All Island Quarterly Wind Dispatch Down Report 2020

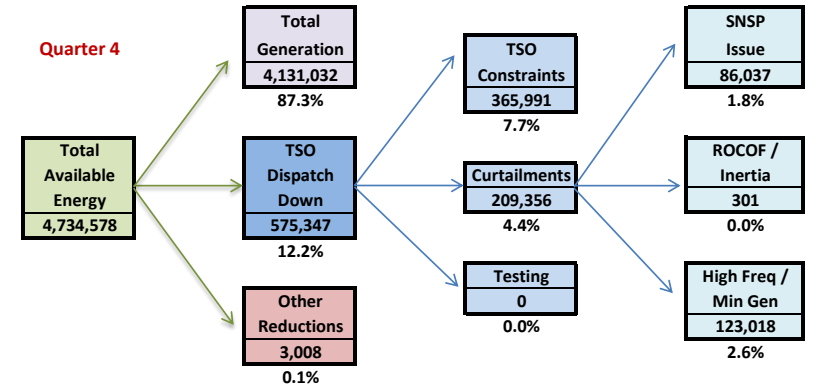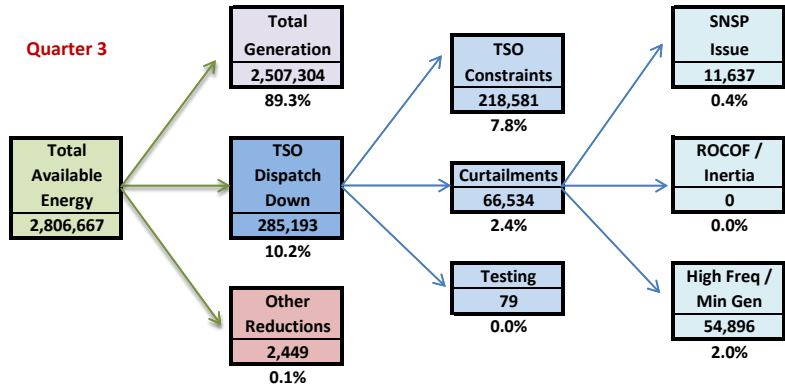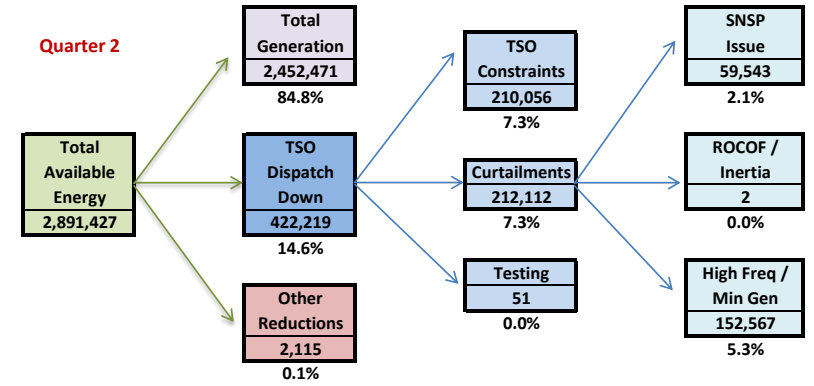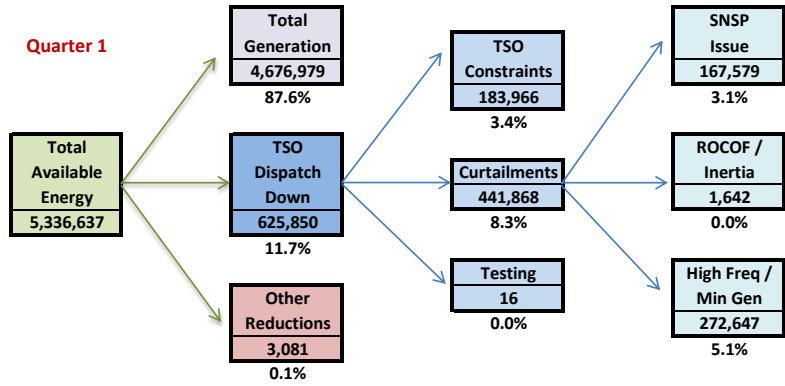| Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2020
Available Energy	1,625,993	2,127,568	1,583,075	5,336,637	794,835	1,047,492	1,049,100	2,891,427	977,386	824,791	1,004,491	2,806,667	1,589,422	1,485,483	1,659,673	4,734,578	15,769,310
Generation	1,456,934	1,827,400	1,392,644	4,676,979	696,394	896,829	859,248	2,452,471	877,030	721,464	908,810	2,507,304	1,362,942	1,279,224	1,488,866	4,131,032	13,767,786
TSO Dispatch Down	159,634	284,977	181,240	625,850	93,462	145,365	183,392	422,219	96,166	98,486	90,541	285,193	216,568	196,987	161,792	575,347	1,908,610
Other Reductions	1,058	903	1,120	3,081	1,769	68	278	2,115	464	759	1,227	2,449	1,449	797	762	3,008	10,654
TSO Dispatch Down:																	
TSO Constraints	36,549	68,740	78,677	183,966	29,213	83,960	96,883	210,056	70,217	75,201	73,163	218,581	156,408	110,950	98,633	365,991	978,595
Curtailments	123,084	216,232	102,551	441,868	64,249	61,379	86,484	212,112	25,935	23,220	17,378	66,534	60,160	86,037	63,159	209,356	929,869
TSO Testing	-	4	12	16	-	25	26	51	14	65	-	79	-	0	-	0	147
Curtailments:																	
SNSP Issue	54,500	84,436	28,643	167,579	27,909	15,330	16,304	59,543	2,473	1,176	7,988	11,637	19,728	21,880	44,428	86,037	324,796
ROCOF / Inertia	643	999	-	1,642	2	-	-	2	-	-	-	-	-	24	277	301	1,945
High Freq / Min Gen	67,941	130,798	73,908	272,647	36,339	46,049	70,179	152,567	23,462	22,044	9,391	54,896	40,432	64,133	18,453	123,018	603,129

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2020
Generation	89.6%	85.9%	88.0%	87.6%	87.6%	85.6%	81.9%	84.8%	89.7%	87.5%	90.5%	89.3%	85.8%	86.1%	89.7%	87.3%	87.3%
TSO Dispatch Down	9.8%	13.4%	11.4%	11.7%	11.8%	13.9%	17.5%	14.6%	9.8%	11.9%	9.0%	10.2%	13.6%	13.3%	9.7%	12.2%	12.1%
Other Reductions	0.1%	0.0%	0.1%	0.1%	0.2%	0.0%	0.0%	0.1%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%
TSO Dispatch Down:																	
TSO Constraints	2.2%	3.2%	5.0%	3.4%	3.7%	8.0%	9.2%	7.3%	7.2%	9.1%	7.3%	7.8%	9.8%	7.5%	5.9%	7.7%	6.2%
Curtailments	7.6%	10.2%	6.5%	8.3%	8.1%	5.9%	8.2%	7.3%	2.7%	2.8%	1.7%	2.4%	3.8%	5.8%	3.8%	4.4%	5.9%
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:																	
SNSP Issue	3.4%	4.0%	1.8%	3.1%	3.5%	1.5%	1.6%	2.1%	0.3%	0.1%	0.8%	0.4%	1.2%	1.5%	2.7%	1.8%	2.1%
ROCOF / Inertia	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%
High Freq / Min Gen	4.2%	6.1%	4.7%	5.1%	4.6%	4.4%	6.7%	5.3%	2.4%	2.7%	0.9%	2.0%	2.5%	4.3%	1.1%	2.6%	3.8%

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

Quarter 1

Total Available Energy 5,336,637			
	Total Generation 4,676,979 87.6%		
	TSO Dispatch Down 625,850 11.7%	**TSO Constraints** 183,966 3.4%	**SNSP Issue** 167,579 3.1%
		Curtailments 441,868 8.3%	**ROCOF / Inertia** 1,642 0.0%
	Other Reductions 3,081 0.1%	**Testing** 16 0.0%	**High Freq / Min Gen** 272,647 5.1%

Quarter 2

Total Available Energy 2,891,427			
	Total Generation 2,452,471 84.8%		
	TSO Dispatch Down 422,219 14.6%	**TSO Constraints** 210,056 7.3%	**SNSP Issue** 59,543 2.1%
		Curtailments 212,112 7.3%	**ROCOF / Inertia** 2 0.0%
	Other Reductions 2,115 0.1%	**Testing** 51 0.0%	**High Freq / Min Gen** 152,567 5.3%

Quarter 3

Total Available Energy 2,806,667			
	Total Generation 2,507,304 89.3%		
	TSO Dispatch Down 285,193 10.2%	**TSO Constraints** 218,581 7.8%	**SNSP Issue** 11,637 0.4%
		Curtailments 66,534 2.4%	**ROCOF / Inertia** 0 0.0%
	Other Reductions 2,449 0.1%	**Testing** 79 0.0%	**High Freq / Min Gen** 54,896 2.0%

Quarter 4

Total Available Energy 4,734,578			
	Total Generation 4,131,032 87.3%		
	TSO Dispatch Down 575,347 12.2%	**TSO Constraints** 365,991 7.7%	**SNSP Issue** 86,037 1.8%
		Curtailments 209,356 4.4%	**ROCOF / Inertia** 301 0.0%
	Other Reductions 3,008 0.1%	**Testing** 0 0.0%	**High Freq / Min Gen** 123,018 2.6%

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Regional Wind Dispatch Down Percentages

Region	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2020
NI	12.3%	17.4%	14.5%	14.9%	21.8%	19.8%	26.2%	22.7%	12.4%	14.4%	9.0%	11.6%	12.4%	12.8%	9.8%	11.6%	14.8%
MID	12.0%	13.0%	11.8%	12.3%	11.0%	10.5%	14.8%	12.3%	8.7%	5.7%	7.7%	7.4%	13.7%	12.4%	6.8%	10.9%	11.0%
NE	6.7%	12.4%	7.5%	9.2%	6.3%	9.2%	13.7%	9.8%	4.1%	4.1%	1.8%	3.2%	3.6%	6.4%	6.7%	5.6%	7.3%
NW	7.1%	16.7%	18.9%	13.9%	9.7%	19.0%	24.3%	18.0%	13.8%	18.1%	20.5%	17.5%	17.5%	16.4%	10.7%	14.7%	15.5%
SE	9.6%	11.5%	8.1%	9.9%	9.0%	9.5%	25.1%	15.5%	16.9%	11.7%	4.6%	11.2%	7.1%	7.1%	6.6%	6.9%	10.2%
SW	11.1%	13.8%	11.2%	12.3%	11.3%	14.8%	13.7%	13.5%	8.1%	14.6%	7.1%	9.7%	15.8%	15.8%	12.8%	14.7%	12.8%
W	7.8%	12.7%	11.3%	10.7%	8.1%	14.7%	19.0%	14.4%	10.4%	11.6%	12.7%	11.6%	19.0%	17.8%	11.4%	15.9%	13.1%

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

Month	2011 NI	2011 IE	2011 AI	2012 NI	2012 IE	2012 AI	2013 NI	2013 IE	2013 AI	2014 NI	2014 IE	2014 AI	2015 NI	2015 IE	2015 AI	2016 NI	2016 IE	2016 AI	2017 NI	2017 IE	2017 AI	2018 NI	2018 IE	2018 AI	2019 NI	2019 IE	2019 AI	2020 NI	2020 IE	2020 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%	5.7%	3.5%	3.9%	9.7%	3.8%	5.1%	12.3%	9.0%	9.8%
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%	2.9%	2.0%	2.2%	10.7%	6.8%	7.7%	17.4%	12.3%	13.4%
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%	5.9%	4.4%	4.7%	11.8%	9.2%	9.8%	14.5%	10.7%	11.4%
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%	4.9%	3.3%	3.6%	10.8%	6.8%	7.7%	14.9%	10.9%	11.7%
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%	19.2%	7.4%	9.8%	11.4%	9.0%	9.6%	21.8%	9.0%	11.8%
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%	6.1%	4.7%	5.0%	3.8%	4.1%	4.0%	19.8%	12.6%	13.9%
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%	11.0%	8.0%	8.6%	11.2%	5.6%	6.7%	26.2%	15.4%	17.5%
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%	13.0%	6.6%	8.0%	9.4%	6.6%	7.2%	22.7%	12.7%	14.6%
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%	2.1%	1.9%	2.0%	8.2%	3.8%	4.8%	12.4%	9.2%	9.8%
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%	5.8%	2.2%	3.0%	15.2%	8.4%	9.8%	14.4%	11.4%	11.9%
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%	13.1%	5.5%	7.4%	8.4%	8.2%	8.2%	9.0%	9.0%	9.0%
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%	8.7%	3.6%	4.8%	11.0%	7.3%	8.0%	11.6%	9.8%	10.2%
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%	10.2%	6.9%	7.7%	7.4%	6.4%	6.6%	12.4%	13.9%	13.6%
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%	10.2%	5.2%	6.4%	7.4%	3.9%	4.5%	12.8%	13.4%	13.3%
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%	14.9%	7.2%	8.9%	16.2%	9.6%	11.0%	9.8%	9.7%	9.7%
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%	2.2%	2.3%	8.5%	4.9%	5.7%	11.7%	6.4%	7.7%	11.1%	6.4%	7.8%	11.6%	12.3%	12.2%
Year Total DD	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%	9.4%	5.0%	6.0%	10.7%	6.9%	7.7%	14.8%	11.4%	12.1%
Constraints	0.3%	0.5%	0.4%	0.3%	0.9%	0.8%	0.5%	1.0%	0.9%	1.0%	1.5%	1.4%	1.9%	1.8%	1.8%	1.3%	1.4%	1.4%	1.9%	1.0%	1.2%	4.0%	1.7%	2.2%	4.7%	3.8%	4.0%	6.6%	6.1%	6.2%
Curtailments	1.1%	2.0%	1.8%	0.4%	1.5%	1.3%	1.3%	2.5%	2.3%	1.8%	2.9%	2.6%	3.4%	3.3%	3.3%	1.9%	1.4%	1.5%	3.1%	2.6%	2.7%	5.4%	3.3%	3.8%	6.0%	3.1%	3.7%	8.2%	5.3%	5.9%
Wind Installed Capacity (MW)	512	1,585	2,097	600	1,703	2,303	640	1,923	2,563	729	2,266	2,996	751	2,447	3,198	943	2,795	3,737	1,154	3,312	4,466	1,276	3,667	4,943	1,276	4,120	5,396	1,276		
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	2,391	8,685	11,076	2,462	9,532	11,994	2,630	11,138	13,768
Wind Capacity Factors	21%	31%	28%	21%	28%	27%	23%	29%	28%	24%	28%	27%	28%	32%	31%	23%	27%	26%	22%	27%	26%	22%	28%	27%	22%	28%	26%	24%		
SNSP Limit	50%			50%			50%			50%			55% Trial from Oct			55% Perm from Mar / 60% Trial from Nov			60% Perm from Mar / 65% Trial from Nov			65% Perm from Apr			65%			65%		

Notes:

"Dispatch Down" consists of constraints + curtailments. All wind figures included (controllable + non-controllable).

The darker shaded cells indicate higher dispatch-down percentages in order to produce a graphical representation similar to a heat map.

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

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

SNSP (System Non-Synchronous Penetration) is the sum of non-synchronous generation (such as wind, solar and HVDC imports) as a percentage of total demand and exports.

When the SNSP limit is raised, a trial period takes place before it becomes permanent. During the trial period, the system is operated at this increased SNSP limit except in times of extreme system events or during system testing.

For more infomration see annual and quarterly dispatch down reports on : http://www.eirgridgroup.com/how-the-grid-works/renewables/

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Wind Dispatch Down Percentages and Breakdown per Region (Controllable Windfarms only)
Curtailments + Constraints + Testing = 100% of Dispatch Down (Testing very small % - not shown in table)

Controllable Wind By Region	Cap (MW)	2016 Qtr1	Qtr2	Qtr3	Qtr4	2016	2017 Qtr1	Qtr2	Qtr3	Qtr4	2017	2018 Qtr1	Qtr2	Qtr3	Qtr4	2018	2019 Qtr1	Qtr2	Qtr3	Qtr4	2019	2020 Qtr1	Qtr2	Qtr3	Qtr4	2020
MID	514	1.3%	0.4%	2.6%	1.8%	1.5%	2.7%	4.0%	4.2%	5.4%	4.1%	4.9%	5.4%	2.7%	5.6%	4.8%	5.2%	4.6%	4.9%	6.8%	5.5%	12.3%	12.3%	7.4%	10.9%	11.0%
Constraints		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	1.0%	1.7%	0.8%	1.3%	0.1%	0.8%	0.2%	0.6%	0.2%	0.9%	2.4%	3.5%	1.8%	2.9%	2.6%	4.5%	6.3%	4.2%
Curtailments		1.3%	0.4%	2.5%	1.7%	1.5%	2.7%	3.7%	3.1%	3.7%	3.3%	3.6%	5.3%	1.9%	5.4%	4.2%	5.1%	3.7%	2.4%	3.3%	3.7%	9.5%	9.7%	2.9%	4.6%	6.9%
NE	143	0.9%	0.5%	1.9%	2.1%	1.4%	2.7%	2.6%	2.7%	4.7%	3.3%	3.2%	5.3%	2.7%	5.0%	4.1%	5.0%	4.1%	2.6%	4.8%	4.3%	9.2%	9.8%	3.2%	5.6%	7.3%
Constraints		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.1%	0.0%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Curtailments		0.9%	0.5%	1.9%	2.1%	1.4%	2.7%	2.6%	2.7%	4.7%	3.3%	3.2%	5.3%	2.6%	4.9%	4.1%	4.9%	4.1%	2.4%	4.6%	4.2%	9.2%	9.8%	3.2%	5.4%	7.2%
NW	343	2.8%	1.8%	8.2%	2.9%	3.8%	2.9%	5.0%	5.1%	6.9%	4.9%	4.9%	9.4%	11.1%	12.9%	9.4%	9.9%	8.9%	13.7%	7.5%	9.8%	13.9%	18.0%	17.5%	14.7%	15.5%
Constraints		1.3%	1.5%	5.9%	1.2%	2.3%	1.1%	1.5%	2.2%	2.2%	1.7%	0.7%	3.3%	9.4%	8.3%	5.2%	4.8%	4.7%	11.7%	2.9%	5.6%	4.8%	9.6%	16.0%	9.2%	8.9%
Curtailments		1.5%	0.3%	2.3%	1.6%	1.5%	1.8%	3.4%	2.9%	4.8%	3.2%	4.2%	6.0%	1.7%	4.6%	4.2%	5.2%	4.1%	2.0%	4.6%	4.2%	9.1%	8.4%	1.5%	5.6%	6.6%
SE	320	2.4%	0.6%	2.6%	1.8%	1.9%	2.5%	3.2%	3.1%	4.7%	3.4%	4.0%	5.9%	2.6%	5.1%	4.4%	4.6%	3.5%	2.9%	4.0%	3.9%	9.9%	15.5%	11.2%	6.9%	10.2%
Constraints		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.4%	0.0%	0.1%	0.1%	0.0%	0.2%	0.6%	0.2%	0.9%	5.0%	8.8%	1.5%	3.3%
Curtailments		2.4%	0.6%	2.5%	1.8%	1.9%	2.5%	3.2%	3.0%	4.6%	3.4%	4.0%	5.9%	2.2%	5.1%	4.4%	4.5%	3.5%	2.7%	3.4%	3.6%	9.0%	10.4%	2.4%	5.4%	7.0%
SW	1,519	6.2%	2.1%	6.8%	2.9%	4.8%	3.0%	5.3%	3.8%	5.1%	4.2%	3.1%	8.7%	3.1%	7.3%	5.6%	9.4%	8.6%	8.2%	8.5%	8.7%	12.3%	13.5%	9.7%	14.7%	12.8%
Constraints		4.7%	1.7%	4.6%	1.3%	3.3%	0.7%	2.6%	1.2%	1.3%	1.3%	0.3%	5.3%	1.8%	2.8%	2.3%	5.6%	5.6%	6.1%	5.6%	5.7%	3.8%	7.2%	7.3%	11.0%	7.3%
Curtailments		1.5%	0.4%	2.2%	1.6%	1.5%	2.3%	2.6%	2.6%	3.8%	2.8%	2.8%	3.4%	1.2%	4.5%	3.2%	3.8%	3.0%	2.1%	2.9%	3.0%	8.5%	6.3%	2.5%	3.7%	5.5%
W	867	2.0%	1.4%	4.0%	2.5%	2.5%	2.1%	3.1%	6.7%	6.4%	4.8%	3.3%	7.2%	4.0%	6.6%	5.3%	6.3%	7.6%	10.9%	7.4%	7.8%	10.7%	14.4%	11.6%	15.9%	13.1%
Constraints		0.2%	0.5%	0.0%	0.5%	0.3%	0.2%	0.3%	4.4%	2.5%	2.0%	0.2%	2.4%	2.1%	2.0%	1.6%	2.2%	3.7%	9.3%	4.3%	4.6%	4.5%	8.5%	9.9%	11.8%	8.4%
Curtailments		1.8%	0.9%	4.0%	2.1%	2.2%	1.9%	2.8%	2.3%	3.9%	2.8%	3.2%	4.7%	1.9%	4.6%	3.7%	4.1%	3.8%	1.7%	3.0%	3.2%	6.2%	5.9%	1.7%	4.1%	4.7%
Controllable Wind Totals:																										
IE	3,706	3.7%	1.4%	5.2%	2.5%	3.3%	2.7%	4.3%	4.5%	5.6%	4.2%	3.7%	7.5%	4.0%	7.2%	5.6%	7.5%	7.2%	8.0%	7.3%	7.5%	11.7%	14.0%	10.5%	13.5%	12.4%
Constraints		2.2%	0.9%	2.6%	0.7%	1.7%	0.4%	1.2%	1.8%	1.5%	1.2%	0.4%	2.9%	2.4%	2.4%	1.9%	3.2%	3.7%	5.8%	4.1%	4.1%	3.5%	6.6%	8.2%	9.1%	6.6%
Curtailments		1.6%	0.5%	2.5%	1.7%	1.6%	2.3%	3.0%	2.7%	4.0%	3.0%	3.3%	4.6%	1.7%	4.7%	3.7%	4.3%	3.5%	2.1%	3.3%	3.4%	8.2%	7.4%	2.3%	4.3%	5.8%
NI	1,017	2.8%	0.9%	7.0%	3.3%	3.6%	2.6%	4.5%	4.3%	8.7%	5.3%	5.3%	13.8%	9.0%	12.6%	10.0%	11.6%	10.1%	11.6%	11.7%	11.3%	15.7%	23.9%	12.2%	12.2%	15.5%
Constraints		0.0%	0.3%	3.8%	1.6%	1.4%	0.2%	1.3%	2.0%	3.8%	2.0%	1.0%	2.5%	6.6%	6.5%	4.3%	3.9%	3.4%	6.4%	6.3%	5.0%	4.3%	13.3%	8.6%	5.3%	6.9%
Curtailments		2.7%	0.6%	3.2%	1.7%	2.2%	2.4%	3.2%	2.3%	4.8%	3.3%	4.3%	11.3%	2.4%	6.0%	5.7%	7.7%	6.7%	5.1%	5.4%	6.3%	11.3%	10.6%	3.6%	6.9%	8.6%
AI	4,723	3.5%	1.3%	5.6%	2.6%	3.4%	2.7%	4.3%	4.5%	6.3%	4.5%	4.1%	8.9%	5.3%	8.5%	6.7%	8.5%	7.8%	8.7%	8.2%	8.3%	12.6%	16.0%	10.8%	13.2%	13.1%
Constraints		1.7%	0.8%	2.9%	0.9%	1.6%	0.4%	1.3%	1.9%	2.1%	1.4%	0.6%	2.8%	3.4%	3.4%	2.5%	3.4%	3.6%	6.0%	4.5%	4.3%	3.7%	7.9%	8.3%	8.4%	6.7%
Curtailments		1.8%	0.5%	2.7%	1.7%	1.8%	2.3%	3.0%	2.6%	4.2%	3.1%	3.5%	6.1%	1.9%	5.1%	4.2%	5.1%	4.1%	2.8%	3.7%	4.0%	8.9%	8.0%	2.5%	4.8%	6.4%
All Wind (Controllable + Non-Controllable) Totals:																										
IE		3.3%	1.2%	4.4%	2.1%	2.9%	2.3%	3.7%	3.9%	4.9%	3.7%	3.3%	6.6%	3.6%	6.4%	5.0%	6.8%	6.6%	7.3%	6.9%	6.9%	10.9%	12.7%	9.8%	12.3%	11.4%
Constraints		1.9%	0.8%	2.2%	0.6%	1.4%	0.4%	1.1%	1.6%	1.3%	1.0%	0.4%	2.6%	2.1%	2.2%	1.7%	2.9%	3.4%	5.3%	3.8%	3.8%	3.3%	6.0%	7.7%	8.3%	6.1%
Curtailments		1.4%	0.4%	2.2%	1.5%	1.4%	2.0%	2.6%	2.3%	3.6%	2.6%	2.9%	4.1%	1.5%	4.2%	3.3%	3.9%	3.2%	1.9%	3.1%	3.1%	7.6%	6.7%	2.1%	3.9%	5.3%
NI		2.7%	0.9%	6.3%	3.0%	3.4%	2.4%	4.2%	3.9%	8.5%	5.0%	4.9%	13.0%	8.7%	11.7%	9.4%	10.8%	9.4%	11.0%	11.1%	10.7%	14.9%	22.7%	11.6%	11.6%	14.8%
Constraints		0.0%	0.3%	3.4%	1.5%	1.3%	0.2%	1.3%	1.8%	3.7%	1.9%	1.0%	2.3%	6.4%	6.1%	4.0%	3.6%	3.2%	6.1%	5.9%	4.7%	4.1%	12.6%	8.2%	5.0%	6.6%
Curtailments		2.7%	0.6%	2.9%	1.5%	2.0%	2.2%	3.0%	2.1%	4.8%	3.1%	4.0%	10.7%	2.3%	5.6%	5.4%	7.2%	6.2%	4.9%	5.2%	6.0%	10.8%	10.1%	3.4%	6.6%	8.2%
AI		3.2%	1.2%	4.8%	2.3%	3.0%	2.4%	3.8%	3.9%	5.7%	4.0%	3.6%	8.0%	4.8%	7.7%	6.0%	7.7%	7.2%	8.0%	7.8%	7.7%	11.7%	14.6%	10.2%	12.2%	12.1%
Constraints		1.6%	0.7%	2.5%	0.8%	1.4%	0.3%	1.1%	1.6%	1.9%	1.2%	0.5%	2.5%	3.1%	3.1%	2.2%	3.1%	3.4%	5.5%	4.3%	4.0%	3.4%	7.3%	7.8%	7.7%	6.2%
Curtailments		1.6%	0.5%	2.3%	1.5%	1.6%	2.0%	2.7%	2.3%	3.8%	2.7%	3.1%	5.5%	1.7%	4.6%	3.8%	4.6%	3.8%	2.6%	3.5%	3.7%	8.3%	7.3%	2.4%	4.4%	5.9%

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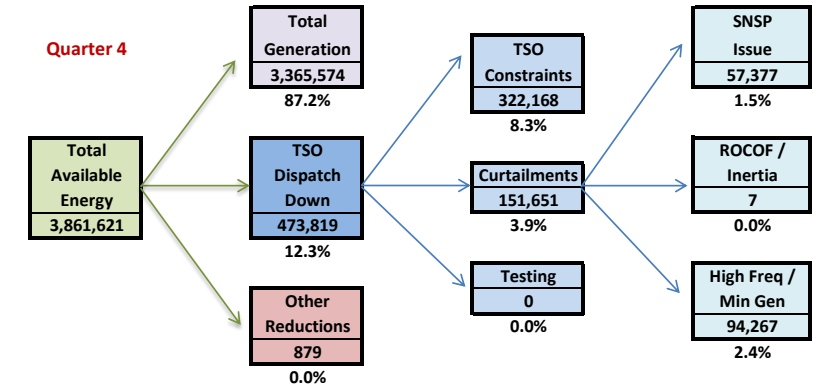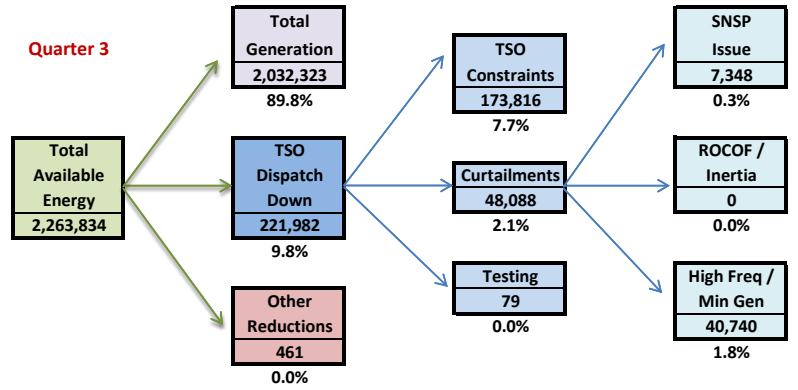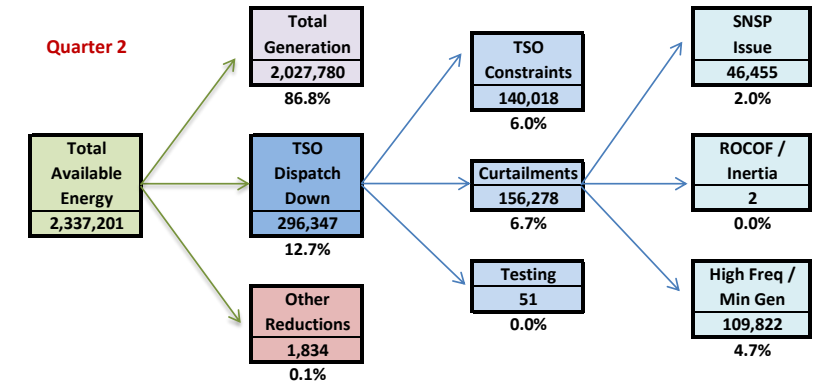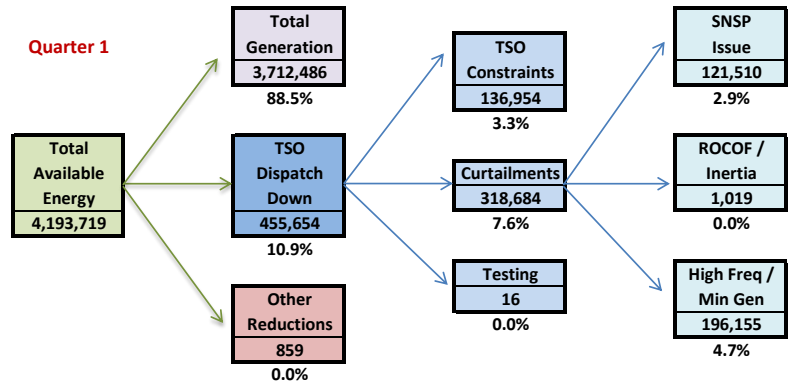
Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2020
Available Energy	1,236,847	1,689,099	1,267,774	4,193,719	621,936	865,542	849,722	2,337,201	796,364	676,190	791,280	2,263,834	1,303,248	1,202,825	1,355,548	3,861,621	12,656,376
Generation	1,118,200	1,468,639	1,125,647	3,712,486	562,358	751,719	713,703	2,027,780	719,706	595,690	716,927	2,032,323	1,114,496	1,034,627	1,216,451	3,365,574	11,138,163
TSO Dispatch Down	111,735	208,467	135,452	455,654	55,768	109,328	131,251	296,347	73,658	77,062	71,263	221,982	181,098	160,730	131,991	473,819	1,447,803
Other Reductions	260	236	364	859	1,709	22	103	1,834	222	147	92	461	481	192	206	879	4,033
TSO Dispatch Down:																	
TSO Constraints	23,965	56,328	56,662	136,954	15,595	64,390	60,033	140,018	55,721	59,065	59,030	173,816	142,388	97,182	82,598	322,168	772,956
Curtailments	87,770	152,135	78,779	318,684	40,172	44,913	71,192	156,278	17,923	17,932	12,232	48,088	38,710	63,548	49,393	151,651	674,701
TSO Testing	-	4	12	16	-	25	26	51	14	65	-	79	-	-	-	-	146
Curtailments:																	
SNSP Issue	40,335	58,681	22,494	121,510	19,145	11,177	16,132	46,455	1,377	830	5,141	7,348	10,143	14,075	33,159	57,377	232,689
ROCOF / Inertia	19	999	-	1,019	2	-	-	2	-	-	-	-	-	7	-	7	1,027
High Freq / Min Gen	47,416	92,455	56,285	196,155	21,026	33,736	55,060	109,822	16,547	17,102	7,091	40,740	28,567	49,466	16,234	94,267	440,985

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2020
Generation	90.4%	86.9%	88.8%	88.5%	90.4%	86.8%	84.0%	86.8%	90.4%	88.1%	90.6%	89.8%	85.5%	86.0%	89.7%	87.2%	88.0%
TSO Dispatch Down	9.0%	12.3%	10.7%	10.9%	9.0%	12.6%	15.4%	12.7%	9.2%	11.4%	9.0%	9.8%	13.9%	13.4%	9.7%	12.3%	11.4%
Other Reductions	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TSO Dispatch Down:																	
TSO Constraints	1.9%	3.3%	4.5%	3.3%	2.5%	7.4%	7.1%	6.0%	7.0%	8.7%	7.5%	7.7%	10.9%	8.1%	6.1%	8.3%	6.1%
Curtailments	7.1%	9.0%	6.2%	7.6%	6.5%	5.2%	8.4%	6.7%	2.3%	2.7%	1.5%	2.1%	3.0%	5.3%	3.6%	3.9%	5.3%
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:																	
SNSP Issue	3.3%	3.5%	1.8%	2.9%	3.1%	1.3%	1.9%	2.0%	0.2%	0.1%	0.6%	0.3%	0.8%	1.2%	2.4%	1.5%	1.8%
ROCOF / Inertia	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%	0.0%	0.0%	0.0%	0.0%
High Freq / Min Gen	3.8%	5.5%	4.4%	4.7%	3.4%	3.9%	6.5%	4.7%	2.1%	2.5%	0.9%	1.8%	2.2%	4.1%	1.2%	2.4%	3.5%

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

Quarter 1

Total Available Energy	4,193,719

Total Generation	3,712,486	88.5%

TSO Dispatch Down	455,654	10.9%

Other Reductions	859	0.0%

TSO Constraints	136,954	3.3%

Curtailments	318,684	7.6%

Testing	16	0.0%

SNSP Issue	121,510	2.9%

ROCOF / Inertia	1,019	0.0%

High Freq / Min Gen	196,155	4.7%

Quarter 2

Total Available Energy	2,337,201

Total Generation	2,027,780	86.8%

TSO Dispatch Down	296,347	12.7%

Other Reductions	1,834	0.1%

TSO Constraints	140,018	6.0%

Curtailments	156,278	6.7%

Testing	51	0.0%

SNSP Issue	46,455	2.0%

ROCOF / Inertia	2	0.0%

High Freq / Min Gen	109,822	4.7%

Quarter 3

Total Available Energy	2,263,834

Total Generation	2,032,323	89.8%

TSO Dispatch Down	221,982	9.8%

Other Reductions	461	0.0%

TSO Constraints	173,816	7.7%

Curtailments	48,088	2.1%

Testing	79	0.0%

SNSP Issue	7,348	0.3%

ROCOF / Inertia	0	0.0%

High Freq / Min Gen	40,740	1.8%

Quarter 4

Total Available Energy	3,861,621

Total Generation	3,365,574	87.2%

TSO Dispatch Down	473,819	12.3%

Other Reductions	879	0.0%

TSO Constraints	322,168	8.3%

Curtailments	151,651	3.9%

Testing	0	0.0%

SNSP Issue	57,377	1.5%

ROCOF / Inertia	7	0.0%

High Freq / Min Gen	94,267	2.4%

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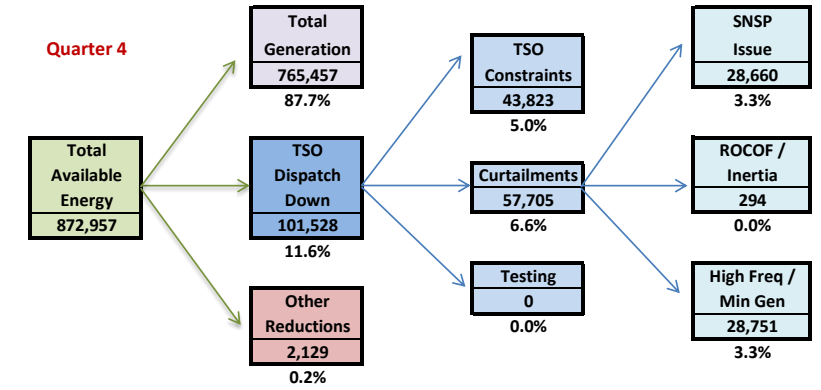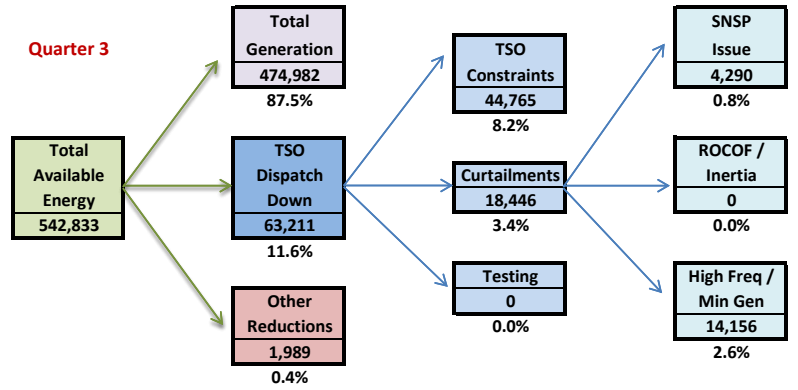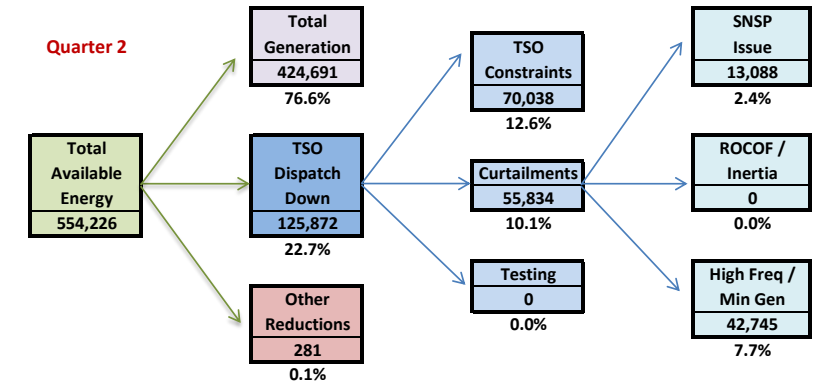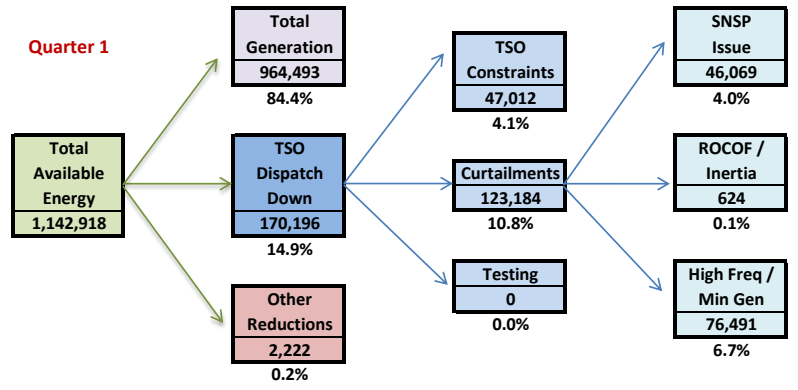
Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2020
Available Energy	389,147	438,470	315,301	1,142,918	172,899	181,950	199,377	554,226	181,022	148,600	213,211	542,833	286,174	282,658	304,125	872,957	3,112,934
Generation	338,734	358,761	266,997	964,493	134,036	145,110	145,545	424,691	157,324	125,774	191,883	474,982	248,446	244,596	272,415	765,457	2,629,623
TSO Dispatch Down	47,899	76,510	45,788	170,196	37,695	36,036	52,141	125,872	22,508	21,425	19,279	63,211	35,470	36,257	29,801	101,528	460,807
Other Reductions	798	668	756	2,222	60	46	175	281	242	612	1,135	1,989	968	606	556	2,129	6,621
TSO Dispatch Down:																	
TSO Constraints	12,585	12,413	22,015	47,012	13,618	19,571	36,850	70,038	14,496	16,136	14,133	44,765	14,020	13,768	16,035	43,823	205,639
Curtailments	35,314	64,097	23,772	123,184	24,077	16,466	15,291	55,834	8,012	5,288	5,146	18,446	21,450	22,489	13,765	57,705	255,168
TSO Testing	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	0
Curtailments:																	
SNSP Issue	14,166	25,754	6,149	46,069	8,763	4,153	172	13,088	1,097	347	2,847	4,290	9,586	7,805	11,269	28,660	92,107
ROCOF / Inertia	624	-	-	624	-	-	-	-	-	-	-	-	-	16	277	294	917
High Freq / Min Gen	20,525	38,343	17,624	76,491	15,314	12,313	15,119	42,745	6,915	4,942	2,299	14,156	11,865	14,667	2,219	28,751	162,144

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2020
Generation	87.0%	81.8%	84.7%	84.4%	77.5%	79.8%	73.0%	76.6%	86.9%	84.6%	90.0%	87.5%	86.8%	86.5%	89.6%	87.7%	84.5%
TSO Dispatch Down	12.3%	17.4%	14.5%	14.9%	21.8%	19.8%	26.2%	22.7%	12.4%	14.4%	9.0%	11.6%	12.4%	12.8%	9.8%	11.6%	14.8%
Other Reductions	0.2%	0.2%	0.2%	0.2%	0.0%	0.0%	0.1%	0.1%	0.1%	0.4%	0.5%	0.4%	0.3%	0.2%	0.2%	0.2%	0.2%
TSO Dispatch Down:																	
TSO Constraints	3.2%	2.8%	7.0%	4.1%	7.9%	10.8%	18.5%	12.6%	8.0%	10.9%	6.6%	8.2%	4.9%	4.9%	5.3%	5.0%	6.6%
Curtailments	9.1%	14.6%	7.5%	10.8%	13.9%	9.0%	7.7%	10.1%	4.4%	3.6%	2.4%	3.4%	7.5%	8.0%	4.5%	6.6%	8.2%
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:																	
SNSP Issue	3.6%	5.9%	2.0%	4.0%	5.1%	2.3%	0.1%	2.4%	0.6%	0.2%	1.3%	0.8%	3.3%	2.8%	3.7%	3.3%	3.0%
ROCOF / Inertia	0.2%	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%	0.1%	0.0%	0.0%
High Freq / Min Gen	5.3%	8.7%	5.6%	6.7%	8.9%	6.8%	7.6%	7.7%	3.8%	3.3%	1.1%	2.6%	4.1%	5.2%	0.7%	3.3%	5.2%

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

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

Quarter 1

Total Available Energy		Total Generation		TSO Constraints		SNSP Issue
1,142,918		964,493 84.4%		47,012 4.1%		46,069 4.0%

	TSO Dispatch Down		Curtailments		ROCOF / Inertia
	170,196 14.9%		123,184 10.8%		624 0.1%

	Other Reductions		Testing		High Freq / Min Gen
	2,222 0.2%		0 0.0%		76,491 6.7%

Quarter 2

Total Available Energy		Total Generation		TSO Constraints		SNSP Issue
554,226		424,691 76.6%		70,038 12.6%		13,088 2.4%

	TSO Dispatch Down		Curtailments		ROCOF / Inertia
	125,872 22.7%		55,834 10.1%		0 0.0%

	Other Reductions		Testing		High Freq / Min Gen
	281 0.1%		0 0.0%		42,745 7.7%

Quarter 3

Total Available Energy		Total Generation		TSO Constraints		SNSP Issue
542,833		474,982 87.5%		44,765 8.2%		4,290 0.8%

	TSO Dispatch Down		Curtailments		ROCOF / Inertia
	63,211 11.6%		18,446 3.4%		0 0.0%

	Other Reductions		Testing		High Freq / Min Gen
	1,989 0.4%		0 0.0%		14,156 2.6%

Quarter 4

Total Available Energy		Total Generation		TSO Constraints		SNSP Issue
872,957		765,457 87.7%		43,823 5.0%		28,660 3.3%

	TSO Dispatch Down		Curtailments		ROCOF / Inertia
	101,528 11.6%		57,705 6.6%		294 0.0%

	Other Reductions		Testing		High Freq / Min Gen
	2,129 0.2%		0 0.0%		28,751 3.3%

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Notes:

Other Reductions include DSO constraints, developer outage and developer testing.

Certain types of reductions are outside of the control of the TSO and are not logged.
Therefore, **Available Energy ≠ Generation + TSO Dispatch Down + Other Reductions.**

The format of this report has been modified from Qtr4 2019 to show the levels of constraints/curtailments in actual percentages instead of proportions.

Reason Codes Used for Curtailments/Constraints:

Transmission (TSO) Constraints: Used to resolve a local network issue.
TSO Testing: Used when wind farm testing is carried out by the TSO, e.g. for commissioning and monitoring.
Curtailments:
    High Frequency/Minimum Generation: Used when attempting to alleviate an emergency high frequency event or in order to facilitate the minimum level of conventional generation on the system to satisfy reserve requirements,
        priority dispatch or to provide ramping capabilities.
    SNSP Issue: Used to reduce the System Non-Synchronous Penetration.
    ROCOF/Inertia: Used when the Rate of Change of Frequency (ROCOF) value for the loss of the largest single infeed is unacceptably high and wind must be dispatched down as a result or when the system inertia is too low.
Other Reductions:
    DSO/DNO Constraints: Used when a dispatch is carried out as a result of a request from the Distribution System Operator or the Distribution Network Operator.
    Developer Outage: Used when a wind farm must reduce output mainly to carry out software upgrades.
    Developer Testing: Used when testing is carried out by a wind farm developer.

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