

Weekly System Status Report – 2022 Week 20 (16/05/2022 – 22/05/2022)

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 16/May/2022	29,737	0	30,929	31,171	-4.6%	-4.6%	-0.8%
Tue 17/May/2022	30,709	583	31,287	31,872	-3.6%	-1.8%	-1.8%
Wed 18/May/2022	30,971	724	30,858	31,304	-1.1%	1.3%	-1.4%
Thu 19/May/2022	29,789	725	31,332	31,862	-6.5%	-4.2%	-1.7%
Fri 20/May/2022	30,440	724	29,820	30,110	1.1%	3.5%	-1.0%
Sat 21/May/2022	31,155	529	29,927	30,742	1.3%	3.1%	-2.6%
Sun 22/May/2022	31,058	726	30,368	30,789	0.9%	3.2%	-1.4%

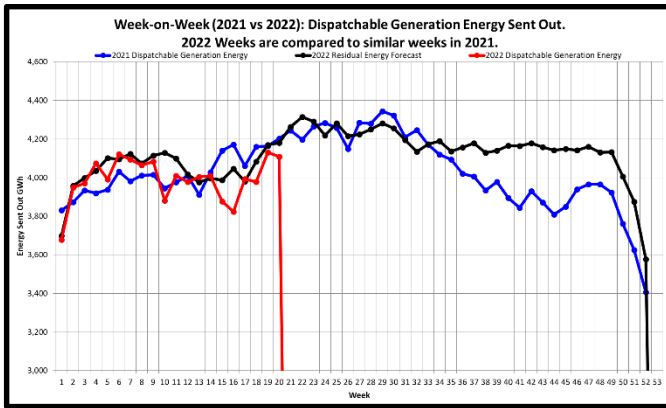
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 16/May/2022	30,726	0	32,003	32,160	-4.5%	-4.5%	-0.5%
Tue 17/May/2022	31,610	583	32,301	32,773	-3.5%	-1.8%	-1.4%
Wed 18/May/2022	32,702	724	32,376	33,035	-1.0%	1.2%	-2.0%
Thu 19/May/2022	30,986	725	33,133	33,058	-6.3%	-4.1%	0.2%
Fri 20/May/2022	32,221	724	31,571	31,892	1.0%	3.3%	-1.0%
Sat 21/May/2022	32,397	529	31,169	31,983	1.3%	2.9%	-2.5%
Sun 22/May/2022	31,373	726	30,668	31,104	0.9%	3.2%	-1.4%

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) = 49 512 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]



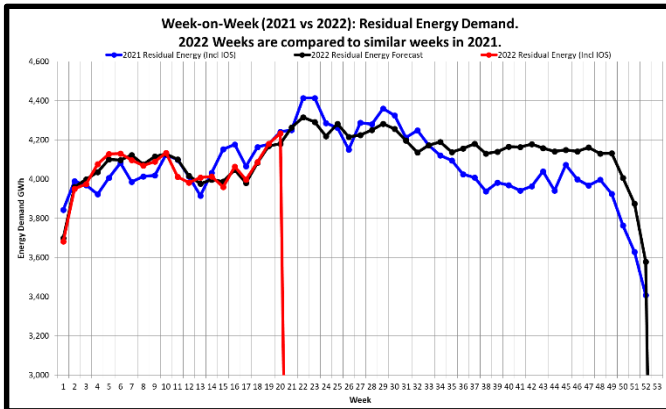
Week 20 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	4,110	GWh
Week-on-Week Growth	-2.20	%
Year-on-Year Growth (Year-to-Date) Annual	-0.61	%

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

Annual Dispatchable Generation Energy Sent Out Statistics			
Year	01 Jan to 22 May Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	86,900	225,203	GWh
2018	86,133	224,202	GWh
2019	84,876	219,563	GWh
2020	78,082	206,725	GWh
2021	81,202	210,022	GWh
2022 (YTD)	80,764		GWh

Week-on-Week Residual Energy Demand

[2022 weeks compared to similar 2021 weeks]



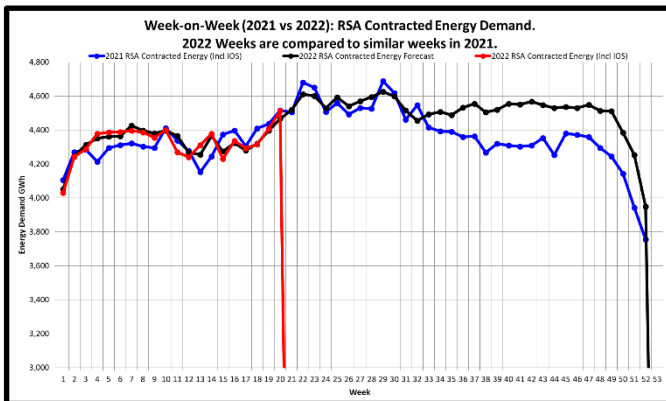
Week 20 : Residual Energy Demand Statistics (Incl IOS)		
Energy Demand	4,233	GWh
Week-on-Week Growth	-0.19	%
Year-on-Year Growth (Year-to-Date) Annual	-0.15	%

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 22 May Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	86,899	225,248	GWh
2018	86,187	224,594	GWh
2019	85,555	220,924	GWh
2020	78,944	208,151	GWh
2021	81,885	211,958	GWh
2022 (YTD)	81,812		GWh

Week-on-Week RSA Contracted Energy Demand

[2022 weeks compared to similar 2021 weeks]



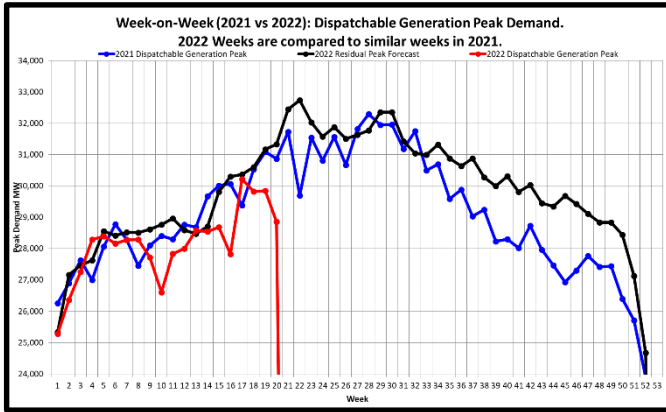
Week 20 : RSA Contracted Energy Demand Statistics (Incl IOS)		
Energy Demand	4,514	GWh
Week-on-Week Growth	-0.06	%
Year-on-Year Growth (Year-to-Date) Annual	0.33	%

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 22 May Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	91,034	235,426	GWh
2018	90,297	235,482	GWh
2019	89,986	232,511	GWh
2020	83,279	220,630	GWh
2021	87,265	227,166	GWh
2022 (YTD)	87,612		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2022 weeks compared to similar 2021 weeks]



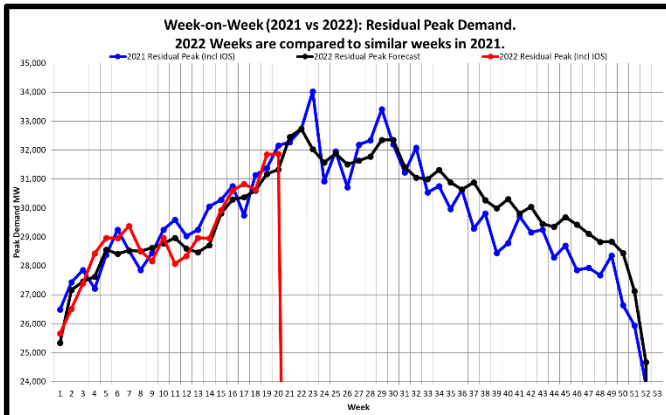
Week 20 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	28,853	MW
Week-on-Week Growth	-6.52	%
Year-on-Year Growth (Year-to-Date) Annual	-2.81	%

Note:
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)	Mon 25-Apr-2022	30,219	MW

Week-on-Week Residual Peak Demand

[2022 weeks compared to similar 2021 weeks]



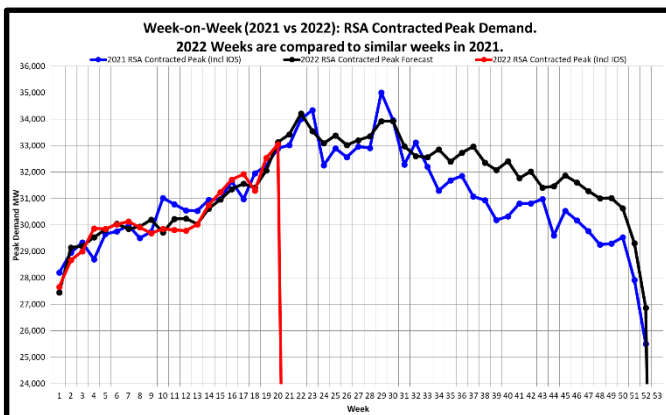
Week 20 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	31,872	MW
Week-on-Week Growth	-0.88	%
Year-on-Year Growth (Year-to-Date) Annual	-0.88	%

Note:
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 17-May-2022	31,872	MW

Week-on-Week RSA Contracted Peak Demand

[2022 weeks compared to similar 2021 weeks]



Week 20 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	33,058	MW
Week-on-Week Growth	0.47	%
Year-on-Year Growth (Year-to-Date) Annual	0.47	%

Note:
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)	Thu 19-May-2022	33,058	MW

Weekly Generation Availability

	Week															Annual (Jan - Dec)	
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	2022	2021	
Energy Availability Factor (Eskom EAF)	60.12	60.71	58.75	56.39	60.04	60.02	59.08	60.26	56.02	55.61	59.01	60.02	60.80	60.05	58.89	61.79	
Planned Outage Factor	11.04	11.63	11.80	13.91	11.89	12.83	14.18	12.13	11.88	11.21	10.29	8.67	5.18	5.69	11.35	10.81	
Unplanned Outage Factor	27.34	26.22	28.09	28.34	26.86	25.83	25.42	26.67	30.59	31.76	29.31	30.23	33.15	33.71	28.38	24.53	
Other Outage Factor	1.50	1.44	1.36	1.36	1.21	1.32	1.32	0.94	1.51	1.42	1.39	1.08	0.87	0.55	1.38	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.

Week Start	Week	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)
23-May-22	21	33430	32450	46486	32286	3026	12000		
30-May-22	22	34214	32739	46946	32746	2566	12000		
06-Jun-22	23	33548	32034	45875	31675	3637	12000		
13-Jun-22	24	33089	31575	45524	31324	3988	12000		
20-Jun-22	25	33388	31874	45672	31472	3840	12000		
27-Jun-22	26	33025	31511	44766	30566	4746	12000		
04-Jul-22	27	33205	31632	45393	31193	4119	12000		
11-Jul-22	28	33350	31777	46031	31831	3481	12000		
18-Jul-22	29	33925	32352	46624	32424	2888	12000		
25-Jul-22	30	33926	32352	45368	31168	4144	12000		
01-Aug-22	31	32989	31424	45368	31168	4144	12000		
08-Aug-22	32	32610	31045	44605	30405	4907	12000		
15-Aug-22	33	32562	30987	44446	30246	5066	12000		
22-Aug-22	34	32861	31323	44783	30583	4729	12000		
29-Aug-22	35	32397	30878	44063	29963	5449	12000		
05-Sep-22	36	32729	30641	43933	28733	5579	13000		
12-Sep-22	37	32971	30883	44250	29050	5262	13000		
19-Sep-22	38	32359	30272	43813	28613	5699	13000		
26-Sep-22	39	32080	29992	43561	28361	5951	13000		
03-Oct-22	40	32414	30308	43708	28508	5804	13000		
10-Oct-22	41	31774	29809	42878	27678	6634	13000		
17-Oct-22	42	32028	30038	43674	28474	5837	13000		
24-Oct-22	43	31415	29451	42665	27465	6846	13000		
31-Oct-22	44	31472	29346	42631	27431	6880	13000		
07-Nov-22	45	31872	29689	42505	27305	7006	13000		
14-Nov-22	46	31613	29430	42486	27286	7026	13000		
21-Nov-22	47	31292	29109	42218	27018	7293	13000		
28-Nov-22	48	31015	28832	41421	26221	8091	13000		
05-Dec-22	49	31023	28837	42277	27077	7235	13000		
12-Dec-22	50	30633	28446	42300	27100	7212	13000		
19-Dec-22	51	29318	27132	42171	26971	7341	13000		
26-Dec-22	52	28867	24680	39292	24092	10220	13000		
02-Jan-23	1	28588	26066	40442	25242	9070	13000		
09-Jan-23	2	29704	27670	41665	26465	7847	13000		
16-Jan-23	3	30496	28461	42028	26828	7484	13000		
23-Jan-23	4	30174	28139	42050	26850	7462	13000		
30-Jan-23	5	30383	28349	41485	26285	8027	13000		
06-Feb-23	6	30997	29208	42057	26857	7455	13000		
13-Feb-23	7	30835	29045	41857	26657	7655	13000		
20-Feb-23	8	30909	29119	42849	27449	6863	13000		
27-Feb-23	9	30721	29153	42592	27392	6920	13000		
06-Mar-23	10	31153	29585	43411	28211	6101	13000		
13-Mar-23	11	30805	29237	43427	28227	6085	13000		
20-Mar-23	12	31014	29366	43387	28187	6125	13000		
27-Mar-23	13	30853	29206	43367	28167	6125	13000		
03-Apr-23	14	32228	30573	44375	30175	5137	12000		
10-Apr-23	15	32502	30846	44725	30525	4787	12000		
17-Apr-23	16	32993	31338	44911	30711	4601	12000		
24-Apr-23	17	33677	32021	45486	31286	4026	12000		
01-May-23	18	33850	32419	46203	32003	3309	12000		
08-May-23	19	34781	33349	46843	32643	2669	12000		
15-May-23	20	34953	33522	47418	33218	2094	12000		
22-May-23	21	35280	33849	47618	33418	1894	12000		
29-May-23	22	36098	34667	47561	33361	1951	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 (13000 MW from September 2022)

Reserves: OR + UA = 14 200 MW

Eskom Installed Capacity: 48 507 MW (Incl. non-comm. Kusile units).

Installed Dispatchable Capacity: 49 512 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

Current Installed Capacity (MW)	
CSP	500.0
PV	2,212.1
Wind (Eskom+IPP)	3,163.4
Total (Incl other REs)	5,926.0

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	506.2	2,099.5	2,639.3	4,784.7
	Max Date	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
	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	504.9	2,099.5	2,639.3	4,784.7
	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	2,025.1	2,364.2	4,383.0
	Max Date	15-Mar-2022 15:00	05-Jan-2022 11:00	18-May-2022 11:00	06-Apr-2022 15:00

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	1,656,017	5,069,146	8,359,224	15,208,327
	Total Energy	529,522	2,630,141	3,730,771	6,951,261
2016	Total Energy	687,703	3,324,857	5,081,023	9,198,632
	Total Energy	1,031,288	3,282,124	6,467,095	10,887,902
2017	Total Energy	1,557,151	3,324,989	6,624,642	11,586,945
	Total Energy	1,626,049	4,140,212	6,625,830	12,478,704
2018	Total Energy	1,656,017	5,069,146	8,359,224	15,208,327
	Total Energy	613,359	2,028,900	3,401,239	6,116,788

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
2022	Maximum	1,364
	Max Date	15-Feb-2022 to 16-Feb-2022

Maximum proportion that Renewables contributed towards actual hourly energy supplied (%) - based on System Operator data (subject to metering verification)		
Cal Year	Indicator	Total (Incl other REs)
All Time	Maximum	19.1%
	Max Date	01-Nov-2021 13:00
2016	Maximum	9.8%
	Max Date	23-Dec-2016 13:00
2017	Maximum	12.7%
	Max Date	25-Dec-2017 15:00
2018	Maximum	13.1%
	Max Date	01-Jan-2018 14:00
2019	Maximum	13.9%
	Max Date	14-Dec-2019 14:00
2020	Maximum	16.1%
	Max Date	27-Dec-2020 15:00
2021	Maximum	19.1%
	Max Date	01-Nov-2021 13:00
2022	Maximum	18.0%
	Max Date	01-Jan-2022 15:00