

Weekly System Status Report – 2022 Week 47 (21/11/2022 – 27/11/2022)

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 21/Nov/2022	29,329	0	28,108	28,488	3.0%	3.0%	-1.3%
Tue 22/Nov/2022	29,247	0	28,309	28,732	1.8%	1.8%	-1.5%
Wed 23/Nov/2022	29,666	0	27,811	27,953	6.1%	6.1%	-0.5%
Thu 24/Nov/2022	28,487	0	27,718	27,335	4.2%	4.2%	1.4%
Fri 25/Nov/2022	29,186	0	26,734	26,237	11.2%	11.2%	1.9%
Sat 26/Nov/2022	27,841	0	25,444	24,630	13.0%	13.0%	3.3%
Sun 27/Nov/2022	28,023	0	25,108	25,545	9.7%	9.7%	-1.7%

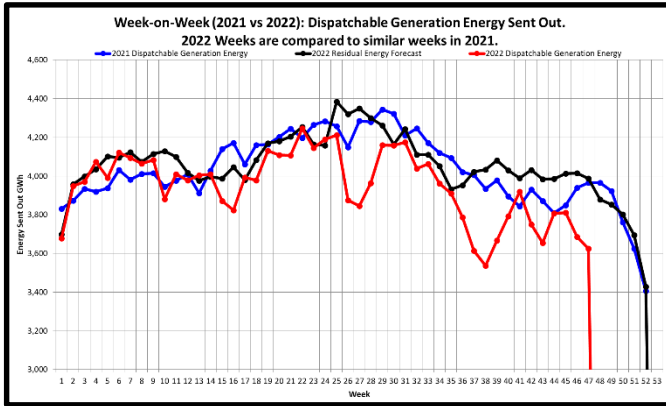
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 21/Nov/2022	30,928	0	30,056	30,088	2.8%	2.8%	-0.1%
Tue 22/Nov/2022	30,637	0	30,066	30,122	1.7%	1.7%	-0.2%
Wed 23/Nov/2022	31,769	0	29,975	30,056	5.7%	5.7%	-0.3%
Thu 24/Nov/2022	29,931	0	30,214	28,779	4.0%	4.0%	5.0%
Fri 25/Nov/2022	31,295	0	28,831	28,346	10.4%	10.4%	1.7%
Sat 26/Nov/2022	30,148	0	27,868	26,936	11.9%	11.9%	3.5%
Sun 27/Nov/2022	30,101	0	27,410	27,624	9.0%	9.0%	-0.8%

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) = 49 191 MW.
- 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

[2022 weeks compared to similar 2021 weeks]



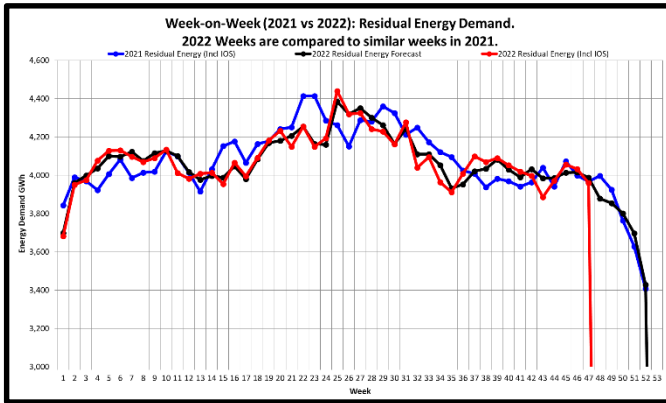
Week 47 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,624	GWh
Week-on-Week Growth	-8.59	%
Year-on-Year Growth (Year-to-Date) Annual	-2.78	%

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 27 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	205,265	225,203	GWh
2018	204,610	224,202	GWh
2019	200,611	219,563	GWh
2020	188,237	206,725	GWh
2021	191,758	210,022	GWh
2022 (YTD)	186,462		GWh

Week-on-Week Residual Energy Demand

[2022 weeks compared to similar 2021 weeks]



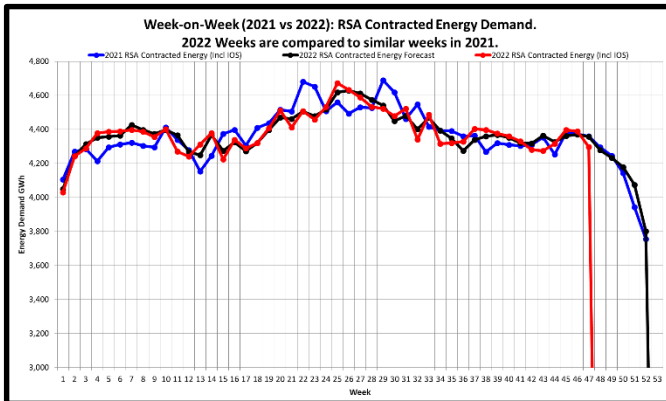
Week 47 : Residual Energy Demand Statistics (Incl IOS)		
Energy Demand	3,960	GWh
Week-on-Week Growth	-0.19	%
Year-on-Year Growth (Year-to-Date) Annual	-0.45	%

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 27 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	205,297	225,248	GWh
2018	204,797	224,594	GWh
2019	201,527	220,924	GWh
2020	189,612	208,151	GWh
2021	193,653	211,958	GWh
2022 (YTD)	192,789		GWh

Week-on-Week RSA Contracted Energy Demand

[2022 weeks compared to similar 2021 weeks]

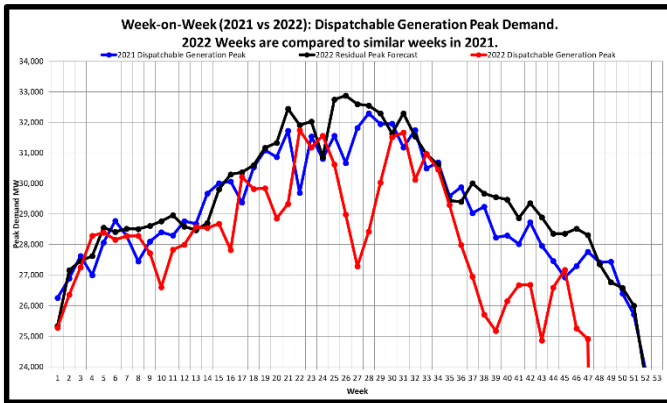


Week 47 : RSA Contracted Energy Demand Statistics (Incl IOS)		
Energy Demand	4,298	GWh
Week-on-Week Growth	-1.46	%
Year-on-Year Growth (Year-to-Date) Annual	-0.08	%

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 27 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	214,341	235,426	GWh
2018	214,525	235,482	GWh
2019	211,902	232,511	GWh
2020	200,588	220,630	GWh
2021	207,244	227,166	GWh
2022 (YTD)	207,096		GWh

Week-on-Week Dispatchable Generation Peak Demand



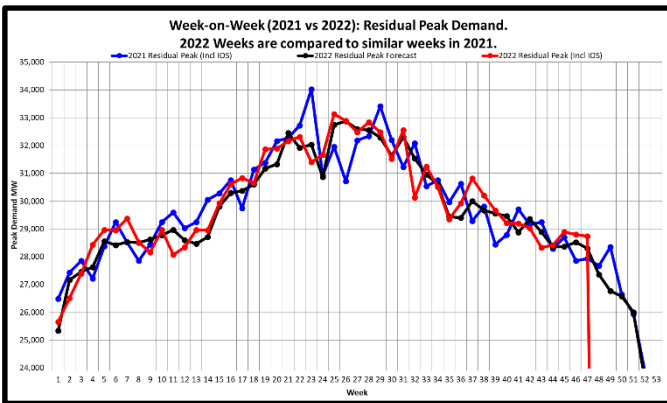
[2022 weeks compared to similar 2021 weeks]

Week 47 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	24,915	MW
Week-on-Week Growth	-10.27	%
Year-on-Year Growth (Year-to-Date) Annual	-1.66	%

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)	Thu 02-Jun-2022	31,756	MW

Week-on-Week Residual Peak Demand



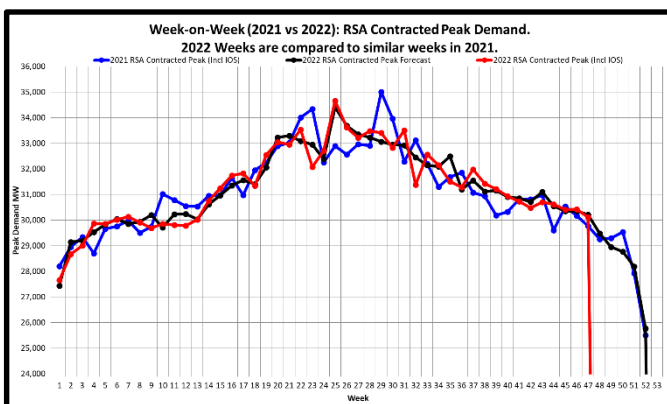
[2022 weeks compared to similar 2021 weeks]

Week 47 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	28,732	MW
Week-on-Week Growth	2.85	%
Year-on-Year Growth (Year-to-Date) Annual	-2.62	%

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)	Thu 23-Jun-2022	33,136	MW

Week-on-Week RSA Contracted Peak Demand



[2022 weeks compared to similar 2021 weeks]

Week 47 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	30,122	MW
Week-on-Week Growth	1.18	%
Year-on-Year Growth (Year-to-Date) Annual	-0.97	%

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 23-Jun-2022	34,666	MW

Weekly Generation Availability

	Week															Annual (Jan - Dec)	
	34	35	36	37	38	39	40	41	42	43	44	45	46	47	2022	2021	
Energy Availability Factor (Eskom EAF)	61.06	59.46	56.28	52.71	53.16	55.42	56.91	58.37	55.31	56.64	59.09	55.44	56.65	56.77	58.75	61.79	
Planned Outage Factor	10.73	10.59	11.06	13.56	10.44	11.43	13.33	11.11	11.58	12.05	9.58	11.33	9.85	12.12	10.28	10.81	
Unplanned Outage Factor	27.74	29.40	31.94	33.12	35.36	32.12	28.54	29.22	31.91	29.82	29.12	31.05	31.34	28.91	29.43	24.53	
Other Outage Factor	0.47	0.55	0.72	0.61	1.04	1.03	1.22	1.30	1.20	1.49	2.21	2.18	2.16	2.20	1.54	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)

52 Week Outlook

This is the forecast demand vs. available generating capacity for each week for 52 weeks 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 (-15200 MW)	MW Likely Risk Scenario (-16700 MW)
28-Nov-22	48	28481	27359	43827	28427	5565	13000		
05-Dec-22	49	28952	26765	42890	27490	6501	13000		
12-Dec-22	50	28768	26582	42115	26915	7076	13000		
19-Dec-22	51	28195	26008	42550	27350	6641	13000		
26-Dec-22	52	25773	23586	41654	26454	7537	13000		
02-Jan-23	1	27906	25872	41838	26638	7353	13000		
09-Jan-23	2	28978	26944	43656	28456	5535	13000		
16-Jan-23	3	29727	27693	42999	27799	6192	13000		
23-Jan-23	4	29904	27869	42999	27799	6192	13000		
30-Jan-23	5	30014	28039	43402	28202	5789	13000		
06-Feb-23	6	30247	28457	43392	28192	5799	13000		
13-Feb-23	7	30388	28598	43692	28492	5499	13000		
20-Feb-23	8	30389	28599	43599	28399	5592	13000		
27-Feb-23	9	30721	29153	44466	29266	4725	13000		
06-Mar-23	10	31153	29585	44523	29323	4668	13000		
13-Mar-23	11	30805	29237	44523	29323	4668	13000		
20-Mar-23	12	31014	29366	44523	29323	4668	13000		
27-Mar-23	13	30853	29206	44523	29323	4668	13000		
03-Apr-23	14	32219	30573	44523	29323	4668	13000		
10-Apr-23	15	32493	30846	44823	29623	4368	13000		
17-Apr-23	16	32984	31338	45408	30208	3783	13000		
24-Apr-23	17	33668	32021	46023	30823	3168	13000		
01-May-23	18	33601	32419	46213	31013	2978	13000		
08-May-23	19	34531	33349	46987	31787	2204	13000		
15-May-23	20	34704	33522	46987	31787	2204	13000		
22-May-23	21	35031	33849	47177	31977	2014	13000		
29-May-23	22	35849	34667	47320	32120	1871	13000		
05-Jun-23	23	35053	33773	47172	31972	2019	13000		
12-Jun-23	24	35055	33774	47120	31920	2071	13000		
19-Jun-23	25	34886	33605	47120	31920	2071	13000		
26-Jun-23	26	35391	34110	47967	32767	1224	13000		
03-Jul-23	27	35153	33662	47585	32385	1606	13000		
10-Jul-23	28	35127	33636	47585	32385	1606	13000		
17-Jul-23	29	35242	33751	47970	32770	1221	13000		
24-Jul-23	30	35288	33797	47822	32422	1569	13000		
31-Jul-23	31	34476	32985	47104	31904	2087	13000		
07-Aug-23	32	34154	32460	46407	31207	2784	13000		
14-Aug-23	33	33807	32114	45860	30660	3331	13000		
21-Aug-23	34	33730	32037	46179	30979	3012	13000		
28-Aug-23	35	33641	31961	45734	30534	3457	13000		
04-Sep-23	36	33478	31791	45901	30701	3290	13000		
11-Sep-23	37	33126	31440	45906	30706	3285	13000		
18-Sep-23	38	32252	30565	45331	30131	3860	13000		
25-Sep-23	39	32248	30561	44350	29150	4841	13000		
02-Oct-23	40	32438	30461	43970	28770	5221	13000		
09-Oct-23	41	31837	29871	44060	28860	5131	13000		
16-Oct-23	42	31305	29362	43833	28633	5358	13000		
23-Oct-23	43	30945	29062	42963	27763	6228	13000		
30-Oct-23	44	31035	29125	43133	27933	6058	13000		
06-Nov-23	45	31002	28819	42377	27177	6814	13000		
13-Nov-23	46	30872	28689	42490	27290	6701	13000		
20-Nov-23	47	30689	28506	41907	26707	7284	13000		
27-Nov-23	48	30642	28459	41780	26580	7411	13000		
04-Dec-23	49	30588	28401	41312	27932	6059	13000		

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 1500 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): 13 000

Reserves: OR + UA = 15 200 MW

Eskom Installed Capacity: 48 186 MW.

Installed Dispatchable Capacity: 49 191 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 - 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	2,287.1
Wind (Eskom+IPP)	3,442.6
Total (Incl other REs)	6,280.2

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	2,921.0	5,126.1
	Max Date	15-Mar-2022 15:00	24-Oct-2021 12:00	01-Jul-2022 13:00	05-Sep-2022 12:00
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	2,051.6	2,921.0	5,126.1
	Max Date	15-Mar-2022 15:00	20-Nov-2022 11:00	01-Jul-2022 13:00	05-Sep-2022 12:00

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	8,693,665	15,208,327
	Maximum				
2016	Total Energy	529,522	2,630,141	3,730,771	6,951,261
	Maximum				
2017	Total Energy	687,703	3,324,857	5,081,023	9,198,632
	Maximum				
2018	Total Energy	1,031,288	3,282,124	6,467,095	10,887,902
	Maximum				
2019	Total Energy	1,557,151	3,324,989	6,624,642	11,586,945
	Maximum				
2020	Total Energy	1,626,049	4,140,212	6,625,830	12,478,704
	Maximum				
2021	Total Energy	1,656,017	5,069,146	8,359,224	15,208,327
	Maximum				
2022	Total Energy	1,256,599	4,331,129	8,693,665	14,481,126
	Maximum				

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	1,523
	Max Date	07-Aug-2022 to 08-Aug-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	19.3%
	Max Date	05-Sep-2022 12:00
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	19.3%
	Max Date	05-Sep-2022 12:00