

Weekly System Status Report – 2021 Week 3 (18/01/2021 – 24/01/2021)

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 18/Jan/2021	28,956	1,359	27,495	27,555	5.1%	10.0%	-0.2%
Tue 19/Jan/2021	30,574	1,401	27,269	26,203	16.7%	22.0%	4.1%
Wed 20/Jan/2021	28,856	1,086	27,612	27,018	6.8%	10.8%	2.2%
Thu 21/Jan/2021	29,773	1,237	27,295	27,862	6.9%	11.3%	-2.0%
Fri 22/Jan/2021	29,621	1,069	26,293	27,291	8.5%	12.5%	-3.7%
Sat 23/Jan/2021	28,185	1,399	25,736	25,363	11.1%	16.6%	1.5%
Sun 24/Jan/2021	28,959	726	24,829	24,581	17.8%	20.8%	1.0%

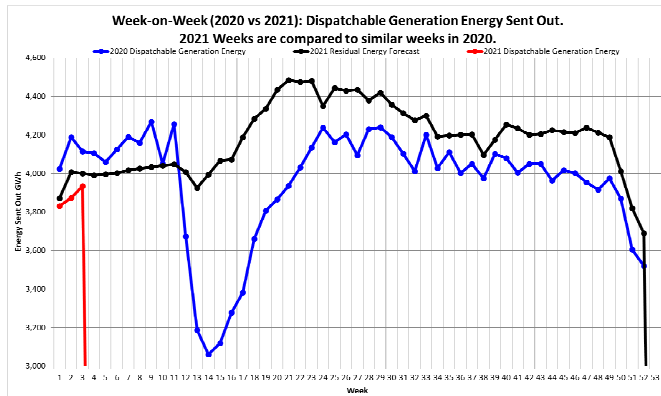
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 18/Jan/2021	30,689	1,359	29,367	29,287	4.8%	9.4%	0.3%
Tue 19/Jan/2021	32,995	1,401	29,449	28,624	15.3%	20.2%	2.9%
Wed 20/Jan/2021	30,590	1,086	29,318	28,751	6.4%	10.2%	2.0%
Thu 21/Jan/2021	31,337	1,237	29,112	29,426	6.5%	10.7%	-1.1%
Fri 22/Jan/2021	31,122	1,069	28,427	28,792	8.1%	11.8%	-1.3%
Sat 23/Jan/2021	30,341	1,399	27,759	27,519	10.3%	15.3%	0.9%
Sun 24/Jan/2021	31,165	726	26,947	26,787	16.3%	19.1%	0.6%

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) = 48 651 MW (Incl. non-comm. Kusile units).
- 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

[2021 weeks compared to similar 2020 weeks]



Week 3 : Dispatchable Generation Energy Sent Out Statistics

Energy Sent Out	3,934	GWh
Week-on-Week Growth	-4.36	%
Year-on-Year Growth (Year-to-Date) Annual	-5.57	%

Note:

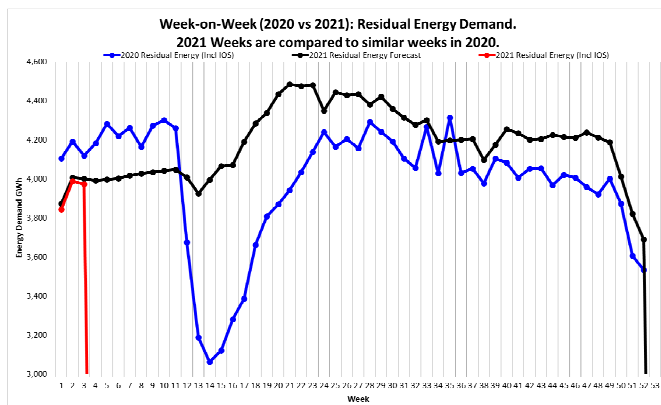
2021 Weeks are compared to similar weeks in 2020.
(2021 week 1 ~ 2020 week 1)

Annual Dispatchable Generation Energy Sent Out Statistics

Year	01 Jan to 24 Jan Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	14,557	226,721	GWh
2017	14,138	225,203	GWh
2018	14,260	224,202	GWh
2019	13,914	219,563	GWh
2020	13,792	206,724	GWh
2021 (YTD)	13,113		GWh

Week-on-Week Residual Energy Demand

[2021 weeks compared to similar 2020 weeks]



Week 3 : Residual Energy Demand Statistics (Incl IOS)

Energy Demand	3,973	GWh
Week-on-Week Growth	-3.53	%
Year-on-Year Growth (Year-to-Date) Annual	-4.91	%

Note:

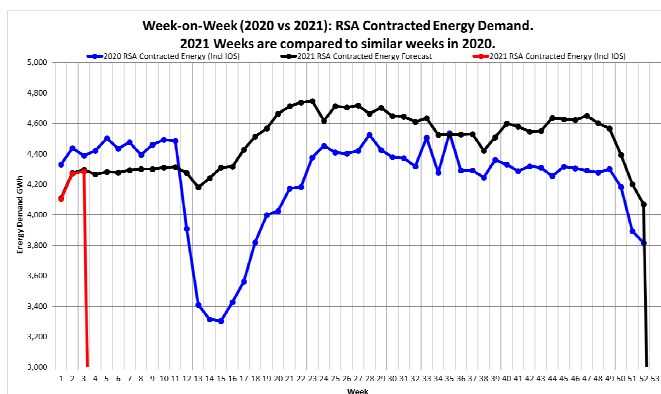
2021 Weeks are compared to similar weeks in 2020.
(2021 week 1 ~ 2020 week 1)

Annual Residual Energy Demand Statistics (Incl IOS)

Year	01 Jan to 24 Jan Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	14,562	226,808	GWh
2017	14,141	225,248	GWh
2018	14,268	224,594	GWh
2019	13,928	220,924	GWh
2020	13,908	208,150	GWh
2021 (YTD)	13,278		GWh

Week-on-Week RSA Contracted Energy Demand

[2021 weeks compared to similar 2020 weeks]



Week 3 : RSA Contracted Energy Demand Statistics (Incl IOS)

Energy Demand	4,284	GWh
Week-on-Week Growth	-2.39	%
Year-on-Year Growth (Year-to-Date) Annual	-3.80	%

Note:

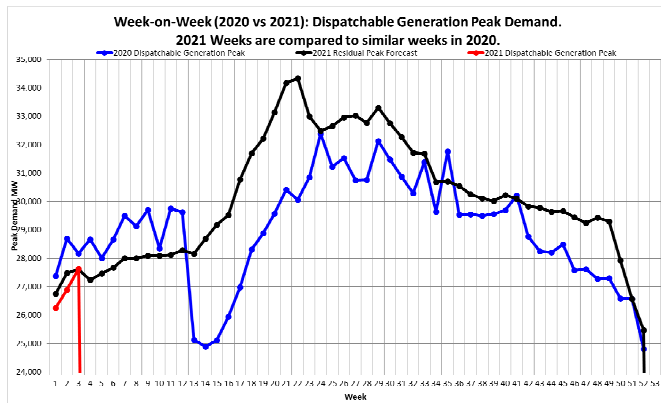
2021 Weeks are compared to similar weeks in 2020.
(2021 week 1 ~ 2020 week 1)

Annual RSA Contracted Energy Demand Statistics (Incl IOS)

Year	01 Jan to 24 Jan Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	15,180	238,069	GWh
2017	15,066	235,426	GWh
2018	15,077	235,482	GWh
2019	14,833	232,511	GWh
2020	14,746	220,629	GWh
2021 (YTD)	14,261		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2021 weeks compared to similar 2020 weeks]



Week 3 : Dispatchable Generation Peak Demand Statistics

Peak Demand	27,627	MW
Week-on-Week Growth	-1.94	%
Year-on-Year Growth (Year-to-Date) Annual	-3.72	%

Note:

2021 Weeks are compared to similar weeks in 2020.

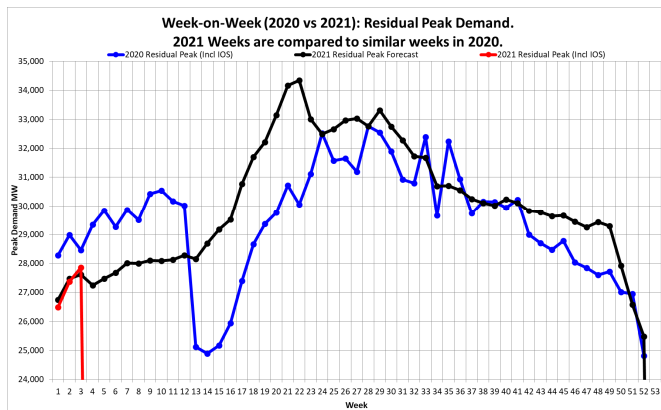
(2021 week 1 ~ 2020 week 1)

Annual Dispatchable Generation Peak Demand Statistics

Year	Peak Date	Annual Peak	Unit
2016	Thu 04-Aug-2016	34,181	MW
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 (YTD)	Thu 21-Jan-2021	27,627	MW

Week-on-Week Residual Peak Demand

[2021 weeks compared to similar 2020 weeks]



Week 3 : Residual Peak Demand Statistics (Incl IOS)

Peak Demand	27,862	MW
Week-on-Week Growth	-2.10	%
Year-on-Year Growth (Year-to-Date) Annual	-3.85	%

Note:

2021 Weeks are compared to similar weeks in 2020.

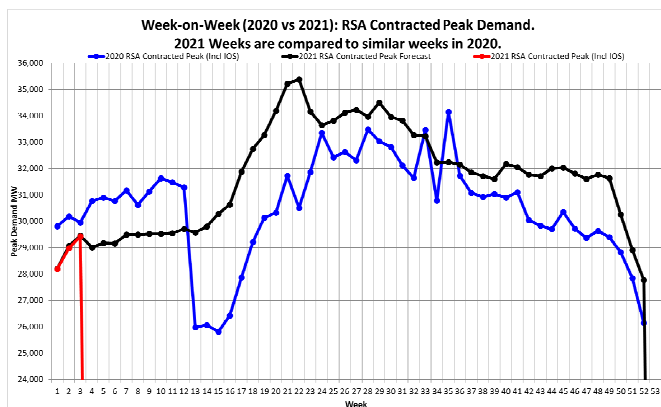
(2021 week 1 ~ 2020 week 1)

Annual Residual Peak Demand Statistics (Incl IOS)

Year	Peak Date	Annual Peak	Unit
2016	Thu 07-Jul-2016	34,488	MW
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 (YTD)	Thu 21-Jan-2021	27,862	MW

Week-on-Week RSA Contracted Peak Demand

[2021 weeks compared to similar 2020 weeks]



Week 3 : RSA Contracted Peak Demand Statistics (Incl IOS)

Peak Demand	29,426	MW
Week-on-Week Growth	-1.78	%
Year-on-Year Growth (Year-to-Date) Annual	-2.55	%

Note:

2021 Weeks are compared to similar weeks in 2020.

(2021 week 1 ~ 2020 week 1)

Annual RSA Contracted Peak Demand Statistics (Incl IOS)

Year	Peak Date	Annual Peak	Unit
2016	Mon 30-May-2016	34,913	MW
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 (YTD)	Thu 21-Jan-2021	29,426	MW

Weekly Generation Availability

	Week														Annual (Jan - Dec)	
	43	44	45	46	47	48	49	50	51	52	53	1	2	3	YTD	2020
Energy Availability Factor (Eskom EAF)	62.64	64.67	65.29	64.37	62.67	59.81	60.30	60.02	60.42	57.85	54.57	57.01	57.72	59.23	57.78	65.04
Planned Outage Factor	12.92	13.17	16.07	16.69	16.21	17.98	15.71	16.17	17.07	19.11	20.63	14.65	12.96	11.81	13.83	11.24
Unplanned Outage Factor	22.38	20.33	16.13	16.21	17.20	18.33	20.31	19.37	18.75	19.36	21.52	24.42	25.16	24.73	24.45	20.88
Other Outage Factor	2.06	1.83	2.51	2.73	3.92	3.88	3.68	4.44	3.76	3.68	3.28	3.92	4.16	4.23	3.94	2.84

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.

Week Start	Week	RSA Contracted Forecast	Residual Forecast	Available Dispatchable Capacity	Available Capacity (Less OR and UA)	Planned Maintenance	Unplanned Outage Assumption (UA)	Planned Risk Level (-14200 MW)	Likely Risk Scenario (-16200 MW)
25-Jan-21	4	29015	27240	44438	30238	4213	12000		
01-Feb-21	5	29175	27471	40129	25929	8522	12000		
08-Feb-21	6	29167	27674	41212	27012	7439	12000		
15-Feb-21	7	29501	28008	41093	26893	7558	12000		
22-Feb-21	8	29491	27999	41340	27140	7311	12000		
01-Mar-21	9	29527	28097	41972	27772	6679	12000		
08-Mar-21	10	29517	28088	41907	27707	6744	12000		
15-Mar-21	11	29551	28121	41889	27689	6762	12000		
22-Mar-21	12	29709	28280	41737	27537	6914	12000		
29-Mar-21	13	29584	28154	42377	28177	6274	12000		
05-Apr-21	14	29802	28692	42642	28442	6009	12000		
12-Apr-21	15	30288	29178	44027	29827	4624	12000		
19-Apr-21	16	30628	29518	44027	29827	4624	12000		
26-Apr-21	17	31885	30774	43770	29570	4881	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

Reserves: OR + UA = 14 200 MW

Eskom Installed Capacity: 47 646 MW (Incl. non-comm. Kusile units).

Installed Dispatchable Capacity: 48 651 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 - 2020 to 2024. (Published 30 October 2019).

<https://www.eskom.co.za/Whatweredoing/SupplyStatus/Documents/Medium%20Term%20System%20Adequacy%20Outlook%202020.pdf>

Renewable Energy Statistics

Note: Times are expressed as hour beginning

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	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
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	498.0	1,805.3	2,064.1	3,606.1
	Max Date	07-Jan-2021 10:00	17-Jan-2021 12:00	09-Jan-2021 17:00	19-Jan-2021 14:00

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	1,626,049	4,140,212	6,625,830	12,478,704
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	146,147	391,159	711,808	1,260,477

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	1,488
	Max Date	31-Aug-2020 to 01-Sep-2020
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	1,348
	Max Date	02-Jan-2021 to 03-Jan-2021

Current Installed Capacity (MW)	
CSP	500.0
PV	2,107.1
Wind (Eskom+IPP)	2,495.0
Total (Incl other REs)	5,128.6