Weekly System Status Report – 2022 Week 13 (28/03/2022 – 03/04/2022)

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 28/Mar/2022	31,109	726	27,927	27,415	13.5%	16.1%	1.9%
Tue 29/Mar/2022	30,321	586	28,218	28,139	7.8%	9.8%	0.3%
Wed 30/Mar/2022	29,944	536	28,473	28,963	3.4%	5.2%	-1.7%
Thu 31/Mar/2022	30,024	590	28,103	28,331	6.0%	8.1%	-0.8%
Fri 01/Apr/2022	31,010	588	26,781	27,220	13.9%	16.1%	-1.6%
Sat 02/Apr/2022	28,899	591	25,646	26,031	11.0%	13.3%	-1.5%
Sun 03/Apr/2022	28,896	598	25,721	27,602	4.7%	6.9%	-6.8%

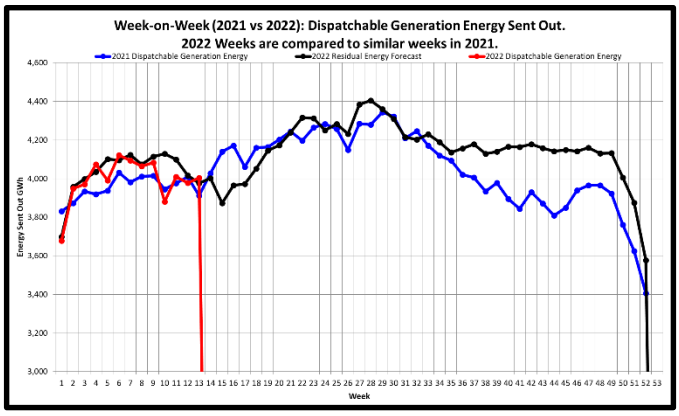
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 28/Mar/2022	33,309	726	29,729	29,615	12.5%	14.9%	0.4%
Tue 29/Mar/2022	32,204	586	30,042	30,022	7.3%	9.2%	0.1%
Wed 30/Mar/2022	30,879	536	29,471	29,898	3.3%	5.1%	-1.4%
Thu 31/Mar/2022	31,409	590	29,242	29,716	5.7%	7.7%	-1.6%
Fri 01/Apr/2022	32,446	588	28,026	28,656	13.2%	15.3%	-2.2%
Sat 02/Apr/2022	31,080	591	27,157	28,212	10.2%	12.3%	-3.7%
Sun 03/Apr/2022	30,005	598	27,033	28,710	4.5%	6.6%	-5.8%

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) = 49 590 MW (Incl. non-comm. Kusile units).
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

[2022 weeks compared to similar 2021 weeks]



Week 13 : Dispatchable Generation Energy Sent Out Statistics		
Energy Sent Out	4,004	GWh
Week-on-Week Growth	2.37	%
Year-on-Year Growth (Year-to-Date) Annual	1.01	%

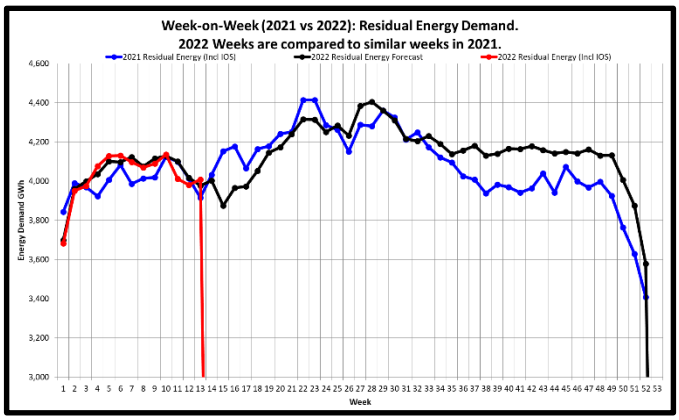
Note:
2022 Weeks are compared to similar weeks in 2021.
(2022 week 1 ~ 2021 week 1)

Annual Dispatchable Generation Energy Sent Out Statistics

Year	01 Jan to 03 Apr Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	56,344	225,203	GWh
2018	56,149	224,202	GWh
2019	55,071	219,563	GWh
2020	54,096	206,725	GWh
2021	52,330	210,022	GWh
2022 (YTD)	52,843		GWh

Week-on-Week Residual Energy Demand

[2022 weeks compared to similar 2021 weeks]



Week 13 : Residual Energy Demand Statistics (Incl IOS)		
Energy Demand	4,008	GWh
Week-on-Week Growth	2.38	%
Year-on-Year Growth (Year-to-Date) Annual	0.68	%

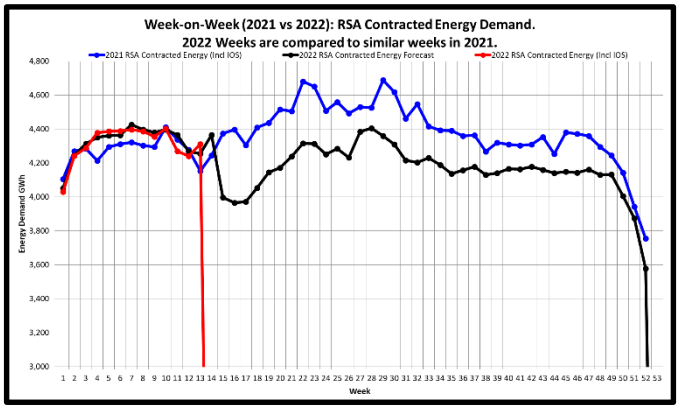
Note:
2022 Weeks are compared to similar weeks in 2021.
(2022 week 1 ~ 2021 week 1)

Annual Residual Energy Demand Statistics (Incl IOS)

Year	01 Jan to 03 Apr Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	56,340	225,248	GWh
2018	56,180	224,594	GWh
2019	55,718	220,924	GWh
2020	54,944	208,151	GWh
2021	52,935	211,958	GWh
2022 (YTD)	53,279		GWh

Week-on-Week RSA Contracted Energy Demand

[2022 weeks compared to similar 2021 weeks]



Week 13 : RSA Contracted Energy Demand Statistics (Incl IOS)		
Energy Demand	4,312	GWh
Week-on-Week Growth	3.80	%
Year-on-Year Growth (Year-to-Date) Annual	0.90	%

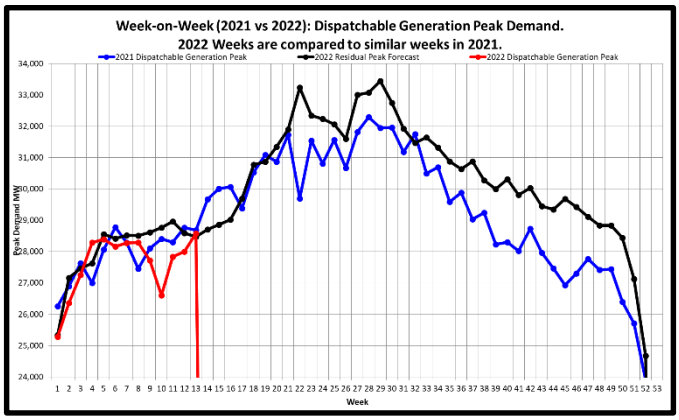
Note:
2022 Weeks are compared to similar weeks in 2021.
(2022 week 1 ~ 2021 week 1)

Annual RSA Contracted Energy Demand Statistics (Incl IOS)

Year	01 Jan to 03 Apr Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	59,521	235,426	GWh
2018	59,008	235,482	GWh
2019	58,809	232,511	GWh
2020	57,982	220,630	GWh
2021	56,640	227,166	GWh
2022 (YTD)	57,136		GWh

Week-on-Week Dispatchable Generation Peak Demand

[2022 weeks compared to similar 2021 weeks]



Week 13 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	28,579	MW
Week-on-Week Growth	-0.39	%
Year-on-Year Growth (Year-to-Date) Annual	-0.70	%

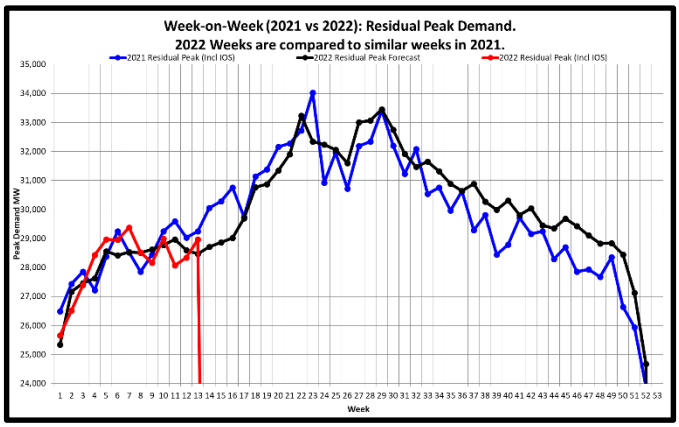
Note:
2022 Weeks are compared to similar weeks in 2021.
(2022 week 1 ~ 2021 week 1)

Annual Dispatchable Generation Peak Demand Statistics

Year	Peak Date	Annual Peak	Unit
2017	Tue 30-May-2017	35,457	MW
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 (YTD)	Wed 30-Mar-2022	28,579	MW

Week-on-Week Residual Peak Demand

[2022 weeks compared to similar 2021 weeks]



Week 13 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	28,963	MW
Week-on-Week Growth	-0.96	%
Year-on-Year Growth (Year-to-Date) Annual	-0.72	%

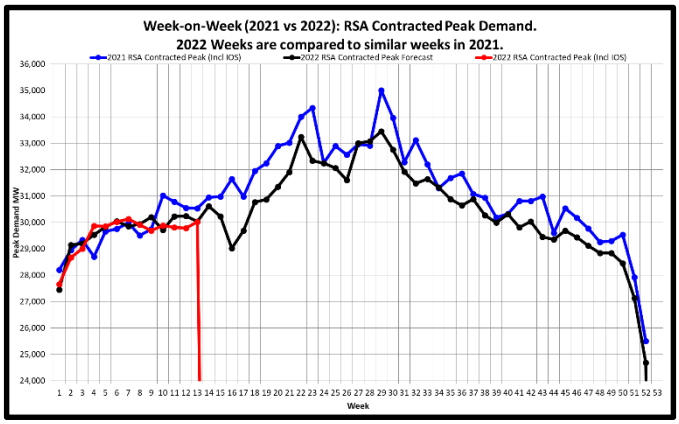
Note:
2022 Weeks are compared to similar weeks in 2021.
(2022 week 1 ~ 2021 week 1)

Annual Residual Peak Demand Statistics (Incl IOS)

Year	Peak Date	Annual Peak	Unit
2017	Tue 30-May-2017	35,517	MW
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 (YTD)	Tue 15-Feb-2022	29,375	MW

Week-on-Week RSA Contracted Peak Demand

[2022 weeks compared to similar 2021 weeks]



Week 13 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	30,022	MW
Week-on-Week Growth	-1.67	%
Year-on-Year Growth (Year-to-Date) Annual	-2.87	%

Note:
2022 Weeks are compared to similar weeks in 2021.
(2022 week 1 ~ 2021 week 1)

Annual RSA Contracted Peak Demand Statistics (Incl IOS)

Year	Peak Date	Annual Peak	Unit
2017	Tue 30-May-2017	35,769	MW
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 (YTD)	Tue 15-Feb-2022	30,132	MW

Weekly Generation Availability

	Week														Annual (Jan - Dec)	
	52	1	2	3	4	5	6	7	8	9	10	11	12	13	2022	2021
Energy Availability Factor (Eskom EAF)	54.57	57.81	58.59	59.57	59.22	57.28	59.10	60.08	60.69	58.74	56.37	60.02	59.97	59.08	**58.91**	**61.79**
Planned Outage Factor	13.88	10.07	10.71	14.70	14.19	11.95	12.76	11.05	11.63	11.80	13.91	11.89	12.84	14.13	**12.48**	**10.81**
Unplanned Outage Factor	29.93	30.21	28.72	24.33	24.68	29.21	26.41	27.37	26.24	28.10	28.36	26.89	25.90	25.52	**27.09**	**24.53**
Other Outage Factor	1.62	1.91	1.98	1.40	1.91	1.56	1.73	1.50	1.44	1.36	1.36	1.20	1.29	1.27	**1.52**	**2.87**

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)

Three Month Outlook

This is the forecast demand vs. available generating capacity for each week for 3 months 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 (-14200 MW)	MW Likely Risk Senario (-16200 MW)
04-Apr-22	14	30622	28712	43661	29461	5929	12000		
11-Apr-22	15	30233	28862	43534	29334	6056	12000		
18-Apr-22	16	29023	29018	43780	29580	5810	12000		
25-Apr-22	17	29696	29690	43847	29647	5743	12000		
02-May-22	18	30777	30771	44901	30701	4689	12000		
09-May-22	19	30871	30865	45391	31191	4199	12000		
16-May-22	20	31352	31347	45636	31436	3954	12000		
23-May-22	21	31910	31905	46301	32101	3289	12000		
30-May-22	22	33241	33236	46982	32782	2608	12000		
06-Jun-22	23	32343	32337	45762	31562	3828	12000		
13-Jun-22	24	32246	32240	45910	31710	3680	12000		
20-Jun-22	25	32068	32063	46135	31935	3455	12000		
27-Jun-22	26	31609	31604	46109	31909	3481	12000		
04-Jul-22	27	33006	33000	46166	31966	3424	12000		
11-Jul-22	28	33076	33071	46109	31909	3481	12000		
18-Jul-22	29	33455	33450	46352	32152	3238	12000		
25-Jul-22	30	32755	32750	46542	32342	3048	12000		
01-Aug-22	31	31930	31924	45258	31058	4332	12000		
08-Aug-22	32	31479	31474	44517	30317	5073	12000		
15-Aug-22	33	31653	31647	44518	30318	5072	12000		
22-Aug-22	34	31328	31323	44855	30655	4735	12000		
29-Aug-22	35	30883	30878	44098	29898	5492	12000		
05-Sep-22	36	30647	30641	44158	28958	5432	13000		
12-Sep-22	37	30888	30883	43830	28630	5760	13000		
19-Sep-22	38	30277	30272	43393	28193	6197	13000		
26-Sep-22	39	29998	29992	42829	27629	6761	13000		
03-Oct-22	40	30313	30308	43696	28496	5894	13000		
10-Oct-22	41	29814	29809	43364	28164	6226	13000		
17-Oct-22	42	30043	30038	44054	28854	5536	13000		
24-Oct-22	43	29455	29451	43518	28318	6072	13000		
31-Oct-22	44	29351	29346	42607	27407	6983	13000		
07-Nov-22	45	29694	29689	42873	27673	6717	13000		
14-Nov-22	46	29435	29430	42402	27202	7188	13000		
21-Nov-22	47	29114	29109	42248	27048	7342	13000		
28-Nov-22	48	28837	28832	41595	26395	7995	13000		
05-Dec-22	49	28842	28837	43210	28010	6380	13000		
12-Dec-22	50	28451	28446	42179	26979	7411	13000		
19-Dec-22	51	27137	27132	40644	25444	8946	13000		
26-Dec-22	52	24685	24680	40724	25524	8866	13000		
02-Jan-23	1	26071	26066	40724	25524	8866	13000		
09-Jan-23	2	27675	27670	41189	25989	8401	13000		
16-Jan-23	3	28466	28461	41180	25980	8410	13000		
23-Jan-23	4	28144	28139	41205	26005	8385	13000		
30-Jan-23	5	28354	28349	41065	25865	8525	13000		
06-Feb-23	6	29213	29208	41598	26398	7992	13000		
13-Feb-23	7	29050	29045	41598	26398	7992	13000		
20-Feb-23	8	29124	29119	42390	27190	7200	13000		
27-Feb-23	9	29158	29153	42737	27537	6853	13000		
06-Mar-23	10	29590	29585	43166	27966	6424	13000		
13-Mar-23	11	29242	29237	42502	27302	7088	13000		
20-Mar-23	12	29372	29366	42367	27167	7223	13000		
27-Mar-23	13	29211	29206	42942	27742	6648	13000		
03-Apr-23	14	30578	30573	41035	26835	8555	12000		
10-Apr-23	15	30852	30846	39188	24988	10402	12000		

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 2000 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): 12 000 MW (13000 MW from September 2022)
Reserves: OR + UA = 14 200 MW
Eskom Installed Capacity: 48 585 MW (Incl. non-comm. Kusile units).
Installed Dispatchable Capacity: 49 590 MW (Incl. Avon and Dedisa).
Medupi Unit 4 capacity of 720MW has been removed from the capacity planning models by including it in the committed PCLF (although it is UCLF).
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	2,212.1
Wind (Eskom+IPP)	3,163.4
Total (Incl other REs)	5,926.0

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	2,639.3	4,784.7
	Max Date	15-Mar-2022 15:00	24-Oct-2021 12:00	15-Dec-2021 17:00	01-Nov-2021 13:00
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	2,025.1	2,319.9	4,225.8
	Max Date	15-Mar-2022 15:00	05-Jan-2022 11:00	29-Mar-2022 14:00	28-Mar-2022 13:00

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	8,359,224	15,208,327
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	462,980	1,464,330	2,383,426	4,355,834

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	1,364
	Max Date	15-Feb-2022 to 16-Feb-2022

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	19.1%
	Max Date	01-Nov-2021 13:00
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	18.0%
	Max Date	01-Jan-2022 15:00