

Weekly System Status Report – 2023 Week 42 (16/10/2023 – 22/10/2023)

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 16/Oct/2023	30,140	0	28,182	27,459	9.8%	9.8%	2.6%
Tue 17/Oct/2023	30,302	0	28,216	28,967	4.6%	4.6%	-2.6%
Wed 18/Oct/2023	30,714	0	28,252	27,585	11.3%	11.3%	2.4%
Thu 19/Oct/2023	30,842	0	28,278	27,751	11.1%	11.1%	1.9%
Fri 20/Oct/2023	31,104	0	26,468	25,869	20.2%	20.2%	2.3%
Sat 21/Oct/2023	29,065	0	24,469	23,557	23.4%	23.4%	3.9%
Sun 22/Oct/2023	29,894	0	25,054	25,118	19.0%	19.0%	-0.3%

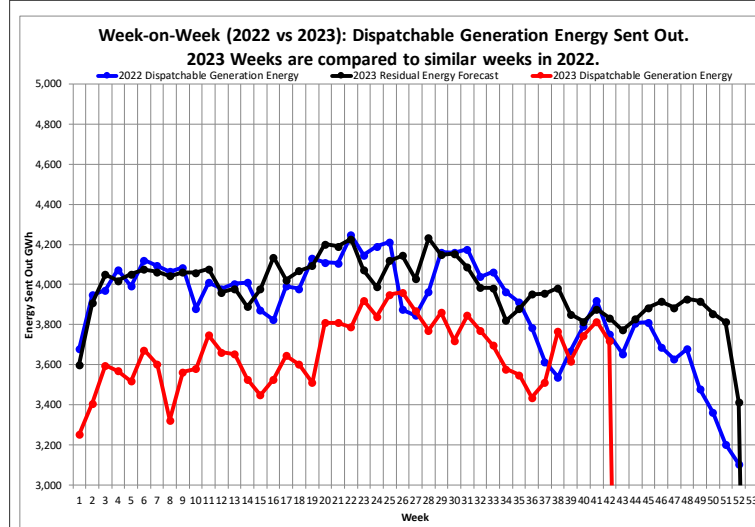
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 16/Oct/2023	32,920	0	30,898	30,239	8.9%	8.9%	2.2%
Tue 17/Oct/2023	31,597	0	30,268	30,262	4.4%	4.4%	0.0%
Wed 18/Oct/2023	32,430	0	29,707	29,301	10.7%	10.7%	1.4%
Thu 19/Oct/2023	32,938	0	30,148	29,848	10.4%	10.4%	1.0%
Fri 20/Oct/2023	33,467	0	28,762	27,802	20.4%	20.4%	3.5%
Sat 21/Oct/2023	32,044	0	27,229	26,535	20.8%	20.8%	2.6%
Sun 22/Oct/2023	32,229	0	27,225	27,453	17.4%	17.4%	-0.8%

Notes:

- Available Dispatchable Generation means **all generation resources** that can be dispatched by Eskom and includes capacity available from all emergency generation resources.
- RSA Contracted Load Forecast is the total official day-ahead hourly forecast. Residual Load Forecast excludes the expected generation from renewables.
- 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.
- Net Maximum Dispatchable Capacity (including imports and emergency generation resources) = 49 191 MW.
- These figures do not include any demand side products.
- 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 42 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,719	GWh
Week-on-Week Growth	-0.86	%
Year-on-Year Growth (Year-to-Date) Annual	-7.91	%

Note:

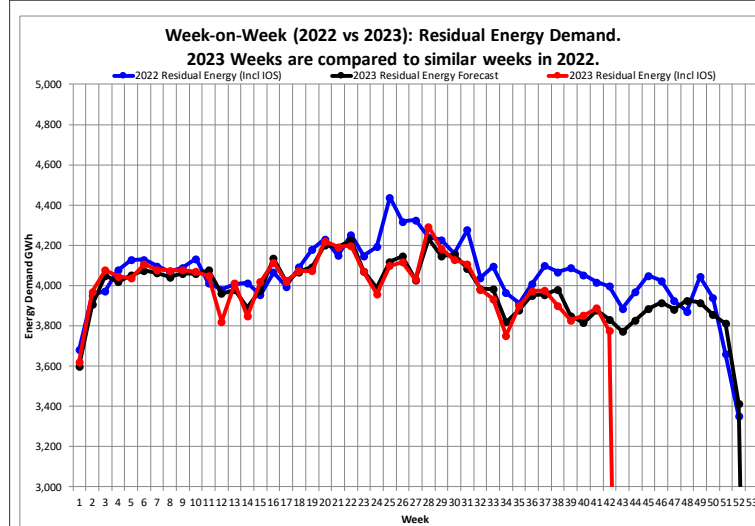
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Dispatchable Generation Energy Sent Out Statistics			
Year	01 Jan to 22 Oct Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	182,393	224,202	GWh
2019	178,960	219,575	GWh
2020	167,635	206,725	GWh
2021	171,817	210,022	GWh
2022	167,383	202,847	GWh
2023 (YTD)	154,174		GWh

Week-on-Week Residual Energy Demand

[2023 weeks compared to similar 2022 weeks]



Week 42 : Residual Energy Demand Statistics		
Energy Demand	3,776	GWh
Week-on-Week Growth	-5.53	%
Year-on-Year Growth (Year-to-Date) Annual	-1.97	%

Note:

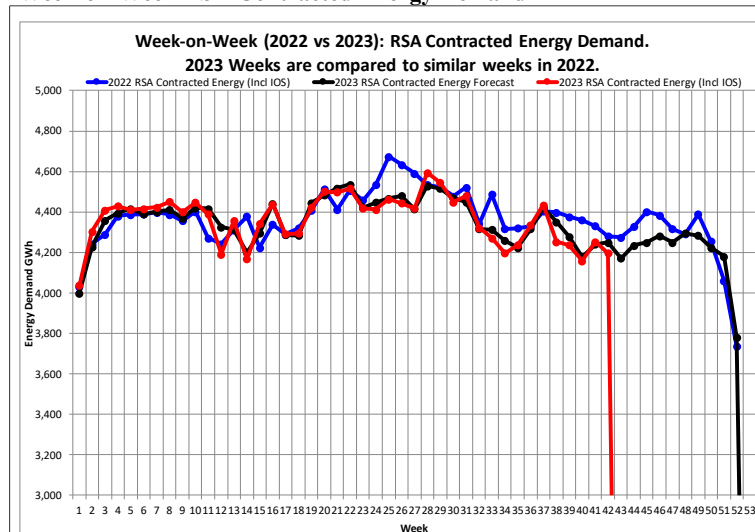
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Residual Energy Demand Statistics			
Year	01 Jan to 22 Oct Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	182,550	224,594	GWh
2019	179,784	220,937	GWh
2020	168,994	208,151	GWh
2021	173,098	211,958	GWh
2022	172,338	211,134	GWh
2023 (YTD)	169,018		GWh

Week-on-Week RSA Contracted Energy Demand

[2023 weeks compared to similar 2022 weeks]



Week 42 : RSA Contracted Energy Demand Statistics		
Energy Demand	4,197	GWh
Week-on-Week Growth	-1.96	%
Year-on-Year Growth (Year-to-Date) Annual	-0.60	%

Note:

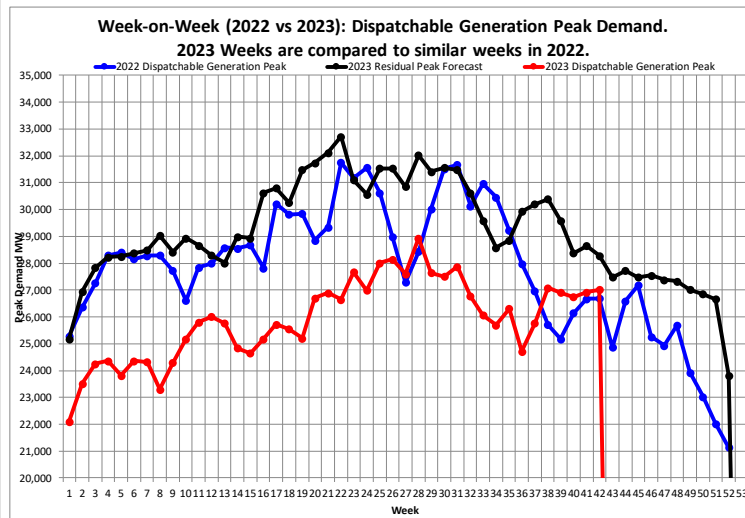
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Energy Demand Statistics			
Year	01 Jan to 22 Oct Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	191,052	235,482	GWh
2019	188,855	232,524	GWh
2020	178,484	220,630	GWh
2021	184,926	227,166	GWh
2022	184,831	227,337	GWh
2023 (YTD)	183,778		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 42 : Dispatchable Generation Peak Demand Statistics			
Peak Demand	27,010	MW	
Week-on-Week Growth	1.22	%	
Year-on-Year Growth (Year-to-Date) Annual	-8.88	%	

Note:

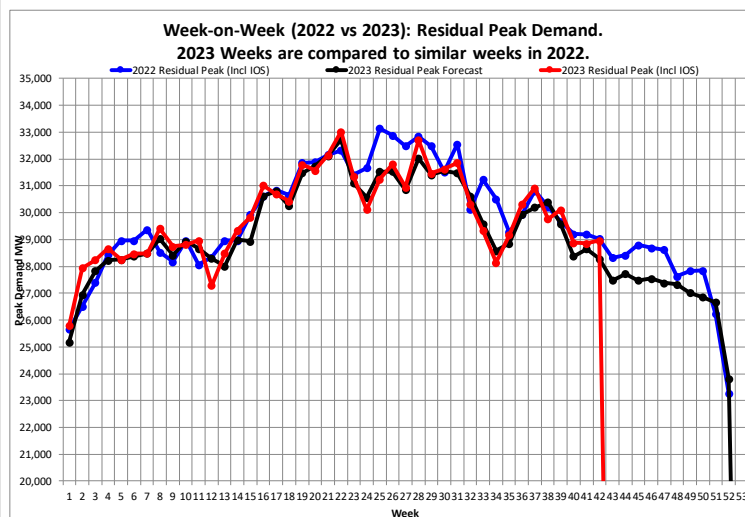
2023 Weeks are compared to similar weeks in 2022.

(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 42 : Residual Peak Demand Statistics			
Peak Demand	28,967	MW	
Week-on-Week Growth	-0.21	%	
Year-on-Year Growth (Year-to-Date) Annual	-0.36	%	

Note:

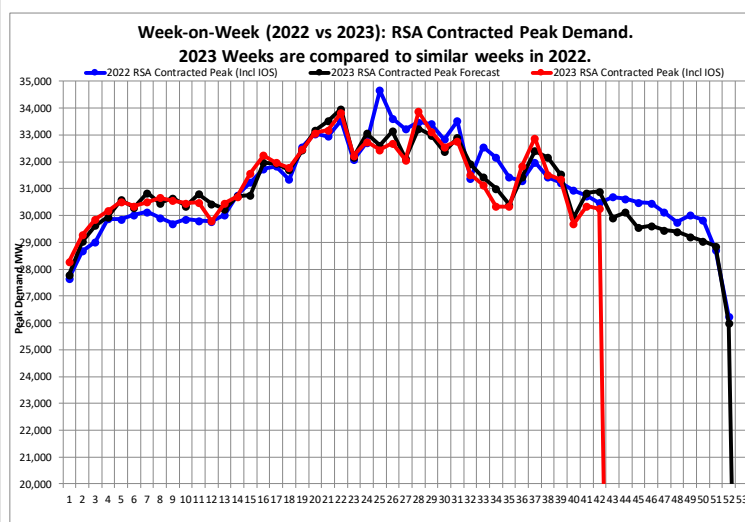
2023 Weeks are compared to similar weeks in 2022.

(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 42 : RSA Contracted Peak Demand Statistics			
Peak Demand	30,262	MW	
Week-on-Week Growth	-0.71	%	
Year-on-Year Growth (Year-to-Date) Annual	-2.29	%	

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	33,873	MW

Weekly Generation Availability

	Week														Annual (Jan - Dec)	
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	2023	2022
Energy Availability Factor (Eskom EAF)	57.16	57.20	58.72	56.73	56.37	55.11	53.28	52.19	54.16	58.27	56.52	57.15	58.72	60.46	54.87	58.00
Planned Outage Factor	6.07	7.52	7.29	8.86	9.69	10.49	12.87	11.93	10.21	11.21	10.48	11.47	12.35	10.75	10.26	10.62
Unplanned Outage Factor	35.87	34.17	33.07	33.50	32.74	33.46	33.15	35.09	34.74	29.50	29.59	30.17	27.38	27.56	33.55	29.86
Other Outage Factor	0.90	1.11	0.92	0.91	1.20	0.94	0.70	0.79	0.89	1.02	3.41	1.21	1.55	1.23	1.32	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 (-18200 MW)	MW Likely Risk Scenario (-20200 MW)
23-Oct-23	43	29917	27482	45326	27126	3865	16000		
30-Oct-23	44	30122	27730	43971	25771	5220	16000		
06-Nov-23	45	29545	27477	43566	25366	5625	16000		
13-Nov-23	46	29618	27550	43241	25041	5950	16000		
20-Nov-23	47	29448	27380	42980	24780	6211	16000		
27-Nov-23	48	29399	27331	42648	24448	6543	16000		
04-Dec-23	49	29204	27021	42137	23937	7054	16000		
11-Dec-23	50	29040	26857	41727	23527	7464	16000		
18-Dec-23	51	28850	26667	41007	22807	8184	16000		
25-Dec-23	52	26001	23818	39428	21228	9763	16000		
01-Jan-24	1	27759	25615	40393	22193	8798	16000		
08-Jan-24	2	28668	26524	41575	23375	7616	16000		
15-Jan-24	3	29377	27233	42440	24240	6751	16000		
22-Jan-24	4	30203	28059	42440	24240	6751	16000		
29-Jan-24	5	30358	28214	42430	24230	6761	16000		
05-Feb-24	6	30700	28610	43600	25400	5591	16000		
12-Feb-24	7	30793	28704	43365	25165	5826	16000		
19-Feb-24	8	30724	28635	42830	24630	6361	16000		
26-Feb-24	9	30567	28477	43030	24830	6161	16000		
04-Mar-24	10	30918	28958	43693	25493	5498	16000		
11-Mar-24	11	30966	29006	43155	24955	6036	16000		
18-Mar-24	12	30790	28807	43182	24982	6009	16000		
25-Mar-24	13	30764	28719	43342	25142	5849	16000		
01-Apr-24	14	31169	29620	44077	25877	5114	16000		
08-Apr-24	15	31684	30135	44683	26483	4508	16000		
15-Apr-24	16	32032	30483	45033	26833	4158	16000		
22-Apr-24	17	32418	30869	45033	26833	4158	16000		
29-Apr-24	18	32233	30877	45648	27448	3543	16000		
06-May-24	19	33030	31695	46241	28041	2950	16000		
13-May-24	20	33673	32338	46241	28041	2950	16000		
20-May-24	21	33942	32607	46961	28761	2230	16000		
27-May-24	22	34467	33131	47436	29236	1755	16000		
03-Jun-24	23	34299	32501	46929	28729	2262	16000		
10-Jun-24	24	34408	32610	46929	28729	2262	16000		
17-Jun-24	25	34302	32504	47504	29304	1687	16000		
24-Jun-24	26	34515	32717	47504	29304	1687	16000		
01-Jul-24	27	33834	32299	47414	29214	1777	16000		
08-Jul-24	28	34176	32642	47414	29214	1777	16000		
15-Jul-24	29	33948	32413	46784	28584	2407	16000		
22-Jul-24	30	34257	32722	47140	28940	2051	16000		
29-Jul-24	31	33502	31968	46555	28355	2636	16000		
05-Aug-24	32	33064	31447	45330	27130	3861	16000		
12-Aug-24	33	32520	30903	45580	27380	3611	16000		
19-Aug-24	34	32414	30798	44802	26602	4389	16000		
26-Aug-24	35	31943	30327	44515	26315	4676	16000		
02-Sep-24	36	32674	30789	44862	26662	4329	16000		
09-Sep-24	37	32611	30726	44599	26399	4592	16000		
16-Sep-24	38	32005	30120	43679	25479	5512	16000		
23-Sep-24	39	31690	29805	43436	25236	5755	16000		
30-Sep-24	40	31926	29950	43332	25132	5859	16000		
07-Oct-24	41	31834	29858	43729	25529	5462	16000		
14-Oct-24	42	31577	29608	43464	25264	5727	16000		
21-Oct-24	43	31499	29617	43464	25264	5727	16000		
28-Oct-24	44	31328	29446	43576	25376	5615	16000		

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): 16 000 MW

Reserves: OR + UA = 18 200 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 Definitely 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	4,883.0

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	3,102.2	5,134.5
	Max Date	15-Mar-2022 15:00	24-Oct-2021 12:00	25-Aug-2023 20:00	15-Sep-2023 13:00
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	3,102.2	5,134.5
	Max Date	21-Feb-2023 13:00	21-Feb-2023 12:00	25-Aug-2023 20:00	15-Sep-2023 13:00

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	Annual Energy	1,656,017	5,069,146	9,692,373	16,202,974
Maximum					
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	1,103,939	4,011,191	9,616,928	14,952,327

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	2,148
	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	2,148
	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

Estimated Rooftop PV

Maximum/Installed Rooftop PV (MW):	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North-West	Western Cape	Total
Sep-23	368.2	280.2	1,207.80	810.9	413.3	476.6	129.5	669.3	527.4	4,883.00
Aug-23	368.2	280.2	1,207.80	810.9	357.4	490.4	129.5	669.3	527.4	4,841.00
Jul-23	368.2	280.2	1,207.80	810.9	296.6	450.7	129.5	669.3	527.4	4,740.40
Jun-23	284.3	280.2	1,207.80	565.8	296.6	450.7	129.5	669.3	527.4	4,411.50
May-23	190	204.9	1,072.10	565.8	296.6	450.7	129.5	669.3	457.9	4,036.80
Apr-23	163.2	160.5	917.5	417.5	226.8	326.7	117.5	669.3	369	3,368.00
Mar-23	163.2	160.5	917.5	417.5	189.8	317.9	117.5	669.3	289.7	3,242.80
Feb-23	163.2	160.5	917.5	417.5	189.8	305.6	117.5	669.3	198	3,138.80
Jan-23	143.1	160.5	917.5	417.5	189.8	298.8	82.6	669.3	198	3,077.10
Dec-22	130.2	160.3	848.3	368.7	189.8	298.8	82	310.4	198	2,586.40
Nov-22	130.2	160.3	848.3	368.7	189.8	298.8	79.1	184.8	161.9	2,421.90
Oct-22	130.2	160.3	848.3	296.9	189.8	298.8	79.1	184.8	150	2,338.10
Sep-22	130.2	160.3	848.3	296.9	189.8	298.8	79.1	184.8	145.5	2,333.60
Aug-22	130.2	160.3	848.3	296.9	189.8	298.8	79.1	184.8	145.5	2,333.60
Jul-22	130.2	148.8	790.6	296.9	189.8	298.8	79.1	184.8	145.5	2,264.50

If there is a big jump from month to month it is mainly due to the high number of cloudy days during the latter month, not necessarily due to the number of installations in that month. It would very likely have been distributed in the preceding few months.