# **TSO Connected Renewables - Annual Installed Capacities**

	MW	Installed Ca at Year En		MV	W Connected		TSO Connected Renewable Generation in Ireland											
Year	Hydro	Wind	Total RES	Hydro	Wind	Total RES	2,286 2,145 2,145 2,145 2,145 2,145 2,145 2,145 2,1,987 2,1,9777 2,1,977 2,1,9777 2,1,9777 2,1,9777 2,1,9777 2,1,9777											
1993	212.18	-	212.18	-	-	-												
1994	212.18	-	212.18	-	-	-	2,000											
1995	212.18	-	212.18	-	-	-	2,000											
1996	212.18	-	212.18	-	-	-	1,500											
1997	212.18	15	227.18	-	15	15												
1998	212.18	15	227.18	-	-	-	1,000											
1999	212.18	15	227.18	-	-	-												
2000	212.18	15	227.18	-	-	-	15     15       15     15       15     15       15     15       15     15       15     15       15     15       26     8       311     26       418     669       769     769       769     769       1,047     1,047       1,047     1,153       1,592     1,592       1,592     1,774       1,592     1,793       2,065     2,074											
2001	212.18	15	227.18	-	-	-												
2002	212.18	15	227.18	-	-	-												
2003	212.18	40	252.18	-	25	25	1998         1999         1999         1999         1999         2001         2002         2003         2004         2005         2005         2005         2005         2005         2005         2006         2007         2009         20010         2011         2012         2013         2014         2015         2015         2016         2017         2018         2019         2011         2015         2015         2016         2017         2018         2019         2019         2019         2019         2019         2019         2019         2019         2019         2010         2011         2011         2011         2011         2011         2011         2011      <											
2004	212.18	112.4	324.58	-	72.4	72.4												
2005	212.18	222.9	435.08	-	110.5	110.5	Hydro Wind Total Renewables											
2006	212.18	267.9	480.08	-	45	45	TSO Denouselle Connections in Ireland (NAM)											
2007	212.18	310.85	523.03	-	42.95	42.95	TSO Renewable Connections in Ireland (MW)											
2008	212.18	417.75	629.93	-	106.9	106.9	0         13         13         13         13         13         13         13         13         13         10         0 <td< td=""></td<>											
2009	212.18	668.75	880.93	-	251	251												
2010	212.18	727.8	939.98	-	59.05	59.05	250											
2011	212.18	769.2	981.38	-	41.4	41.4												
2012	212.18	769.2	981.38	-	-	-	200											
2013	212.18	845.2	1057.38	-	76	76												
2014	212.18	1046.55	1,258.73	-	201.35	201.35	150											
2015	212.18	1,152.55	1,364.73	-	106	106												
2016	212.18	1,371.25	1,583.43	-	218.7	218.7												
2017	212.18	1,591.50	1,803.68	-	220.25	220.25	50											
2018	212.18	1,774.45	1,986.63	-	182.95	182.95	0 0 0 0 1111 1111 1111 1112 1112 201 201											
2019	212.18	1,932.45	2,144.63	-	158	158												
2020	212.18	2,064.75	2,276.93	-	132.3	132.3	1998         1999         1999         1999         2001         2002         2003         2004         2005         2005         2006         2007         2008         2009         2009         20010         20011         2012         2013         2014         2015         2015         2016         2017         2018         2019         2019         2011											
2021	212.18	2,074.05	2,286.23	-	9.3	9.3												
2022 YTD	212.18	2,117.25	2,329.43	-	43.2	43.2	Hydro 🔍 Wind 🗖 Total Renewables											

# **TSO Connected Renewables - Monthly Installed Capacities**

			Installed C at Month E	• •	MW	MW Connected			TSO Connected Renewable Generation in Ireland Total Installed Capacities (MW)																													
Year	Month	Hydro	Wind	Total RES	Hydro	Wind	Total RES		32	2,232	32	32	32	32	32	32		2,286 2,286	2,286	5,286 2,286	2,286 2,286	2,286 D	2,286 2,286	2,286 ac	2,286	<u> </u>	2,286	÷	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286	2,286	53
2020	Apr	212.18	2,019.75	2,231.93	-	19.8	19.8	2,500	2,232	2,2	2,232	2,232	2,232	2,232	2,232	2,232	2,277	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,286	2,2	2,286	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	57	2,3
	May	212.18	2,019.75	2,231.93	-	-	-	2,500		_	_		_		_	_																						
	Jun	212.18	2,019.75	2,231.93	-	-	-	2,000																														
	Jul	212.18	2,019.75	2,231.93	-	-	-	1,500																														
	Aug	212.18	2,019.75	2,231.93	-	-	-	1,500																														
	Sep	212.18	2,019.75	2,231.93	-	-	-	1,000	-					-																								
	Oct	212.18	2,019.75	2,231.93	-	-	-	500	020	020	2,020	2,020	020	2,020	2,020	2,020	2,065	2,074	2,074	2,074	2,074	2,074	2,074	074	2,074	2,074	074	2,074	2,074	2,074	2,074	2,074	2,074	2,074	074	074	074	117
	Nov	212.18	2,019.75	2,231.93	-	-	-	500	2,	2,	2	2	2,	~	2	2	3	2	2,	2	2	2	2	2	2	2	2	2	2	2	2	2	5	2	2	2,	2	2,
	Dec	212.18	2,064.75	2,276.93	-	45	45	0	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	51	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	Ę	<u></u>	Ξ.	Ę
2021	Jan	212.18	2,074.05	2,286.23	-	9.3	9.3		Apr	May	lun	3	Aug	Sep	ö	Nov	Dec	Jan	Feb	Mar	Apr	May	In	ㅋ	Aug	Sep	ö	Nov	Dec	Jan	Feb	Mar	Apr	May	In		Aug	Sep
	Feb	212.18	2,074.05	2,286.23	-	-	-			2	•		4	•,		2		.	_	2		2			4	•,		2	-		_	2		2	•		-	, I
	Mar	212.18	2,074.05	2,286.23	-	-	-					2	2020	)										21									2	2022	2			
	Apr	212.18	2,074.05	2,286.23	-	-	-											Hyd	lro		Wi	nd		Tot	tal R	ene	wal	oles										
	May	212.18	2,074.05	2,286.23	-	-	-							_	TC/	<b>م</b> ر			- <b>h</b>	1					- :		-1-		/		、							
	Jun	212.18	2,074.05	2,286.23	-	-	-								150	JK	en	ew	ap	ie (	or	nne	ecti	on	s ir	1 Ire	eia	na	(IV	W	)							
	Jul	212.18	2,074.05	2,286.23	-	-	-	50	ຊ	0	0	0	0	0	0	•	Ϋ́	<b>ნ</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	•	Υ
	Aug	212.18	2,074.05	2,286.23	-	-	-									(																						-
	Sep	212.18	2,074.05	2,286.23	-	-	-																															
	Oct	212.18	2,074.05	2,286.23	-	-	-																															
	Nov	212.18	2,074.05	2,286.23	-	-	-																															
	Dec	212.18	2,074.05	2,286.23	-	-	-	25																													_	
2022	Jan	212.18	2,074.05	2,286.23	-	-	-																															
	Feb	212.18	2,074.05	2,286.23	-	-	-																															
	Mar	212.18	2,074.05	2,286.23	-	-	-											-																				
	Apr	212.18	2,074.05	2,286.23	-	-	-		0	0	~	~	~	~	~	~	ц,	_	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	~	。	£
	May	212.18	2,074.05	2,286.23	-	-	-	0		_				_		_			_		<u> </u>			<u> </u>			_		_		_		_		_	_	-	
	Jun	212.18	2,074.05	2,286.23	-	-	-		Apr	May	n	3	Aug	Sep	ö	Nov	Dec	Jan	Feb	Mar	Apr	May	lun	٦	Aug	Sep	ö	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	P	Aug	Sep
	Jul	212.18	2,074.05	2,286.23	-	-	-			2	-			. 1	-	-	-		_	2		2				-,	-	-	-		_	2				1	-	-
	Aug	212.18	2,074.05	2,286.23	-	-	-					2	2020	)										21									2	2022	2			
	Sep	212.18	2,117.25	2,329.43	-	43.2	43.2											Hyd	lro		Wi	nd		Tot	tal R	ene	wal	oles										

# **TSO Connected Renewable Generation List**

No	Туре	Category	Gate	Ref. Code	Generator	Phase	Connection Full / Partial	Maximum Export Capacity (MW)	Installed Capacity (MW)	Full / Latest Connection Date	Notes	County	No of Turbines	Controllable
1	Wind	Onshore	PG	P25	Golagh	1	Full	15	15	Jul-1997		Donegal	25	Ν
2	Wind	Onshore	PG	P38A	Kingsmountain	1	Full	23.75	25	May-2003		Sligo	10	Ν
3	Wind	Onshore	PG	P38BDF	Meentycat	1	Full	70.96	72.4	Oct-2004		Donegal	38	Y
4	Wind	Onshore	PG	TG13	Ballywater	1	Full	31.5	31.5	May-2005		Wexford	16	Y
5	Wind	Onshore	PG	TG07	Booltiagh	1	Full	19.45	19.5	Aug-2005		Clare	13	Y
6	Wind	Onshore	PG	P33	Derrybrien	1	Full	59.5	59.5	Oct-2005	Gort	Galway	70	Y
7	Wind	Onshore	PG	TG11	Coomagearlahy	1	Full	42.5	45	Mar-2006		Kerry	15	Y
8	Wind	Onshore	1	TG47	Midas	1	Full	29.8	32.45	Jul-2007	Glanlee 1	Kerry	23	Y
9	Wind	Onshore	2	TG35	Ballywater	2	Full	10.5	10.5	Aug-2007		Wexford	5	Y
10	Wind	Onshore	PG	TG06	Mountain Lodge	1	Full	24.8	25.5	Apr-2008		Cavan	17	Y
11	Wind	Onshore	1	TG12	Pallas	1	Full	37.8	40	Jun-2008	Clahane 1	Kerry	20	Y
12	Wind	Onshore	1	TG18	Coomacheo	1	Full	41.225	41.4	Jun-2008		Cork	18	Y
13	Wind	Onshore	2	TG50	Coomagearlahy	2	Full	8.5	8.5	Mar-2009		Kerry	10	Y
14	Wind	Onshore	2	TG52	Mountain Lodge	3	Full	5.82	6	Mar-2009		Cavan	4	Y
15	Wind	Onshore	2	TG54	Coomagearlahy	3	Full	30	32.5	Jun-2009		Kerry	13	Y
16	Wind	Onshore	2	DG187	Coomacheo	2	Full	18	18.4	Jul-2009		Cork	8	Y
17	Wind	Onshore	2	TG55	Lisheen	1	Full	36	36	Jul-2009		Tipperary	18	Y
18	Wind	Onshore	1	TG65	Meentycat	2	Full	14	16.1	Oct-2009		Donegal	7	Y
19	Wind	Onshore	PG	P38-1	Bindoo	1a	Full	48	48	Oct-2009	Ratrussan	Cavan	32	Y
20	Wind	Onshore	2	TG29	Boggeragh	1	Full	57	57	Dec-2009		Cork	19	Y
21	Wind	Onshore	2	DG141	Dromada	1	Full	28.5	28.5	Dec-2009		Limerick	19	Y
22	Wind	Onshore	2	TG23a	Garvagh	1a	Full	26	26	Jun-2010	Glebe	Leitrim	13	Y
23	Wind	Onshore	2	TG23c	Garvagh	1c	Full	22	22	Jun-2010	Tullynahaw	Roscommon	11	Y
24	Wind	Onshore	2	TG40	Kingsmountain	2	Full	11.05	11.05	Jun-2010		Sligo	13	Y
25	Wind	Onshore	2	DG88	Castledockrell	1	Full	20	20.7	Jan-2011		Wexford	9	Y

# TSO Connected Renewable Generation List (contd.)

No	Туре	Category	Gate	Ref. Code	Generator	Phase	Connection Full / Partial	Maximum Export Capacity (MW)	Installed Capacity (MW)	Full / Latest Connection Date	Notes	County	No of Turbines	Controllable
26	Wind	Onshore	2	DG172	Castledockrell	2	Full	2	2.3	Jan-2011		Wexford	1	Y
27	Wind	Onshore	2	DG189	Castledockrell	3	Full	3.3	2.3	Jan-2011		Wexford	1	Y
28	Wind	Onshore	2	DG201	Castledockrell	4	Full	16.1	16.1	Jan-2011		Wexford	7	Y
29	Wind	Onshore	2	TG55a	Lisheen	2	Full	23	24	May-2013		Tipperary	12	Y
30	Wind	Onshore	2	TG38	Booltiagh	2	Full	12	12	Sep-2013	Booltiagh 2 & 3 (TG38 & TG39)	Clare	6	Y
31	Wind	Onshore	1	TG22a	Athea	1a	Full	34.35	34.35	Feb-2014		Limerick	16	Y
32	Wind	Onshore	2	TG24	Knockacummer	1	Full	100	100	Jul-2015	Glentanemacelligot 1 Switched connection from DSO to TSO in Nov-2018	Cork	40	Y
33	Wind	Onshore	3	TG66	Mountlucas	1	Full	79.2	84	Nov-2014		Offaly	28	Y
34	Wind	Onshore	3	TG69	Kill Hill	1	Full	36	36	Dec-2014		Tipperary	16	Y
35	Wind	Onshore	3	DG135	Woodhouse	1	Full	20	20	Jun-2015		Waterford	8	Y
36	Wind	Onshore	2	DG50	Cloghboola	1	Full	46	48	Oct-2015	Knocknagashel	Kerry	16	Y
37	Wind	Onshore	3	TG102	Boggeragh	2	Full	65.7	65.7	Jun-2016	Knockduff + Killavoy 1 (DG200)	Cork	26	Y
38	Wind	Onshore	3	DG308	Mulreavy	2	Full	5.4	5	Oct-2016	Meenadreen South 2	Donegal	2	Y
39	Wind	Onshore	3	TG94	Sliabh Bawn	1	Full	58	64	Dec-2016		Roscommon	20	Y
40	Wind	Onshore	2	TG51	Mulreavy	1	Full	89.85	90	Feb-2017	Mulreavy 1 (82MW)(TG51) + Croaghnameal 1 (4.25MW)(DG198) + Meenadreen South 1 (3.6MW)(DG65)	Donegal	36	Y
41	Wind	Onshore	3	DG92	Uggool	1	Full	64	64	Feb-2017		Galway	22	Y
42	Wind	Onshore	1	TG15	Moneypoint	1	Full	17.25	17.25	Jun-2017		Clare	5	Y
43	Wind	Onshore	3	TG58	Seecon	1	Full	105	108	Aug-2017		Galway	36	Y
44	Wind	Onshore	2	DG49	Cordal	1	Full	35.85	35.2	Mar-2018		Kerry	11	Y
45	Wind	Onshore	3	DG272	Cordal	2	Full	54	54.4	Mar-2018	Merged with Cordal 3	Kerry	17	Y
46	Wind	Onshore	3	TG83	Clahane	2	Full	13.8	13.8	Aug-2018		Kerry	6	Y

# TSO Connected Renewable Generation List (contd.)

Correct as of 01-Oct-2022

No	Туре	Category	Gate	Ref. Code	Generator	Phase	Connection Full / Partial	Maximum Export Capacity (MW)	Installed Capacity (MW)	Full / Latest Connection Date	Notes	County	No of Turbines	Controllable
47	Wind	Onshore	N/A	TG256	Kelwin	1	Full	37.05	37.05	Sep-2018	Hybrid: 37.05 MW Wind (including 2.6MW batteries) + 2 MW Diesel	Kerry	13	Y
48	Wind	Onshore	2	TG49	Knockalassa	1	Full	26.875	27.5	Oct-2018		Clare	11	Y
49	Wind	Onshore	2&3	DG73	Boolinrudda	1	Full	44.515	45	Oct-2018	26.875 MW Gate 2 + 17.64 MW Gate 3	Clare	18	Y
50	Wind	Onshore	3	DG191	Knockalough	1	Full	33.6	35.2	Jan-2019		Galway	11	Y
51	Wind	Onshore	3	TG25	Oweninny	1	Full	89	92.8	Oct-2019		Mayo	29	Y
52	Wind	Onshore	3	TG34	Grousemount	1	Full	114.2	114.2	Apr-2020		Kerry	38	Y
53	Wind	Onshore	2	DG141a	Beenanaspuck & Tobertoreen	1	Full	23.15	23.1	Apr-2020	23.15 MW Wind + 11 MW Battery	Kerry	7	Y
54	Wind	Onshore	3	TG44	Carrigdangan	1	Full	54.3	54.3	Jan-2021		Cork		Y
55	Wind	Onshore		TG372	Cloncreen	1	Partial	75.6	43.2	Sep-2022		Offaly		Y

**Note:** This report contains TSO-connected renewable generation data only.

The DSO-connected renewable generators lists can be found on the DSO website:

https://esbnetworks.ie/new-connections/generator-connections/generator-connection-statistics

**Note:** Knockacummer windfarm has switched from a TSO to a DSO grid connection. Both the TSO and DSO connected wind reports have been updated accordingly.

# TSO Connected Renewable Generation List (contd.)

Correct as of 01-Oct-2022

No	Туре	Category	Gate	Ref. Code	Generator	Phase	Connection Full / Partial	Maximum Export Capacity (MW)	Installed Capacity (MW)	Full / Latest Connection Date		County
1	Hydro		PG		Ardnacrusha	1	Full	22	22	1929		Clare
2	Hydro		PG		Ardnacrusha	2	Full	22	22	1929		Clare
3	Hydro		PG		Ardnacrusha	3	Full	21	21	1929		Clare
4	Hydro		PG		Ardnacrusha	4	Full	21	21	1934		Clare
5	Hydro		PG		Erne	1	Full	10	10	1950	Cliff	Donegal
6	Hydro		PG		Erne	2	Full	10	10	1955	Cliff	Donegal
7	Hydro		PG		Erne	3	Full	22.5	22.5	1951	Cathleen's Fall	Donegal
8	Hydro		PG		Erne	4	Full	22.5	22.5	1952	Cathleen's Fall	Donegal
9	Hydro		PG		Lee	1	Full	15	15	1952	Inniscarra	Cork
10	Hydro		PG		Lee	2	Full	4	4	1952	Inniscarra	Cork
11	Hydro		PG		Lee	3	Full	8	8	1952	Carrigadrohid	Cork
12	Hydro		PG		Liffey	1	Full	15	15	1944	Pollaphuca	Wicklow
13	Hydro		PG		Liffey	2	Full	15	15	1944	Pollaphuca	Wicklow
14	Hydro		PG		Liffey	3	Full	0.18	0.18	1944	Pollaphuca	Wicklow
15	Hydro		PG		Liffey	4	Full	4	4	1944	Pollaphuca	Wicklow

**Note:** This report contains TSO-connected renewable generation data only.

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**Note:** Knockacummer windfarm has switched from a TSO to a DSO grid connection.

Both the TSO and DSO connected wind reports have been updated accordingly.

## **Frequently Asked Questions**

# Q: What is the difference between transmission (TSO) connected and distribution (DSO) connected wind? A: The power grid consists of two parts, a transmission system (high to medium voltage power lines) and a distribution system (medium to low voltage power lines into homes and businesses). The transmission system is operated by EirGrid also known as the Transmission System Operator (TSO). The distribution system is operated by ESB Networks also known as the Distribution System Operator (DSO). Windfarms connected to the transmission system are known as TSO-connected windfarms. Likewise, windfarms connected to the distribution system are known as DSO-connected windfarms. Currently the TSO and DSO publish two separate lists of TSO-connected and DSO-connected windfarms as well as other types of generation. The DSO-connected generators lists can be found on the DSO website:

https://esbnetworks.ie/new-connections/generator-connections/generator-connection-statistics

#### • Q: What is the difference between the Maximum Export Capacity (MEC) and the installed capacity of a windfarm?

A: Prior to building a windfarm, a connection agreement must be signed with the grid operator (TSO or DSO). This connection agreement specifies the maximum allowable power that can be exported by the windfarm to the grid, known as the Maximum Export Capacity (MEC). The grid operator then upgrades that part of the network to cater for this new capacity. The installed capacity of the windfarm increases as the turbines are gradually built. The TSO connected renewable generation list shows both the full agreed MEC and the latest installed capacity of the windfarm. The list also states whether the windfarm is fully or partially connected. The installed capacity of a windfarm may at times be slightly higher than its MEC, but the power output is limited so that it would not exceed this agreed MEC.

#### • Q: Why is the number of turbines not available for certain windfarms?

**A:** This is generally the case for partially connected windfarms. This information may not be available until these windfarms are fully connected.

## • Q: Why do the connected MW and dates for windfarms in the TSO connected renewable generation list not match the MW growth in the annual/monthly charts and tables?

A: Once a large windfarm is first energised, it can take a number of months for the installed capacity to grow as the turbines are gradually built and commissioned. The renewable generation list only shows the final connection date for a windfarm if it is fully connected; and only shows the latest "capacity increase" date for a windfarm if it is partially connected. This list therefore does not reflect the timeline of the gradual increase in installed capacities. The annual/monthly charts and tables however reflect this gradual growth accurately.

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**Note:** This report contains TSO-connected renewable generation data only. The DSO-connected renewable generators lists can be found on the DSO website: <u>https://esbnetworks.ie/new-connections/generator-connections/generator-connection-statistics</u>

**Note:** Knockacummer windfarm has switched from a TSO to a DSO grid connection. Both the TSO and DSO connected wind reports have been updated accordingly.