

Weekly System Status Report – 2023 Week 21 (22/05/2023 – 28/05/2023)

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

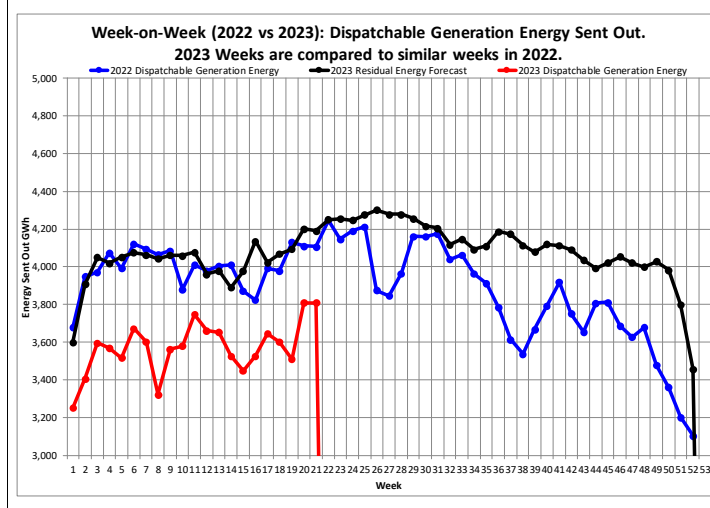
Date	Available Dispatchable Generation (MW)	Non-commercial Generation (MW)	Residual Load Forecast (MW)	Actual Residual Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (Residual Demand)
Mon 22/May/2023	27,697	0	32,115	31,709	-12.7%	-12.7%	1.3%
Tue 23/May/2023	28,915	0	31,967	32,200	-10.2%	-10.2%	-0.7%
Wed 24/May/2023	28,181	0	31,559	31,050	-9.2%	-9.2%	1.6%
Thu 25/May/2023	28,215	0	30,586	30,697	-8.1%	-8.1%	-0.4%
Fri 26/May/2023	29,530	0	29,977	30,234	-2.3%	-2.3%	-0.9%
Sat 27/May/2023	28,500	0	29,245	29,339	-2.9%	-2.9%	-0.3%
Sun 28/May/2023	27,853	0	29,372	29,280	-4.9%	-4.9%	0.3%
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 22/May/2023	28,926	0	33,308	32,938	-12.2%	-12.2%	1.1%
Tue 23/May/2023	29,626	0	33,063	32,911	-10.0%	-10.0%	0.5%
Wed 24/May/2023	29,964	0	33,217	32,833	-8.7%	-8.7%	1.2%
Thu 25/May/2023	30,580	0	33,315	33,062	-7.5%	-7.5%	0.8%
Fri 26/May/2023	30,229	0	30,805	30,934	-2.3%	-2.3%	-0.4%
Sat 27/May/2023	29,326	0	30,210	30,165	-2.8%	-2.8%	0.1%
Sun 28/May/2023	29,160	0	30,676	30,587	-4.7%	-4.7%	0.3%

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 21 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,809	GWh
Week-on-Week Growth	-7.25	%
Year-on-Year Growth (Year-to-Date) Annual	-10.61	%

Note:

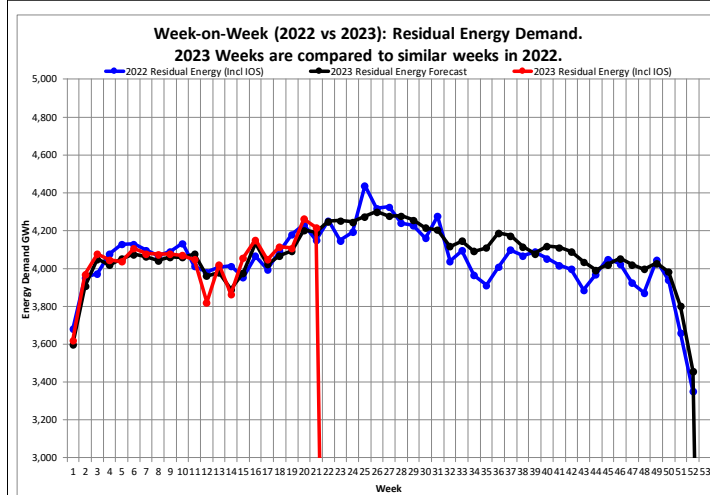
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Dispatchable Generation Energy Sent Out Statistics			
Year	01 Jan to 28 May Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	89,963	224,202	GWh
2019	88,703	219,575	GWh
2020	81,417	206,725	GWh
2021	84,862	210,022	GWh
2022	84,326	202,847	GWh
2023 (YTD)	75,452		GWh

Week-on-Week Residual Energy Demand

[2023 weeks compared to similar 2022 weeks]



Week 21 : Residual Energy Demand Statistics		
Energy Demand	4,216	GWh
Week-on-Week Growth	1.61	%
Year-on-Year Growth (Year-to-Date) Annual	-0.16	%

Note:

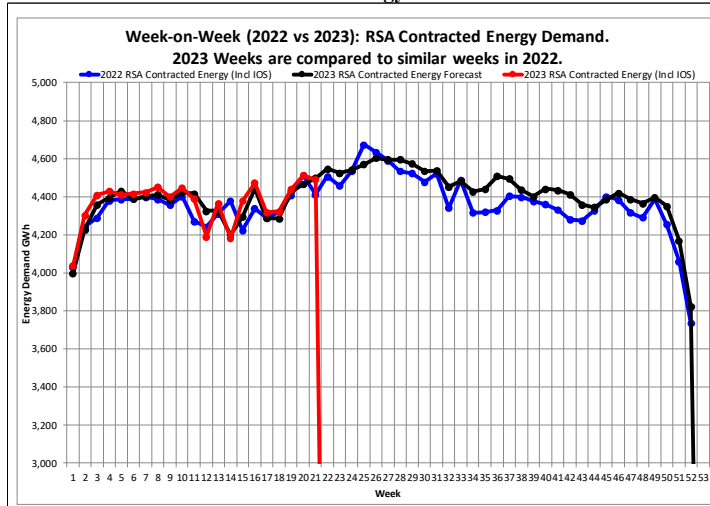
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Residual Energy Demand Statistics			
Year	01 Jan to 28 May Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	90,020	224,594	GWh
2019	89,387	220,937	GWh
2020	82,282	208,151	GWh
2021	85,552	211,958	GWh
2022	85,421	211,134	GWh
2023 (YTD)	85,343		GWh

Week-on-Week RSA Contracted Energy Demand

[2023 weeks compared to similar 2022 weeks]



Week 21 : RSA Contracted Energy Demand Statistics		
Energy Demand	4,490	GWh
Week-on-Week Growth	1.77	%
Year-on-Year Growth (Year-to-Date) Annual	0.90	%

Note:

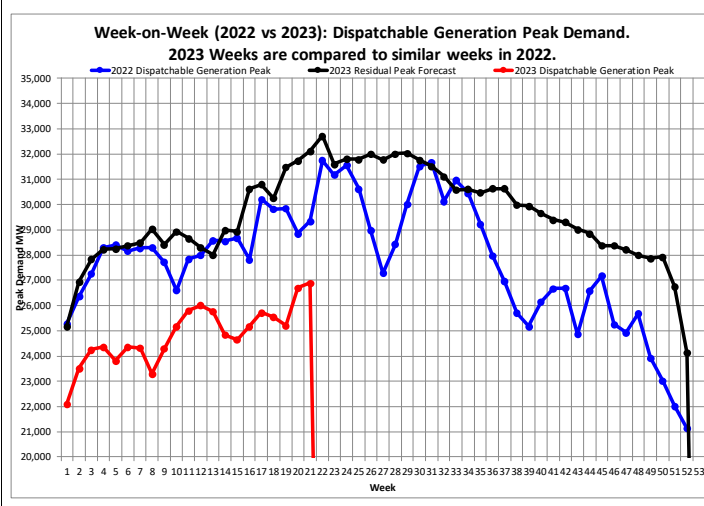
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Energy Demand Statistics			
Year	01 Jan to 28 May Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	94,261	235,482	GWh
2019	93,938	232,524	GWh
2020	86,809	220,630	GWh
2021	91,161	227,166	GWh
2022	91,422	227,337	GWh
2023 (YTD)	92,313		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 21 : Dispatchable Generation Peak Demand Statistics			
Peak Demand	26,895	MW	
Week-on-Week Growth	-8.34	%	
Year-on-Year Growth (Year-to-Date) Annual	-11.00	%	

Note:

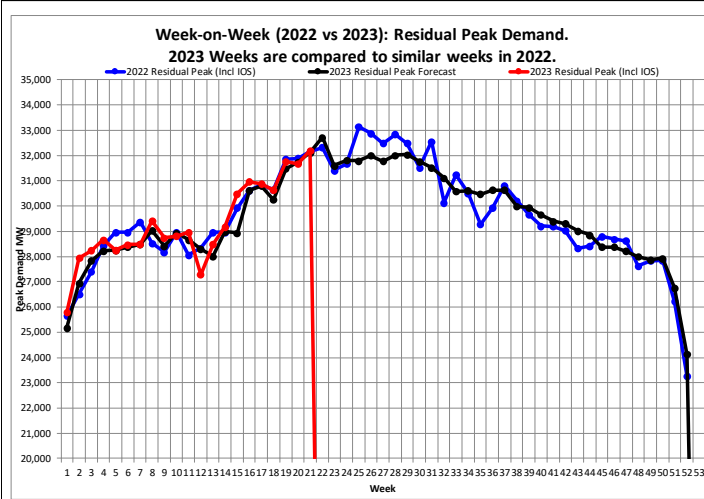
2023 Weeks are compared to similar weeks in 2022.

(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 23-May-2023	26,895	MW

Week-on-Week Residual Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 21 : Residual Peak Demand Statistics			
Peak Demand	32,200	MW	
Week-on-Week Growth	0.14	%	
Year-on-Year Growth (Year-to-Date) Annual	0.14	%	

Note:

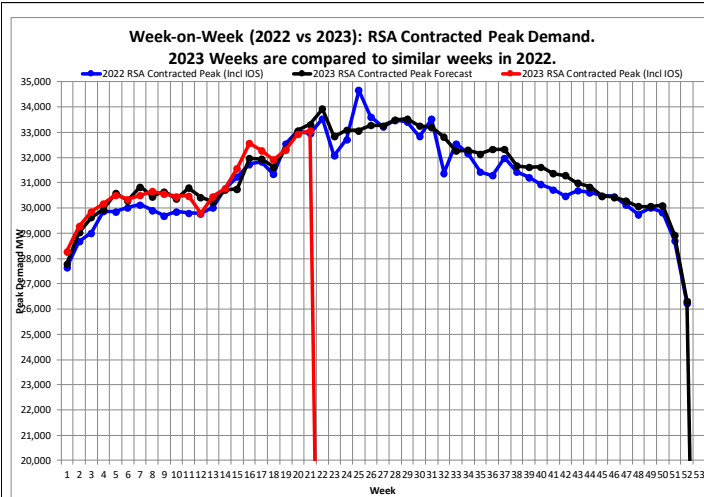
2023 Weeks are compared to similar weeks in 2022.

(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)	Tue 23-May-2023	32,200	MW

Week-on-Week RSA Contracted Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 21 : RSA Contracted Peak Demand Statistics			
Peak Demand	33,062	MW	
Week-on-Week Growth	0.34	%	
Year-on-Year Growth (Year-to-Date) Annual	0.03	%	

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 25-May-2023	33,062	MW

Weekly Generation Availability

	Week															Annual (Jan - Dec)	
	8	9	10	11	12	13	14	15	16	17	18	19	20	21	2023	2022	
Energy Availability Factor (Eskom EAF)	50.73	52.87	52.84	58.33	55.18	52.33	51.18	49.93	52.91	52.81	52.57	52.42	56.29	55.36	52.90	58.00	
Planned Outage Factor	9.60	10.28	9.52	9.48	12.36	14.62	15.83	14.49	13.18	10.46	8.47	8.47	7.79	7.08	11.18	10.62	
Unplanned Outage Factor	34.92	35.84	35.86	30.84	31.35	32.26	32.25	34.74	33.25	35.97	37.83	38.26	35.05	36.52	34.39	29.86	
Other Outage Factor	4.75	1.01	1.78	1.35	1.11	0.79	0.74	0.84	0.66	0.76	1.13	0.85	0.87	1.04	1.53	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 (-17200 MW)	MW Likely Risk Scenario (-19200 MW)
29-May-23	22	33938	32726	46755	29555	2436	15000		
05-Jun-23	23	32838	31597	46956	29756	2235	15000		
12-Jun-23	24	33085	31804	46471	29271	2720	15000		
19-Jun-23	25	33072	31791	46471	29271	2720	15000		
26-Jun-23	26	33276	31995	47486	30286	1705	15000		
03-Jul-23	27	33268	31777	46172	28972	3019	15000		
10-Jul-23	28	33501	32010	46753	29553	2438	15000		
17-Jul-23	29	33536	32045	46863	29363	2828	15000		
24-Jul-23	30	33255	31784	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	32271	30578	44584	27384	4607	15000		
21-Aug-23	34	32294	30615	44822	27622	4369	15000		
28-Aug-23	35	32154	30475	44520	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	41939	26739	7252	13000		
18-Dec-23	51	28935	26752	40390	25190	8801	13000		
25-Dec-23	52	26312	24130	39597	24397	9594	13000		
01-Jan-24	1	27780	25636	40610	25410	8581	13000		
08-Jan-24	2	29422	27278	40562	25362	8629	13000		
15-Jan-24	3	29883	27739	41917	26717	7274	13000		
22-Jan-24	4	30203	28059	42119	26919	7072	13000		
29-Jan-24	5	30358	28214	42304	27104	6887	13000		
05-Feb-24	6	30700	28610	42197	26997	6994	13000		
12-Feb-24	7	30793	28704	42344	27144	6847	13000		
19-Feb-24	8	30724	28635	42839	27639	6352	13000		
26-Feb-24	9	30567	28477	41893	26893	7298	13000		
04-Mar-24	10	30918	28958	43529	28329	5662	13000		
11-Mar-24	11	30966	29006	43889	28689	5302	13000		
18-Mar-24	12	30790	28807	44552	29352	4639	13000		
25-Mar-24	13	30764	28719	44902	29702	4289	13000		
01-Apr-24	14	31151	29620	42052	26852	7139	13000		
08-Apr-24	15	31666	30135	43285	28085	5906	13000		
15-Apr-24	16	32015	30483	40845	25645	8346	13000		
22-Apr-24	17	32400	30869	41670	26470	7521	13000		
29-Apr-24	18	32215	30877	42043	26843	7148	13000		
06-May-24	19	32877	31695	41437	26237	7754	13000		
13-May-24	20	33520	32338	40830	25630	8361	13000		
20-May-24	21	33789	32607	41831	26631	7360	13000		
27-May-24	22	34313	33131	41879	26679	7312	13000		
03-Jun-24	23	33782	32501	42222	27022	6969	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 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 - 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	Annual Energy	1,656,017	5,069,146	9,692,373	16,202,974
Maximum					
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	674,292	2,089,287	4,201,501	7,077,190

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