Weekly System Status Report – 2021 Week 44 (01/11/2021 – 07/11/2021)

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 01/Nov/2021	28,593	0	26,117	25,566	11.8%	11.8%	2.2%
Tue 02/Nov/2021	29,167	0	28,633	28,272	3.2%	3.2%	1.3%
Wed 03/Nov/2021	30,822	0	28,178	27,990	10.1%	10.1%	0.7%
Thu 04/Nov/2021	29,510	0	27,723	27,731	6.4%	6.4%	0.0%
Fri 05/Nov/2021	28,780	0	26,779	27,118	6.1%	6.1%	-1.2%
Sat 06/Nov/2021	29,018	0	26,495	26,923	7.8%	7.8%	-1.6%
Sun 07/Nov/2021	27,459	0	25,871	26,346	4.2%	4.2%	-1.8%

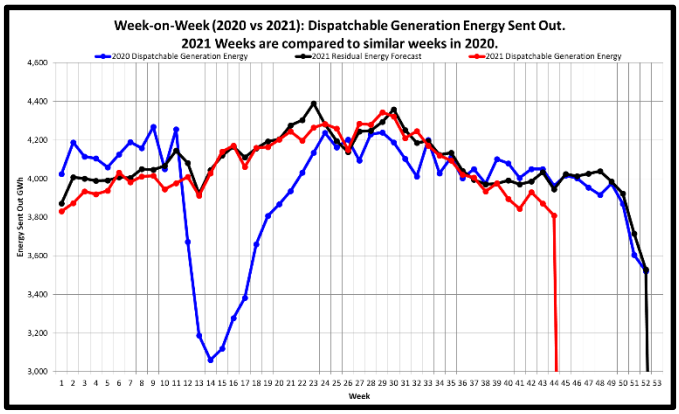
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 01/Nov/2021	30,841	0	28,350	27,813	10.9%	10.9%	1.9%
Tue 02/Nov/2021	30,560	0	29,901	29,578	3.3%	3.3%	1.1%
Wed 03/Nov/2021	32,361	0	29,782	29,530	9.6%	9.6%	0.9%
Thu 04/Nov/2021	31,034	0	29,250	29,255	6.1%	6.1%	0.0%
Fri 05/Nov/2021	30,547	0	28,642	28,885	5.8%	5.8%	-0.8%
Sat 06/Nov/2021	30,514	0	27,984	28,420	7.4%	7.4%	-1.5%
Sun 07/Nov/2021	29,082	0	27,341	27,969	4.0%	4.0%	-2.2%

Notes:

1. 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

[2021 weeks compared to similar 2020 weeks]



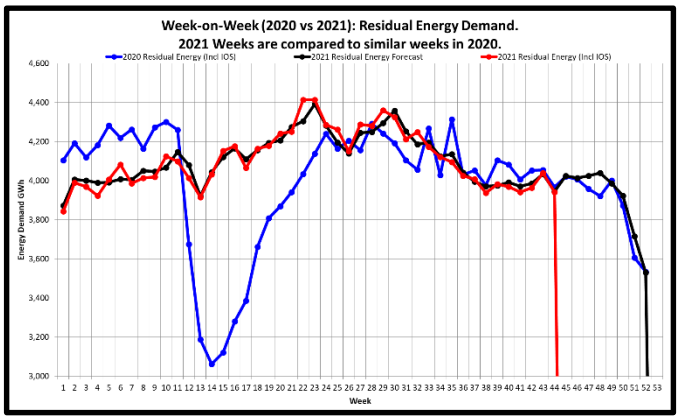
Week 44 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,810	GWh
Week-on-Week Growth	-3.89	%
Year-on-Year Growth (Year-to-Date) Annual	2.46	%

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 07 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	194,512	226,721	GWh
2017	192,950	225,203	GWh
2018	192,203	224,202	GWh
2019	188,624	219,563	GWh
2020	176,805	206,725	GWh
2021 (YTD)	180,535		GWh

Week-on-Week Residual Energy Demand

[2021 weeks compared to similar 2020 weeks]



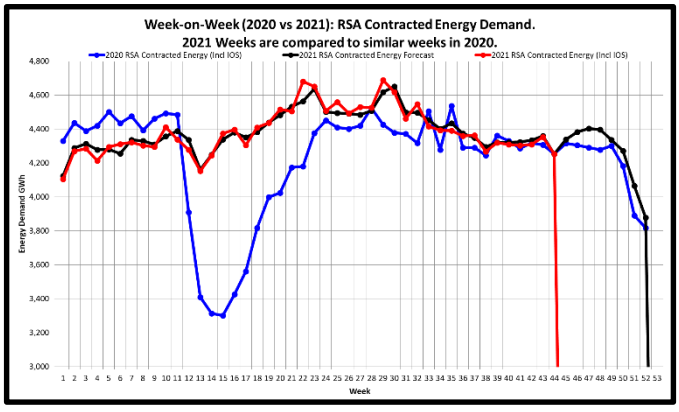
Week 44 : Residual Energy Demand Statistics (Incl IOS)		
Energy Demand	3,940	GWh
Week-on-Week Growth	-0.66	%
Year-on-Year Growth (Year-to-Date) Annual	2.60	%

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 07 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	194,582	226,808	GWh
2017	192,981	225,248	GWh
2018	192,372	224,594	GWh
2019	189,476	220,924	GWh
2020	178,170	208,151	GWh
2021 (YTD)	182,144		GWh

Week-on-Week RSA Contracted Energy Demand

[2021 weeks compared to similar 2020 weeks]



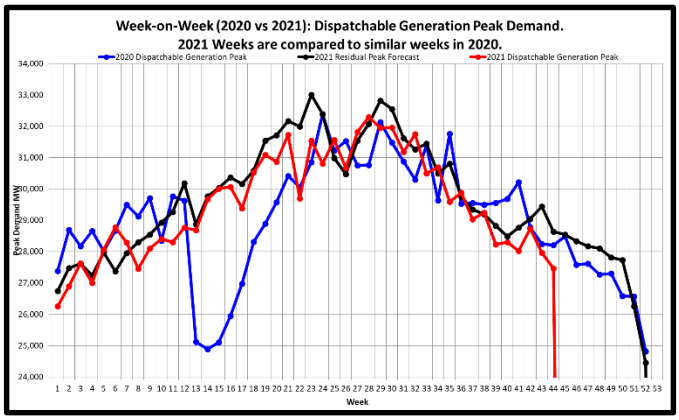
Week 44 : RSA Contracted Energy Demand Statistics (Incl IOS)		
Energy Demand	4,254	GWh
Week-on-Week Growth	-0.01	%
Year-on-Year Growth (Year-to-Date) Annual	3.79	%

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 07 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2016	203,671	238,069	GWh
2017	201,403	235,426	GWh
2018	201,449	235,482	GWh
2019	199,123	232,511	GWh
2020	188,262	220,630	GWh
2021 (YTD)	194,713		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2021 weeks compared to similar 2020 weeks]



Week 44 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	27,466	MW
Week-on-Week Growth	-2.63	%
Year-on-Year Growth (Year-to-Date) Annual	-0.28	%

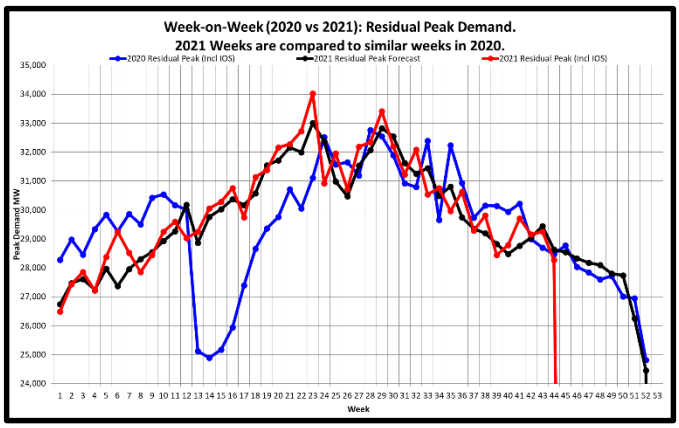
Note:
2021 Weeks are compared to similar weeks in 2020.
(2021 week 1 ~ 2020 week 1)

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 44 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	28,272	MW
Week-on-Week Growth	-0.68	%
Year-on-Year Growth (Year-to-Date) Annual	3.89	%

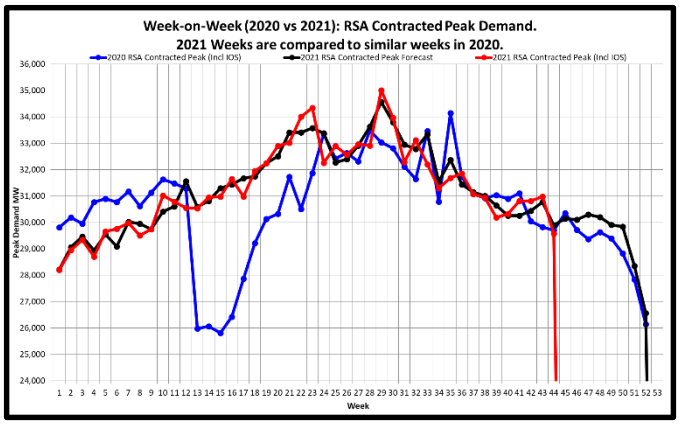
Note:
2021 Weeks are compared to similar weeks in 2020.
(2021 week 1 ~ 2020 week 1)

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 44 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	29,578	MW
Week-on-Week Growth	-0.41	%
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)	
	31	32	33	34	35	36	37	38	39	40	41	42	43	44	YTD	2020
Energy Availability Factor (Eskom EAF)	69.74	64.61	65.36	65.20	64.60	62.12	64.07	62.35	60.90	57.45	58.04	58.68	58.22	57.42	**62.42**	**65.04**
Planned Outage Factor	9.59	11.85	9.69	12.79	11.61	10.44	11.35	13.36	12.22	12.53	11.56	10.99	10.81	9.88	**10.56**	**11.24**
Unplanned Outage Factor	18.57	21.08	22.59	19.46	21.29	24.87	21.28	20.99	23.49	27.21	27.64	27.98	28.62	29.88	**24.05**	**20.88**
Other Outage Factor	2.10	2.46	2.36	2.55	2.50	2.57	3.30	3.30	3.39	2.81	2.76	2.35	2.35	2.82	**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 Senario (-16200 MW)
08-Nov-21	45	30153	28545	43731	29531	5859	12000		
15-Nov-21	46	30105	28332	42660	28460	6930	12000		
22-Nov-21	47	30305	28177	41977	27777	7613	12000		
29-Nov-21	48	30200	28099	41893	27693	7697	12000		
06-Dec-21	49	29910	27809	42113	27913	7477	12000		
13-Dec-21	50	29837	27735	43162	28962	6428	12000		
20-Dec-21	51	28362	26261	42852	28652	6738	12000		
27-Dec-21	52	26565	24464	42852	28652	6738	12000		
03-Jan-22	1	28986	26789	42697	28497	6893	12000		
10-Jan-22	2	29423	27227	42712	28512	6878	12000		
17-Jan-22	3	29894	27698	43101	28901	6489	12000		
24-Jan-22	4	29903	27706	42623	28423	6967	12000		
31-Jan-22	5	30114	27958	42813	28613	6777	12000		
07-Feb-22	6	31070	28914	42846	28646	6744	12000		
14-Feb-22	7	31222	29066	42552	28352	7038	12000		
21-Feb-22	8	31028	28872	42681	28481	6909	12000		
28-Feb-22	9	31137	29264	43125	28925	6465	12000		
07-Mar-22	10	31398	29525	43807	29607	5783	12000		
14-Mar-22	11	31249	29375	43797	29597	5793	12000		
21-Mar-22	12	31216	29161	42913	28713	6677	12000		
28-Mar-22	13	31470	29415	43726	29526	5864	12000		
04-Apr-22	14	31552	30175	44347	31147	5243	11000		
11-Apr-22	15	31814	30437	44537	31337	5053	11000		
18-Apr-22	16	32020	30642	44492	31292	5098	11000		
25-Apr-22	17	32052	30674	44492	31292	5098	11000		
02-May-22	18	32553	31122	44967	31767	4623	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	46254	33054	3336	11000		
06-Jun-22	23	34352	32786	45756	32556	3834	11000		
13-Jun-22	24	34186	32620	45437	32237	4153	11000		
20-Jun-22	25	34427	32861	45735	32535	3855	11000		
27-Jun-22	26	34450	32884	45858	32658	3732	11000		
04-Jul-22	27	34574	33000	45796	32596	3794	11000		
11-Jul-22	28	34644	33071	46033	32833	3557	11000		
18-Jul-22	29	35023	33450	46033	32833	3557	11000		
25-Jul-22	30	34323	32750	45843	32643	3747	11000		
01-Aug-22	31	33489	31924	45228	32028	4362	11000		
08-Aug-22	32	33039	31474	44544	31344	5046	11000		
15-Aug-22	33	33212	31647	44561	31361	5029	11000		
22-Aug-22	34	32861	31323	44561	31361	5029	11000		
29-Aug-22	35	32397	30878	44416	31216	5174	11000		
05-Sep-22	36	32729	30641	44676	31476	4914	11000		
12-Sep-22	37	32971	30883	44291	31091	5299	11000		
19-Sep-22	38	32359	30272	43324	30124	6266	11000		
26-Sep-22	39	32080	29992	43058	29858	6532	11000		
03-Oct-22	40	32335	30308	43590	30390	6000	11000		
10-Oct-22	41	31698	29809	42623	29423	6967	11000		
17-Oct-22	42	31949	30038	42983	29783	6607	11000		
24-Oct-22	43	31339	29451	42630	29430	6960	11000		
31-Oct-22	44	31659	29346	42391	29191	7199	11000		
07-Nov-22	45	32058	29689	42331	29131	7259	11000		
14-Nov-22	46	31799	29430	42942	29742	6648	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 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 - 2021 to 2025. (Published 30 October 2020).

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	2,099.5	2,293.6	4,794.6
	Max Date	25-Nov-2020 12:00	24-Oct-2021 12:00	01-Nov-2021 13:00	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	503.9	2,099.5	2,293.6	4,794.6
	Max Date	03-Nov-2021 11:00	24-Oct-2021 12:00	01-Nov-2021 13:00	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 Maximum	Annual Energy	1,626,049	4,330,531	7,167,109	12,973,661
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	1,367,995	4,330,531	7,167,109	12,973,661

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