

## Weekly System Status Report – 2022 Week 42 (17/10/2022 – 23/10/2022)

### 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 17/Oct/2022	28,716	0	29,359	29,008	-1.0%	-1.0%	1.2%
Tue 18/Oct/2022	29,072	0	29,292	28,904	0.6%	0.6%	1.3%
Wed 19/Oct/2022	28,529	0	29,051	29,128	-2.1%	-2.1%	-0.3%
Thu 20/Oct/2022	27,325	0	28,491	28,074	-2.7%	-2.7%	1.5%
Fri 21/Oct/2022	28,993	0	27,103	27,433	5.7%	5.7%	-1.2%
Sat 22/Oct/2022	26,722	0	25,943	25,442	5.0%	5.0%	2.0%
Sun 23/Oct/2022	28,593	0	26,558	26,506	7.9%	7.9%	0.2%

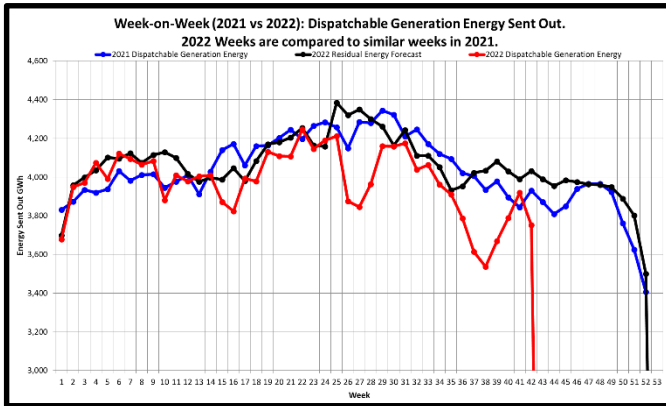
Date	Total Available Generation Incl Renewables (MW)	Non-commercial Generation (MW)	RSA Contracted Load Forecast (MW)	Actual RSA Contracted Demand (MW) Incl IOS	Operating Reserve Margin (Excl Non-Commercial Units)	Operating Reserve Margin (Incl Non-Commercial Units)	Forecast vs. Actual (RSA Contracted Demand)
Mon 17/Oct/2022	30,063	0	30,461	30,355	-1.0%	-1.0%	0.3%
Tue 18/Oct/2022	30,375	0	30,478	30,206	0.6%	0.6%	0.9%
Wed 19/Oct/2022	29,943	0	30,690	30,543	-2.0%	-2.0%	0.5%
Thu 20/Oct/2022	29,334	0	30,226	30,084	-2.5%	-2.5%	0.5%
Fri 21/Oct/2022	30,669	0	29,085	29,029	5.6%	5.6%	0.2%
Sat 22/Oct/2022	29,218	0	28,037	27,937	4.6%	4.6%	0.4%
Sun 23/Oct/2022	30,244	0	28,309	28,157	7.4%	7.4%	0.5%

### 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 42 : Dispatchable Generation Energy Sent Out Statistics

Energy Sent Out	3,752	GWh
Week-on-Week Growth	-4.55	%
Year-on-Year Growth (Year-to-Date) Annual	-2.60	%

**Note:**

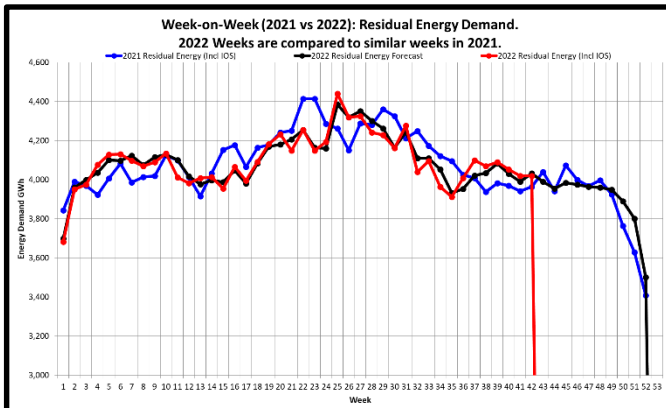
2022 Weeks are compared to similar weeks in 2021.  
(2022 week 1 ~ 2021 week 1)

### Annual Dispatchable Generation Energy Sent Out Statistics

Year	01 Jan to 23 Oct Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	183,753	225,203	GWh
2018	183,018	224,202	GWh
2019	179,566	219,563	GWh
2020	168,230	206,725	GWh
2021	172,342	210,022	GWh
2022 (YTD)	4,625		GWh

## Week-on-Week Residual Energy Demand

[2022 weeks compared to similar 2021 weeks]



### Week 42 : Residual Energy Demand Statistics (Incl IOS)

Energy Demand	4,019	GWh
Week-on-Week Growth	1.42	%
Year-on-Year Growth (Year-to-Date) Annual	-0.42	%

**Note:**

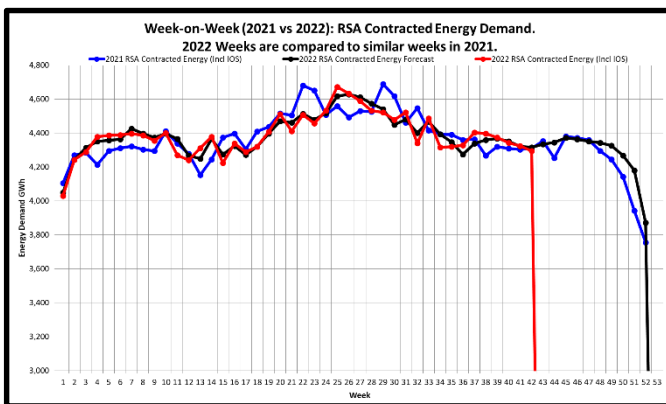
2022 Weeks are compared to similar weeks in 2021.  
(2022 week 1 ~ 2021 week 1)

### Annual Residual Energy Demand Statistics (Incl IOS)

Year	01 Jan to 23 Oct Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	183,781	225,248	GWh
2018	183,176	224,594	GWh
2019	180,392	220,924	GWh
2020	169,590	208,151	GWh
2021	173,625	211,958	GWh
2022 (YTD)	172,909		GWh

## Week-on-Week RSA Contracted Energy Demand

[2022 weeks compared to similar 2021 weeks]



### Week 42 : RSA Contracted Energy Demand Statistics (Incl IOS)

Energy Demand	4,295	GWh
Week-on-Week Growth	-0.34	%
Year-on-Year Growth (Year-to-Date) Annual	-0.08	%

**Note:**

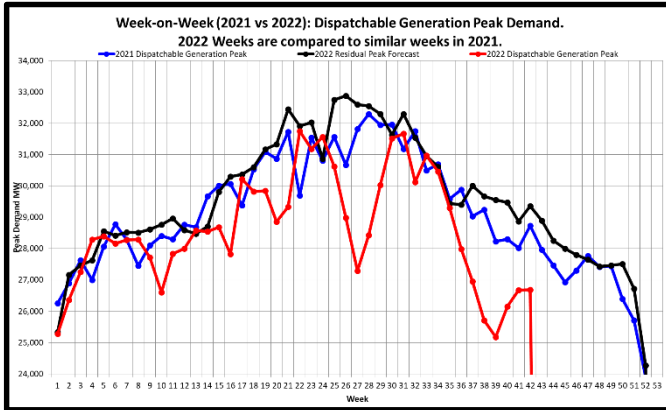
2022 Weeks are compared to similar weeks in 2021.  
(2022 week 1 ~ 2021 week 1)

### Annual RSA Contracted Energy Demand Statistics (Incl IOS)

Year	01 Jan to 23 Oct Energy	Annual Energy (01 Jan to 31 Dec)	Unit
2017	191,738	235,426	GWh
2018	191,709	235,482	GWh
2019	189,500	232,511	GWh
2020	179,113	220,630	GWh
2021	185,517	227,166	GWh
2022 (YTD)	185,407		GWh

### Week-on-Week Dispatchable Generation Peak Demand

[2022 weeks compared to similar 2021 weeks]



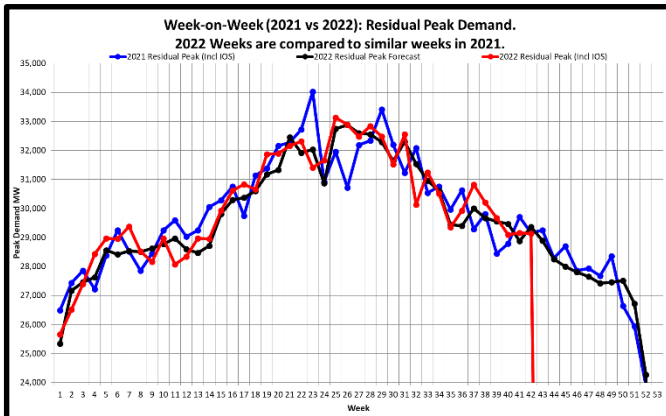
Week 42 : Dispatchable Generation Peak Demand Statistics		
Peak Demand	26,684	MW
Week-on-Week Growth	-7.13	%
Year-on-Year Growth (Year-to-Date) Annual	-1.66	%

**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]



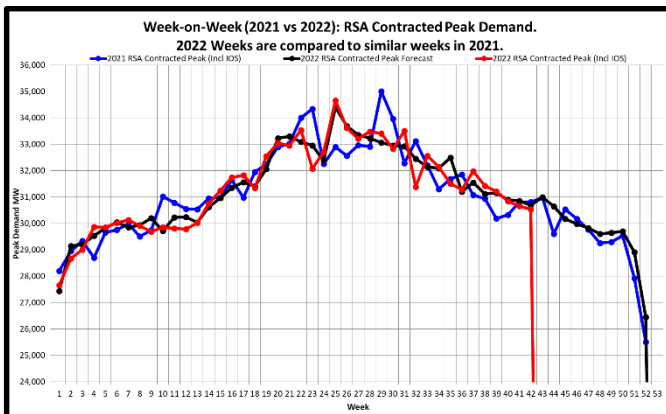
Week 42 : Residual Peak Demand Statistics (Incl IOS)		
Peak Demand	29,128	MW
Week-on-Week Growth	-0.11	%
Year-on-Year Growth (Year-to-Date) Annual	-2.62	%

**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 42 : RSA Contracted Peak Demand Statistics (Incl IOS)		
Peak Demand	30,543	MW
Week-on-Week Growth	-0.87	%
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)	
	29	30	31	32	33	34	35	36	37	38	39	40	41	42	2022	2021
Energy Availability Factor (Eskom EAF)	62.12	63.86	61.59	63.70	60.53	61.10	59.44	56.27	52.71	53.16	55.24	56.41	57.79	55.04	58.91	61.79
Planned Outage Factor	6.14	5.06	7.08	9.01	9.61	10.73	10.59	11.06	13.56	10.44	11.38	13.11	10.94	11.38	10.20	10.81
Unplanned Outage Factor	30.84	29.28	30.58	26.36	29.22	27.70	29.42	31.95	33.12	35.36	32.35	29.29	30.02	32.44	29.42	24.53
Other Outage Factor	0.90	1.80	0.75	0.93	0.64	0.47	0.55	0.72	0.61	1.04	1.03	1.19	1.25	1.14	1.47	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 (-16700 MW)
24-Oct-22	43	30991	28894	42516	27316	7509	13000		
31-Oct-22	44	30653	28254	43881	28681	6144	13000		
07-Nov-22	45	30180	27998	42922	27722	7103	13000		
14-Nov-22	46	29985	27802	44148	28948	5878	13000		
21-Nov-22	47	29830	27647	42090	26890	7935	13000		
28-Nov-22	48	29613	27426	41615	26415	8410	13000		
05-Dec-22	49	29647	27461	41275	26075	8750	13000		
12-Dec-22	50	29699	27512	41528	26328	8497	13000		
19-Dec-22	51	28906	26719	40603	25403	9422	13000		
26-Dec-22	52	26459	24273	39346	24146	10679	13000		
02-Jan-23	1	28228	26193	41191	25991	8834	13000		
09-Jan-23	2	29334	27299	42915	27715	7110	13000		
16-Jan-23	3	29908	27874	42323	27123	7702	13000		
23-Jan-23	4	30174	28139	42493	27293	7532	13000		
30-Jan-23	5	30383	28349	42761	27561	7264	13000		
06-Feb-23	6	30997	29208	42604	27404	7421	13000		
13-Feb-23	7	30835	29045	42404	27204	7621	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	43348	28148	6677	13000		
20-Mar-23	12	31014	29366	43348	28148	6677	13000		
27-Mar-23	13	30853	29206	43733	28533	6292	13000		
03-Apr-23	14	32219	30573	44653	29453	5372	13000		
10-Apr-23	15	32493	30846	45346	30146	4679	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	48331	33131	1694	13000		
03-Jul-23	27	35153	33662	47204	32004	2821	13000		
10-Jul-23	28	35127	33636	47204	32004	2821	13000		
17-Jul-23	29	35242	33751	47204	32004	2821	13000		
24-Jul-23	30	35288	33797	47261	32061	2764	13000		
31-Jul-23	31	34476	32985	47318	32118	2707	13000		
07-Aug-23	32	34154	32460	46821	31621	3204	13000		
14-Aug-23	33	33807	32114	46050	30850	3975	13000		
21-Aug-23	34	33730	32037	45902	30702	4123	13000		
28-Aug-23	35	33641	31961	45694	30494	4331	13000		
04-Sep-23	36	33478	31791	45905	30705	4120	13000		
11-Sep-23	37	33126	31440	46640	31440	3385	13000		
18-Sep-23	38	32252	30565	44920	29720	5105	13000		
25-Sep-23	39	32248	30561	44589	29389	5436	13000		
02-Oct-23	40	32567	30461	44304	29104	5721	13000		
09-Oct-23	41	31967	29871	43819	28619	6206	13000		
16-Oct-23	42	31435	29362	43544	28344	6481	13000		
23-Oct-23	43	31027	29062	42764	27564	7261	13000		
30-Oct-23	44	31089	29125	43392	28192	6633	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): 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	2,287.1
Wind (Eskom+IPP)	3,442.6
<b>Total (Incl other REs)</b>	<b>6,280.2</b>

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	5,126.1
	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	5,126.1
	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				
2016	Total Energy	529,522	2,630,141	3,730,771	6,951,261
	Maximum				
2017	Total Energy	687,703	3,324,857	5,081,023	9,198,632
	Maximum				
2018	Total Energy	1,031,288	3,282,124	6,467,095	10,887,902
	Maximum				
2019	Total Energy	1,557,151	3,324,989	6,624,642	11,586,945
	Maximum				
2020	Total Energy	1,626,049	4,140,212	6,625,830	12,478,704
	Maximum				
2021	Total Energy	1,656,017	5,069,146	8,359,224	15,208,327
	Maximum				
2022	Total Energy	1,085,497	3,873,239	7,762,882	12,898,695
	Maximum				

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	19.3%
	Max Date	05-Sep-2022 12:00
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