

Weekly System Status Report – 2022 Week 51 (19/12/2022 – 25/12/2022)

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

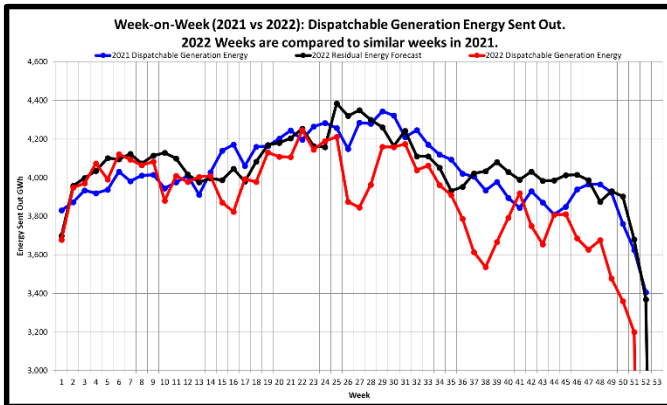
Date	Available Dispatchable Generation (MW)	Non-commercial Generation (MW)	Residual Load Forecast (MW)	Actual Residual Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (Residual Demand)
Mon 19/Dec/2022	25,604	0	26,163	26,104	-1.9%	-1.9%	0.2%
Tue 20/Dec/2022	24,384	0	25,851	25,548	-4.6%	-4.6%	1.2%
Wed 21/Dec/2022	27,080	0	25,488	25,576	5.9%	5.9%	-0.3%
Thu 22/Dec/2022	26,058	0	25,098	24,848	4.9%	4.9%	1.0%
Fri 23/Dec/2022	25,519	0	24,341	24,724	3.2%	3.2%	-1.5%
Sat 24/Dec/2022	25,680	0	23,029	22,265	15.3%	15.3%	3.4%
Sun 25/Dec/2022	26,580	0	21,871	20,893	27.2%	27.2%	4.7%

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 19/Dec/2022	28,059	0	28,524	28,559	-1.8%	-1.8%	-0.1%
Tue 20/Dec/2022	27,033	0	28,363	28,197	-4.1%	-4.1%	0.6%
Wed 21/Dec/2022	29,016	0	27,604	27,512	5.5%	5.5%	0.3%
Thu 22/Dec/2022	28,630	0	27,244	27,420	4.4%	4.4%	-0.6%
Fri 23/Dec/2022	26,794	0	26,249	25,999	3.1%	3.1%	1.0%
Sat 24/Dec/2022	27,530	0	25,053	24,116	14.2%	14.2%	3.9%
Sun 25/Dec/2022	29,121	0	24,988	23,791	22.4%	22.4%	5.0%

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) = 49 191 MW.
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



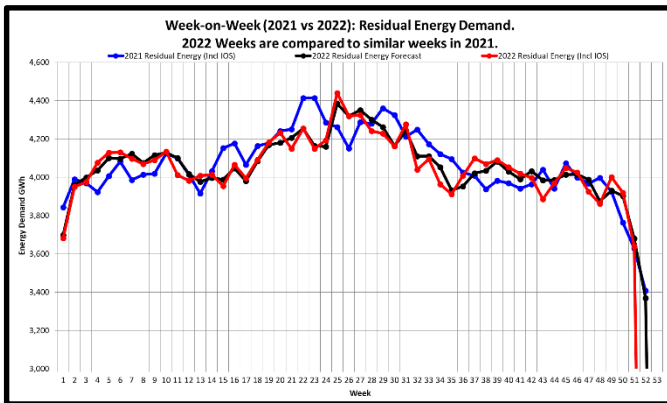
[2022 weeks compared to similar 2021 weeks]

Week 51 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,200	GWh
Week-on-Week Growth	-11.72	%
Year-on-Year Growth (Year-to-Date) Annual	-3.33	%

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 25 Dec Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	222,043	225,203	GWh
2018	221,015	224,202	GWh
2019	216,463	219,563	GWh
2020	203,725	206,725	GWh
2021	207,089	210,022	GWh
2022 (YTD)	200,179		GWh

Week-on-Week Residual Energy Demand



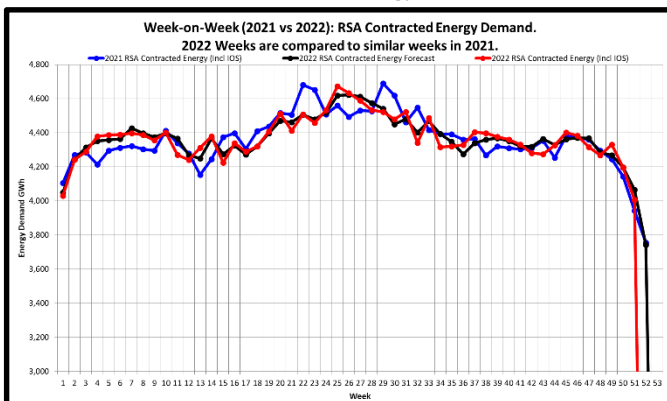
[2022 weeks compared to similar 2021 weeks]

Week 51 : Residual Energy Demand Statistics (Incl IOS)		
Energy Demand	3,639	GWh
Week-on-Week Growth	0.30	%
Year-on-Year Growth (Year-to-Date) Annual	-0.39	%

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 25 Dec Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	222,088	225,248	GWh
2018	221,401	224,594	GWh
2019	217,823	220,924	GWh
2020	205,137	208,151	GWh
2021	209,024	211,958	GWh
2022 (YTD)	208,159		GWh

Week-on-Week RSA Contracted Energy Demand



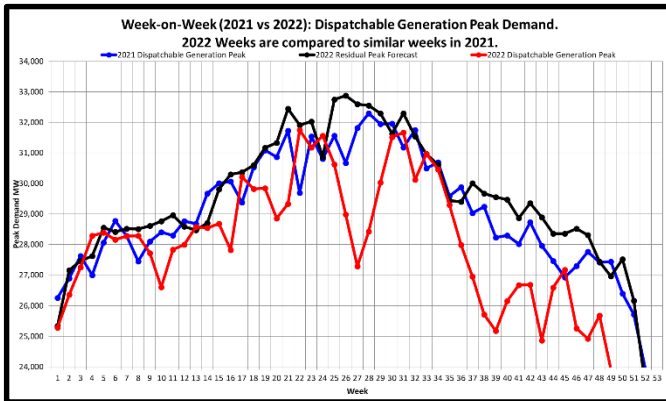
[2022 weeks compared to similar 2021 weeks]

Week 51 : RSA Contracted Energy Demand Statistics (Incl IOS)		
Energy Demand	4,007	GWh
Week-on-Week Growth	1.61	%
Year-on-Year Growth (Year-to-Date) Annual	0.01	%

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 25 Dec Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	232,069	235,426	GWh
2018	232,081	235,482	GWh
2019	229,195	232,511	GWh
2020	217,368	220,630	GWh
2021	223,940	227,166	GWh
2022 (YTD)	223,927		GWh

Week-on-Week Dispatchable Generation Peak Demand



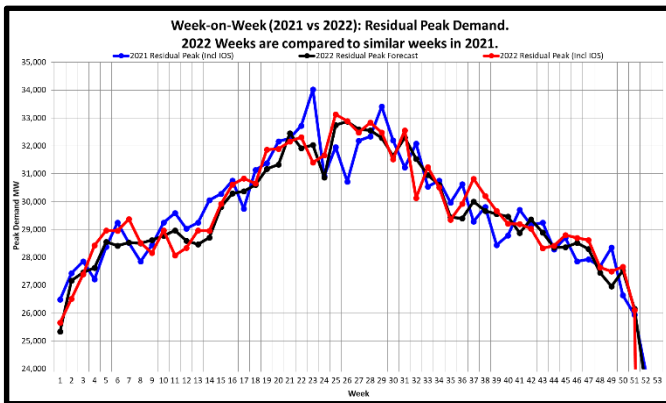
[2022 weeks compared to similar 2021 weeks]

Week 51 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	22,020	MW
Week-on-Week Growth	-14.35	%
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



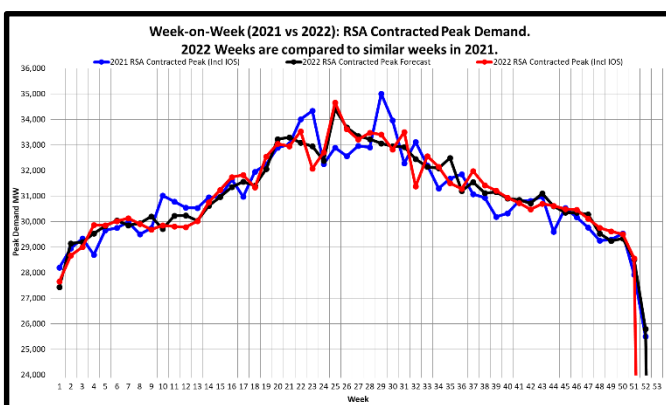
[2022 weeks compared to similar 2021 weeks]

Week 51 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	26,104	MW
Week-on-Week Growth	0.62	%
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 51 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	28,559	MW
Week-on-Week Growth	2.26	%
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)	
	38	39	40	41	42	43	44	45	46	47	48	49	50	51	2022	2021	
Energy Availability Factor (Eskom EAF)	53.16	55.42	56.91	58.34	55.31	56.62	59.01	55.24	56.44	56.51	54.49	51.53	50.75	50.43	58.15	61.79	
Planned Outage Factor	10.44	11.43	13.33	11.11	11.58	12.05	9.62	11.35	9.89	12.19	9.13	11.47	15.34	16.59	10.55	10.81	
Unplanned Outage Factor	35.36	32.12	28.54	29.25	31.91	29.84	29.28	31.37	31.59	29.07	34.49	35.31	32.76	32.01	29.78	24.53	
Other Outage Factor	1.04	1.03	1.22	1.30	1.20	1.49	2.09	2.04	2.08	2.23	1.89	1.69	1.15	0.97	1.52	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)
26-Dec-22	52	25799	23340	40742	25542	8449	13000		
02-Jan-23	1	27829	25795	42456	27256	6735	13000		
09-Jan-23	2	28880	26845	43656	28456	5535	13000		
16-Jan-23	3	29372	27337	43016	27816	6175	13000		
23-Jan-23	4	29522	27488	43591	28391	5600	13000		
30-Jan-23	5	29722	27932	43994	28794	5197	13000		
06-Feb-23	6	30074	28284	43344	28144	5847	13000		
13-Feb-23	7	30199	28409	43644	28444	5547	13000		
20-Feb-23	8	30034	28244	43319	28119	5872	13000		
27-Feb-23	9	29937	28175	43788	28588	5403	13000		
06-Mar-23	10	30316	28748	43788	28588	5403	13000		
13-Mar-23	11	30401	28833	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	43931	28731	5260	13000		
10-Apr-23	15	32493	30846	44231	29031	4960	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	46967	31787	2204	13000		
15-May-23	20	34704	33522	46967	31787	2204	13000		
22-May-23	21	35031	33849	47177	31977	2014	13000		
29-May-23	22	35849	34667	47377	32177	1814	13000		
05-Jun-23	23	35053	33773	47229	32029	1962	13000		
12-Jun-23	24	35055	33774	47177	31977	2014	13000		
19-Jun-23	25	34886	33605	47177	31977	2014	13000		
26-Jun-23	26	35391	34110	47100	31900	2091	13000		
03-Jul-23	27	35153	33662	47642	32442	1549	13000		
10-Jul-23	28	35127	33636	47642	32442	1549	13000		
17-Jul-23	29	35242	33751	47970	32770	1221	13000		
24-Jul-23	30	35288	33797	47622	32422	1569	13000		
31-Jul-23	31	34476	32985	47047	31847	2144	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	45388	30188	3803	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	43776	28576	5415	13000		
23-Oct-23	43	30945	29062	42963	27763	6228	13000		
30-Oct-23	44	31008	29125	43133	27933	6058	13000		
06-Nov-23	45	30887	28819	42377	27177	6814	13000		
13-Nov-23	46	30757	28689	42490	27290	6701	13000		
20-Nov-23	47	30574	28506	41907	26707	7284	13000		
27-Nov-23	48	30527	28459	41780	26580	7411	13000		
04-Dec-23	49	30588	28401	43132	27932	6059	13000		
11-Dec-23	50	30007	27820	41939	26739	7252	13000		
18-Dec-23	51	28906	26719	40390	25190	8801	13000		
25-Dec-23	52	26888	24702	40190	24990	9001	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	2,048.8	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	9,601,271	16,085,576
	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	1,438,229	4,825,662	9,601,271	16,085,576
	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