

Weekly System Status Report – 2022 Week 45 (07/11/2022 – 13/11/2022)

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

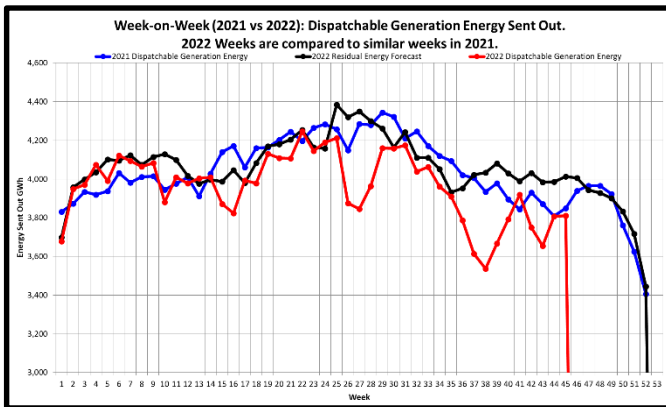
Date	Available Dispatchable Generation (MW)	Non-commercial Generation (MW)	Residual Load Forecast (MW)	Actual Residual Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (Residual Demand)
Mon 07/Nov2022	30,030	0	28,022	28,889	4.0%	4.0%	-3.0%
Tue 08/Nov2022	28,589	0	28,364	28,724	-0.5%	-0.5%	-1.3%
Wed 09/Nov2022	27,972	0	28,045	27,898	0.3%	0.3%	0.5%
Thu 10/Nov2022	28,768	0	27,882	28,090	2.4%	2.4%	-0.7%
Fri 11/Nov2022	29,427	0	26,976	28,044	4.9%	4.9%	-3.8%
Sat 12/Nov2022	27,374	0	25,924	25,917	5.6%	5.6%	0.0%
Sun 13/Nov2022	28,086	0	26,420	26,937	4.3%	4.3%	-1.9%
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 07/Nov2022	31,404	0	29,679	30,263	3.8%	3.8%	-1.9%
Tue 08/Nov2022	30,245	0	29,744	30,379	-0.4%	-0.4%	-2.1%
Wed 09/Nov2022	30,270	0	30,113	30,197	0.2%	0.2%	-0.3%
Thu 10/Nov2022	31,218	0	30,360	30,540	2.2%	2.2%	-0.6%
Fri 11/Nov2022	31,231	0	28,972	29,848	4.6%	4.6%	-2.9%
Sat 12/Nov2022	29,870	0	28,043	28,414	5.1%	5.1%	-1.3%
Sun 13/Nov2022	29,805	0	28,188	28,656	4.0%	4.0%	-1.6%

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]



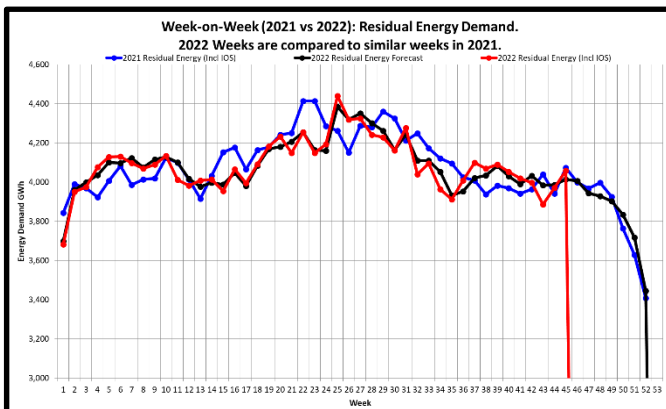
Week 45 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,811	GWh
Week-on-Week Growth	-1.02	%
Year-on-Year Growth (Year-to-Date) Annual	-2.57	%

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 13 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	196,628	225,203	GWh
2018	195,908	224,202	GWh
2019	192,190	219,563	GWh
2020	180,267	206,725	GWh
2021	183,833	210,022	GWh
2022 (YTD)	179,152		GWh

Week-on-Week Residual Energy Demand

[2022 weeks compared to similar 2021 weeks]



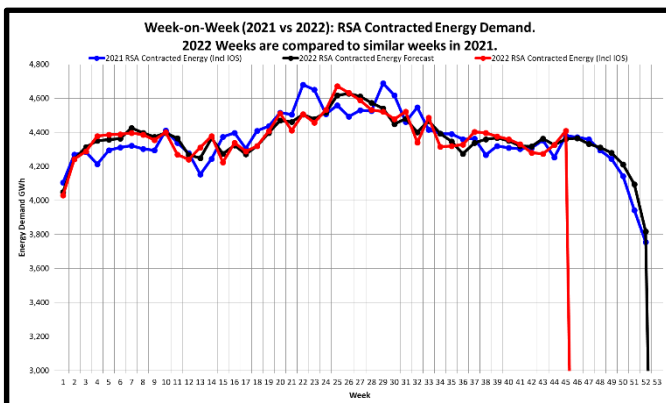
Week 45 : Residual Energy Demand Statistics (Incl IOS)		
Energy Demand	4,057	GWh
Week-on-Week Growth	-0.38	%
Year-on-Year Growth (Year-to-Date) Annual	-0.48	%

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 13 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	196,660	225,248	GWh
2018	196,080	224,594	GWh
2019	193,096	220,924	GWh
2020	181,635	208,151	GWh
2021	185,664	211,958	GWh
2022 (YTD)	184,798		GWh

Week-on-Week RSA Contracted Energy Demand

[2022 weeks compared to similar 2021 weeks]



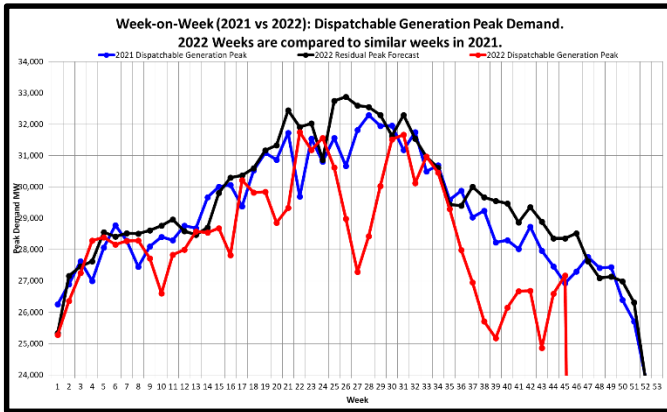
Week 45 : RSA Contracted Energy Demand Statistics (Incl IOS)		
Energy Demand	4,409	GWh
Week-on-Week Growth	0.63	%
Year-on-Year Growth (Year-to-Date) Annual	-0.05	%

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 13 Nov Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	205,277	235,426	GWh
2018	205,344	235,482	GWh
2019	202,986	232,511	GWh
2020	191,983	220,630	GWh
2021	198,502	227,166	GWh
2022 (YTD)	198,430		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2022 weeks compared to similar 2021 weeks]



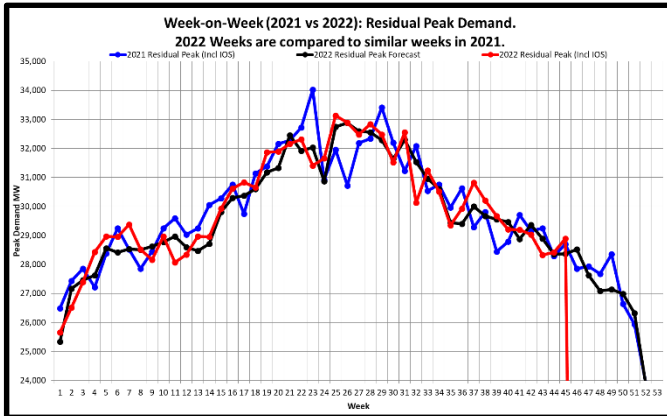
Week 45 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	27,173	MW
Week-on-Week Growth	0.88	%
Year-on-Year Growth (Year-to-Date) Annual	-1.66	%

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]



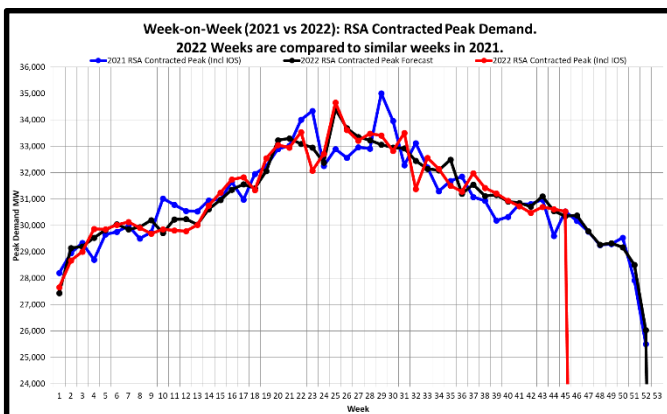
Week 45 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	28,889	MW
Week-on-Week Growth	0.66	%
Year-on-Year Growth (Year-to-Date) Annual	-2.62	%

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 45 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	30,540	MW
Week-on-Week Growth	0.03	%
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)	
	32	33	34	35	36	37	38	39	40	41	42	43	44	45	2022	2021	
Energy Availability Factor (Eskom EAF)	63.69	60.53	61.07	59.46	56.28	52.71	53.16	55.43	56.93	58.36	55.48	56.66	59.22	55.58	58.86	61.79	
Planned Outage Factor	9.01	9.61	10.73	10.59	11.06	13.56	10.44	11.43	13.33	11.11	11.60	12.03	9.57	11.34	10.24	10.81	
Unplanned Outage Factor	26.37	29.24	27.73	29.40	31.94	33.12	35.36	32.11	28.52	29.23	31.72	29.87	29.15	31.09	29.40	24.53	
Other Outage Factor	0.93	0.62	0.47	0.55	0.72	0.61	1.04	1.03	1.22	1.30	1.20	1.44	2.06	1.99	1.50	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 (-17200 MW)
14-Nov-22	46	30378	28520	44212	29012	4979	13000		
21-Nov-22	47	29793	27627	42887	27687	6303	13000		
28-Nov-22	48	29274	27091	43011	27811	6180	13000		
05-Dec-22	49	29325	27138	41350	26150	7840	13000		
12-Dec-22	50	29178	26991	41199	25999	7992	13000		
19-Dec-22	51	28505	26318	40679	25479	8512	13000		
26-Dec-22	52	26034	23847	38829	23629	10362	13000		
02-Jan-23	1	27906	25872	40674	25474	8517	13000		
09-Jan-23	2	28978	26944	42406	27206	6785	13000		
16-Jan-23	3	29727	27693	41814	26614	7377	13000		
23-Jan-23	4	29904	27869	42234	27034	6957	13000		
30-Jan-23	5	30030	28239	42044	26844	7147	13000		
06-Feb-23	6	30414	28625	42490	27290	6701	13000		
13-Feb-23	7	30835	29045	42990	27090	6901	13000		
20-Feb-23	8	30909	29119	42532	27332	6659	13000		
27-Feb-23	9	30721	29153	43177	27977	6014	13000		
06-Mar-23	10	31153	29585	43661	28461	5530	13000		
13-Mar-23	11	30805	29237	43234	28034	5957	13000		
20-Mar-23	12	31014	29366	43234	28034	5957	13000		
27-Mar-23	13	30853	29206	43619	28419	5572	13000		
03-Apr-23	14	32219	30573	44539	29339	4652	13000		
10-Apr-23	15	32493	30846	45232	30032	3959	13000		
17-Apr-23	16	32984	31336	45817	30617	3374	13000		
24-Apr-23	17	33668	32021	46412	31212	2779	13000		
01-May-23	18	33601	32419	46987	31787	2204	13000		
08-May-23	19	34531	33349	47627	32427	1564	13000		
15-May-23	20	34704	33522	47817	32617	1374	13000		
22-May-23	21	35031	33849	48017	32817	1174	13000		
29-May-23	22	35849	34667	47960	32760	1231	13000		
05-Jun-23	23	35053	33773	47612	32412	1579	13000		
12-Jun-23	24	35055	33774	47760	32560	1431	13000		
19-Jun-23	25	34886	33605	47760	32560	1431	13000		
26-Jun-23	26	35391	34110	48217	33017	974	13000		
03-Jul-23	27	35153	33662	47090	31890	2101	13000		
10-Jul-23	28	35127	33636	47090	31890	2101	13000		
17-Jul-23	29	35242	33751	47090	31890	2101	13000		
24-Jul-23	30	35288	33797	47147	31947	2044	13000		
31-Jul-23	31	34476	32985	47204	32004	1987	13000		
07-Aug-23	32	34154	32460	46707	31507	2484	13000		
14-Aug-23	33	33807	32114	45936	30736	3255	13000		
21-Aug-23	34	33730	32037	45788	30588	3403	13000		
28-Aug-23	35	33641	31961	45580	30380	3611	13000		
04-Sep-23	36	33478	31791	45791	30591	3400	13000		
11-Sep-23	37	33126	31440	46526	31326	2665	13000		
18-Sep-23	38	32252	30565	44806	29606	4385	13000		
25-Sep-23	39	32248	30561	44475	29275	4716	13000		
02-Oct-23	40	32438	30461	44190	28990	5001	13000		
09-Oct-23	41	31837	29871	43705	28505	5486	13000		
16-Oct-23	42	31305	29362	43430	28230	5761	13000		
23-Oct-23	43	30945	29062	42850	27450	6541	13000		
30-Oct-23	44	31035	29125	43278	28078	5913	13000		
06-Nov-23	45	31002	28819	42947	27747	6244	13000		
13-Nov-23	46	30872	28689	42445	27245	6746	13000		
20-Nov-23	47	30689	28506	42502	27302	6689	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	2,034.9	2,921.0	5,126.1
	Max Date	15-Mar-2022 15:00	14-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	8,536,566	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	1,205,061	4,233,997	8,536,566	14,169,511
	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