

Weekly System Status Report – 2022 Week 35 (29/08/2022 – 04/09/2022)

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 29/Aug/2022	30,243	0	29,443	27,116	11.5%	11.5%	8.6%
Tue 30/Aug/2022	31,263	0	29,273	28,870	8.3%	8.3%	1.4%
Wed 31/Aug/2022	31,777	0	28,581	29,274	8.6%	8.6%	-2.4%
Thu 01/Sep/2022	32,391	0	29,367	28,565	13.4%	13.4%	2.8%
Fri 02/Sep/2022	31,802	0	27,412	26,984	17.9%	17.9%	1.6%
Sat 03/Sep/2022	30,592	0	26,792	26,035	17.5%	17.5%	2.9%
Sun 04/Sep/2022	30,099	0	25,993	25,846	16.5%	16.5%	0.6%

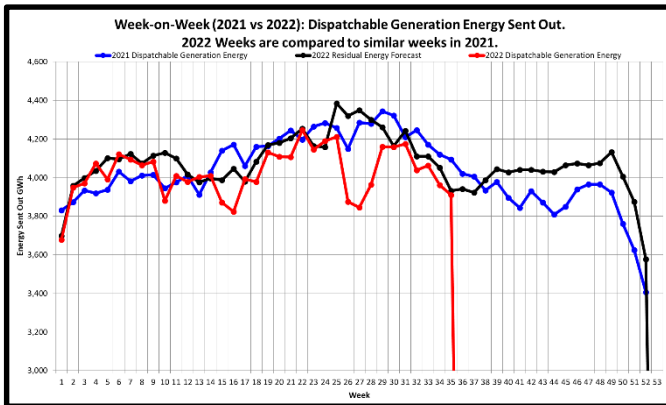
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 29/Aug/2022	33,463	0	32,489	30,336	10.3%	10.3%	7.1%
Tue 30/Aug/2022	33,749	0	32,028	31,355	7.6%	7.6%	2.1%
Wed 31/Aug/2022	33,933	0	30,501	31,430	8.0%	8.0%	-3.0%
Thu 01/Sep/2022	34,841	0	31,624	30,831	13.0%	13.0%	2.6%
Fri 02/Sep/2022	33,973	0	30,082	29,155	16.5%	16.5%	3.2%
Sat 03/Sep/2022	32,283	0	28,154	27,271	18.4%	18.4%	3.2%
Sun 04/Sep/2022	32,158	0	28,364	27,906	15.2%	15.2%	1.6%

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) = 50 025 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 35 : Dispatchable Generation Energy Sent Out Statistics

Energy Sent Out	3,910	GWh
Week-on-Week Growth	-4.47	%
Year-on-Year Growth (Year-to-Date) Annual	-2.02	%

Note:

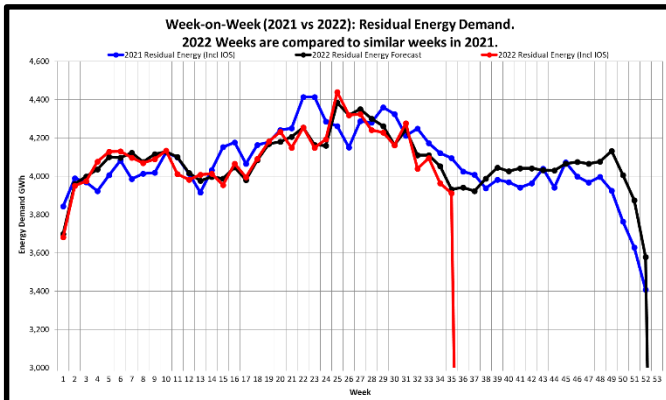
2022 Weeks are compared to similar weeks in 2021.
(2022 week 1 ~ 2021 week 1)

Annual Dispatchable Generation Energy Sent Out Statistics

Year	01 Jan to 04 Sep Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	153,581	225,203	GWh
2018	152,963	224,202	GWh
2019	149,952	219,563	GWh
2020	139,941	206,725	GWh
2021	144,697	210,022	GWh
2022 (YTD)	141,811		GWh

Week-on-Week Residual Energy Demand

[2022 weeks compared to similar 2021 weeks]



Week 35 : Residual Energy Demand Statistics (Incl IOS)

Energy Demand	3,911	GWh
Week-on-Week Growth	-4.51	%
Year-on-Year Growth (Year-to-Date) Annual	-0.87	%

Note:

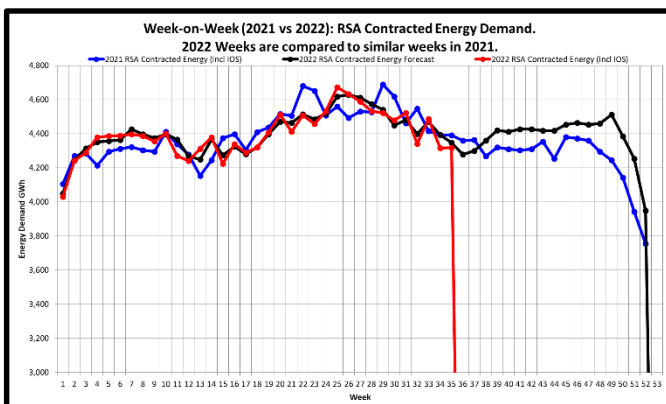
2022 Weeks are compared to similar weeks in 2021.
(2022 week 1 ~ 2021 week 1)

Annual Residual Energy Demand Statistics (Incl IOS)

Year	01 Jan to 04 Sep Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	153,600	225,248	GWh
2018	153,087	224,594	GWh
2019	150,673	220,924	GWh
2020	141,216	208,151	GWh
2021	145,789	211,958	GWh
2022 (YTD)	144,554		GWh

Week-on-Week RSA Contracted Energy Demand

[2022 weeks compared to similar 2021 weeks]



Week 35 : RSA Contracted Energy Demand Statistics (Incl IOS)

Energy Demand	4,319	GWh
Week-on-Week Growth	-1.67	%
Year-on-Year Growth (Year-to-Date) Annual	-0.24	%

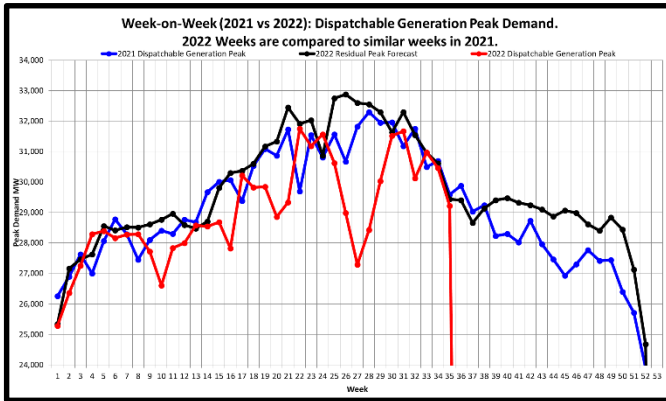
Note:

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 04 Sep Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	160,236	235,426	GWh
2018	160,063	235,482	GWh
2019	158,161	232,511	GWh
2020	148,947	220,630	GWh
2021	155,275	227,166	GWh
2022 (YTD)	154,937		GWh

Week-on-Week Dispatchable Generation Peak Demand



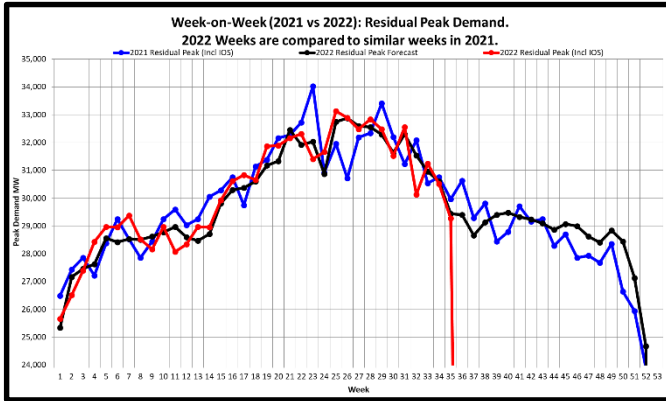
[2022 weeks compared to similar 2021 weeks]

Week 35 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	29,221	MW
Week-on-Week Growth	-1.27	%
Year-on-Year Growth (Year-to-Date) Annual	-1.66	%

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)	Thu 02-Jun-2022	31,756	MW

Week-on-Week Residual Peak Demand



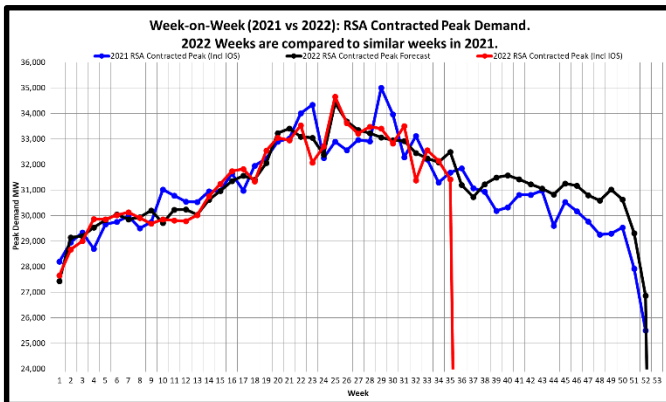
[2022 weeks compared to similar 2021 weeks]

Week 35 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	29,274	MW
Week-on-Week Growth	-2.32	%
Year-on-Year Growth (Year-to-Date) Annual	-2.62	%

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)	Thu 23-Jun-2022	33,136	MW

Week-on-Week RSA Contracted Peak Demand



[2022 weeks compared to similar 2021 weeks]

Week 35 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	31,430	MW
Week-on-Week Growth	-0.80	%
Year-on-Year Growth (Year-to-Date) Annual	-0.97	%

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)	Thu 23-Jun-2022	34,666	MW

Weekly Generation Availability

	Week															Annual (Jan - Dec)	
	22	23	24	25	26	27	28	29	30	31	32	33	34	35	2022	2021	
Energy Availability Factor (Eskom EAF)	62.43	62.97	60.70	59.65	57.17	56.71	59.96	62.16	63.88	61.60	63.79	60.60	61.19	59.84	59.69	61.79	
Planned Outage Factor	6.43	5.73	8.51	8.06	6.77	8.44	9.00	6.14	5.06	7.08	9.01	9.61	10.73	10.51	9.88	10.81	
Unplanned Outage Factor	30.19	30.09	29.65	27.54	28.50	32.46	29.49	30.80	29.27	30.57	25.90	29.11	27.66	29.20	28.86	24.53	
Other Outage Factor	0.95	1.21	1.14	4.75	7.56	2.39	1.55	0.90	1.79	0.75	1.30	0.68	0.42	0.45	1.57	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)

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 Scenario (-17200 MW)
05-Sep-22	36	31202	29407	44379	29179	5646	13000		
12-Sep-22	37	30734	28667	43084	27884	6941	13000		
19-Sep-22	38	31227	29140	43287	28087	6738	13000		
26-Sep-22	39	31491	29403	43714	28514	6311	13000		
03-Oct-22	40	31580	29475	43221	28021	6804	13000		
10-Oct-22	41	31429	29325	43514	28314	6511	13000		
17-Oct-22	42	31228	29242	43523	28323	6502	13000		
24-Oct-22	43	31066	29102	43677	28477	6348	13000		
31-Oct-22	44	30831	28867	42438	27238	7587	13000		
07-Nov-22	45	31255	29072	42755	27555	7270	13000		
14-Nov-22	46	31172	28989	43416	28216	6609	13000		
21-Nov-22	47	30803	28621	42314	27114	7711	13000		
28-Nov-22	48	30591	28409	42666	27466	7359	13000		
05-Dec-22	49	31023	28837	42899	27699	7126	13000		
12-Dec-22	50	30633	28446	42191	26991	7834	13000		
19-Dec-22	51	29318	27132	41266	26066	8759	13000		
26-Dec-22	52	28867	24680	40176	24976	9849	13000		
02-Jan-23	1	28588	26066	41381	26181	8644	13000		
09-Jan-23	2	29704	27670	42053	26853	7972	13000		
16-Jan-23	3	30496	28461	41793	26593	8232	13000		
23-Jan-23	4	30174	28139	41963	26763	8062	13000		
30-Jan-23	5	30383	28349	42180	26980	7845	13000		
06-Feb-23	6	30997	29208	43324	28124	6701	13000		
13-Feb-23	7	30835	29045	43124	27924	6901	13000		
20-Feb-23	8	30909	29119	42646	27446	7379	13000		
27-Feb-23	9	30721	29153	43291	28091	6734	13000		
06-Mar-23	10	31153	29585	43775	28575	6250	13000		
13-Mar-23	11	30805	29237	43923	28723	6102	13000		
20-Mar-23	12	31014	29366	43941	28741	6084	13000		
27-Mar-23	13	30853	29206	43751	28551	6274	13000		
03-Apr-23	14	32219	30573	45246	30046	4779	13000		
10-Apr-23	15	32493	30846	45931	30731	4094	13000		
17-Apr-23	16	32984	31338	45931	30731	4094	13000		
24-Apr-23	17	33668	32021	46526	31326	3499	13000		
01-May-23	18	33601	32419	47101	31901	2924	13000		
08-May-23	19	34531	33349	47741	32541	2284	13000		
15-May-23	20	34704	33522	47931	32731	2094	13000		
22-May-23	21	35031	33849	48131	32931	1894	13000		
29-May-23	22	35849	34667	48074	32874	1951	13000		
05-Jun-23	23	35053	33773	47726	32526	2299	13000		
12-Jun-23	24	35055	33774	47874	32674	2151	13000		
19-Jun-23	25	34886	33605	47874	32674	2151	13000		
26-Jun-23	26	35391	34110	48328	33128	1697	13000		
03-Jul-23	27	35153	33662	47201	32001	2824	13000		
10-Jul-23	28	35127	33636	47201	32001	2824	13000		
17-Jul-23	29	35242	33751	47201	32001	2824	13000		
24-Jul-23	30	35288	33797	47258	32058	2767	13000		
31-Jul-23	31	34476	32985	47315	32115	2710	13000		
07-Aug-23	32	34154	32460	46818	31618	3207	13000		
14-Aug-23	33	33807	32114	46237	31037	3788	13000		
21-Aug-23	34	33730	32037	46089	30889	3936	13000		
28-Aug-23	35	33641	31961	45884	30684	4141	13000		
04-Sep-23	36	33879	31791	46095	30895	3930	13000		
11-Sep-23	37	33528	31440	46830	31630	3195	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 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): 13 000

Reserves: OR + UA = 15 200 MW

Eskom Installed Capacity: 49 020 MW (Incl. non-comm. Kusile units).

Installed Dispatchable Capacity: 50 025 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 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 - 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)	3,442.6
Total (Incl other REs)	6,205.2

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	2,921.0	5,062.2
	Max Date	15-Mar-2022 15:00	24-Oct-2021 12:00	01-Jul-2022 13:00	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	2,025.1	2,921.0	5,062.2
	Max Date	15-Mar-2022 15:00	05-Jan-2022 11:00	01-Jul-2022 13:00	05-Sep-2022 12:00

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	8,359,224	15,208,327
	Maximum Total Energy				
2016	Total Energy	529,522	2,630,141	3,730,771	6,951,261
	Maximum Total Energy				
2017	Total Energy	687,703	3,324,857	5,081,023	9,198,632
	Maximum Total Energy				
2018	Total Energy	1,031,288	3,282,124	6,467,095	10,887,902
	Maximum Total Energy				
2019	Total Energy	1,557,151	3,324,989	6,624,642	11,586,945
	Maximum Total Energy				
2020	Total Energy	1,626,049	4,140,212	6,625,830	12,478,704
	Maximum Total Energy				
2021	Total Energy	1,656,017	5,069,146	8,359,224	15,208,327
	Maximum Total Energy				
2022	Total Energy	917,162	3,244,554	6,537,175	10,836,053
	Maximum Total Energy				

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

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	19.1%
	Max Date	05-Sep-2022 12:00