

# Weekly System Status Report – 2023 Week 14 (03/04/2023 – 09/04/2023)

#### 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 03/Apr/2023	25,508	0	28,632	28,810	-11.5%	-11.5%	-0.6%
Tue 04/Apr/2023	26,309	0	28,995	29,193	-9.9%	-9.9%	-0.7%
Wed 05/Apr/2023	25,721	0	28,719	28,629	-10.2%	-10.2%	0.3%
Thu 06/Apr/2023	27,046	0	27,813	28,167	-4.0%	-4.0%	-1.3%
Fri 07/Apr/2023	26,816	0	24,672	24,691	8.6%	8.6%	-0.1%
Sat 08/Apr/2023	26,077	0	25,124	24,642	5.8%	5.8%	2.0%
Sun 09/Apr/2023	25,741	0	25,675	24,885	3.4%	3.4%	3.2%

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 03/Apr/2023	27,413	0	30,673	30,716	-10.8%	-10.8%	-0.1%
Tue 04/Apr/2023	27,087	0	30,067	29,972	-9.6%	-9.6%	0.3%
Wed 05/Apr/2023	26,935	0	30,072	29,843	-9.7%	-9.7%	0.8%
Thu 06/Apr/2023	27,668	0	28,801	28,789	-3.9%	-3.9%	0.0%
Fri 07/Apr/2023	28,330	0	26,391	26,205	8.1%	8.1%	0.7%
Sat 08/Apr/2023	27,838	0	26,959	26,403	5.4%	5.4%	2.1%
Sun 09/Apr/2023	27,671	0	27,637	26,815	3.2%	3.2%	3.1%

#### Notes

- 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

# Week-on-Week (2022 vs 2023): Dispatchable Generation Energy Sent Out. 2023 Weeks are compared to similar weeks in 2022. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

#### [2023 weeks compared to similar 2022 weeks]

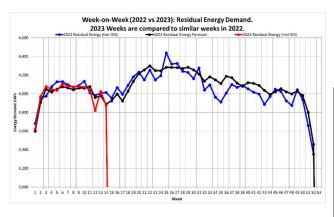
Week 14 : Dispatchable Generation Energy Sent Out Statistics					
Energy Sent Out	3,526	GWh			
Week-on-Week Growth	-12.06	%			
Year-on-Year Growth (Year-to-Date) Annual	-11.17	%			

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 09 Apr Energy	Annual Energy (01 Jan to 31 Dec)	Unit			
2018	59,745	224,202	GWh			
2019	58,677	219,575	GWh			
2020	56,758	206,725	GWh			
2021	55,755	210,022	GWh			
2022	56,272	202,849	GWh			
2023 (YTD)	50,101		GWh			

## Week-on-Week Residual Energy Demand



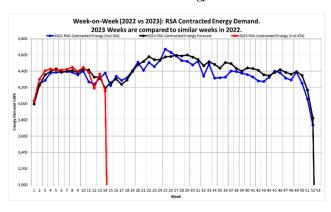
## [2023 weeks compared to similar 2022 weeks]

Week 14 : Residual Energy Demand Statistics (Incl IOS)					
Energy Demand	3,878	GWh			
Week-on-Week Growth	-3.37	%			
Year-on-Year Growth (Year-to-Date) Annual	-0.73	%			

2023 Weeks are compared to similar weeks in 2022 (2023 week 1 ~ 2022 week 1)

	Annual Residual Energy Demand Statistics (Incl IOS)					
Year	01 Jan to 09 Apr Energy	Annual Energy (01 Jan to 31 Dec)	Unit			
2018	59,778	224,594	GWh			
2019	59,327	220,937	GWh			
2020	57,609	208,151	GWh			
2021	56,363	211,958	GWh			
2022	56,710	211,136	GWh			
2023 (YTD)	56,400		GWh			

## Week-on-Week RSA Contracted Energy Demand



## [2023 weeks compared to similar 2022 weeks]

Week 14 : RSA Contracted Energy Demand Statistics (Incl IOS)					
Energy Demand	4,156	GWh			
Week-on-Week Growth	-5.09	%			
Year-on-Year Growth (Year-to-Date) Annual	0.61	%			

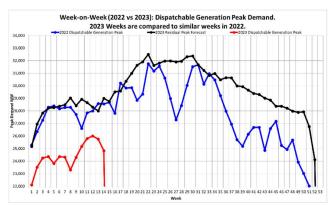
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

	Annual RSA Contracted Energy Demand Statistics (Incl IOS)				
Year	01 Jan to 09 Apr Energy	Annual Energy (01 Jan to 31 Dec)	Unit		
2018	62,753	235,482	GWh		
2019	62,589	232,524	GWh		
2020	60,869	220,630	GWh		
2021	60,258	227,166	GWh		
2022	60,888	227,339	GWh		
2023 (YTD)	61,353		GWh		



## Week-on-Week Dispatchable Generation Peak Demand



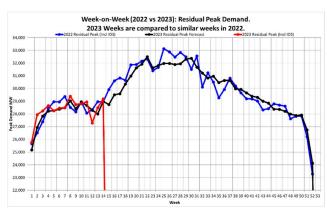
#### [2023 weeks compared to similar 2022 weeks]

Week 14 : Dispatchable Generation Peak Demand Statistics					
Peak Demand	24,836	MW			
Week-on-Week Growth	-13.01	%			
Year-on-Year Growth (Year-to-Date) Annual	-9.01	%			

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)	Tue 21-Mar-2023	26,003	MW			

#### Week-on-Week Residual Peak Demand



#### [2023 weeks compared to similar 2022 weeks]

Week 14 : Residual Peak Demand Statistics (Incl IOS)					
Peak Demand	29,193	MW			
Week-on-Week Growth	0.82	%			
Year-on-Year Growth (Year-to-Date) Annual	0.10	%			

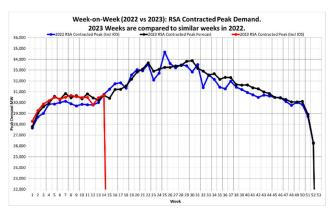
#### Note:

2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Residual Peak Demand Statistics (Incl IOS)					
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 21-Feb-2023	29,405	MW		

# Week-on-Week RSA Contracted Peak Demand



# [2023 weeks compared to similar 2022 weeks]

Week 14 : RSA Contracted Peak Demand Statis	stics (Incl I	OS)
Peak Demand	30,716	MW
Week-on-Week Growth	-0.15	%
Year-on-Year Growth (Year-to-Date) Annual	-0.15	%

#### Note:

2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

	Annual RSA Contracted Peak Demand Statistics (Incl IOS)						
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 03-Apr-2023	30,716	MW				



## Weekly Generation Availability

			Week A							Annual (Jan - Dec)						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	2023	2022
Energy Availability Factor (Eskom EAF)	49.19	50.79	52.47	52.33	53.21	54.34	52.27	50.74	52.85	52.83	58.31	55.21	52.40	51.63	52.74	58.00
Planned Outage Factor	13.97	12.75	13.07	13.61	10.75	10.89	9.08	9.57	10.28	9.52	9.48	12.36	14.60	14.57	11.85	10.62
Unplanned Outage Factor	34.62	33.96	31.90	32.22	34.88	33.35	35.75	34.94	35.86	35.87	30.86	31.33	32.21	33.06	33.56	29.86
Other Outage Factor	2.22	2.50	2.56	1.84	1.16	1.42	2.90	4.75	1.01	1.78	1.35	1.10	0.79	0.74	1.85	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.

		MW	MW	MW	MW	MW	MW	MW	MW
Neek Start	Week	RSA	Residual	Available	Available	Planned	Unplanned	Planned	Likely Risk
		Contracted	Forecast	Dispatchable	Capacity (Less	Maintenance	Outage	Risk Level	Senario
		Forecast		Capacity	OR and UA)		Assumption (UA)	(-17200 MW)	(-19200 MW)
10-Apr-23	15	30406	28744	41638	24438	7553	15000		
17-Apr-23	16	31216	29513	43341	26141	5850	15000		
24-Apr-23	17	31238	29591	44516	27316	4675	15000		
01-May-23	18	31543	30361	44866	27666	4325	15000		
08-May-23	19	32174	30992	45532	28332	3659	15000		
15-May-23	20	32816	31634	46394	29194	2797	15000		
22-May-23	21	33099	31917	46987	29787	2204	15000		
29-May-23	22	33681	32499	47187	29987	2004	15000		
05-Jun-23	23	32907	31626	47377	30177	1814	15000		
12-Jun-23	24	33085	31804	47377	30177	1814	15000		
19-Jun-23	25	33252	31972	47377	30177	1814	15000		
26-Jun-23	26	33264	31983	47817	30617	1374	15000		
03-Jul-23	27	33390	31899	46503	29303	2688	15000		
10-Jul-23 17-Jul-23	28	33441	31950	46753	29553	2438 2628	15000 15000		
17-Jul-23 24-Jul-23	29 30	33806 33869	32315 32378	46563 46215	29363 29015	2628 2976	15000		
	31					3551			
31-Jul-23	_	33172	31681	45640	28440		15000		
07-Aug-23	32	32921	31227	45924	28724	3267	15000		
14-Aug-23	33	32522	30828	45508	28308	3683	15000		
21-Aug-23	34	32669	30975	45746	28546	3445	15000		
28-Aug-23	35	32154	30475	45851	28651	3340	15000		
04-Sep-23	36	32329	30642	45201	28001	3990	15000		
11-Sep-23	37	32319	30633	46023	28823	3168	15000		
18-Sep-23	38	31676	29989	45773	28573	3418	15000		
25-Sep-23	39	31623	29936	44925	27725	4266	15000		
02-Oct-23	40	31635	29659	44545	27345	4646	15000		
09-Oct-23	41	31372	29395	44635	27435	4556	15000		
16-Oct-23	42	31286	29309	44351	27151	4840	15000		
23-Oct-23	43	30991	29015	43538	26338	5653	15000		
30-Oct-23		30837	28860	43708	26508	5483	15000		
06-Nov-23	45	30480	28381	43100 42359	27900 27159	6091 6832	13000		
13-Nov-23 20-Nov-23	46 47	30439 30288	28371 28220	42359 42756	27159	6435	13000 13000		
27-Nov-23	48	30288	28220	42756	27556	6836	13000		
04-Dec-23	49	30063	27880	43132	27155	6059	13000		
11-Dec-23	50	30109	27927	43132	26739	7252	13000		
18-Dec-23	51	28935	26752	40390	25190	8801	13000		
25-Dec-23	52	26312	24130	40390	25190	9001	13000		
01-Jan-24	1	27954	25810	41203	26003	7988	13000		
08-Jan-24	2	29548	27404	41303	26103	7888	13000		
15-Jan-24	3	30300	28156	42362	27162	6829	13000		
22-Jan-24	4	30273	28129	43230	28030	5961	13000		
29-Jan-24	5	30490	28346	43512	28312	5679	13000		
05-Feb-24	6	31030	28940	43121	27921	6070	13000		
12-Feb-24	7	31154	29065	43268	28068	5923	13000		
19-Feb-24	8	31289	29199	43763	28563	5428	13000		
26-Feb-24	9	31095	29006	43148	27948	6043	13000		
04-Mar-24	10	31512	29552	44306	29106	4885	13000		
11-Mar-24	11	31196	29236	44563	29363	4628	13000		
18-Mar-24	12	31440	29480	45476	30276	3715	13000		
25-Mar-24	13	31322	29276	45826	30626	3365	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 October 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

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 - 2022 to 2026. (Published 30 October 2021).

 $\underline{https://www.eskom.co.za/wp-content/uploads/2021/11/MediumTermSystemAdequacyOutlook2022-2026.pdf}$ 

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				

Maxin	num Contril	oution (MW) - based	on System Operator	data (subject to mete	ring verification)
Cal Year	Indicator	CSP	PV	Wind (Eskom+IPP)	Total (Incl other REs)
A III met	Maximum	506.2	2,099.5	3,028.1	5,126.1
All Time	Max Date	15-Mar-2022 15:00	24-Oct-2021 12:00	02-Dec-2022 16:00	05-Sep-2022 12:00
2046	Maximum	200.9	1,350.5	1,229.8	2,576.3
2016	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
2017	Max Date	07-Nov-2017 10:00	27-Oct-2017 12:00	25-Dec-2017 18:00	13-Dec-2017 13:00
2040	Maximum	399.7	1,392.1	1,902.3	3,298.9
2018	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
2019	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
2020	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
2021	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
2022	Max Date	15-Mar-2022 15:00	20-Nov-2022 11:00	02-Dec-2022 16:00	05-Sep-2022 12:00
2022	Maximum	505.8	2,044.1	2,829.4	4,877.8
2023	Max Date	21-Feb-2023 13:00	21-Feb-2023 12:00	20-Feb-2023 17:00	20-Feb-2023 15:00

Annual E	nergy Contr	ribution (MWh) - bas	ed on System Opera	tor data (subject to me	etering 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	543,794	1,627,852	3,157,226	5,415,002

	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	1,832			
All Time	Max Date	20-Feb-2023 to 21-Feb-2023			
2016	Maximum	828			
2016	Max Date	30-Aug-2016 to 31-Aug-2016			
2017	Maximum	1,038			
2017	Max Date	19-Jun-2017 to 20-Jun-2017			
2018	Maximum	1,336			
2018	Max Date	01-Sep-2018 to 02-Sep-2018			
2019	Maximum	1,464			
2019	Max Date	05-Jul-2019 to 06-Jul-2019			
2020	Maximum	1,488			
2020	Max Date	31-Aug-2020 to 01-Sep-2020			
2024	Maximum	1,744			
2021	Max Date	07-Aug-2021 to 08-Aug-2021			
2022	Maximum	1,523			
2022	Max Date	07-Aug-2022 to 08-Aug-2022			
2023	Maximum	1,832			
2023	Max Date	20-Feb-2023 to 21-Feb-2023			

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