

## Weekly System Status Report – 2021 Week 46 (15/11/2021 – 21/11/2021)

### 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 15/Nov/2021	31,647	0	28,061	27,762	14.0%	14.0%	1.1%
Tue 16/Nov/2021	29,431	0	28,248	27,858	5.6%	5.6%	1.4%
Wed 17/Nov/2021	30,423	0	27,718	27,535	10.5%	10.5%	0.7%
Thu 18/Nov/2021	29,876	0	27,908	27,789	7.5%	7.5%	0.4%
Fri 19/Nov/2021	30,087	0	26,747	26,879	11.9%	11.9%	-0.5%
Sat 20/Nov/2021	30,361	0	25,756	25,372	19.7%	19.7%	1.5%
Sun 21/Nov/2021	30,006	0	25,883	25,603	17.2%	17.2%	1.1%

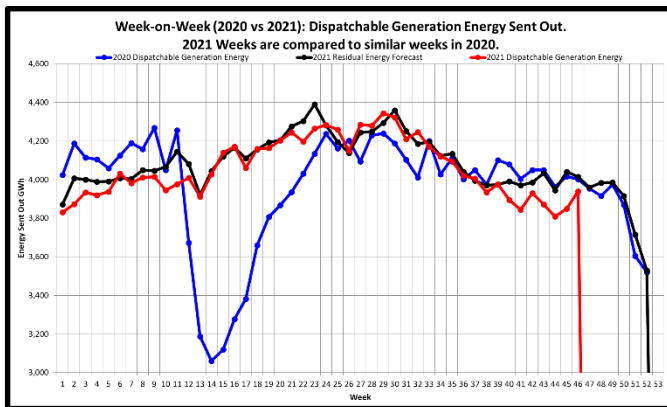
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 15/Nov/2021	33,794	0	30,260	29,908	13.0%	13.0%	1.2%
Tue 16/Nov/2021	31,333	0	29,867	29,760	5.3%	5.3%	0.4%
Wed 17/Nov/2021	33,070	0	30,072	30,182	9.6%	9.6%	-0.4%
Thu 18/Nov/2021	31,670	0	29,908	29,582	7.1%	7.1%	1.1%
Fri 19/Nov/2021	32,031	0	28,676	28,822	11.1%	11.1%	-0.5%
Sat 20/Nov/2021	32,444	0	28,001	27,718	17.1%	17.1%	1.0%
Sun 21/Nov/2021	32,713	0	28,426	28,310	15.6%	15.6%	0.4%

### 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) = 49 590 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 46 : Dispatchable Generation Energy Sent Out Statistics

Energy Sent Out	3,939	GWh
Week-on-Week Growth	-1.59	%
Year-on-Year Growth (Year-to-Date) Annual	2.23	%

#### Note:

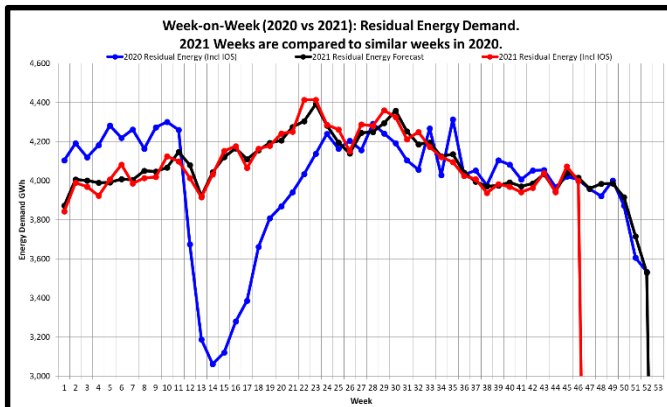
2021 Weeks are compared to similar weeks in 2020.  
(2021 week 1 ~ 2020 week 1)

### Annual Dispatchable Generation Energy Sent Out Statistics

Year	01 Jan to 21 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	203,069	226,721	GWh
2017	201,569	225,203	GWh
2018	200,929	224,202	GWh
2019	197,018	219,563	GWh
2020	184,817	206,725	GWh
2021 (YTD)	188,323		GWh

## Week-on-Week Residual Energy Demand

[2021 weeks compared to similar 2020 weeks]



### Week 46 : Residual Energy Demand Statistics (Incl IOS)

Energy Demand	3,999	GWh
Week-on-Week Growth	-0.16	%
Year-on-Year Growth (Year-to-Date) Annual	2.51	%

#### Note:

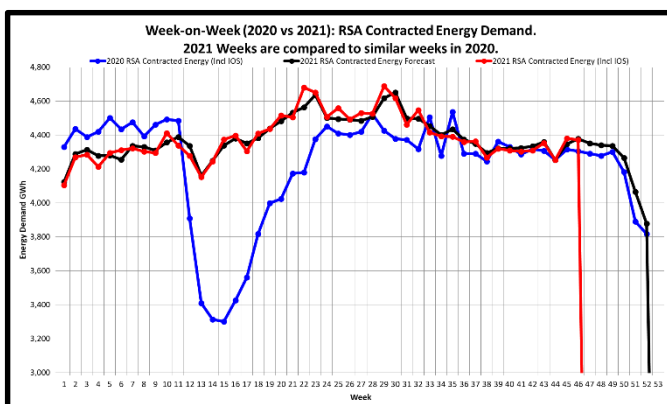
2021 Weeks are compared to similar weeks in 2020.  
(2021 week 1 ~ 2020 week 1)

### Annual Residual Energy Demand Statistics (Incl IOS)

Year	01 Jan to 21 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	203,140	226,808	GWh
2017	201,601	225,248	GWh
2018	201,111	224,594	GWh
2019	197,931	220,924	GWh
2020	186,188	208,151	GWh
2021 (YTD)	190,215		GWh

## Week-on-Week RSA Contracted Energy Demand

[2021 weeks compared to similar 2020 weeks]



### Week 46 : RSA Contracted Energy Demand Statistics (Incl IOS)

Energy Demand	4,372	GWh
Week-on-Week Growth	1.53	%
Year-on-Year Growth (Year-to-Date) Annual	3.69	%

#### Note:

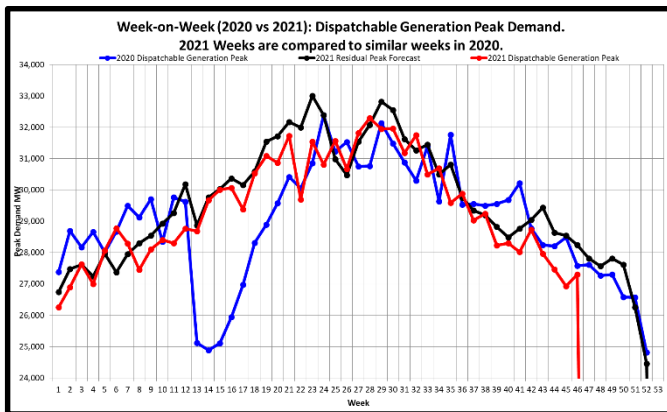
2021 Weeks are compared to similar weeks in 2020.  
(2021 week 1 ~ 2020 week 1)

### Annual RSA Contracted Energy Demand Statistics (Incl IOS)

Year	01 Jan to 21 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	212,800	238,069	GWh
2017	210,455	235,426	GWh
2018	210,643	235,482	GWh
2019	208,104	232,511	GWh
2020	196,885	220,630	GWh
2021 (YTD)	203,467		GWh

## Week-on-Week Dispatchable Generation Peak Demand

[2021 weeks compared to similar 2020 weeks]



### Week 46 : Dispatchable Generation Peak Demand Statistics

Peak Demand	27,299	MW
Week-on-Week Growth	-1.01	%
Year-on-Year Growth (Year-to-Date) Annual	-0.28	%

#### Note:

2021 Weeks are compared to similar weeks in 2020.

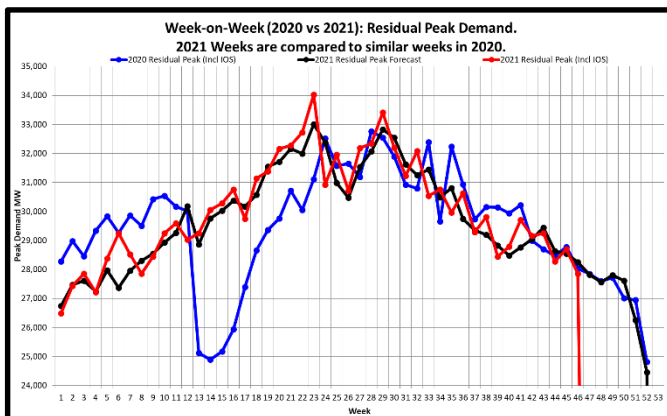
(2021 week 1 ~ 2020 week 1)

### 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 15-Jul-2021	32,292	MW

## Week-on-Week Residual Peak Demand

[2021 weeks compared to similar 2020 weeks]



### Week 46 : Residual Peak Demand Statistics (Incl IOS)

Peak Demand	27,858	MW
Week-on-Week Growth	-0.65	%
Year-on-Year Growth (Year-to-Date) Annual	3.89	%

#### Note:

2021 Weeks are compared to similar weeks in 2020.

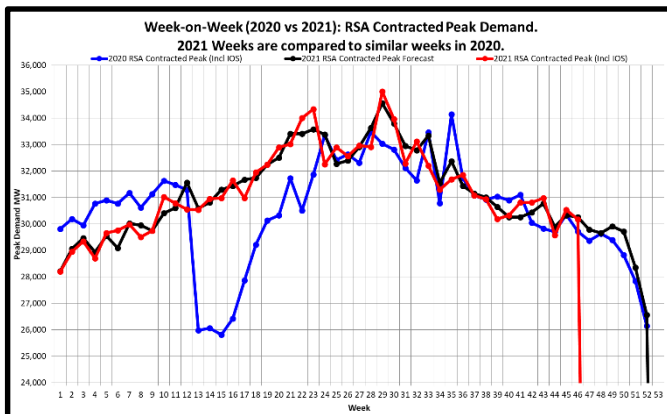
(2021 week 1 ~ 2020 week 1)

### 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)	Tue 08-Jun-2021	34,029	MW

## Week-on-Week RSA Contracted Peak Demand

[2021 weeks compared to similar 2020 weeks]



### Week 46 : RSA Contracted Peak Demand Statistics (Incl IOS)

Peak Demand	30,182	MW
Week-on-Week Growth	1.54	%
Year-on-Year Growth (Year-to-Date) Annual	2.49	%

#### 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 22-Jul-2021	35,005	MW

## Weekly Generation Availability

	Week																Annual (Jan - Dec)	
	33	34	35	36	37	38	39	40	41	42	43	44	45	46	YTD	2020		
Energy Availability Factor (Eskom EAF)	65.35	65.19	64.60	62.11	64.07	62.35	60.89	57.45	58.04	58.69	58.21	56.75	58.62	58.99	62.26	65.04		
Planned Outage Factor	9.69	12.79	11.60	10.44	11.35	13.36	12.22	12.53	11.56	10.99	11.41	9.84	13.32	8.88	10.59	11.24		
Unplanned Outage Factor	22.60	19.47	21.30	24.88	21.28	20.99	23.50	27.21	27.64	27.62	27.97	30.68	24.77	29.49	24.18	20.88		
Other Outage Factor	2.36	2.55	2.50	2.57	3.30	3.30	3.39	2.81	2.76	2.70	2.41	2.73	3.29	2.64	2.97	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	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 (-14200 MW)	MW Likely Risk Scenario (-16200 MW)
22-Nov-21	47	29789	27816	42836	28636	6754	12000		
29-Nov-21	48	29666	27565	41867	27667	7723	12000		
06-Dec-21	49	29910	27809	42097	27897	7493	12000		
13-Dec-21	50	29717	27616	42395	28195	7195	12000		
20-Dec-21	51	28362	26261	44392	30192	5198	12000		
27-Dec-21	52	26565	24464	45767	31567	3823	12000		
03-Jan-22	1	28986	26789	44442	30242	5148	12000		
10-Jan-22	2	29624	27428	42912	28712	6678	12000		
17-Jan-22	3	30113	27916	42231	28031	7359	12000		
24-Jan-22	4	30691	28495	42273	28073	7317	12000		
31-Jan-22	5	30547	28350	42307	28107	7283	12000		
07-Feb-22	6	30834	28678	42385	28185	7205	12000		
14-Feb-22	7	30872	28716	43521	29321	6069	12000		
21-Feb-22	8	31028	28872	42928	28728	6662	12000		
28-Feb-22	9	31137	29264	43452	29252	6138	12000		
07-Mar-22	10	31398	29525	43676	29476	5914	12000		
14-Mar-22	11	31249	29375	43676	29476	5914	12000		
21-Mar-22	12	31216	29161	43432	29232	6158	12000		
28-Mar-22	13	31470	29415	43301	29101	6289	12000		
04-Apr-22	14	31552	30175	44216	31016	5374	11000		
11-Apr-22	15	31814	30437	44566	31366	5024	11000		
18-Apr-22	16	32020	30642	45041	31841	4549	11000		
25-Apr-22	17	32052	30674	44996	31796	4594	11000		
02-May-22	18	32553	31122	45571	32371	4019	11000		
09-May-22	19	33309	31878	46401	33201	3189	11000		
16-May-22	20	33997	32566	46401	33201	3189	11000		
23-May-22	21	33899	32468	46401	33201	3189	11000		
30-May-22	22	35359	33928	46585	33385	3005	11000		
06-Jun-22	23	34352	32786	45797	32597	3793	11000		
13-Jun-22	24	34186	32620	45662	32462	3928	11000		
20-Jun-22	25	34427	32861	45385	32185	4205	11000		
27-Jun-22	26	34450	32884	46273	33073	3317	11000		
04-Jul-22	27	34574	33000	46056	32856	3534	11000		
11-Jul-22	28	34644	33071	46293	33093	3297	11000		
18-Jul-22	29	35023	33450	46293	33093	3297	11000		
25-Jul-22	30	34323	32750	46293	33093	3297	11000		
01-Aug-22	31	33489	31924	45199	31999	4391	11000		
08-Aug-22	32	33039	31474	44515	31315	5075	11000		
15-Aug-22	33	33212	31647	44495	31295	5095	11000		
22-Aug-22	34	32861	31323	44685	31485	4905	11000		
29-Aug-22	35	32397	30878	43965	30765	5625	11000		
05-Sep-22	36	32729	30641	43875	30675	5715	11000		
12-Sep-22	37	32971	30883	44102	30902	5488	11000		
19-Sep-22	38	32359	30272	43665	30465	5925	11000		
26-Sep-22	39	32080	29992	43209	30009	6381	11000		
03-Oct-22	40	32335	30308	43956	30756	5634	11000		
10-Oct-22	41	31698	29809	43187	29987	6403	11000		
17-Oct-22	42	31949	30038	42846	29646	6744	11000		
24-Oct-22	43	31339	29451	42493	29293	7097	11000		
31-Oct-22	44	31659	29346	42359	29159	7231	11000		
07-Nov-22	45	32058	29689	42302	29102	7288	11000		
14-Nov-22	46	31799	29430	42302	29102	7288	11000		
21-Nov-22	47	31478	29109	42096	28896	7494	11000		
28-Nov-22	48	31201	28832	41591	28391	7999	11000		

### 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 Dedisa).**

**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 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 - 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

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	2,099.5	2,381.2	4,794.6
	Max Date	25-Nov-2020 12:00	24-Oct-2021 12:00	21-Nov-2021 17:00	01-Nov-2021 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	504.4	2,099.5	2,381.2	4,794.6
	Max Date	18-Nov-2021 14:00	24-Oct-2021 12:00	21-Nov-2021 17:00	01-Nov-2021 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	1,626,049	4,580,408	7,580,902	13,746,970
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	1,473,682	4,580,408	7,580,902	13,746,970

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	1,744
	Max Date	07-Aug-2021 to 08-Aug-2021
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

Current Installed Capacity (MW)	
CSP	500.0
PV	2,212.1
Wind (Eskom+IPP)	3,023.4
Total (Incl other REs)	5,761.0