

# Weekly System Status Report – 2022 Week 11 (14/03/2022 – 20/03/2022)

#### 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 14/Mar/2022	29,871	545	28,062	27,790	7.5%	9.4%	1.0%
Tue 15/Mar/2022	31,036	454	28,969	28,068	10.6%	12.2%	3.2%
Wed 16/Mar/2022	30,346	626	28,462	27,724	9.5%	11.7%	2.7%
Thu 17/Mar/2022	31,329	691	27,995	27,802	12.7%	15.2%	0.7%
Fri 18/Mar/2022	31,506	627	27,141	26,988	16.7%	19.1%	0.6%
Sat 19/Mar/2022	30,510	362	26,377	25,939	17.6%	19.0%	1.7%
Sun 20/Mar/2022	29,911	0	26,256	25,399	17.8%	17.8%	3.4%

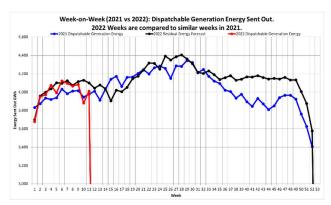
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non- Commercial Units)	Operating Reserve Margin (Incl Non- Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 14/Mar/2022	31,872	545	29,920	29,792	7.0%	8.8%	0.4%
Tue 15/Mar/2022	32,439	454	30,209	29,404	10.3%	11.9%	2.7%
Wed 16/Mar/2022	31,954	626	30,024	29,332	8.9%	11.1%	2.4%
Thu 17/Mar/2022	33,316	691	29,956	29,789	11.8%	14.2%	0.6%
Fri 18/Mar/2022	32,776	627	28,570	28,258	16.0%	18.2%	1.1%
Sat 19/Mar/2022	31,565	362	27,445	26,994	16.9%	18.3%	1.7%
Sun 20/Mar/2022	31,006	0	27,372	26,494	17.0%	17.0%	3.3%

#### 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) = 49 590 MW (Incl. non-comm. Kusile units).
- 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



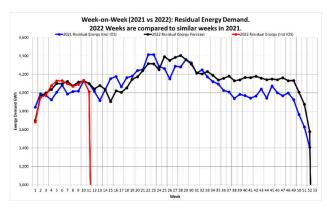
#### [2022 weeks compared to similar 2021 weeks]

Week 11 : Dispatchable Generation Energy Sent Out Statistics					
Energy Sent Out 4,009 GWh					
Week-on-Week Growth	0.85	%			
Year-on-Year Growth (Year-to-Date) Annual 1.06 %					

2022 Weeks are compared to similar weeks in 2021. (2022 week 1 ~ 2021 week 1)

	Annual Dispatchable Generation Energy Sent Out Statistics					
Year	Year 01 Jan to 20 Mar Energy Annual Energy (01 Jan to 31 Dec)					
2017	47,766	225,203	GWh			
2018	47,910	224,202	GWh			
2019	46,810	219,563	GWh			
2020	46,959	206,725	GWh			
2021	44,397	210,021	GWh			
2022 (VTD)	038 NV		GWh			

### Week-on-Week Residual Energy Demand



#### [2022 weeks compared to similar 2021 weeks]

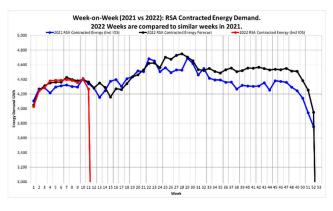
Week 11 : Residual Energy Demand Statistics (Incl IOS)					
Energy Demand 4,012 GWh					
Week-on-Week Growth	-2.13	%			
Year-on-Year Growth (Year-to-Date) Annual	0.66	%			

#### Note:

2022 Weeks are compared to similar weeks in 2021. (2022 week 1 ~ 2021 week 1)

	Annual Residual Energy Demand Statistics (Incl IOS)					
Year	01 Jan to 20 Mar Energy	Annual Energy (01 Jan to 31 Dec)	Unit			
2017	47,764	225,248	GWh			
2018	47,936	224,594	GWh			
2019	47,350	220,924	GWh			
2020	47,805	208,151	GWh			
2021	44,995	211,957	GWh			
2022 (YTD)	45,290		GWh			

## Week-on-Week RSA Contracted Energy Demand



## [2022 weeks compared to similar 2021 weeks]

Week 11 : RSA Contracted Energy Demand Statistics (Incl IOS)					
Energy Demand 4,268 GWh					
Week-on-Week Growth	-1.64	%			
Year-on-Year Growth (Year-to-Date) Annual	0.79	%			

#### Note:

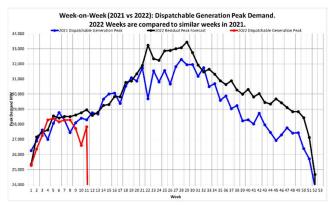
2022 Weeks are compared to similar weeks in 2021.

(2022 week 1 ~ 2021 week 1)

	Annual RSA Contracted Energy Demand Statistics (Incl IOS)				
Year	01 Jan to 20 Mar Energy	Annual Energy (01 Jan to 31 Dec)	Unit		
2017	50,564	235,426	GWh		
2018	50,429	235,482	GWh		
2019	50,028	232,511	GWh		
2020	50,411	220,630	GWh		
2021	48,190	227,166	GWh		
2022 (YTD)	48,576		GWh		



### Week-on-Week Dispatchable Generation Peak Demand



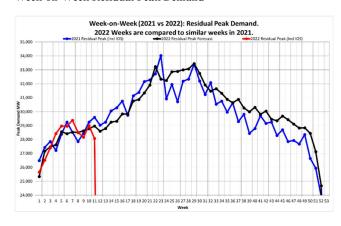
#### [2022 weeks compared to similar 2021 weeks]

Week 11 : Dispatchable Generation Peak Demand Statistics					
Peak Demand	27,841	MW			
Week-on-Week Growth	-1.62	%			
Year-on-Year Growth (Year-to-Date) Annual -1.33 %					

2022 Weeks are compared to similar weeks in 2021. (2022 week 1 ~ 2021 week 1)

Annual Dispatchable Generation Peak Demand Statistics					
Year	Peak Date	Annual Peak	Unit		
2017	Tue 30-May-2017	35,457	MW		
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 (YTD)	Tue 01-Feb-2022	28,398	MW		

## Week-on-Week Residual Peak Demand



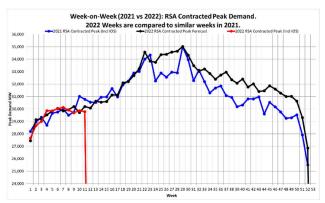
#### [2022 weeks compared to similar 2021 weeks]

Week 11 : Residual Peak Demand Statistics (Incl IOS)					
Peak Demand	28,068	MW			
Week-on-Week Growth	-5.14	%			
Year-on-Year Growth (Year-to-Date) Annual -0.72 %					

2022 Weeks are compared to similar weeks in 2021. (2022 week 1 ~ 2021 week 1)

Annual Residual Peak Demand Statistics (Incl IOS)					
Year	Peak Date	Annual Peak	Unit		
2017	Tue 30-May-2017	35,517	MW		
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 (YTD)	Tue 15-Feb-2022	29,375	MW		

## Week-on-Week RSA Contracted Peak Demand



#### [2022 weeks compared to similar 2021 weeks]

Week 11 : RSA Contracted Peak Demand Statis	stics (Incl I	OS)
Peak Demand	29,792	MW
Week-on-Week Growth	-3.24	%
Year-on-Year Growth (Year-to-Date) Annual	-2.87	%

2022 Weeks are compared to similar weeks in 2021.

(2022 week 1 ~ 2021 week 1)

	Annual RSA Contracted Peak Demand Statistics (Incl IOS)						
Year	Peak Date	Annual Peak	Unit				
2017	Tue 30-May-2017	35,769	MW				
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 (YTD)	Tue 15-Feb-2022	30,132	MW				



### Weekly Generation Availability

		Week Annual						Annual (	lan - Dec)							
	50	51	52	1	2	3	4	5	6	7	8	9	10	11	2022	2021
Energy Availability Factor (Eskom EAF)	59.24	56.20	54.59	57.84	58.63	59.58	59.24	57.31	59.12	60.11	60.72	59.16	56.65	60.60	61.26	61.79
Planned Outage Factor	11.94	13.61	13.88	10.07	10.70	14.69	14.18	11.94	12.75	11.04	11.63	11.79	13.87	11.65	11.08	10.81
Unplanned Outage Factor	26.98	28.53	29.91	30.18	28.69	24.33	24.67	29.20	26.40	27.35	26.21	27.82	28.08	26.57	25.03	24.53
Other Outage Factor	1.84	1.66	1.62	1.91	1.98	1.40	1.91	1.55	1.73	1.50	1.44	1.23	1.40	1.18	2.63	2.87

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)

#### **Three Month Outlook**

This is the forecast demand vs. available generating capacity for each week for 3 months 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	l mw	MW	MW	l ww	MW	I ww	MW
Week 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)	(-14200 MW)	(-16200 MW)
21-Mar-22	12	30078	28594	44596	30396	4994	12000	,	
28-Mar-22	13	30639	28785	42355	28155	7235	12000		
04-Apr-22	14	30546	29253	42940	29740	6650	11000		
11-Apr-22	15	30608	29314	43341	30141	6249	11000		
18-Apr-22	16	31130	29837	44841	31641	4749	11000		
25-Apr-22	17	31118	29824	44266	31066	5324	11000		
02-May-22	18	32110	30771	44651	31451	4939	11000		
09-May-22	19	32204	30865	45351	32151	4239	11000		
16-May-22	20	32686	31347	45476	32276	4114	11000		
23-May-22	21	33244	31905	46051	32851	3539	11000		
30-May-22	22	34575	33236	45945	32745	3645	11000		
06-Jun-22	23	33852	32337	45910	32710	3680	11000		
13-Jun-22	24	33755	32240	45910	32710	3680	11000		
20-Jun-22	25	34375	32861	45762	32562	3828	11000		
27-Jun-22	26	34399	32884	46109	32909	3481	11000		
04-Jul-22	27	34574	33000	46019	32819	3571	11000		
11-Jul-22	28	34644	33071	46109	32909	3481	11000		
18-Jul-22	29	35023	33450	46352	33152	3238	11000		
25-Jul-22	30	34323	32750	46542	33342	3048	11000		
01-Aug-22	31	33489	31924	45258	32058	4332	11000		
08-Aug-22	32	33039	31474	44574	31374	5016	11000		
15-Aug-22	33	33212	31647	44722	31522	4868	11000		
22-Aug-22	34	32861	31323	44912	31712	4678	11000		
29-Aug-22	35	32397	30878	44486	31286	5104	11000		
05-Sep-22	36	32729	30641	44215	30015	5375	12000		
12-Sep-22	37	32971	30883	43830	29630	5760	12000		
19-Sep-22	38	32359	30272	43193	28993	6397	12000		
26-Sep-22	39	32080	29992	43349	29149	6241	12000		
03-Oct-22	40	32414	30308	44216	30016	5374	12000		
10-Oct-22	41	31774	29809	43549	29349	6041	12000		
17-Oct-22	42	32028	30038	43797	29597	5793	12000		
24-Oct-22	43	31415	29451	43261	29061	6329	12000		
31-Oct-22	44	31472	29346	42407	28207	7183	12000		
07-Nov-22	45	31872	29689	42350	28150	7240	12000		
14-Nov-22	46	31613	29430	42402	28202	7188	12000		
21-Nov-22	47	31292	29109	42048	27848	7542	12000		
28-Nov-22	48	31015	28832	41543	27343	8047	12000		
05-Dec-22	49	31023	28837	42908	28708	6682	12000		
12-Dec-22	50	30633	28446	41729	27529	7861	12000		
19-Dec-22	51	29318	27132	40194	25994	9396	12000		
26-Dec-22	52	26867	24680	40274	26074	9316	12000		
02-Jan-23	1	28588	26066	40274	26074	9316	12000		
09-Jan-23	2	29704	27670	40989	26789	8601	12000		
16-Jan-23	3	30496	28461	40980	26780	8610	12000		
23-Jan-23	4	30174	28139	41205	27005	8385	12000		
30-Jan-23	5	30383	28349	41065	26865	8525	12000		
06-Feb-23	6	30997	29208	41798	27598	7792	12000		
13-Feb-23	7	30835	29045	41598	27398	7992	12000		
20-Feb-23	8	30909	29119	42390	28190	7200	12000		
27-Feb-23	9	31026	29153	42152	27952	7438	12000		
06-Mar-23	10	31458	29585	42729	28529	6861	12000		
13-Mar-23	11	31111	29237	43137	28937	6453	12000		
20-Mar-23	12	31424	29366	42417	28217	7173	12000		
27-Mar-23	13	31263	29206	42992	28792	6598	12000		

#### 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 2000 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): 12 000 MW (11000 MW from April '22)

Reserves: OR + UA = 14 200 MW

Eskom Installed Capacity: 48 585 MW (Incl. non-comm. Kusile units).

Installed Dispatchable Capacity: 49 590 MW (Incl. Avon and

Medupi Unit 4 capacity of 720MW has been removed from the capacity planning models by including it in the committed PCLF (although it is UCLF).

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).

https://www.eskom.co.za/wp-content/uploads/2021/11/MediumTermSystemAdequacyOutlook2022-2026.pdf

or

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	2,212.1			
Wind (Eskom+IPP)	3,163.4			
Total (Incl other REs)	5,901.0			

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)
All Time	Maximum	506.3	2,099.5	2,639.3	4,784.7
All Time	<b>Max Date</b>	15-Mar-2022 15:00	24-Oct-2021 12:00	15-Dec-2021 17:00	01-Nov-2021 13:00
2016	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
2010	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
2010	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
2024	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	506.3	2,025.1	2,109.6	4,044.5
2022	Max Date	15-Mar-2022 15:00	05-Jan-2022 11:00	08-Jan-2022 19:00	01-Jan-2022 15:00

Annual E	nergy Contr	ibution (MWh) - bas	ed on System Operato	or 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	8,359,224	15,208,327
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	378,239	1,284,797	1,961,956	3,653,791

Cal Year	Indicator	Total (Incl other REs)	Cal Year	Indicator	Total (Incl other REs)
All Time	Maximum	1,744		Maximum	19.1%
All Time	Max Date	07-Aug-2021 to 08-Aug-2021	All Time	Max Date	01-Nov-2021 13:00
2016	Maximum	828	2045	Maximum	9.8%
2016	Max Date	30-Aug-2016 to 31-Aug-2016	2016	Max Date	23-Dec-2016 13:00
2017	Maximum	1,038	2047	Maximum	12.7%
2017	Max Date	19-Jun-2017 to 20-Jun-2017	2017	Max Date	25-Dec-2017 15:00
2010	Maximum	1,336	2010	Maximum	13.1%
2018	Max Date	01-Sep-2018 to 02-Sep-2018	2018	Max Date	01-Jan-2018 14:00
2019	Maximum	1,464	2010	Maximum	13.9%
2019	Max Date	05-Jul-2019 to 06-Jul-2019	2019	Max Date	14-Dec-2019 14:00
2020	Maximum	1,488	2020	Maximum	16.1%
2020	Max Date	31-Aug-2020 to 01-Sep-2020	2020	Max Date	27-Dec-2020 15:00
2021	Maximum	1,744	2021	Maximum	19.1%
2021	Max Date	07-Aug-2021 to 08-Aug-2021	2021	Max Date	01-Nov-2021 13:00
2022	Maximum	1,364	2022	Maximum	18.0%
2022	Max Date	15-Feb-2022 to 16-Feb-2022	2022	Max Date	01-Jan-2022 15:00