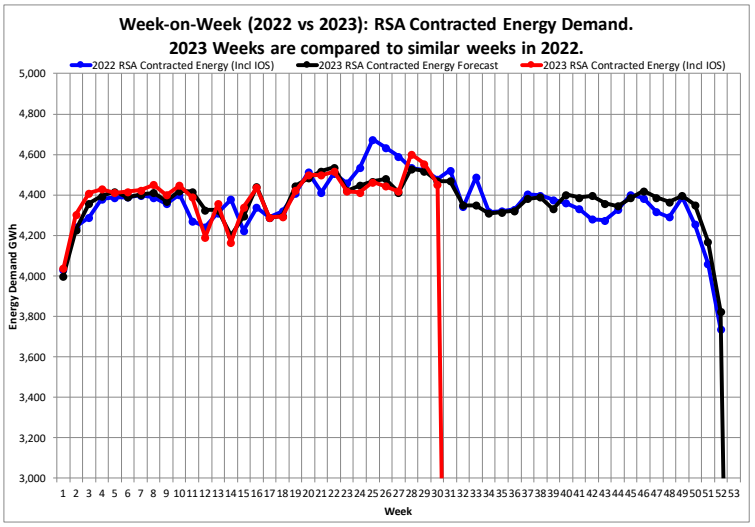
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Residual Energy Demand Statistics			
Year	**01 Jan to 30 Jul Energy**	**Annual Energy (01 Jan to 31 Dec)**	**Unit**
2018	130,729	224,594	GWh
2019	129,193	220,937	GWh
2020	119,899	208,151	GWh
2021	124,335	211,958	GWh
2022	123,704	211,134	GWh
2023 (YTD)	122,168		GWh

Week-on-Week RSA Contracted Energy Demand

[2023 weeks compared to similar 2022 weeks]



Week 30 : RSA Contracted Energy Demand Statistics		
Energy Demand	4,454	GWh
Week-on-Week Growth	-0.55	%
Year-on-Year Growth (Year-to-Date) Annual	-0.01	%

Note:

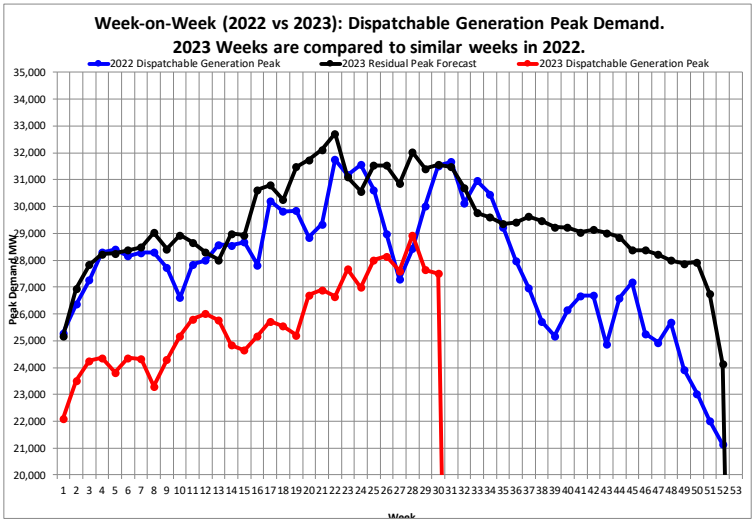
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Energy Demand Statistics			
Year	**01 Jan to 30 Jul Energy**	**Annual Energy (01 Jan to 31 Dec)**	**Unit**
2018	136,719	235,482	GWh
2019	135,648	232,524	GWh
2020	126,348	220,630	GWh
2021	132,417	227,166	GWh
2022	132,346	227,337	GWh
2023 (YTD)	132,414		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 30 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	27,509	MW
Week-on-Week Growth	-12.72	%
Year-on-Year Growth (Year-to-Date) Annual	-8.88	%

Note:

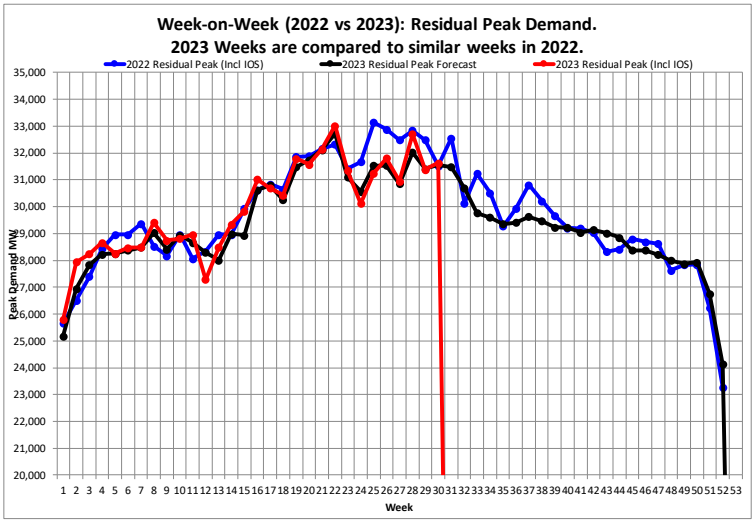
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Dispatchable Generation Peak Demand Statistics			
Year	**Peak Date**	**Annual Peak**	**Unit**
2018	Mon 16-Jul-2018	34,256	MW
2019	Thu 30-May-2019	33,066	MW
2020	Wed 17-Jun-2020	32,384	MW
2021	Thu 15-Jul-2021	32,292	MW
2022	Thu 02-Jun-2022	31,756	MW
2023 (YTD)	Mon 10-Jul-2023	28,937	MW

Week-on-Week Residual Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 30 : Residual Peak Demand Statistics		
Peak Demand	31,629	MW
Week-on-Week Growth	0.35	%
Year-on-Year Growth (Year-to-Date) Annual	-0.36	%

Note:

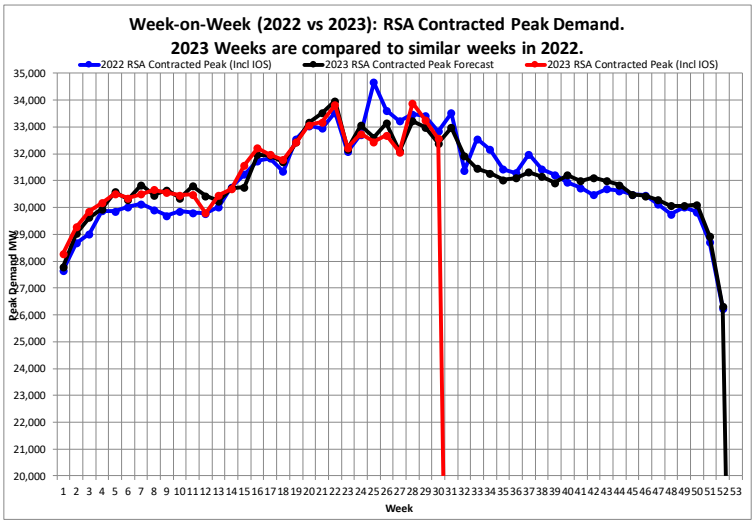
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Residual Peak Demand Statistics			
Year	**Peak Date**	**Annual Peak**	**Unit**
2018	Tue 29-May-2018	34,907	MW
2019	Thu 30-May-2019	33,746	MW
2020	Wed 15-Jul-2020	32,756	MW
2021	Tue 08-Jun-2021	34,029	MW
2022	Thu 23-Jun-2022	33,136	MW
2023 (YTD)	Tue 30-May-2023	33,016	MW

Week-on-Week RSA Contracted Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 30 : RSA Contracted Peak Demand Statistics		
Peak Demand	32,568	MW
Week-on-Week Growth	-0.82	%
Year-on-Year Growth (Year-to-Date) Annual	-2.25	%

Note:

2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Peak Demand Statistics			
Year	**Peak Date**	**Annual Peak**	**Unit**
2018	Tue 29-May-2018	35,345	MW
2019	Thu 30-May-2019	34,510	MW
2020	Tue 01-Sep-2020	34,155	MW
2021	Thu 22-Jul-2021	35,005	MW
2022	Thu 23-Jun-2022	34,666	MW
2023 (YTD)	Mon 10-Jul-2023	33,886	MW

Weekly Generation Availability

	Week														Annual (Jan - Dec)	
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	2023	2022
Energy Availability Factor (Eskom EAF)	52.80	52.17	51.94	55.82	54.84	57.58	59.14	57.29	57.91	58.20	57.80	56.29	57.45	57.61	**54.29**	**58.00**
Planned Outage Factor	10.46	8.47	8.50	7.79	7.11	5.16	5.95	9.58	8.01	8.12	9.39	6.80	6.04	7.45	**10.07**	**10.62**
Unplanned Outage Factor	35.97	38.24	38.70	35.56	37.01	36.18	33.85	32.03	32.84	32.83	32.26	36.46	35.61	33.83	**34.29**	**29.86**
Other Outage Factor	0.77	1.12	0.86	0.83	1.04	1.08	1.06	1.10	1.24	0.85	0.55	0.45	0.90	1.11	**1.35**	**1.52**

EAF: Ratio of the available energy generation over a given time period to the maximum amount of energy which could be produced over the same time period.

Outage Factors: Ratio of energy losses over a given time period to the maximum amount of energy which could be produced over the same time period.

YTD: Year-to-Date (01 January of current year to current week)

52 Week Outlook

This is the forecast demand vs. available generating capacity for each week for 52 weeks ahead. Colour codes ranging from Green (no shortage) to Red (worst case) are used to indicate the absence or presence of a capacity constraint.

Week Start	Week	MW RSA Contracted Forecast	MW Residual Forecast	MW Available Dispatchable Capacity	MW Available Capacity (Less OR and UA)	MW Planned Maintenance	MW Unplanned Outage Assumption (UA)	MW Planned Risk Level (-17200 MW)	MW Likely Risk Senario (-19200 MW)
31-Jul-23	31	32978	31485	47074	29874	2117	15000		
07-Aug-23	32	31923	30688	45189	27989	4002	15000		
14-Aug-23	33	31458	29765	45221	28021	3970	15000		
21-Aug-23	34	31278	29599	44849	27649	4342	15000		
28-Aug-23	35	31036	29357	45277	28077	3914	15000		
04-Sep-23	36	31093	29406	44965	27765	4226	15000		
11-Sep-23	37	31320	29633	44588	27388	4603	15000		
18-Sep-23	38	31158	29471	45022	27822	4169	15000		
25-Sep-23	39	30928	29241	44083	26883	5108	15000		
02-Oct-23	40	31203	29226	44058	26858	5133	15000		
09-Oct-23	41	30997	29039	44256	27056	4935	15000		
16-Oct-23	42	31119	29142	44527	27327	4664	15000		
23-Oct-23	43	30991	29015	45264	28064	3927	15000		
30-Oct-23	44	30837	28860	44139	26939	5052	15000		
06-Nov-23	45	30480	28381	45070	27870	4121	15000		
13-Nov-23	46	30439	28371	44140	26940	5051	15000		
20-Nov-23	47	30288	28220	43774	26574	5417	15000		
27-Nov-23	48	30059	27991	42837	25637	6354	15000		
04-Dec-23	49	30063	27880	43412	28212	5779	13000		
11-Dec-23	50	30109	27927	43017	27817	6174	13000		
18-Dec-23	51	28935	26752	42668	27468	6523	13000		
25-Dec-23	52	26312	24130	39608	24408	9583	13000		
01-Jan-24	1	27780	25636	39958	24758	9233	13000		
08-Jan-24	2	29422	27278	42005	26805	7186	13000		
15-Jan-24	3	29883	27739	42580	27380	6611	13000		
22-Jan-24	4	30203	28059	42580	27380	6611	13000		
29-Jan-24	5	30358	28214	42580	27380	6611	13000		
05-Feb-24	6	30700	28610	43425	28225	5766	13000		
12-Feb-24	7	30793	28704	43425	28225	5766	13000		
19-Feb-24	8	30724	28635	43030	27830	6161	13000		
26-Feb-24	9	30567	28477	43030	27830	6161	13000		
04-Mar-24	10	30918	28958	43693	28493	5498	13000		
11-Mar-24	11	30966	29006	43516	28316	5675	13000		
18-Mar-24	12	30790	28807	43758	28558	5433	13000		
25-Mar-24	13	30764	28719	43342	28142	5849	13000		
01-Apr-24	14	31151	29620	44797	29597	4394	13000		
08-Apr-24	15	31666	30135	44327	29127	4864	13000		
15-Apr-24	16	32015	30483	45283	30083	3908	13000		
22-Apr-24	17	32400	30869	45108	29908	4083	13000		
29-Apr-24	18	32215	30877	45723	30523	3468	13000		
06-May-24	19	33020	31695	46316	31116	2875	13000		
13-May-24	20	33663	32338	46491	31291	2700	13000		
20-May-24	21	33932	32607	47211	32011	1980	13000		
27-May-24	22	34457	33131	47179	31979	2012	13000		
03-Jun-24	23	34299	32501	47179	31979	2012	13000		
10-Jun-24	24	34408	32610	47179	31979	2012	13000		
17-Jun-24	25	34302	32504	47754	32554	1437	13000		
24-Jun-24	26	34515	32717	47754	32554	1437	13000		
01-Jul-24	27	33837	32299	47414	32214	1777	13000		
08-Jul-24	28	34180	32642	46694	31494	2497	13000		
15-Jul-24	29	33951	32413	47134	31934	2057	13000		
22-Jul-24	30	34260	32722	47140	31940	2051	13000		
29-Jul-24	31	33506	31968	46555	31355	2636	13000		
05-Aug-24	32	33141	31447	45330	30130	3861	13000		

Notes - Assumptions critical:
The maintenance plan included in these assumptions includes a base scenario of outages (planned risk level). As there is opportunity for further outages, these will be included. This "likely risk scenario" includes an additional 1500 MW of outages on the base plan.
The expected imports at Apollo is included.
Avon and Dedisa is also included.
The forecast used is the latest operational weekly residual peak forecast, which excludes the expected renewable generation.
Operating Reserve (OR) from Generation: 2 200 MW
Unplanned Outage Assumption (UA): 15 000 MW until end November 2023 then 13000 MW onward
Reserves: OR + UA = 17 200 MW
Eskom Installed Capacity: 48 186 MW.
Installed Dispatchable Capacity: 49 191 MW (Incl. Avon and Dedisa).
Key:

Risk Level	Description
Green	Adequate Generation to meet Demand and Reserves.
Yellow	< 1 000MW Possibly short to meet Reserves
Orange	1 001MW – 2 000MW Definitively short to meet Reserves and possibly Demand
Red	> 2 001MW Short to meet Demand and Reserves

Medium Term Peak Demand/Capacity Forecast

Please go to the link below for the Medium-term System Adequacy Outlook - 2023 to 2027. (Published 30 October 2022).

https://www.eskom.co.za/wp-content/uploads/2022/10/Medium-Term-System-Adequacy-Outlook-2023-2027.pdf

or Download the medium-term system adequacy outlook 2023 – 2027 from

https://www.eskom.co.za/eskom-divisions/tx/system-adequacy-reports/

Renewable Energy Statistics

Note: Times are expressed as hour beginning

Current Installed Capacity (MW)	
CSP	500.0
PV	2,287.1
Wind (Eskom+IPP)	3,442.6
Total (Incl other REs)	6,280.2
Estimated Rooftop PV	4,411.5

Maximum Contribution (MW) - based on System Operator data (subject to metering verification)					
Cal Year	Indicator	CSP	PV	Wind (Eskom+IPP)	Total (Incl other REs)
All Time	Maximum	506.2	2,099.5	3,095.9	5,126.1
	Max Date	15-Mar-2022 15:00	24-Oct-2021 12:00	08-Jul-2023 14:00	05-Sep-2022 12:00
2016	Maximum	200.9	1,350.5	1,229.8	2,576.3
	Max Date	11-Aug-2016 14:00	16-Dec-2016 12:00	23-Dec-2016 13:00	23-Dec-2016 13:00
2017	Maximum	302.0	1,432.5	1,708.2	3,142.7
	Max Date	07-Nov-2017 10:00	27-Oct-2017 12:00	25-Dec-2017 18:00	13-Dec-2017 13:00
2018	Maximum	399.7	1,392.1	1,902.3	3,298.9
	Max Date	04-Dec-2018 16:00	03-Oct-2018 12:00	02-Oct-2018 16:00	28-Sep-2018 11:00
2019	Maximum	502.1	1,375.6	1,872.0	3,530.6
	Max Date	24-Sep-2019 11:00	19-Jan-2019 12:00	14-Dec-2019 15:00	27-Oct-2019 13:00
2020	Maximum	504.5	1,929.2	2,113.9	4,050.0
	Max Date	25-Nov-2020 12:00	25-Nov-2020 12:00	01-Dec-2020 19:00	24-Nov-2020 13:00
2021	Maximum	504.9	2,099.5	2,639.3	4,784.7
	Max Date	30-Nov-2021 16:00	24-Oct-2021 12:00	15-Dec-2021 17:00	01-Nov-2021 13:00
2022	Maximum	506.2	2,048.8	3,028.1	5,126.1
	Max Date	15-Mar-2022 15:00	20-Nov-2022 11:00	02-Dec-2022 16:00	05-Sep-2022 12:00
2023	Maximum	505.8	2,044.1	3,095.9	4,877.8
	Max Date	21-Feb-2023 13:00	21-Feb-2023 12:00	08-Jul-2023 14:00	20-Feb-2023 15:00

Annual Energy Contribution (MWh) - based on System Operator data (subject to metering verification)					
Cal Year	Indicator	CSP	PV	Wind (Eskom+IPP)	Total (Incl other REs)
All Time Maximum	Annual Energy	1,656,017	5,069,146	9,692,373	16,202,974
2016	Total Energy	529,522	2,630,141	3,730,771	6,951,261
2017	Total Energy	687,703	3,324,857	5,081,023	9,198,632
2018	Total Energy	1,031,288	3,282,124	6,467,095	10,887,902
2019	Total Energy	1,557,151	3,324,989	6,624,642	11,586,945
2020	Total Energy	1,626,049	4,140,212	6,625,830	12,478,704
2021	Total Energy	1,656,017	5,069,146	8,359,224	15,208,327
2022	Total Energy	1,448,276	4,844,736	9,692,373	16,202,974
2023	Total Energy	790,204	2,844,205	6,723,540	10,535,202

Maximum Difference between Consecutive Evening Peaks (MW) - based on System Operator data (subject to metering verification)		
Cal Year	Indicator	Total (Incl other REs)
All Time	Maximum	2,149
	Max Date	20-Apr-2023 to 21-Apr-2023
2016	Maximum	828
	Max Date	30-Aug-2016 to 31-Aug-2016
2017	Maximum	1,038
	Max Date	19-Jun-2017 to 20-Jun-2017
2018	Maximum	1,336
	Max Date	01-Sep-2018 to 02-Sep-2018
2019	Maximum	1,464
	Max Date	05-Jul-2019 to 06-Jul-2019
2020	Maximum	1,488
	Max Date	31-Aug-2020 to 01-Sep-2020
2021	Maximum	1,744
	Max Date	07-Aug-2021 to 08-Aug-2021
2022	Maximum	1,523
	Max Date	07-Aug-2022 to 08-Aug-2022
2023	Maximum	2,149
	Max Date	20-Apr-2023 to 21-Apr-2023

Maximum proportion that Renewables contributed towards actual hourly energy supplied (%) - based on System Operator data (subject to metering verification)		
Cal Year	Indicator	Total (Incl other REs)
All Time	Maximum	21.8%
	Max Date	20-Feb-2023 15:00
2016	Maximum	9.8%
	Max Date	23-Dec-2016 13:00
2017	Maximum	12.7%
	Max Date	25-Dec-2017 15:00
2018	Maximum	13.1%
	Max Date	01-Jan-2018 14:00
2019	Maximum	13.9%
	Max Date	14-Dec-2019 14:00
2020	Maximum	16.1%
	Max Date	27-Dec-2020 15:00
2021	Maximum	19.1%
	Max Date	01-Nov-2021 13:00
2022	Maximum	19.3%
	Max Date	05-Sep-2022 12:00
2023	Maximum	21.8%
	Max Date	20-Feb-2023 15:00