

All Island Quarterly Wind Dispatch Down Report 2016

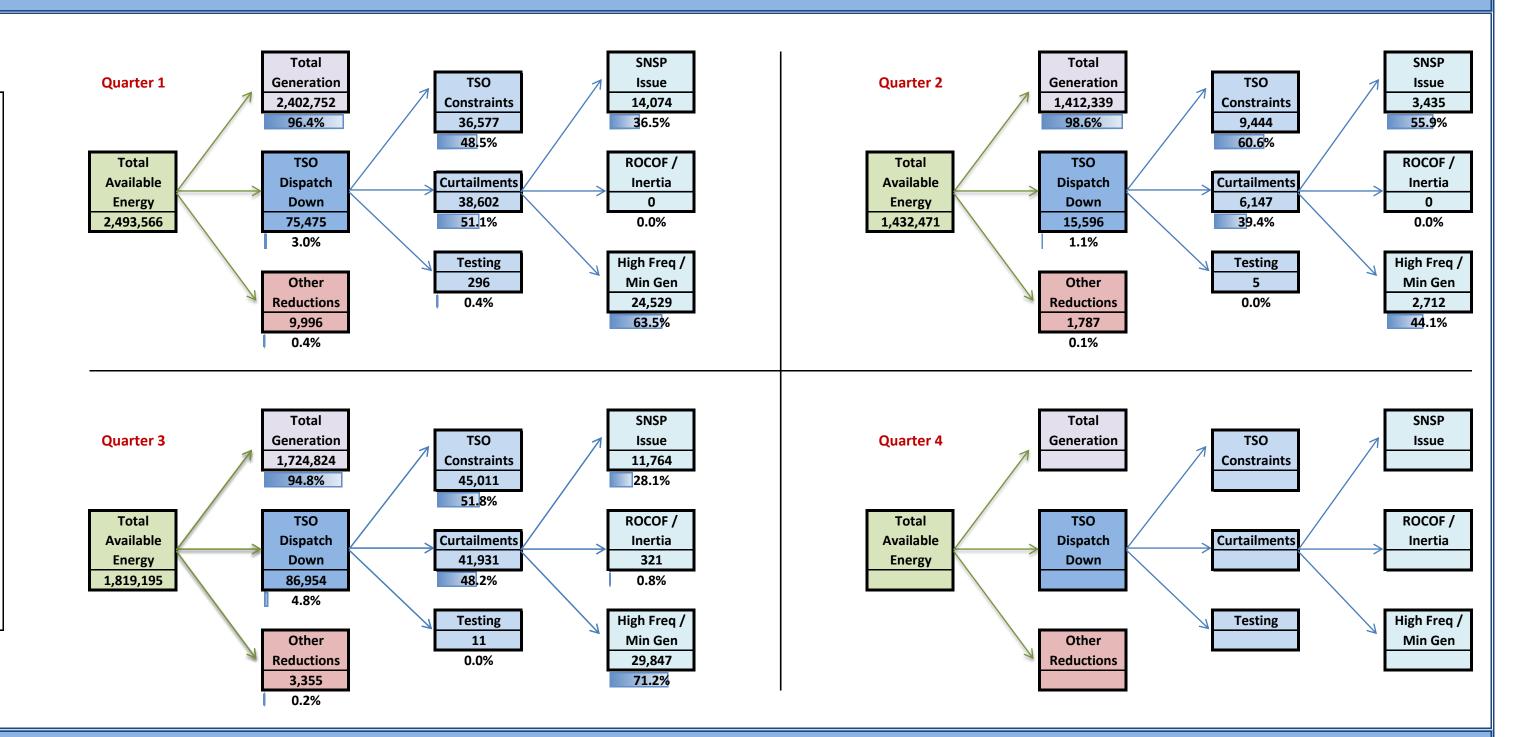
Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2016
Available Energy	1,016,004	833,623	643,940	2,493,566	592,487	458,284	381,700	1,432,471	444,520	655,401	719,275	1,819,195	-		-		5,745,233
Generation	973,868	802,289	626,595	2,402,752	582,302	451,508	378 <i>,</i> 529	1,412,339	429,816	619,517	675,491	1,724,824	-		-		5,539,916
TSO Dispatch Down	35,754	26,022	13,700	75,475	7,448	5,569	2,580	15,596	13,659	33,035	40,260	86,954	-		-		178,025
Other Reductions	4,090	3,532	2,374	9,996	1,357	257	173	1,787	324	1,419	1,612	3,355	-		-		15,138
TSO Dispatch Down:																	
TSO Constraints	15,155	12,754	8,668	36,577	6,577	1,098	1,769	9,444	11,495	23,937	9,580	45,011	-		-		91,033
Curtailments	20,576	13,024	5,003	38,602	871	4,470	807	6,147	2,164	9,098	30,669	41,931	-		-		86,681
TSO Testing	23	244	29	296	0	1	4	5	0	0	11	11	-		-		312
Curtailments:					ļ	ļ			ļ						į		
SNSP Issue	5,795	6,329	1,950	14,074	-	3,435	-	3,435	-	2,410	9,353	11,764	-		-		29,272
ROCOF / Inertia	-	-]	-	-	-	-	-	-	-	14	306	321	-		-		321
High Freq / Min Gen	14,781	6,696	3,052	24,529	871	1,035	807	2,712	2,164	6,673	21,009	29,847	-		-		57,088

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2016
Generation	95.9%	96.2%	97.3%	96.4%	98.3%	98.5%	99.2%	98.6%	96.7%	94.5%	93.9%	94.8%					96.4%
TSO Dispatch Down	3.5%	3.1%	2.1%	3.0%	1.3%	1.2%	0.7%	1.1%	3.1%	5.0%	5.6%	4.8%					3.1%
Other Reductions	0.4%	0.4%	0.4%	0.4%	0.2%	0.1%	0.0%	0.1%	0.1%	0.2%	0.2%	0.2%					0.3%
TSO Dispatch Down:																	
TSO Constraints	42.4%	49.0%	63.3%	48.5%	88.3%	19.7%	68.6%	60.6%	84.2%	72.5%	23.8%	51.8%					51.1%
Curtailments	57.5%	50.1%	36.5%	51.1%	11.7%	80.3%	31.3%	39.4%	15.8%	27.5%	76.2%	48.2%					48.7%
TSO Testing	0.1%	0.9%	0.2%	0.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%					0.2%
Curtailments:																	
SNSP Issue	28.2%	48.6%	39.0%	36.5%	0.0%	76.8%	0.0%	55.9%	0.0%	26.5%	30.5%	28.1%		i i			33.8%
ROCOF / Inertia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	1.0%	0.8%]			0.4%
High Freq / Min Gen	71.8%	51.4%	61.0%	63.5%	100.0%	23.2%	100.0%	44.1%	100.0%	73.3%	68.5%	71.2%					65.9%

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







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Historical Wind Dispatch Down Percentages (Ireland, Northern Ireland and All Island)

	2011				2012			2013			2014			2015			2016	
Month	NI	IE	AI	NI	IE	Al	NI	IE	AI	NI	IE	Al	NI	IE	AI	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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%
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%			
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%			
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%			
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%			
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%	3.3%	3.1%	3.1%

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All Island Quarterly Wind Dispatch Down Report 2016

Regional Wind Dispatch Down Percentages

Region	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2016
NI	3.4%	2.3%	0.9%	2.4%	0.8%	1.1%	0.3%	0.8%	6.2%	7.0%	5.8%	6.3%					3.3%
M	1.8%	1.2%	0.4%	1.3%	0.1%	1.0%	0.1%	0.4%	0.2%	1.1%	5.2%	2.5%					1.4%
NE	1.6%	0.6%	0.2%	0.9%	0.3%	1.0%	0.3%	0.5%	0.3%	1.2%	3.2%	1.9%					1.1%
NW	1.9%	1.6%	3.8%	2.3%	2.2%	1.1%	0.3%	1.4%	2.7%	9.4%	10.7%	8.2%		 			3.6%
SE	2.2%	3.0%	1.7%	2.3%	0.2%	1.4%	0.2%	0.6%	0.5%	1.9%	4.6%	2.7%					2.0%
SW	7.2%	6.9%	3.9%	6.2%	2.7%	1.8%	1.5%	2.1%	5.2%	7.8%	6.9%	6.8%					5.4%
W	1.5%	1.7%	2.3%	1.8%	1.4%	1.4%	0.7%	1.2%	0.5%	3.7%	6.5%	4.0%] 		2.3%

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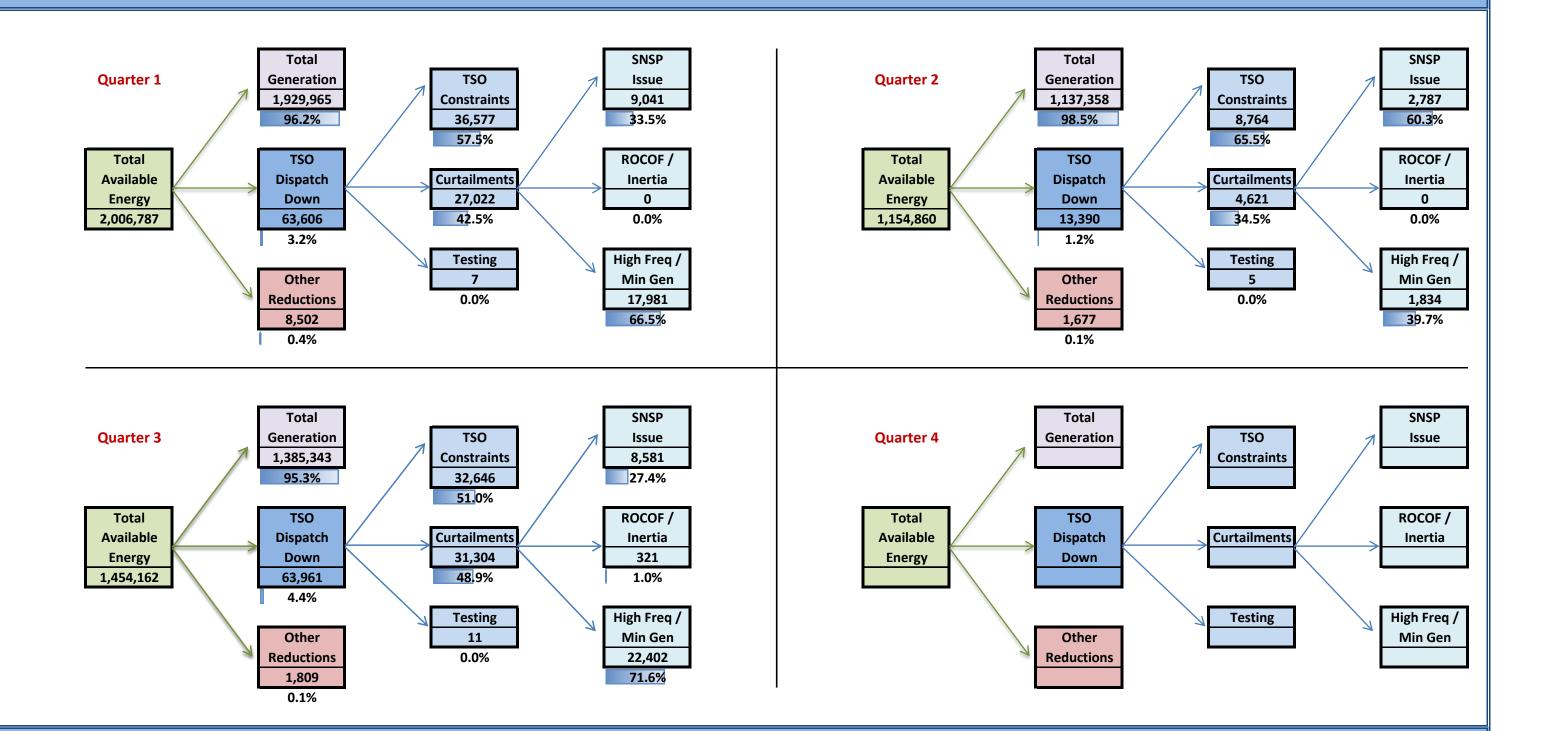
Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2016
Available Energy	816,192	666,725	523,870	2,006,787	476,821	359,271	318,768	1,154,860	359,270	525,117	569,774	1,454,162	-	-			4,615,809
Generation	781,763	640,037	508,165	1,929,965	467,613	353,836	315,910	1,137,358	350,297	499,183	535,863	1,385,343	-	-			4,452,667
TSO Dispatch Down	28,865	22,135	12,606	63,606	6,568	4,444	2,378	13,390	8,348	23,974	31,638	63,961	-	-		-	140,957
Other Reductions	3,631	2,947	1,924	8,502	1,310	247	120	1,677	126	887	796	1,809	-	-		-	11,988
TSO Dispatch Down:																	
TSO Constraints	15,155	12,754	8,668	36,577	5,897	1,098	1,769	8,764	7,290	17,134	8,223	32,646	-	-			77,988
Curtailments	13,708	9,377	3,937	27,022	670	3,345	606	4,621	1,059	6,841	23,404	31,304	-	-			62,947
TSO Testing	2	5	-	7	0	1	4	5	0	0	11	11	-	-			23
Curtailments:		l							I						į		
SNSP Issue	3,579	3,931	1,532	9,041	-	2,787	-	2,787	-	1,272	7,308	8,581	-	-	.		20,409
ROCOF / Inertia	-	-	-	-	-	-	-	-	-	14	306	321	-	-			321
High Freq / Min Gen	10,130	5,446	2,405	17,981	670	558	606	1,834	1,059	5,554	15,789	22,402	-	-			42,217

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2016
Generation	95.8%	96.0%	97.0%	96.2%	98.1%	98.5%	99.1%	98.5%	97.5%	95.1%	94.0%	95.3%					96.5%
TSO Dispatch Down	3.5%	3.3%	2.4%	3.2%	1.4%	1.2%	0.7%	1.2%	2.3%	4.6%	5.6%	4.4%		l !			3.1%
Other Reductions	0.4%	0.4%	0.4%	0.4%	0.3%	0.1%	0.0%	0.1%	0.0%	0.2%	0.1%	0.1%					0.3%
TSO Dispatch Down:																	
TSO Constraints	52.5%	57.6%	68.8%	57.5%	89.8%	24.7%	74.4%	65.5%	87.3%	71.5%	26.0%	51.0%					55.3%
Curtailments	47.5%	42.4%	31.2%	42.5%	10.2%	75.3%	25.5%	34.5%	12.7%	28.5%	74.0%	48.9%					44.7%
TSO Testing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%					0.0%
Curtailments:																	
SNSP Issue	26.1%	41.9%	38.9%	33.5%	0.0%	83.3%	0.0%	60.3%	0.0%	18.6%	31.2%	27.4%					32.4%
ROCOF / Inertia	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	1.3%	1.0%					0.5%
High Freq / Min Gen	73.9%	58.1%	61.1%	66.5%	100.0%	16.7%	100.0%	39.7%	100.0%	81.2%	67.5%	71.6%					67.1%

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



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Northern Ireland Quarterly Wind Dispatch Down Report 2016

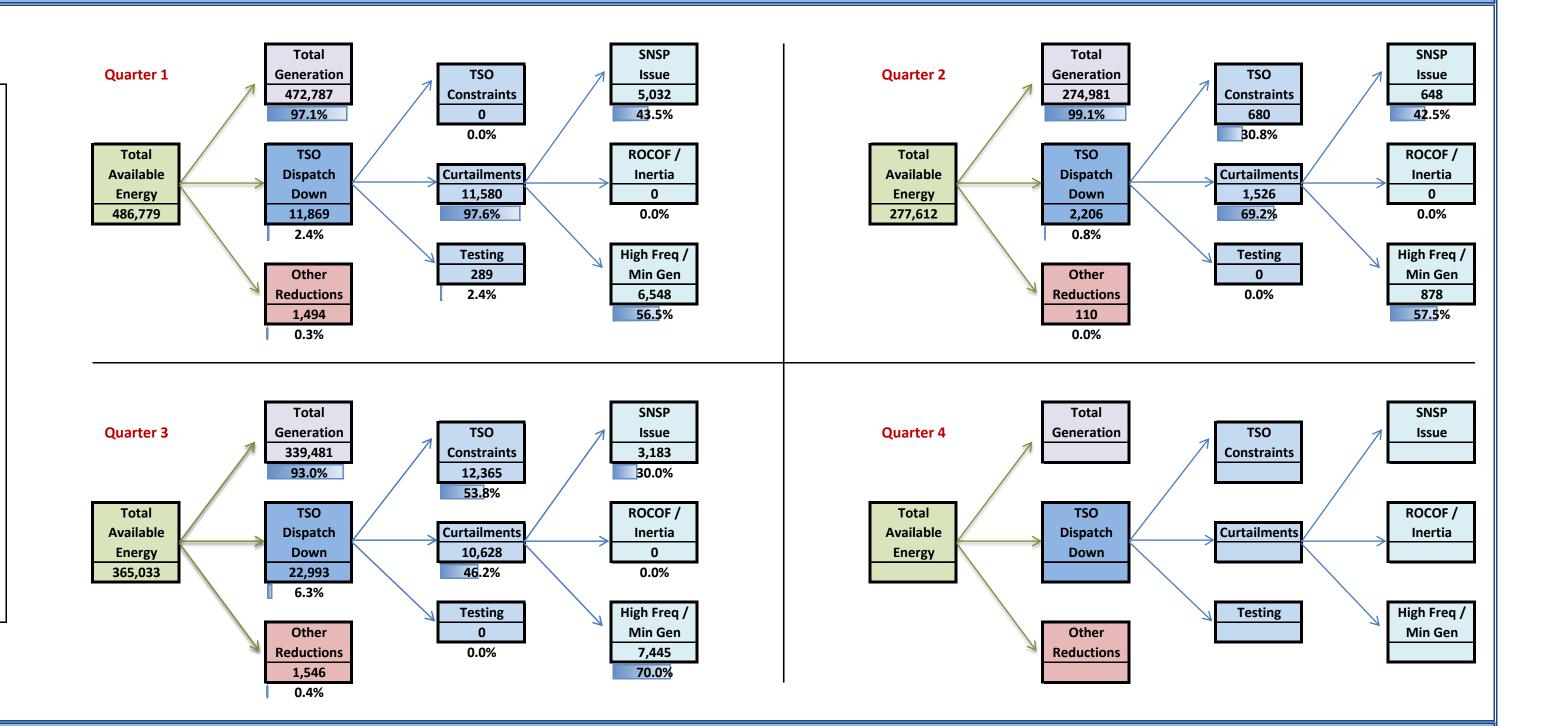
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Volumes (MWh)	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2016
Available Energy	199,812	166,897	120,070	486,779	115,667	99,013	62,932	277,612	85,250	130,283	149,500	365,033	-	<u> </u>	-	-	1,129,424
Generation	192,104	162,252	118,430	472,787	114,689	97,673	62,619	274,981	79,519	120,334	139,628	339,481	-	-	-	-	1,087,249
TSO Dispatch Down	6,889	3,887	1,094	11,869	880	1,125	201	2,206	5,311	9,061	8,621	22,993	-	-	-	-	37,068
Other Reductions	459	585	450	1,494	46	10	54	110	198	532	816	1,546	-	-	-	-	3,150
TSO Dispatch Down:																	
TSO Constraints	- {	- {	-	-	680	0	-	680	4,205	6,803	1,357	12,365	-	-	-	-	13,045
Curtailments	6,868	3,647	1,065	11,580	200	1,125	201	1,526	1,106	2,257	7,265	10,628	-	-	-	-	23,734
TSO Testing	21	239	29	289	-	-	-	-	-	-	-	-	-	-	-	-	289
Curtailments:	į																
SNSP Issue	2,216	2,398	418	5,032	-	648	-	648	-	1,138	2,045	3,183	-	-	-	-	8,863
ROCOF / Inertia	-	-	-	-	-	- [-	-	-	-	-	-	-	-	-		-
High Freq / Min Gen	4,651	1,250	647	6,548	200	477	201	878	1,106	1,119	5,220	7,445	-	-	-	-	14,871

Percentages	Jan	Feb	Mar	Qtr1	Apr	May	Jun	Qtr2	Jul	Aug	Sep	Qtr3	Oct	Nov	Dec	Qtr4	2016
Generation	96.1%	97.2%	98.6%	97.1%	99.2%	98.6%	99.5%	99.1%	93.3%	92.4%	93.4%	93.0%					96.3%
TSO Dispatch Down	3.4%	2.3%	0.9%	2.4%	0.8%	1.1%	0.3%	0.8%	6.2%	7.0%	5.8%	6.3%					3.3%
Other Reductions	0.2%	0.4%	0.4%	0.3%	0.0%	0.0%	0.1%	0.0%	0.2%	0.4%	0.5%	0.4%					0.3%
TSO Dispatch Down:																	
TSO Constraints	0.0%	0.0%	0.0%	0.0%	77.2%	0.0%	0.0%	30.8%	79.2%	75.1%	15.7%	53.8%					35.2%
Curtailments	99.7%	93.8%	97.4%	97.6%	22.8%	100.0%	100.0%	69.2%	20.8%	24.9%	84.3%	46.2%					64.0%
TSO Testing	0.3%	6.2%	2.6%	2.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%					0.8%
Curtailments:																	
SNSP Issue	32.3%	65.7%	39.3%	43.5%	0.0%	57.6%	0.0%	42.5%	0.0%	50.4%	28.1%	30.0%					37.3%
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%
High Freq / Min Gen	67.7%	34.3%	60.7%	56.5%	100.0%	42.4%	100.0%	57.5%	100.0%	49.6%	71.9%	70.0%					62.7%

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