Weekly System Status Report – 2023 Week 7 (13/02/2023 – 19/02/2023)

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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Note

The Forecast is correct for the next three months. We are busy updating the longer-term forecast as it is currently on the high side. This update will be included in the next two weeks.

Historic Daily Peak System Capacity/Demand

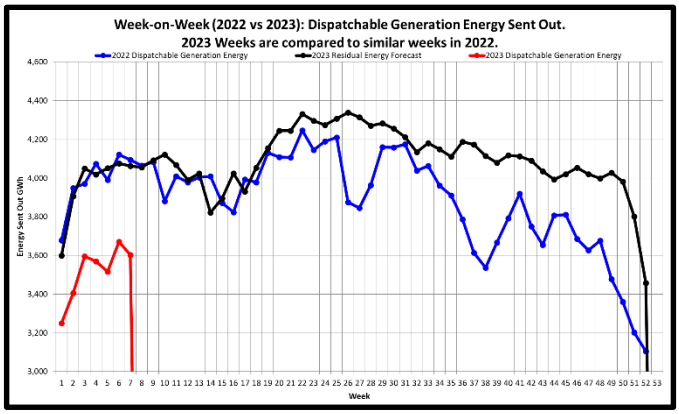
Date	Available Dispatchable Generation (MW)	Non-commercial Generation (MW)	Residual Load Forecast (MW)	Actual Residual Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (Residual Demand)
Mon 13/Feb/2023	28,777	0	28,490	28,345	1.5%	1.5%	0.5%
Tue 14/Feb/2023	27,793	0	28,380	28,407	-2.2%	-2.2%	-0.1%
Wed 15/Feb/2023	28,196	0	28,362	28,092	0.4%	0.4%	1.0%
Thu 16/Feb/2023	27,714	0	28,280	27,659	0.2%	0.2%	2.2%
Fri 17/Feb/2023	28,494	0	26,734	26,884	6.0%	6.0%	-0.6%
Sat 18/Feb/2023	25,234	0	26,245	26,311	-4.1%	-4.1%	-0.2%
Sun 19/Feb/2023	24,310	0	25,893	26,352	-7.8%	-7.8%	-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 13/Feb/2023	30,725	0	30,425	30,292	1.4%	1.4%	0.4%
Tue 14/Feb/2023	29,641	0	30,330	30,254	-2.0%	-2.0%	0.3%
Wed 15/Feb/2023	30,420	0	30,560	30,316	0.3%	0.3%	0.8%
Thu 16/Feb/2023	30,333	0	30,796	30,278	0.2%	0.2%	1.7%
Fri 17/Feb/2023	30,784	0	28,998	29,174	5.5%	5.5%	-0.6%
Sat 18/Feb/2023	27,273	0	28,163	28,350	-3.8%	-3.8%	-0.7%
Sun 19/Feb/2023	26,351	0	28,007	28,393	-7.2%	-7.2%	-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) = 49 191 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



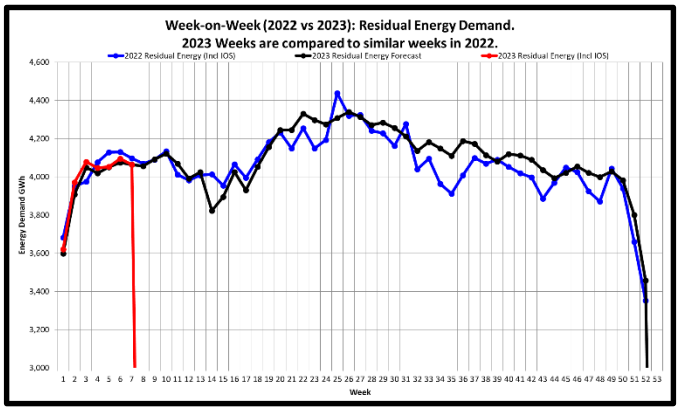
[2023 weeks compared to similar 2022 weeks]

Week 7 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,602	GWh
Week-on-Week Growth	-12.00	%
Year-on-Year Growth (Year-to-Date) Annual	-11.70	%

Note:
2023 Weeks are compared to similar weeks in 2022.
(2023 week 1 ~ 2022 week 1)

Annual Dispatchable Generation Energy Sent Out Statistics			
Year	01 Jan to 19 Feb Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	30,037	224,202	GWh
2019	29,567	219,575	GWh
2020	29,088	206,725	GWh
2021	27,890	210,022	GWh
2022	28,284	202,847	GWh
2023 (YTD)	25,051		GWh

Week-on-Week Residual Energy Demand



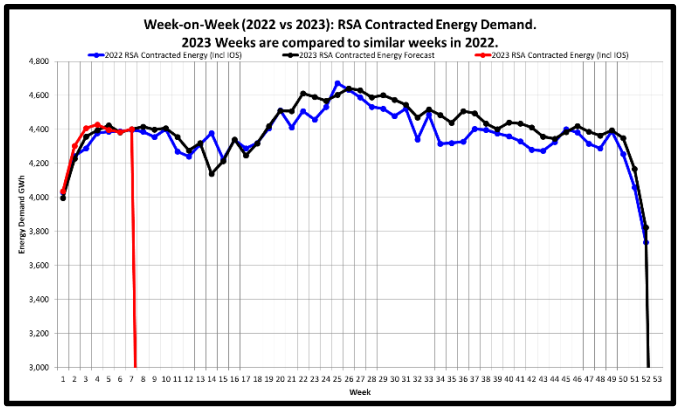
[2023 weeks compared to similar 2022 weeks]

Week 7 : Residual Energy Demand Statistics (Incl IOS)		
Energy Demand	4,064	GWh
Week-on-Week Growth	-0.80	%
Year-on-Year Growth (Year-to-Date) Annual	-0.40	%

Note:
2023 Weeks are compared to similar weeks in 2022.
(2023 week 1 ~ 2022 week 1)

Annual Residual Energy Demand Statistics (Incl IOS)			
Year	01 Jan to 19 Feb Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	30,053	224,594	GWh
2019	29,769	220,937	GWh
2020	29,600	208,151	GWh
2021	28,179	211,958	GWh
2022	28,447	211,133	GWh
2023 (YTD)	28,397		GWh

Week-on-Week RSA Contracted Energy Demand



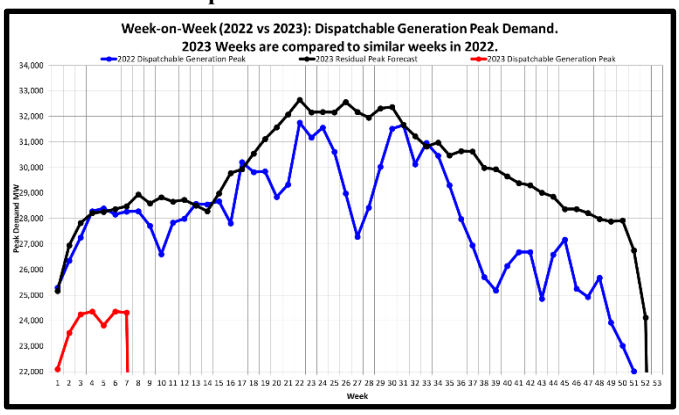
[2023 weeks compared to similar 2022 weeks]

Week 7 : RSA Contracted Energy Demand Statistics (Incl IOS)		
Energy Demand	4,401	GWh
Week-on-Week Growth	0.06	%
Year-on-Year Growth (Year-to-Date) Annual	0.82	%

Note:
2023 Weeks are compared to similar weeks in 2022.
(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Energy Demand Statistics (Incl IOS)			
Year	01 Jan to 19 Feb Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	31,687	235,482	GWh
2019	31,521	232,524	GWh
2020	31,274	220,630	GWh
2021	30,222	227,166	GWh
2022	30,572	227,336	GWh
2023 (YTD)	30,883		GWh

Week-on-Week Dispatchable Generation Peak Demand



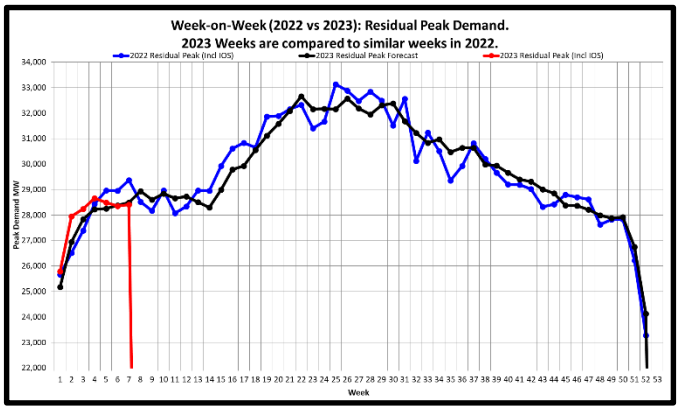
[2023 weeks compared to similar 2022 weeks]

Week 7 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	24,323	MW
Week-on-Week Growth	-13.98	%
Year-on-Year Growth (Year-to-Date) Annual	-14.21	%

Note:
2023 Weeks are compared to similar weeks in 2022.
(2023 week 1 ~ 2022 week 1)

Annual Dispatchable Generation Peak Demand Statistics			
Year	Peak Date	Annual Peak	Unit
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	Thu 02-Jun-2022	31,756	MW
2023 (YTD)	Mon 23-Jan-2023	24,362	MW

Week-on-Week Residual Peak Demand



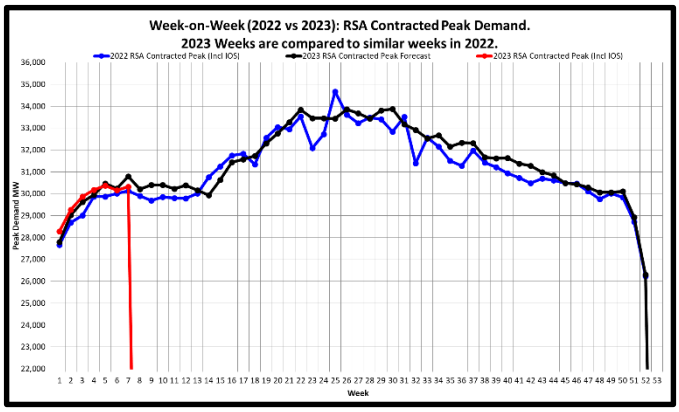
[2023 weeks compared to similar 2022 weeks]

Week 7 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	28,407	MW
Week-on-Week Growth	-3.30	%
Year-on-Year Growth (Year-to-Date) Annual	-2.42	%

Note:
2023 Weeks are compared to similar weeks in 2022.
(2023 week 1 ~ 2022 week 1)

Annual Residual Peak Demand Statistics (Incl IOS)			
Year	Peak Date	Annual Peak	Unit
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	Thu 23-Jun-2022	33,136	MW
2023 (YTD)	Thu 26-Jan-2023	28,664	MW

Week-on-Week RSA Contracted Peak Demand



[2023 weeks compared to similar 2022 weeks]

Week 7 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	30,316	MW
Week-on-Week Growth	0.61	%
Year-on-Year Growth (Year-to-Date) Annual	0.80	%

Note:
2023 Weeks are compared to similar weeks in 2022.
(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Peak Demand Statistics (Incl IOS)			
Year	Peak Date	Annual Peak	Unit
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	Thu 23-Jun-2022	34,666	MW
2023 (YTD)	Mon 30-Jan-2023	30,373	MW

Weekly Generation Availability

	Week														Annual (Jan - Dec)	
	46	47	48	49	50	51	52	1	2	3	4	5	6	7	2023	2022
Energy Availability Factor (Eskom EAF)	56.45	56.46	54.36	51.15	50.46	49.89	48.47	49.24	50.78	52.50	52.35	53.53	54.68	52.68	**52.13**	**58.01**
Planned Outage Factor	9.89	12.19	9.13	11.53	15.39	16.67	17.09	13.97	12.75	13.07	13.61	10.70	10.89	9.03	**12.02**	**10.62**
Unplanned Outage Factor	31.58	29.14	34.69	35.67	32.92	32.20	33.15	34.57	34.03	31.94	32.23	34.61	33.04	35.39	**33.70**	**29.85**
Other Outage Factor	2.08	2.21	1.82	1.65	1.23	1.24	1.29	2.22	2.44	2.49	1.81	1.16	1.39	2.90	**2.15**	**1.52**

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 Senario (-16700 MW)
20-Feb-23	8	30213	28941	44462	29262	4729	13000		
27-Feb-23	9	30407	28598	43987	28787	5204	13000		
06-Mar-23	10	30409	28841	44367	29167	4824	13000		
13-Mar-23	11	30229	28661	43981	28781	5210	13000		
20-Mar-23	12	30381	28734	43981	28781	5210	13000		
27-Mar-23	13	30158	28511	43981	28781	5210	13000		
03-Apr-23	14	29943	28296	42683	27483	6508	13000		
10-Apr-23	15	30638	28991	43403	28203	5788	13000		
17-Apr-23	16	31435	29788	44138	28938	5053	13000		
24-Apr-23	17	31577	29931	44673	29473	4518	13000		
01-May-23	18	31734	30552	46403	31203	2788	13000		
08-May-23	19	32297	31115	46584	31384	2607	13000		
15-May-23	20	32761	31579	46584	31384	2607	13000		
22-May-23	21	33266	32084	47177	31977	2014	13000		
29-May-23	22	33838	32657	47377	32177	1814	13000		
05-Jun-23	23	33444	32163	47229	32029	1962	13000		
12-Jun-23	24	33454	32173	47377	32177	1814	13000		
19-Jun-23	25	33441	32160	47377	32177	1814	13000		
26-Jun-23	26	33853	32572	47100	31900	2091	13000		
03-Jul-23	27	33675	32184	47777	32577	1414	13000		
10-Jul-23	28	33441	31950	48027	32827	1164	13000		
17-Jul-23	29	33806	32315	47780	32580	1411	13000		
24-Jul-23	30	33869	32378	47432	32232	1759	13000		
31-Jul-23	31	33172	31681	46857	31657	2334	13000		
07-Aug-23	32	32921	31227	46217	31017	2974	13000		
14-Aug-23	33	32522	30828	45801	30601	3390	13000		
21-Aug-23	34	32669	30975	46039	30839	3152	13000		
28-Aug-23	35	32154	30475	45794	30594	3397	13000		
04-Sep-23	36	32329	30642	45144	29944	4047	13000		
11-Sep-23	37	32319	30633	45966	30766	3225	13000		
18-Sep-23	38	31676	29989	45773	30573	3418	13000		
25-Sep-23	39	31623	29936	44925	29725	4266	13000		
02-Oct-23	40	31635	29659	44545	29345	4646	13000		
09-Oct-23	41	31372	29395	44635	29435	4556	13000		
16-Oct-23	42	31286	29309	44351	29151	4840	13000		
23-Oct-23	43	30991	29015	43538	28338	5653	13000		
30-Oct-23	44	30837	28860	43708	28508	5483	13000		
06-Nov-23	45	30480	28381	43100	27900	6091	13000		
13-Nov-23	46	30439	28371	42359	27159	6832	13000		
20-Nov-23	47	30288	28220	42756	27556	6435	13000		
27-Nov-23	48	30059	27991	42355	27155	6836	13000		
04-Dec-23	49	30063	27880	43132	27932	6059	13000		
11-Dec-23	50	30109	27927	41939	26739	7252	13000		
18-Dec-23	51	28935	26752	40390	25190	8801	13000		
25-Dec-23	52	26312	24130	40190	24990	9001	13000		
01-Jan-24	1	27954	25810	41203	26003	7988	13000		
08-Jan-24	2	29548	27404	41303	26103	7888	13000		
15-Jan-24	3	30300	28156	42362	27162	6829	13000		
22-Jan-24	4	30273	28129	43230	28030	5961	13000		
29-Jan-24	5	30490	28346	43512	28312	5679	13000		
05-Feb-24	6	30730	28940	43121	27921	6070	13000		
12-Feb-24	7	30854	29065	43268	28068	5923	13000		
19-Feb-24	8	30988	29199	43763	28563	5428	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 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 - 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	3,028.1	5,126.1
	Max Date	15-Mar-2022 15:00	24-Oct-2021 12:00	02-Dec-2022 16:00	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	3,028.1	5,126.1
	Max Date	15-Mar-2022 15:00	20-Nov-2022 11:00	02-Dec-2022 16:00	05-Sep-2022 12:00
2023	Maximum	504.9	2,003.7	2,813.4	4,278.8
	Max Date	06-Jan-2023 13:00	27-Jan-2023 12:00	28-Jan-2023 18:00	28-Jan-2023 16:00

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	1,656,017	5,069,146	9,692,373	16,202,974
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	1,656,017	5,069,146	8,359,224	15,208,327
2022	Total Energy	1,448,276	4,844,736	9,692,373	16,202,974
2023	Total Energy	287,835	909,619	1,693,304	2,941,553

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
2023	Maximum	1,493
	Max Date	20-Feb-2023 to 21-Feb-2023

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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	21.1%
	Max Date	20-Feb-2023 15:00
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
2023	Maximum	21.1%
	Max Date	20-Feb-2023 15:00