

# All Island Quarterly Wind Dispatch Down Report 2017

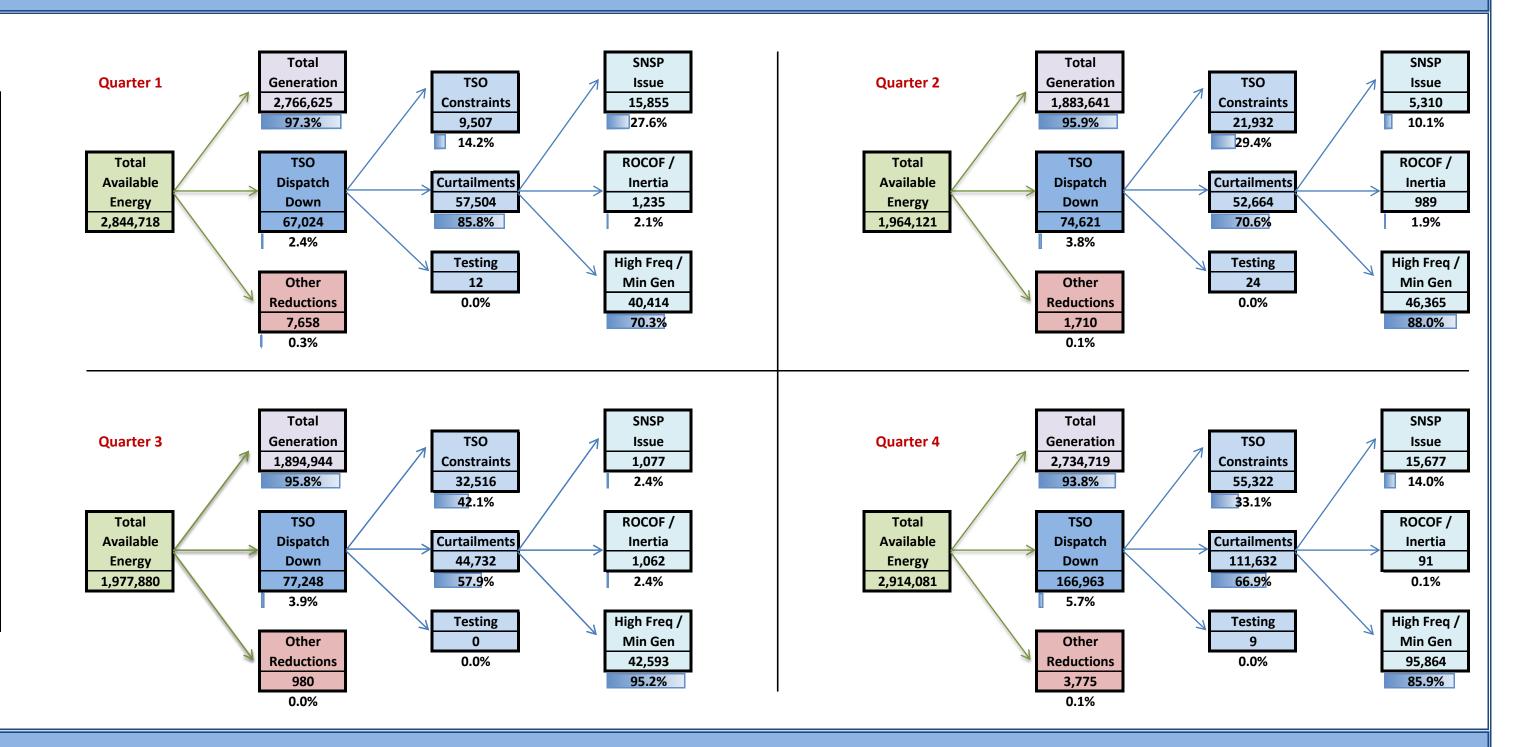
Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2017
Available Energy	854,696	1,044,738	945,285	2,844,718	598,399	594,892	770,830	1,964,121	552,792	600,626	824,462	1,977,880	1,067,859	797,851	1,048,371	2,914,081	9,700,801
Generation	834,137	1,022,847	909,642	2,766,625	575,030	572,066	736,545	1,883,641	533,427	581,974	779,543	1,894,944	949,793	774,404	1,010,523	2,734,719	9,279,929
TSO Dispatch Down	17,305	18,154	31,564	67,024	21,793	21,117	31,711	74,621	17,810	17,344	42,094	77,248	113,259	21,134	32,569	166,963	385,855
Other Reductions	2,209	2,633	2,816	7,658	517	705	488	1,710	206	279	495	980	415	1,103	2,257	3,775	14,124
<b>TSO Dispatch Down:</b>																	
TSO Constraints	3,543	2,789	3,175	9,507	2,874	3,215	15,843	21,932	10,105	11,062	11,349	32,516	34,712	12,509	8,101	55,322	119,277
Curtailments	13,760	15,360	28,384	57,504	18,909	17,888	15,867	52,664	7,705	6,282	30,745	44,732	78,546	8,617	24,469	111,632	266,532
TSO Testing	2	5	4	12	10	14	0	24	0	-	0	0	1	8	-	9	46
Curtailments:																	
SNSP Issue	4,554	5,251	6,050	15,855	958	2,205	2,147	5,310	1	-	1,076	1,077	10,693	1,199	3,784	15,677	37,919
ROCOF / Inertia	790	5	440	1,235	371	2	616	989	459	602	_	1,062	29	-	62	91	3,377
High Freq / Min Gen	8,416	10,103	21,895	40,414	17,580	15,681	13,104	46,365	7,244	5,680	29,669	42,593	67,824	7,417	20,622	95,864	225,236

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2017
Generation	97.6%	97.9%	96.2%	97.3%	96.1%	96.2%	95.6%	95.9%	96.5%	96.9%	94.6%	95.8%	88.9%	97.1%	96.4%	93.8%	95.7%
TSO Dispatch Down	2.0%	1.7%	3.3%	2.4%	3.6%	3.5%	4.1%	3.8%	3.2%	2.9%	5.1%	3.9%	10.6%	2.6%	3.1%	5.7%	4.0%
Other Reductions	0.3%	0.3%	0.3%	0.3%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.2%	0.1%	0.1%
TSO Dispatch Down:																	
TSO Constraints	20.5%	15.4%	10.1%	14.2%	13.2%	15.2%	50.0%	29.4%	56.7%	63.8%	27.0%	42.1%	30.6%	59.2%	24.9%	33.1%	30.9%
Curtailments	79.5%	84.6%	89.9%	85.8%	86.8%	84.7%	50.0%	70.6%	43.3%	36.2%	73.0%	57.9%	69.4%	40.8%	75.1%	66.9%	69.1%
TSO Testing	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Curtailments:														i			
SNSP Issue	33.1%	34.2%	21.3%	27.6%	5.1%	12.3%	13.5%	10.1%	0.0%	0.0%	3.5%	2.4%	13.6%	13.9%	15.5%	14.0%	14.2%
ROCOF / Inertia	5.7%	0.0%	1.5%	2.1%	2.0%	0.0%	3.9%	1.9%	6.0%	9.6%	0.0%	2.4%	0.0%	0.0%	0.3%	0.1%	1.3%
High Freq / Min Gen	61.2%	65.8%	77.1%	70.3%	93.0%	87.7%	82.6%	88.0%	94.0%	90.4%	96.5%	95.2%	86.3%	86.1%	84.3%	85.9%	84.5%

User Guide Available at: http://www.eirgridgroup.com/how-the-grid-works/renewables/







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### All Island Quarterly Wind Dispatch Down Report 2017

### Historical Wind Dispatch Down (Constraint and Curtailment) Percentages for Ireland (IE), Northern Ireland (NI) and All Island (AI)

		2011			2012			2013			2014			2015			2016			2017	
Month	NI	ΙE	Al	NI	IE	Al	NI	IE	Al	NI	ΙE	Al	NI	ΙE	Al	NI	IE	Al	NI	IE	AI
Jan	0.0%	0.8%	0.6%	0.5%	2.2%	1.9%	0.7%	0.4%	0.5%	2.9%	4.9%	4.5%	4.3%	4.3%	4.3%	3.4%	3.5%	3.5%	2.4%	1.9%	2.0%
Feb	0.0%	0.6%	0.5%	0.2%	2.8%	2.2%	0.3%	0.7%	0.6%	3.2%	3.7%	3.6%	4.6%	4.1%	4.2%	2.3%	3.3%	3.1%	2.0%	1.7%	1.7%
Mar	2.7%	1.8%	2.0%	0.8%	2.4%	2.0%	0.6%	0.3%	0.3%	1.8%	4.0%	3.5%	11.4%	8.0%	8.8%	0.9%	2.4%	2.1%	3.0%	3.4%	3.3%
Qtr1	0.7%	1.0%	0.9%	0.5%	2.4%	2.0%	0.6%	0.4%	0.5%	2.7%	4.2%	3.9%	6.9%	5.4%	5.8%	2.4%	3.2%	3.0%	2.4%	2.3%	2.4%
Apr	1.3%	1.2%	1.3%	0.2%	1.4%	1.2%	2.6%	4.7%	4.3%	1.8%	4.2%	3.7%	2.8%	1.8%	2.0%	0.8%	1.4%	1.3%	4.2%	3.5%	3.6%
May	2.2%	3.5%	3.2%	0.6%	1.6%	1.4%	3.7%	6.1%	5.6%	1.5%	2.8%	2.5%	3.8%	4.5%	4.3%	1.1%	1.2%	1.2%	3.6%	3.5%	3.5%
Jun	0.4%	0.8%	0.7%	0.4%	4.0%	3.3%	1.9%	3.7%	3.4%	0.6%	3.3%	2.7%	4.2%	5.0%	4.8%	0.3%	0.7%	0.7%	4.7%	3.9%	4.1%
Qtr2	1.6%	2.3%	2.2%	0.4%	2.2%	1.9%	2.9%	5.0%	4.6%	1.5%	3.4%	3.0%	3.7%	3.9%	3.8%	0.8%	1.2%	1.1%	4.2%	3.7%	3.8%
Jul	0.2%	3.3%	2.8%	0.5%	1.9%	1.6%	0.8%	4.2%	3.4%	1.6%	3.9%	3.4%	2.8%	3.8%	3.7%	6.2%	2.3%	3.1%	4.4%	2.8%	3.2%
Aug	0.0%	0.7%	0.5%	4.0%	4.2%	4.1%	2.4%	5.4%	4.7%	3.8%	3.5%	3.6%	5.0%	5.8%	5.6%	7.0%	4.6%	5.0%	3.1%	2.8%	2.9%
Sep	2.4%	3.9%	3.7%	0.4%	4.8%	3.7%	0.5%	4.2%	3.3%	0.1%	2.2%	1.8%	1.5%	2.7%	2.5%	5.8%	5.6%	5.6%	4.2%	5.4%	5.1%
Qtr3	1.5%	3.1%	2.8%	1.5%	3.8%	3.3%	1.3%	4.6%	3.9%	2.4%	3.3%	3.1%	3.1%	4.1%	3.9%	6.3%	4.4%	4.8%	3.9%	3.9%	3.9%
Oct	2.4%	4.7%	4.3%	0.0%	0.3%	0.2%	1.6%	5.9%	5.0%	4.5%	8.2%	7.4%	4.2%	3.8%	3.9%	1.9%	1.8%	1.8%	14.6%	9.2%	10.6%
Nov	1.2%	2.3%	2.1%	0.1%	1.0%	0.8%	4.0%	3.0%	3.2%	2.0%	3.2%	3.0%	6.9%	6.8%	6.9%	2.7%	1.0%	1.3%	3.2%	2.5%	2.6%
Dec	0.7%	2.2%	1.9%	0.8%	2.8%	2.5%	2.0%	4.4%	3.8%	4.5%	5.0%	4.9%	6.2%	6.3%	6.3%	3.8%	3.1%	3.3%	5.3%	2.5%	3.1%
Qtr4	1.4%	2.9%	2.6%	0.4%	1.6%	1.4%	2.4%	4.5%	4.0%	3.9%	5.7%	5.3%	6.1%	6.0%	6.0%	3.0%	2.1%	2.3%	8.5%	4.9%	5.7%
Year Total	1.3%	2.4%	2.2%	0.7%	2.5%	2.1%	1.9%	3.5%	3.2%	2.8%	4.4%	4.1%	5.3%	5.1%	5.1%	3.2%	2.8%	2.9%	5.0%	3.7%	4.0%
Wind Installed Capacity (MW)	515	1,585	2,100	603	1,703	2,306	644	2,008	2,652	733	2,279	3,013	755	2,447	3,203	948	2,779	3,727	1,160	3,311	4,471
Wind Generation (GWh)	943	4,256	5,198	1,020	4,102	5,122	1,259	4,642	5,901	1,453	5,116	6,568	1,803	6,537	8,339	1,725	6,115	7,840	2,051	7,229	9,280
Wind Capacity Factors	21%	31%	28%	21%	28%	27%	23%	29%	27%	24%	27%	26%	28%	32%	31%	23%	27%	26%	22%	27%	26%
SNSP Limit		50%			50%			50%			50%		559	% from (	Oct	60%	% from N	lov	65%	6 from N	lov

#### Notes:

"Dispatch Down" consists of TSO constraints, curtailments and wind testing.

A new more accurate methodology for calculating wind dispatch down was implemented from 2016. Figures from previous years are best estimates.

SNSP (System Non-Synchronous Penetration) is the sum of Wind generation and HVDC imports as a percentage of total demand and exports.

Wind installed capacities, generation and capacity factors are indicative and based on the latest available information.

User Guide Available at: http://www.eirgridgroup.com/how-the-grid-works/renewables/



# All Island Quarterly Wind Dispatch Down Report 2017

### **Regional Wind Dispatch Down Percentages**

Region	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2017
NI	2.4%	2.0%	3.0%	2.4%	4.2%	3.6%	4.7%	4.2%	4.4%	3.1%	4.2%	3.9%	14.6%	3.2%	5.3%	8.5%	5.0%
M	2.1%	2.1%	3.7%	2.7%	4.3%	4.0%	3.5%	3.9%	2.2%	2.2%	6.7%	4.2%	9.5%	3.8%	3.4%	5.4%	4.1%
NE	2.8%	2.6%	2.8%	2.7%	2.6%	3.4%	1.8%	2.6%	2.0%	1.1%	4.3%	2.7%	8.7%	1.6%	2.9%	4.7%	3.3%
NW	1.3%	2.0%	5.7%	2.9%	3.0%	7.2%	5.3%	5.0%	3.3%	5.0%	6.3%	5.1%	12.7%	1.8%	3.9%	6.9%	4.9%
SE	1.9%	1.7%	4.0%	2.5%	4.3%	3.4%	2.5%	3.3%	1.5%	1.3%	4.9%	3.0%	8.8%	1.6%	2.7%	4.6%	3.4%
SW	2.9%	2.2%	3.8%	3.0%	4.6%	3.7%	7.3%	5.3%	2.8%	2.2%	5.4%	3.8%	9.7%	3.4%	2.7%	5.1%	4.2%
W	1.5%	1.2%	3.6%	2.1%	3.8%	3.4%	2.5%	3.1%	5.7%	5.7%	8.5%	6.7%	13.0%	2.2%	2.1%	6.4%	4.8%

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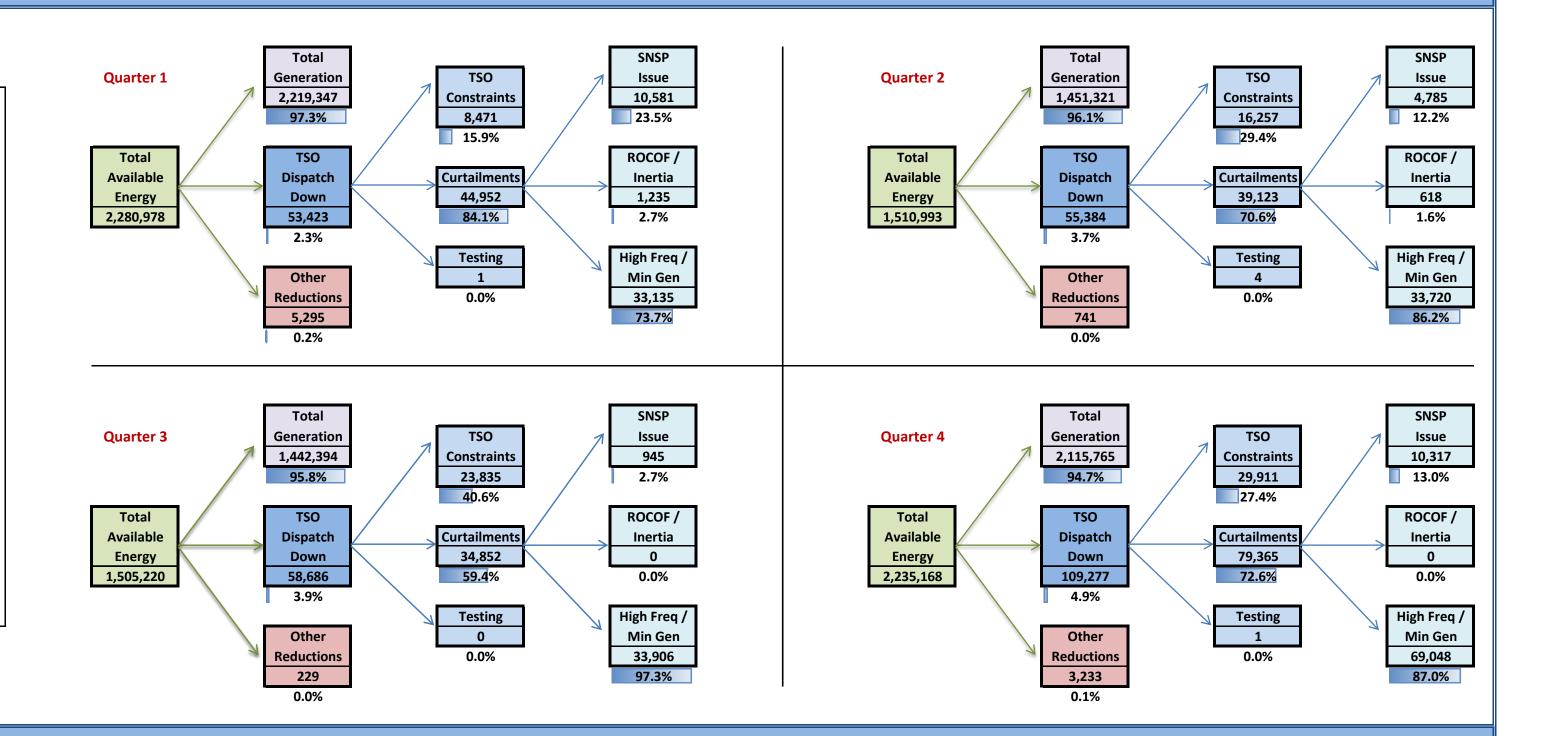
Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2017
Available Energy	671,680	835,717	773,581	2,280,978	449,787	462,278	598,928	1,510,993	419,218	455,887	630,115	1,505,220	793,982	615,033	826,153	2,235,168	7,532,359
Generation	655,947	818,843	744,558	2,219,347	433,225	444,684	573,412	1,451,321	406,160	442,079	594,155	1,442,394	717,172	597,782	800,811	2,115,765	7,228,828
TSO Dispatch Down	13,002	13,970	26,451	53,423	15,523	16,302	23,559	55,384	11,891	12,856	33,940	58,686	73,355	15,230	20,691	109,277	276,771
Other Reductions	1,816	1,936	1,542	5,295	212	471	58	741	106	75	48	229	126	1,057	2,050	3,233	9,498
<b>TSO Dispatch Down:</b>																	
TSO Constraints	3,543	2,566	2,362	8,471	1,134	2,555	12,568	16,257	7,165	7,704	8,966	23,835	18,748	7,658	3,505	29,911	78,473
Curtailments	9,459	11,404	24,089	44,952	14,386	13,747	10,990	39,123	4,726	5,152	24,974	34,852	54,607	7,572	17,186	79,365	198,291
TSO Testing	-	-	1	1	4	0	0	4	0	-	0	0	-	1	-	1	6
Curtailments:						9 9 1											
SNSP Issue	2,408	2,902	5,271	10,581	958	1,682	2,145	4,785	-	-	945	945	8,028	1,199	1,090	10,317	26,629
ROCOF / Inertia	790	5	440	1,235	-	2	616	618	-	-	-	-	-	-	-	-	1,854
High Freq / Min Gen	6,261	8,496	18,378	33,135	13,427	12,063	8,230	33,720	4,726	5,152	24,028	33,906	46,579	6,372	16,096	69,048	169,809

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2017
Generation	97.7%	98.0%	96.2%	97.3%	96.3%	96.2%	95.7%	96.1%	96.9%	97.0%	94.3%	95.8%	90.3%	97.2%	96.9%	94.7%	96.0%
TSO Dispatch Down	1.9%	1.7%	3.4%	2.3%	3.5%	3.5%	3.9%	3.7%	2.8%	2.8%	5.4%	3.9%	9.2%	2.5%	2.5%	4.9%	3.7%
Other Reductions	0.3%	0.2%	0.2%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.2%	0.1%	0.1%
TSO Dispatch Down:		i I															
TSO Constraints	27.2%	18.4%	8.9%	15.9%	7.3%	15.7%	53.3%	29.4%	60.3%	59.9%	26.4%	40.6%	25.6%	50.3%	16.9%	27.4%	28.4%
Curtailments	72.8%	81.6%	91.1%	84.1%	92.7%	84.3%	46.7%	70.6%	39.7%	40.1%	73.6%	59.4%	74.4%	49.7%	83.1%	72.6%	71.6%
TSO Testing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Curtailments:		<u> </u>															
SNSP Issue	25.5%	25.4%	21.9%	23.5%	6.7%	12.2%	19.5%	12.2%	0.0%	0.0%	3.8%	2.7%	14.7%	15.8%	6.3%	13.0%	13.4%
ROCOF / Inertia	8.4%	0.0%	1.8%	2.7%	0.0%	0.0%	5.6%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
High Freq / Min Gen	66.2%	74.5%	76.3%	73.7%	93.3%	87.7%	74.9%	86.2%	100.0%	100.0%	96.2%	97.3%	85.3%	84.2%	93.7%	87.0%	85.6%

User Guide Available at: http://www.eirgridgroup.com/how-the-grid-works/renewables/



Graphical Representation of the Breakdown of Wind Dispatch Down Energy Volumes (MWh) and Percentages (%)



User Guide Available at: http://www.eirgridgroup.com/how-the-grid-works/renewables/



# Northern Ireland Quarterly Wind Dispatch Down Report 2017

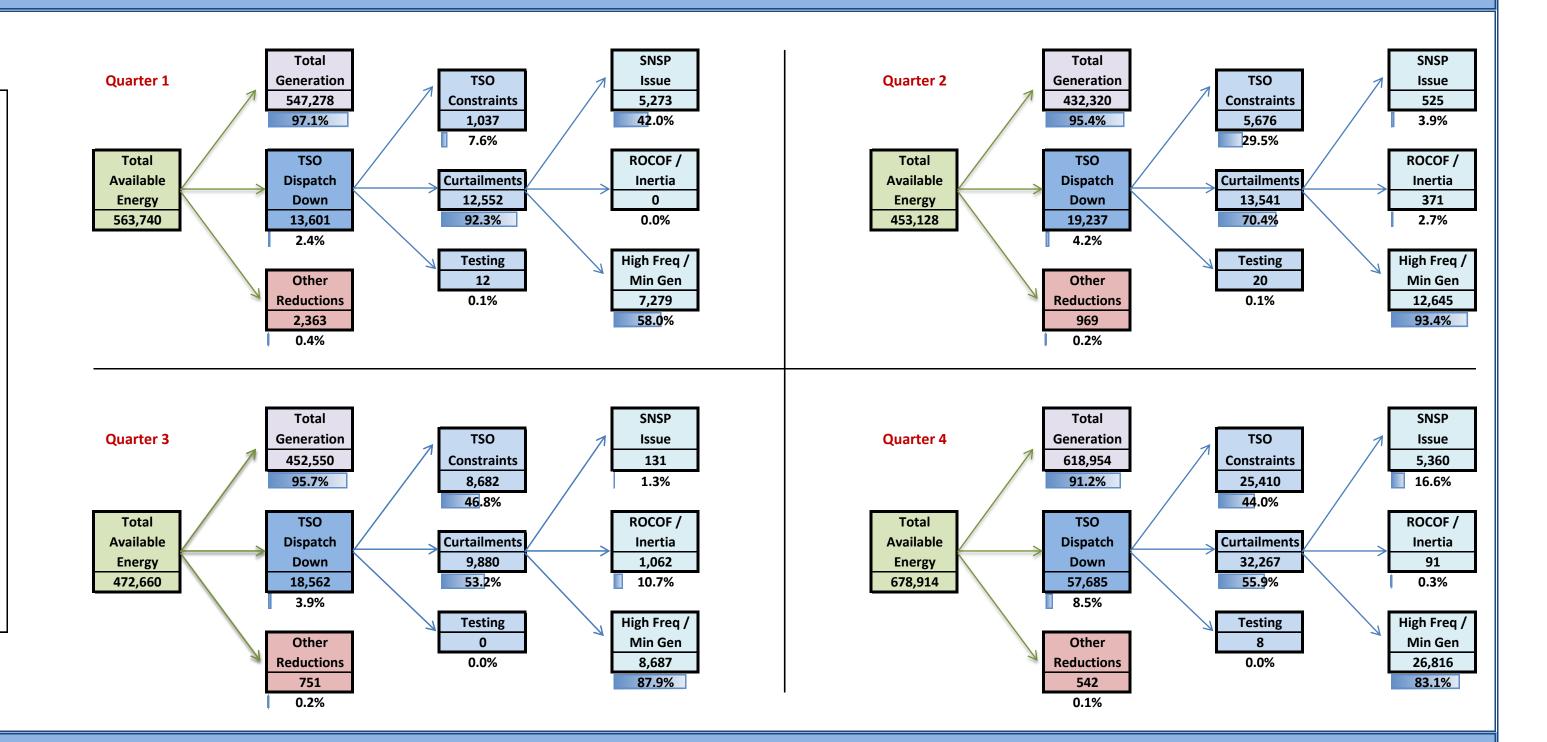
Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2017
Available Energy	183,015	209,021	171,704	563,740	148,612	132,613	171,903	453,128	133,574	144,739	194,347	472,660	273,877	182,819	222,218	678,914	2,168,442
Generation	178,190	204,004	165,084	547,278	141,805	127,382	163,132	432,320	127,266	139,895	185,388	452,550	232,620	176,622	209,712	618,954	2,051,101
TSO Dispatch Down	4,303	4,185	5,113	13,601	6,270	4,815	8,152	19,237	5,919	4,488	8,154	18,562	39,904	5,903	11,878	57,685	109,085
Other Reductions	393	696	1,274	2,363	305	234	430	969	100	204	447	751	290	46	207	542	4,626
<b>TSO Dispatch Down:</b>																	
TSO Constraints	-	223	813	1,037	1,740	660	3,275	5,676	2,940	3,358	2,383	8,682	15,964	4,851	4,595	25,410	40,804
Curtailments	4,301	3,956	4,296	12,552	4,523	4,141	4,877	13,541	2,979	1,130	5,771	9,880	23,939	1,045	7,283	32,267	68,241
TSO Testing	2	5	4	12	6	14	-	20	-	-	0	0	1	8	-	8	40
Curtailments:		j															
SNSP Issue	2,145	2,349	779	5,273	-	523	2	525	1	- ]	131	131	2,665	-	2,694	5,360	11,290
ROCOF / Inertia	-	-	-	-	371	-	-	371	459	602	-	1,062	29	-	62	91	1,524
High Freq / Min Gen	2,155	1,607	3,517	7,279	4,152	3,618	4,874	12,645	2,518	528	5,641	8,687	21,245	1,045	4,526	26,816	55,428

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2017
Generation	97.4%	97.6%	96.1%	97.1%	95.4%	96.1%	94.9%	95.4%	95.3%	96.7%	95.4%	95.7%	84.9%	96.6%	94.4%	91.2%	94.6%
TSO Dispatch Down	2.4%	2.0%	3.0%	2.4%	4.2%	3.6%	4.7%	4.2%	4.4%	3.1%	4.2%	3.9%	14.6%	3.2%	5.3%	8.5%	5.0%
Other Reductions	0.2%	0.3%	0.7%	0.4%	0.2%	0.2%	0.3%	0.2%	0.1%	0.1%	0.2%	0.2%	0.1%	0.0%	0.1%	0.1%	0.2%
<b>TSO Dispatch Down:</b>																	
TSO Constraints	0.0%	5.3%	15.9%	7.6%	27.8%	13.7%	40.2%	29.5%	49.7%	74.8%	29.2%	46.8%	40.0%	82.2%	38.7%	44.0%	37.4%
Curtailments	99.9%	94.5%	84.0%	92.3%	72.1%	86.0%	59.8%	70.4%	50.3%	25.2%	70.8%	53.2%	60.0%	17.7%	61.3%	55.9%	62.6%
TSO Testing	0.1%	0.1%	0.1%	0.1%	0.1%	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
<b>Curtailments:</b>																	
SNSP Issue	49.9%	59.4%	18.1%	42.0%	0.0%	12.6%	0.0%	3.9%	0.0%	0.0%	2.3%	1.3%	11.1%	0.0%	37.0%	16.6%	16.5%
ROCOF / Inertia	0.0%	0.0%	0.0%	0.0%	8.2%	0.0%	0.0%	2.7%	15.4%	53.3%	0.0%	10.7%	0.1%	0.0%	0.9%	0.3%	2.2%
High Freq / Min Gen	50.1%	40.6%	81.9%	58.0%	91.8%	87.4%	100.0%	93.4%	84.5%	46.7%	97.7%	87.9%	88.7%	100.0%	62.2%	83.1%	81.2%

User Guide Available at: http://www.eirgridgroup.com/how-the-grid-works/renewables/



Graphical Representation of the Breakdown of Wind Dispatch Down Energy Volumes (MWh) and Percentages (%)



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