Weekly System Status Report – 2023 Week 19 (08/05/2023 – 14/05/2023)

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

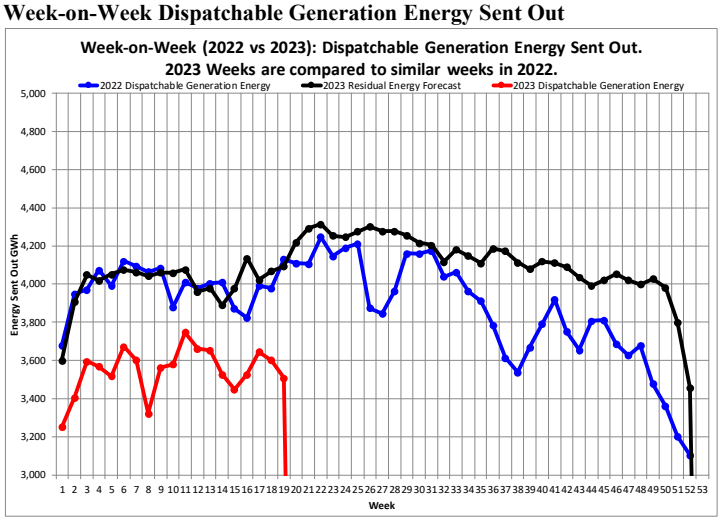
Date	Available Dispatchable Generation (MW)	Non-commercial Generation (MW)	Residual Load Forecast (MW)	Actual Residual Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (Residual Demand)
Mon 08/May/2023	27,146	0	31,483	31,753	-14.5%	-14.5%	-0.8%
Tue 09/May/2023	27,259	0	31,279	31,225	-12.7%	-12.7%	0.2%
Wed 10/May/2023	26,345	0	31,134	31,142	-15.4%	-15.4%	0.0%
Thu 11/May/2023	27,277	0	30,250	30,255	-9.8%	-9.8%	0.0%
Fri 12/May/2023	26,771	0	28,622	28,552	-6.2%	-6.2%	0.2%
Sat 13/May/2023	26,884	0	27,134	27,160	-1.0%	-1.0%	-0.1%
Sun 14/May/2023	27,208	0	28,311	27,934	-2.6%	-2.6%	1.3%

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 08/May/2023	27,673	0	32,345	32,280	-14.3%	-14.3%	0.2%
Tue 09/May/2023	27,895	0	32,025	31,860	-12.4%	-12.4%	0.5%
Wed 10/May/2023	27,266	0	32,197	32,063	-15.0%	-15.0%	0.4%
Thu 11/May/2023	29,211	0	32,141	32,189	-9.3%	-9.3%	-0.1%
Fri 12/May/2023	28,627	0	31,184	30,407	-5.9%	-5.9%	2.6%
Sat 13/May/2023	29,463	0	29,742	29,738	-0.9%	-0.9%	0.0%
Sun 14/May/2023	29,602	0	30,916	30,329	-2.4%	-2.4%	1.9%

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 19 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,508	GWh
Week-on-Week Growth	-15.06	%
Year-on-Year Growth (Year-to-Date) Annual	-10.97	%

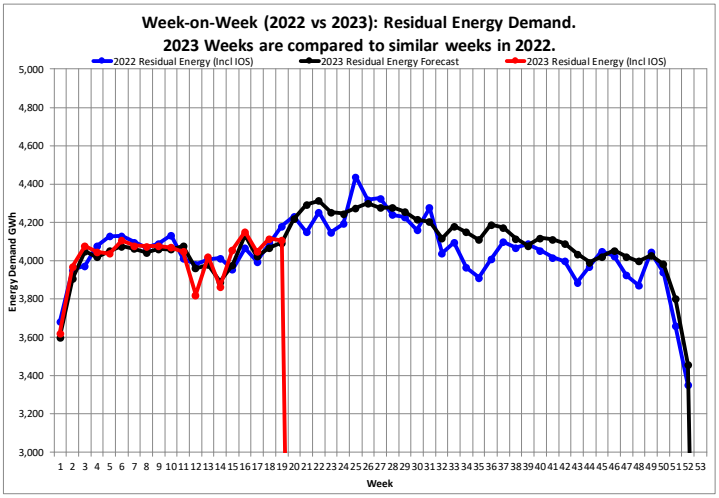
Note:

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 14 May Energy**	**Annual Energy (01 Jan to 31 Dec)**	**Unit**
2018	80,957	224,202	GWh
2019	79,866	219,575	GWh
2020	73,672	206,725	GWh
2021	76,454	210,022	GWh
2022	76,089	202,847	GWh
2023 (YTD)	67,833		GWh

Week-on-Week Residual Energy Demand



[2023 weeks compared to similar 2022 weeks]

Week 19 : Residual Energy Demand Statistics		
Energy Demand	4,107	GWh
Week-on-Week Growth	-1.78	%
Year-on-Year Growth (Year-to-Date) Annual	-0.31	%

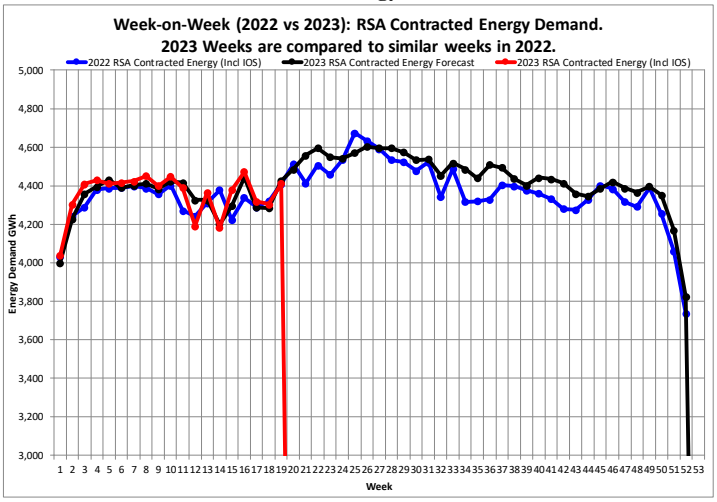
Note:

2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Residual Energy Demand Statistics			
Year	**01 Jan to 14 May Energy**	**Annual Energy (01 Jan to 31 Dec)**	**Unit**
2018	81,007	224,594	GWh
2019	80,537	220,937	GWh
2020	74,532	208,151	GWh
2021	77,088	211,958	GWh
2022	77,012	211,134	GWh
2023 (YTD)	76,865		GWh

Week-on-Week RSA Contracted Energy Demand



[2023 weeks compared to similar 2022 weeks]

Week 19 : RSA Contracted Energy Demand Statistics		
Energy Demand	4,412	GWh
Week-on-Week Growth	0.06	%
Year-on-Year Growth (Year-to-Date) Annual	0.85	%

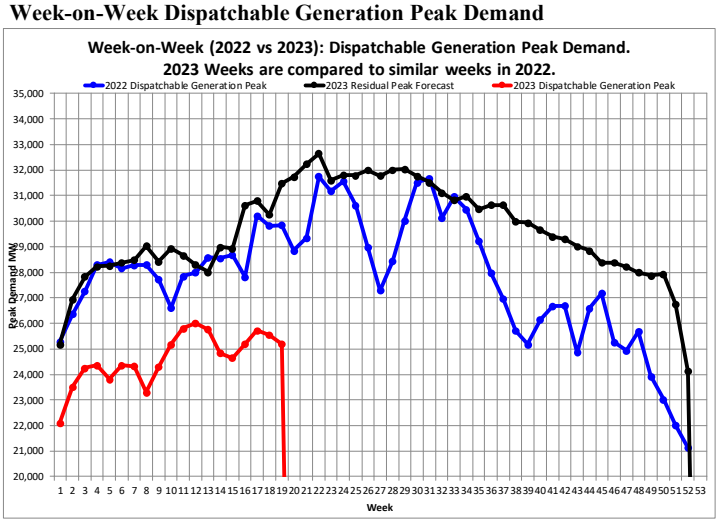
Note:

2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Energy Demand Statistics			
Year	**01 Jan to 14 May Energy**	**Annual Energy (01 Jan to 31 Dec)**	**Unit**
2018	84,898	235,482	GWh
2019	84,750	232,524	GWh
2020	78,665	220,630	GWh
2021	82,146	227,166	GWh
2022	82,493	227,337	GWh
2023 (YTD)	83,263		GWh

Week-on-Week Dispatchable Generation Peak Demand



[2023 weeks compared to similar 2022 weeks]

Week 19 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	25,186	MW
Week-on-Week Growth	-15.63	%
Year-on-Year Growth (Year-to-Date) Annual	-13.95	%

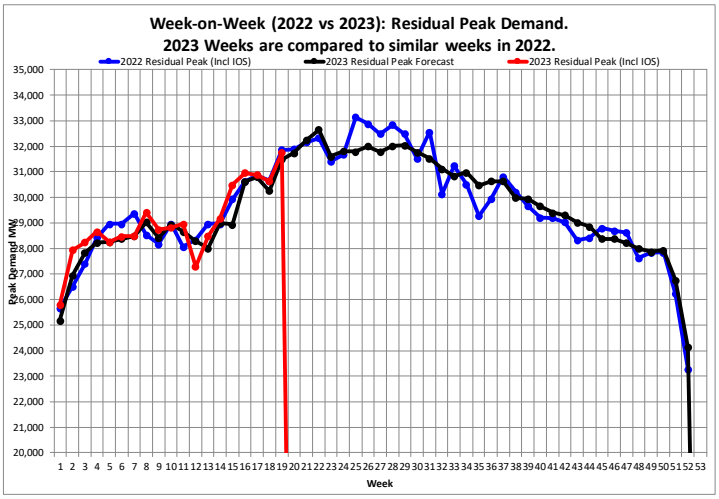
Note:

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)	Tue 21-Mar-2023	26,003	MW

Week-on-Week Residual Peak Demand



[2023 weeks compared to similar 2022 weeks]

Week 19 : Residual Peak Demand Statistics		
Peak Demand	31,753	MW
Week-on-Week Growth	-0.36	%
Year-on-Year Growth (Year-to-Date) Annual	-0.36	%

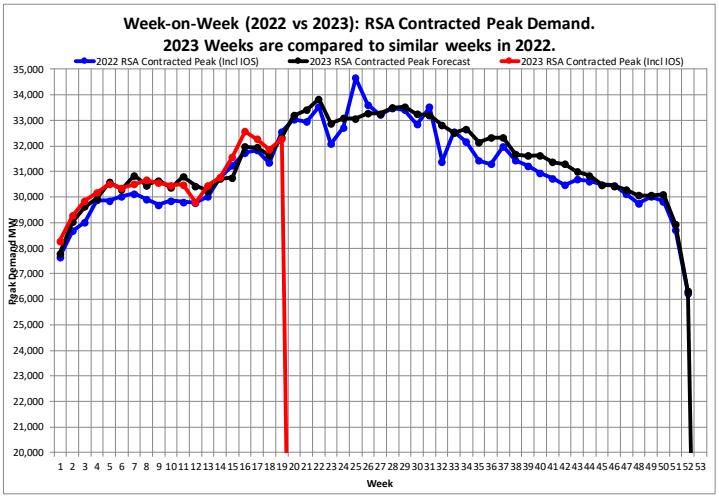
Note:

2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Residual Peak Demand Statistics			
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)	Mon 08-May-2023	31,753	MW

Week-on-Week RSA Contracted Peak Demand



[2023 weeks compared to similar 2022 weeks]

Week 19 : RSA Contracted Peak Demand Statistics		
Peak Demand	32,280	MW
Week-on-Week Growth	-0.85	%
Year-on-Year Growth (Year-to-Date) Annual	0.02	%

Note:

2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Peak Demand Statistics			
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)	Thu 20-Apr-2023	32,566	MW

Weekly Generation Availability

	Week														Annual (Jan - Dec)	
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	2023	2022
Energy Availability Factor (Eskom EAF)	54.35	52.31	50.73	52.87	52.84	58.33	55.18	52.29	51.22	50.04	53.10	52.97	52.69	52.39	**52.58**	**58.00**
Planned Outage Factor	10.89	9.08	9.60	10.28	9.52	9.48	12.36	14.62	15.83	14.49	13.18	10.46	8.47	8.47	**11.64**	**10.62**
Unplanned Outage Factor	33.32	35.72	34.92	35.84	35.86	30.84	31.35	32.30	32.21	34.63	33.05	35.81	37.72	38.29	**34.18**	**29.86**
Other Outage Factor	1.44	2.89	4.75	1.01	1.78	1.35	1.11	0.79	0.74	0.84	0.67	0.76	1.12	0.85	**1.60**	**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.

		MW	MW	MW	MW	MW	MW	MW	MW
Week Start	Week	RSA Contracted Forecast	Residual Forecast	Available Dispatchable Capacity	Available Capacity (Less OR and UA)	Planned Maintenance	Unplanned Outage Assumption (UA)	Planned Risk Level (-17200 MW)	Likely Risk Senario (-19200 MW)
15-May-23	20	33190	31734	45779	28579	3412	15000		
22-May-23	21	33419	32237	46372	29172	2819	15000		
29-May-23	22	33838	32656	47097	29897	2094	15000		
05-Jun-23	23	32878	31597	47377	30177	1814	15000		
12-Jun-23	24	33085	31804	46802	29602	2389	15000		
19-Jun-23	25	33072	31791	46802	29602	2389	15000		
26-Jun-23	26	33276	31995	47817	30617	1374	15000		
03-Jul-23	27	33268	31777	46503	29303	2688	15000		
10-Jul-23	28	33501	32010	46753	29553	2438	15000		
17-Jul-23	29	33536	32045	46563	29363	2628	15000		
24-Jul-23	30	33255	31764	46215	29015	2976	15000		
31-Jul-23	31	33211	31518	45640	28440	3551	15000		
07-Aug-23	32	32810	31116	45000	27800	4191	15000		
14-Aug-23	33	32522	30828	44584	27384	4607	15000		
21-Aug-23	34	32669	30975	44822	27622	4369	15000		
28-Aug-23	35	32154	30475	45520	28320	3671	15000		
04-Sep-23	36	32329	30642	44870	27670	4321	15000		
11-Sep-23	37	32319	30633	45692	28492	3499	15000		
18-Sep-23	38	31676	29989	46366	29166	2825	15000		
25-Sep-23	39	31623	29936	45518	28318	3673	15000		
02-Oct-23	40	31635	29659	45138	27938	4053	15000		
09-Oct-23	41	31372	29395	45228	28028	3963	15000		
16-Oct-23	42	31286	29309	44944	27744	4247	15000		
23-Oct-23	43	30991	29015	44131	26931	5060	15000		
30-Oct-23	44	30837	28860	44301	27101	4890	15000		
06-Nov-23	45	30480	28381	43693	28493	5498	13000		
13-Nov-23	46	30439	28371	42952	27752	6239	13000		
20-Nov-23	47	30288	28220	43349	28149	5842	13000		
27-Nov-23	48	30059	27991	43668	28468	5523	13000		
04-Dec-23	49	30063	27880	43725	28525	5466	13000		
11-Dec-23	50	30109	27927	42532	27332	6659	13000		
18-Dec-23	51	28935	26752	40983	25783	8208	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	42510	27310	6681	13000		
29-Jan-24	5	30490	28346	43512	28312	5679	13000		
05-Feb-24	6	31030	28940	43121	27921	6070	13000		
12-Feb-24	7	31154	29065	43268	28068	5923	13000		
19-Feb-24	8	31289	29199	43763	28563	5428	13000		
26-Feb-24	9	31095	29006	43148	27948	6043	13000		
04-Mar-24	10	31512	29552	44306	29106	4885	13000		
11-Mar-24	11	31196	29236	44563	29363	4628	13000		
18-Mar-24	12	31440	29480	45476	30276	3715	13000		
25-Mar-24	13	31322	29276	45826	30626	3365	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): 15 000 MW until end October 2023 then 13000 MW onward
Reserves: OR + UA = 17 200 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 - 2023 to 2027. (Published 30 October 2022).

https://www.eskom.co.za/wp-content/uploads/2022/10/Medium-Term-System-Adequacy-Outlook-2023-2027.pdf

or Download the medium-term system adequacy outlook 2023 – 2027 from

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	505.8	2,044.1	2,938.5	4,877.8
	Max Date	21-Feb-2023 13:00	21-Feb-2023 12:00	20-Apr-2023 17:00	20-Feb-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	668,659	2,015,507	3,936,196	6,723,566

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	2,149
	Max Date	20-Apr-2023 to 21-Apr-2023
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	2,149
	Max Date	20-Apr-2023 to 21-Apr-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	21.8%
	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	21.8%
	Max Date	20-Feb-2023 15:00