Weekly System Status Report – 2023 Week 22 (29/05/2023 – 04/06/2023)

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 29/May/2023	27,922	0	31,847	31,444	-11.2%	-11.2%	1.3%
Tue 30/May/2023	29,233	0	32,726	32,973	-11.3%	-11.3%	-0.7%
Wed 31/May/2023	29,184	0	32,557	32,998	-11.6%	-11.6%	-1.3%
Thu 01/Jun/2023	29,309	0	31,708	32,177	-8.9%	-8.9%	-1.5%
Fri 02/Jun/2023	29,372	0	28,722	28,656	2.5%	2.5%	0.2%
Sat 03/Jun/2023	30,384	0	28,224	28,159	7.9%	7.9%	0.2%
Sun 04/Jun/2023	30,899	0	28,752	28,461	8.6%	8.6%	1.0%

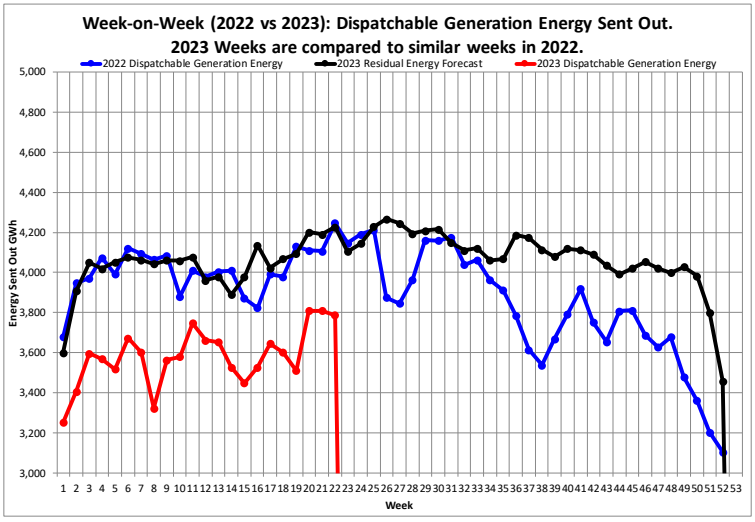
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 29/May/2023	30,099	0	33,938	33,621	-10.5%	-10.5%	0.9%
Tue 30/May/2023	30,099	0	33,888	33,838	-11.1%	-11.1%	0.1%
Wed 31/May/2023	29,463	0	33,137	33,277	-11.5%	-11.5%	-0.4%
Thu 01/Jun/2023	30,080	0	32,447	32,949	-8.7%	-8.7%	-1.5%
Fri 02/Jun/2023	31,861	0	30,730	31,146	2.3%	2.3%	-1.3%
Sat 03/Jun/2023	32,839	0	30,945	30,615	7.3%	7.3%	1.1%
Sun 04/Jun/2023	33,007	0	31,275	30,568	8.0%	8.0%	2.3%

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 22 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	3,787	GWh
Week-on-Week Growth	-10.81	%
Year-on-Year Growth (Year-to-Date) Annual	-10.62	%

Note:

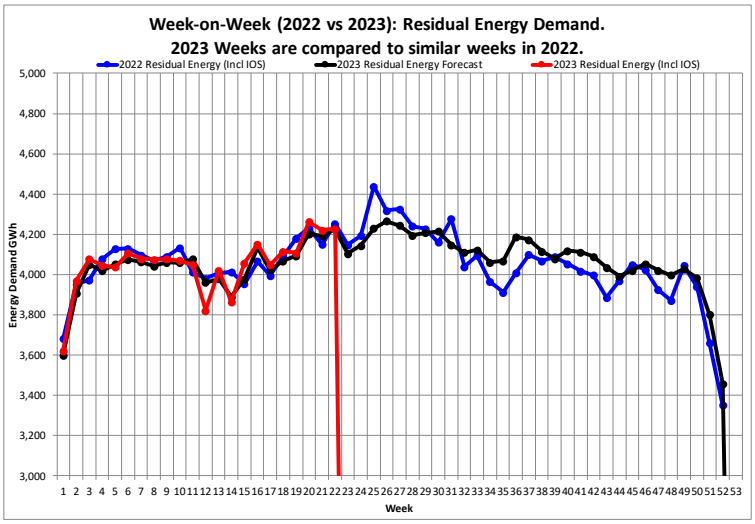
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Dispatchable Generation Energy Sent Out Statistics			
Year	01 Jan to 04 Jun Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	94,547	224,202	GWh
2019	93,189	219,575	GWh
2020	85,403	206,725	GWh
2021	89,060	210,022	GWh
2022	88,531	202,847	GWh
2023 (YTD)	79,240		GWh

Week-on-Week Residual Energy Demand

[2023 weeks compared to similar 2022 weeks]



Week 22 : Residual Energy Demand Statistics		
Energy Demand	4,227	GWh
Week-on-Week Growth	-0.62	%
Year-on-Year Growth (Year-to-Date) Annual	-0.18	%

Note:

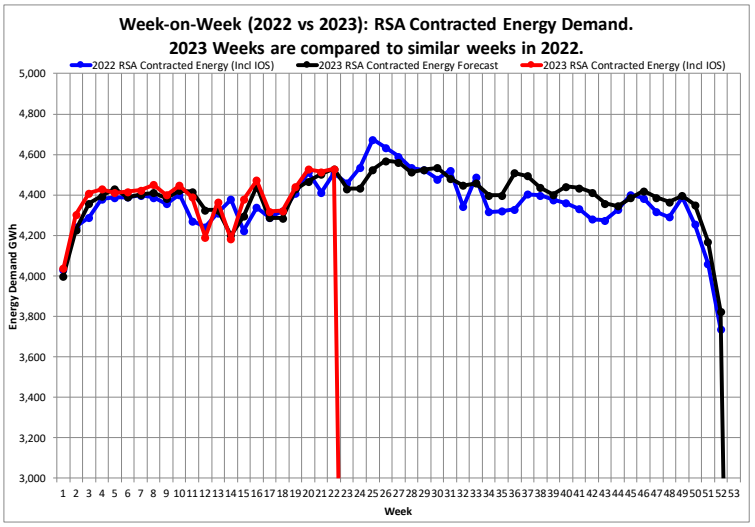
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual Residual Energy Demand Statistics			
Year	01 Jan to 04 Jun Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	94,609	224,594	GWh
2019	93,879	220,937	GWh
2020	86,270	208,151	GWh
2021	89,918	211,958	GWh
2022	89,633	211,134	GWh
2023 (YTD)	89,576		GWh

Week-on-Week RSA Contracted Energy Demand

[2023 weeks compared to similar 2022 weeks]



Week 22 : RSA Contracted Energy Demand Statistics		
Energy Demand	4,529	GWh
Week-on-Week Growth	0.48	%
Year-on-Year Growth (Year-to-Date) Annual	0.92	%

Note:

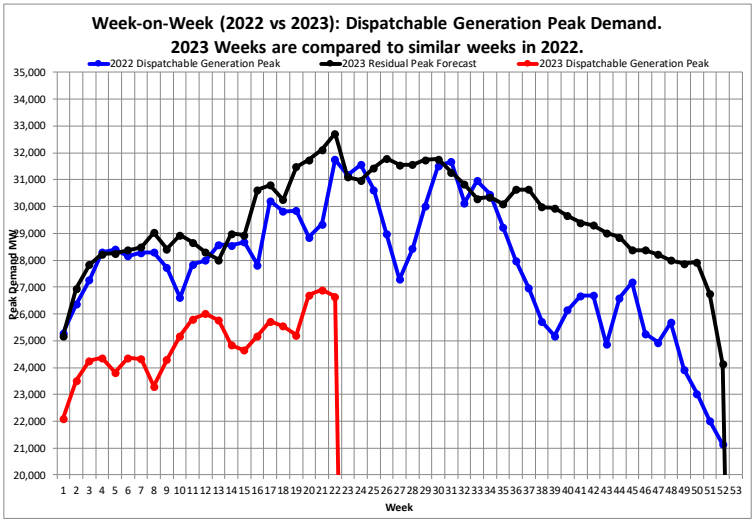
2023 Weeks are compared to similar weeks in 2022.

(2023 week 1 ~ 2022 week 1)

Annual RSA Contracted Energy Demand Statistics			
Year	01 Jan to 04 Jun Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2018	99,045	235,482	GWh
2019	98,575	232,524	GWh
2020	90,967	220,630	GWh
2021	95,778	227,166	GWh
2022	95,914	227,337	GWh
2023 (YTD)	96,879		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 22 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	26,645	MW
Week-on-Week Growth	-16.10	%
Year-on-Year Growth (Year-to-Date) Annual	-15.31	%

Note:

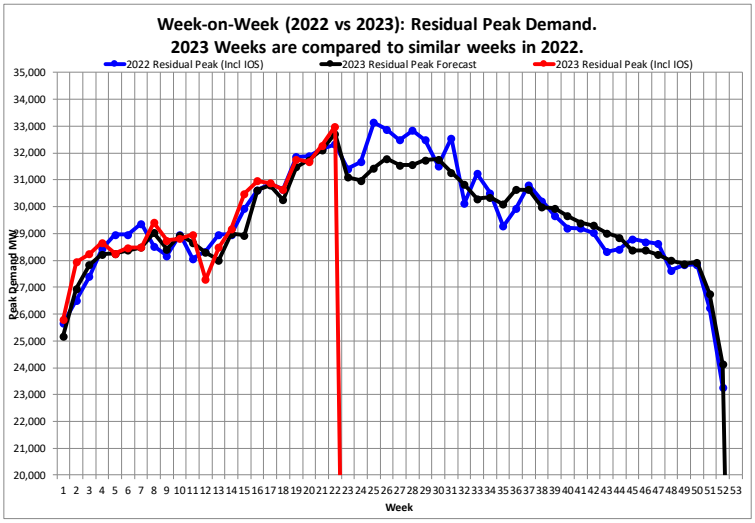
2023 Weeks are compared to similar weeks in 2022.

(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 22 : Residual Peak Demand Statistics		
Peak Demand	32,998	MW
Week-on-Week Growth	2.10	%
Year-on-Year Growth (Year-to-Date) Annual	2.10	%

Note:

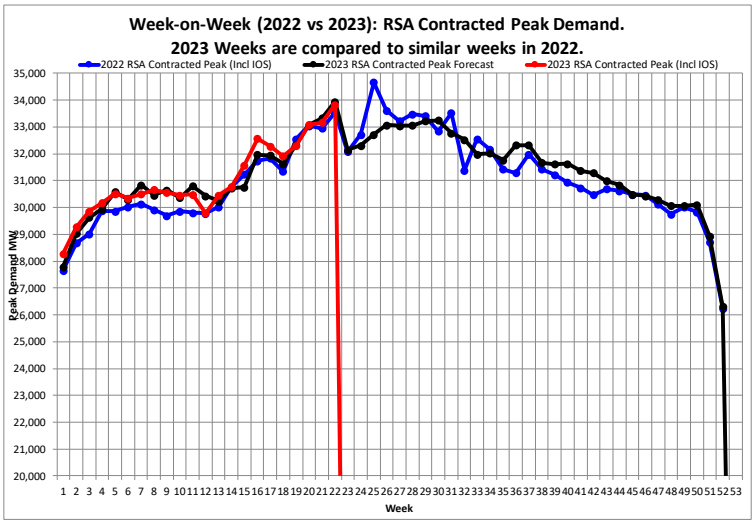
2023 Weeks are compared to similar weeks in 2022.

(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)	Wed 31-May-2023	32,998	MW

Week-on-Week RSA Contracted Peak Demand

[2023 weeks compared to similar 2022 weeks]



Week 22 : RSA Contracted Peak Demand Statistics		
Peak Demand	33,838	MW
Week-on-Week Growth	0.91	%
Year-on-Year Growth (Year-to-Date) Annual	0.91	%

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)	Tue 30-May-2023	33,838	MW

Weekly Generation Availability

	Week														Annual (Jan - Dec)	
	9	10	11	12	13	14	15	16	17	18	19	20	21	22	2023	2022
Energy Availability Factor (Eskom EAF)	52.87	52.84	58.33	55.18	52.33	51.18	49.94	52.92	52.87	52.31	52.09	55.99	55.06	58.22	**53.17**	**58.00**
Planned Outage Factor	10.28	9.52	9.48	12.36	14.62	15.83	14.49	13.18	10.46	8.47	8.50	7.79	7.11	5.10	**10.91**	**10.62**
Unplanned Outage Factor	35.84	35.86	30.84	31.35	32.26	32.25	34.73	33.24	35.90	38.07	38.55	35.39	36.79	35.48	**34.40**	**29.86**
Other Outage Factor	1.01	1.78	1.35	1.11	0.79	0.74	0.84	0.66	0.77	1.15	0.86	0.83	1.04	1.20	**1.52**	**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 Senario (-19200 MW)
05-Jun-23	23	32147	31100	47254	30054	1937	15000		
12-Jun-23	24	32315	30977	46784	29584	2407	15000		
19-Jun-23	25	32725	31445	46784	29584	2407	15000		
26-Jun-23	26	33071	31790	46602	29402	2589	15000		
03-Jul-23	27	33045	31554	46995	29795	2196	15000		
10-Jul-23	28	33054	31563	47415	30215	1776	15000		
17-Jul-23	29	33226	31735	47630	30430	1561	15000		
24-Jul-23	30	33255	31764	47096	29896	2095	15000		
31-Jul-23	31	32778	31279	47096	29896	2095	15000		
07-Aug-23	32	32524	30830	46040	28840	3151	15000		
14-Aug-23	33	31985	30292	45425	28225	3766	15000		
21-Aug-23	34	32026	30347	45463	28263	3728	15000		
28-Aug-23	35	31767	30088	45745	28545	3446	15000		
04-Sep-23	36	32329	30642	45701	28501	3490	15000		
11-Sep-23	37	32319	30633	45917	28717	3274	15000		
18-Sep-23	38	31676	29989	45826	28626	3365	15000		
25-Sep-23	39	31623	29936	45035	27835	4156	15000		
02-Oct-23	40	31635	29659	45010	27810	4181	15000		
09-Oct-23	41	31372	29395	45060	27860	4131	15000		
16-Oct-23	42	31286	29309	45581	28381	3610	15000		
23-Oct-23	43	30991	29015	45258	28058	3933	15000		
30-Oct-23	44	30837	28860	44133	26933	5058	15000		
06-Nov-23	45	30480	28381	44140	28940	5051	13000		
13-Nov-23	46	30439	28371	43992	28792	5199	13000		
20-Nov-23	47	30288	28220	43774	28574	5417	13000		
27-Nov-23	48	30059	27991	42837	27637	6354	13000		
04-Dec-23	49	30063	27880	42692	27492	6499	13000		
11-Dec-23	50	30109	27927	42882	27682	6309	13000		
18-Dec-23	51	28935	26752	42668	27468	6523	13000		
25-Dec-23	52	26312	24130	39611	24411	9580	13000		
01-Jan-24	1	27780	25636	40536	25336	8655	13000		
08-Jan-24	2	29422	27278	42218	27018	6973	13000		
15-Jan-24	3	29883	27739	42583	27383	6608	13000		
22-Jan-24	4	30203	28059	42435	27235	6756	13000		
29-Jan-24	5	30358	28214	43155	27955	6036	13000		
05-Feb-24	6	30700	28610	44001	28801	5190	13000		
12-Feb-24	7	30793	28704	44148	28948	5043	13000		
19-Feb-24	8	30724	28635	43508	28308	5683	13000		
26-Feb-24	9	30567	28477	43508	28308	5683	13000		
04-Mar-24	10	30918	28958	44171	28971	5020	13000		
11-Mar-24	11	30966	29006	43916	28716	5275	13000		
18-Mar-24	12	30790	28807	44626	29426	4565	13000		
25-Mar-24	13	30764	28719	43601	28401	5590	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	711,599	2,251,098	4,648,090	7,732,729

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