Weekly System Status Report – 2023 Week 3 (16/01/2023 – 22/01/2023)

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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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/Jan/2023	25,998	0	27,538	27,571	-5.7%	-5.7%	-0.1%
Tue 17/Jan/2023	26,971	0	27,556	28,231	-4.5%	-4.5%	-2.4%
Wed 18/Jan/2023	27,019	0	27,781	28,270	-4.4%	-4.4%	-1.7%
Thu 19/Jan/2023	27,506	0	27,834	27,662	-0.6%	-0.6%	0.6%
Fri 20/Jan/2023	26,668	0	26,793	26,592	0.3%	0.3%	0.8%
Sat 21/Jan/2023	27,099	0	26,405	26,207	3.4%	3.4%	0.8%
Sun 22/Jan/2023	27,409	0	26,064	26,179	4.7%	4.7%	-0.4%

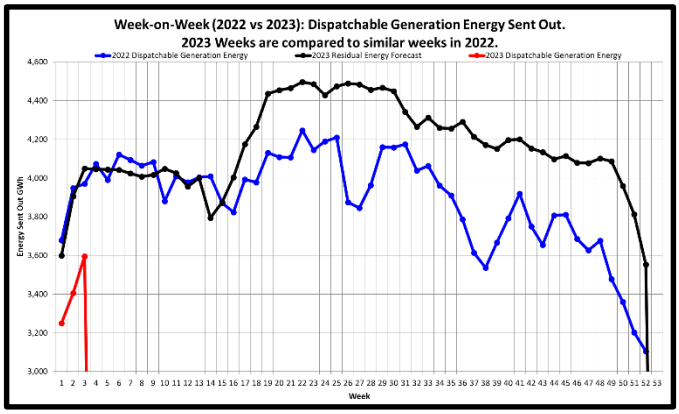
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 16/Jan/2023	28,228	0	29,602	29,801	-5.3%	-5.3%	-0.7%
Tue 17/Jan/2023	28,445	0	29,029	29,704	-4.2%	-4.2%	-2.3%
Wed 18/Jan/2023	28,516	0	29,372	29,767	-4.2%	-4.2%	-1.3%
Thu 19/Jan/2023	29,628	0	29,491	29,784	-0.5%	-0.5%	-1.0%
Fri 20/Jan/2023	28,934	0	28,614	28,858	0.3%	0.3%	-0.8%
Sat 21/Jan/2023	28,962	0	28,004	28,070	3.2%	3.2%	-0.2%
Sun 22/Jan/2023	29,251	0	27,971	28,021	4.4%	4.4%	-0.2%

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]



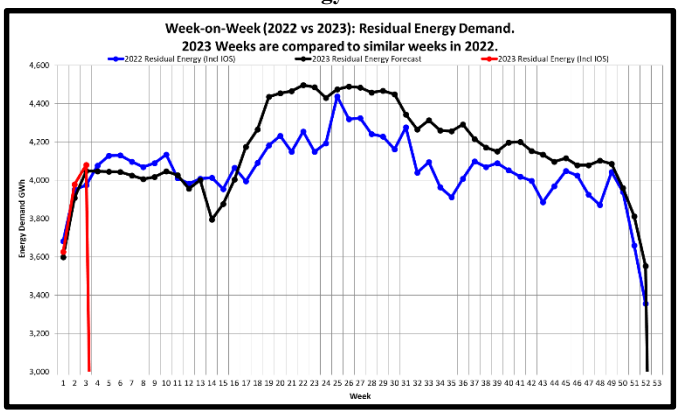
Week 3 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,596	GWh
Week-on-Week Growth	-9.44	%
Year-on-Year Growth (Year-to-Date) Annual	-11.60	%

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 22 Jan Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	13,003	224,202	GWh
2019	12,665	219,575	GWh
2020	12,586	206,725	GWh
2021	12,036	210,022	GWh
2022	12,001	202,847	GWh
2023 (YTD)	10,690		GWh

Week-on-Week Residual Energy Demand

[2023 weeks compared to similar 2022 weeks]



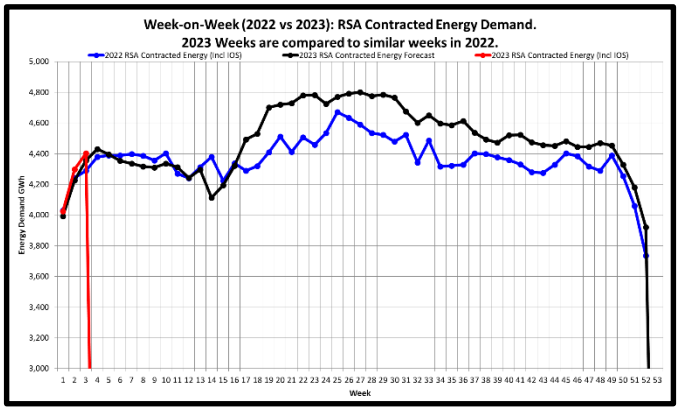
Week 3 : Residual Energy Demand Statistics (Incl IOS)		
Energy Demand	4,081	GWh
Week-on-Week Growth	2.69	%
Year-on-Year Growth (Year-to-Date) Annual	0.68	%

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 22 Jan Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	13,009	224,594	GWh
2019	12,677	220,937	GWh
2020	12,700	208,151	GWh
2021	12,199	211,958	GWh
2022	12,010	211,133	GWh
2023 (YTD)	12,160		GWh

Week-on-Week RSA Contracted Energy Demand

[2023 weeks compared to similar 2022 weeks]

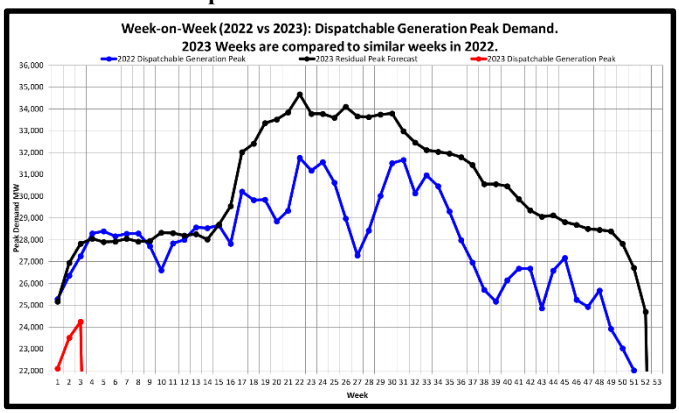


Week 3 : RSA Contracted Energy Demand Statistics (Incl IOS)		
Energy Demand	4,402	GWh
Week-on-Week Growth	2.64	%
Year-on-Year Growth (Year-to-Date) Annual	1.30	%

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 22 Jan Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	13,758	235,482	GWh
2019	13,504	232,524	GWh
2020	13,465	220,630	GWh
2021	13,091	227,166	GWh
2022	13,023	227,336	GWh
2023 (YTD)	13,243		GWh

Week-on-Week Dispatchable Generation Peak Demand



[2023 weeks compared to similar 2022 weeks]

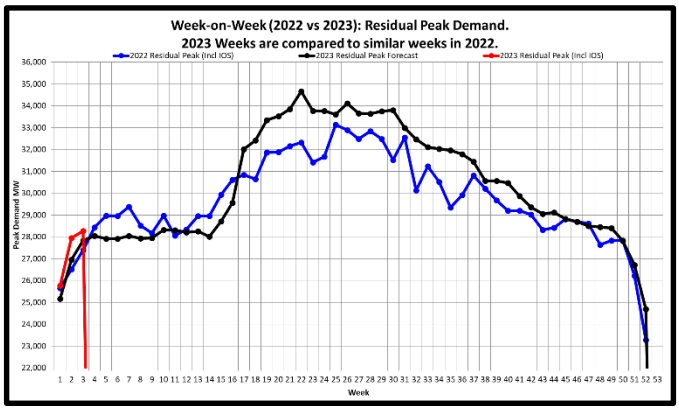
Week 3 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	24,248	MW
Week-on-Week Growth	-11.03	%
Year-on-Year Growth (Year-to-Date) Annual	-11.03	%

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)	Fri 20-Jan-2023	24,248	MW

Week-on-Week Residual Peak Demand



[2023 weeks compared to similar 2022 weeks]

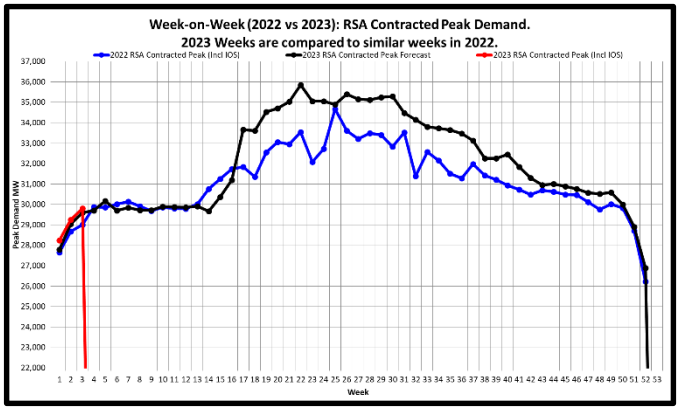
Week 3 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	28,269	MW
Week-on-Week Growth	3.20	%
Year-on-Year Growth (Year-to-Date) Annual	3.20	%

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)	Wed 18-Jan-2023	28,269	MW

Week-on-Week RSA Contracted Peak Demand



[2023 weeks compared to similar 2022 weeks]

Week 3 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	29,801	MW
Week-on-Week Growth	2.72	%
Year-on-Year Growth (Year-to-Date) Annual	2.72	%

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 16-Jan-2023	29,801	MW

Weekly Generation Availability

	Week														Annual (Jan - Dec)	
	42	43	44	45	46	47	48	49	50	51	52	1	2	3	2023	2022
Energy Availability Factor (Eskom EAF)	55.31	56.62	59.00	55.23	56.43	56.46	54.36	51.16	50.48	49.92	48.58	49.45	51.03	52.76	**51.33**	**58.01**
Planned Outage Factor	11.58	12.05	9.62	11.35	9.89	12.19	9.13	11.53	15.39	16.67	17.09	13.94	12.87	13.04	**13.34**	**10.62**
Unplanned Outage Factor	31.91	29.84	29.29	31.38	31.60	29.12	34.69	35.66	32.90	32.17	33.04	34.39	33.67	31.70	**33.00**	**29.85**
Other Outage Factor	1.20	1.49	2.09	2.04	2.08	2.23	1.82	1.65	1.23	1.24	1.29	2.22	2.43	2.50	**2.33**	**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)
23-Jan-23	4	29711	28047	42230	27030	6961	13000		
30-Jan-23	5	30177	27914	43984	28784	5207	13000		
06-Feb-23	6	29707	27918	44512	29312	4679	13000		
13-Feb-23	7	29837	28047	44219	29019	4972	13000		
20-Feb-23	8	29715	27926	43391	28191	5800	13000		
27-Feb-23	9	29723	27950	43441	28241	5750	13000		
06-Mar-23	10	29898	28330	43056	27856	6135	13000		
13-Mar-23	11	29877	28309	43948	28748	5243	13000		
20-Mar-23	12	29855	28207	43948	28748	5243	13000		
27-Mar-23	13	29911	28263	43356	28156	5835	13000		
03-Apr-23	14	29668	28022	43356	28156	5835	13000		
10-Apr-23	15	30357	28711	43511	28311	5680	13000		
17-Apr-23	16	31197	29550	44823	29623	4368	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	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	46481	31281	2710	13000		
18-Sep-23	38	32252	30565	45963	30763	3228	13000		
25-Sep-23	39	32248	30561	44925	29725	4266	13000		
02-Oct-23	40	32438	30461	44545	29345	4646	13000		
09-Oct-23	41	31837	29871	44635	29435	4556	13000		
16-Oct-23	42	31305	29362	44351	29151	4840	13000		
23-Oct-23	43	30945	29062	43538	28338	5653	13000		
30-Oct-23	44	31008	29125	43708	28508	5483	13000		
06-Nov-23	45	30887	28819	42952	27752	6239	13000		
13-Nov-23	46	30757	28689	43065	27865	6126	13000		
20-Nov-23	47	30574	28506	42482	27282	6709	13000		
27-Nov-23	48	30527	28459	42355	27155	6836	13000		
04-Dec-23	49	30584	28401	43132	27932	6059	13000		
11-Dec-23	50	30003	27820	41939	26739	7252	13000		
18-Dec-23	51	28902	26719	40390	25190	8801	13000		
25-Dec-23	52	26884	24702	40190	24990	9001	13000		
01-Jan-24	1	27845	25810	41203	26003	7988	13000		
08-Jan-24	2	29438	27404	41303	26103	7888	13000		
15-Jan-24	3	30190	28156	42362	27162	6829	13000		
22-Jan-24	4	30163	28129	43230	28030	5961	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	504.8	1,873.4	2,548.1	4,020.3
	Max Date	06-Jan-2023 13:00	23-Jan-2023 12:00	05-Jan-2023 19:00	05-Jan-2023 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 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	137,829	482,007	939,509	1,587,469

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	1,328
	Max Date	11-Jan-2023 to 12-Jan-2023

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
2023	Maximum	16.7%
	Max Date	05-Jan-2023 13:00