

**Westmill Wind Farm
Performance Review**

Aug-16

Period		8/31/2016			
Turbine	Days	Energy [kWh]	Standard Availability Subtotal [%]	Standard Availability Total [%]	Energy Since Startup [kWh]
T01	31	129,124	96.5	96.8	18,765,115
T02	31	138,939	99.8	97.8	18,778,106
T03	31	142,574	99	97.9	18,389,308
T04	31	133,260	98.7	96.8	17,706,596
T05	31	74,905	45.6	97.9	18,640,456
Totals					
Average	31	123,760	87.92	97.4	18,455,916
Sum		618,802			92,279,581

Production at SubStation	Since Startup	
Active Energy Import	9,650	
Active Energy Export	590,164	
Budget	648,424	
Actual Export	591,750	
Variance to budget	-9%	
Line Loss	4%	
Reactive Energy		
Reactive Energy Import	147,192	9,171,754 kVArh
Reactive Energy Export	1,741	1,568,971 kVArh
Reliability		
Turbine Availability	87.9%	97.4 %
Capacity Factor	12.50%	18.6 %
Outage Time		
Total	1,415.70	14,514.80 hours
Faults		
T1 tower vibration twice & gear oil temp & pressure warnings.		
T2 tower vibration once.		
T3 tower vibration 3 times		
T4 gear oil temp warnings.		
T5 suffered gear oil temp errors and was also down from 9th to 23rd Aug with a blown top controller board.		
Lost approx. 65,000kWh.		

Estimated figures until meter reading confirmed

Daily output Aug-16

Export Active Energy								
Period	Total [kWh]	Period	Total [kWh]	T01 [kWh]	T02 [kWh]	T03 [kWh]	T04 [kWh]	T05 [kWh]
8/31/2016	16,246	8/31/2016	17,599	2,948	3,630	3,669	3,611	3,741
8/30/2016	7,080	8/30/2016	8,082	1,303	1,732	1,765	1,669	1,613
8/29/2016	1,378	8/29/2016	1,869	638	351	324	273	283
8/28/2016	15,939	8/28/2016	17,303	3,008	3,459	3,615	3,644	3,577
8/27/2016	4,238	8/27/2016	4,886	993	877	1,052	909	1,055
8/26/2016	1,635	8/26/2016	2,040	524	253	549	296	418
8/25/2016	624	8/25/2016	779	228	121	189	88	153
8/24/2016	1,910	8/24/2016	2,621	627	517	436	561	480
8/23/2016	11,786	8/23/2016	12,548	3,034	2,942	2,817	2,713	1,042
8/22/2016	23,632	8/22/2016	24,812	5,826	6,339	6,346	6,301	0
8/21/2016	43,056	8/21/2016	44,439	10,406	11,310	11,250	11,473	0
8/20/2016	67,978	8/20/2016	69,477	14,894	20,512	20,682	13,389	0
8/19/2016	26,619	8/19/2016	27,644	7,374	6,974	6,825	6,471	0
8/18/2016	215	8/18/2016	375	100	93	110	72	0
8/17/2016	951	8/17/2016	1,171	64	220	482	405	0
8/16/2016	707	8/16/2016	811	-29	110	412	318	0
8/15/2016	1,998	8/15/2016	2,217	515	502	514	686	0
8/14/2016	473	8/14/2016	668	177	147	178	166	0
8/13/2016	14,731	8/13/2016	15,809	3,783	3,941	3,984	4,101	0
08/12/2016	32,529	08/12/2016	33,840	7,900	8,231	8,710	8,999	0
08/11/2016	20,164	08/11/2016	21,381	5,714	5,064	5,225	5,378	0
08/10/2016	2,589	08/10/2016	3,131	953	616	781	781	0
08/09/2016	10,079	08/09/2016	10,921	2,746	2,517	2,434	2,646	578
08/08/2016	21,027	08/08/2016	22,201	5,334	4,192	4,044	4,291	4,340
08/07/2016	75,760	08/07/2016	77,573	14,024	16,213	16,348	14,232	16,756
08/06/2016	10,791	08/06/2016	11,810	1,993	2,208	2,613	2,429	2,567
08/05/2016	9,736	08/05/2016	10,581	2,012	1,955	2,262	2,055	2,297
08/04/2016	51,588	08/04/2016	53,185	9,936	10,420	10,640	10,975	11,214
08/03/2016	74,313	08/03/2016	76,101	14,008	14,747	15,532	15,742	16,072
08/02/2016	28,881	08/02/2016	30,320	5,759	6,065	6,128	6,072	6,296
08/01/2016	11,511	08/01/2016	12,608	2,332	2,681	2,658	2,514	2,423
Totals		Totals						
Average	19,038	Average	19,961	4,165	4,482	4,599	4,299	2,416
Sum	590,164	Sum	618,802	129,124	138,939	142,574	133,260	74,905
			100%	21%	22%	23%	22%	12%

WESTMILL YEAR TO DATE PRODUCTION

2015/2016						
PRODUCTION PER TURBINE						
	T1	T2	T3	T4	T5	Total
Nov-15	314,776	358,443	353,968	353,946	356,243	1,737,376
Dec-15	435,662	500,381	490,212	483,783	452,344	2,362,382
Jan-16	298,968	298,254	302,399	298,225	286,081	1,483,927
Feb-16	312,220	315,215	311,000	309,985	306,759	1,555,179
Mar-16	222,944	223,368	218,823	197,903	211,431	1,074,469
Apr-16	117,862	125,212	126,266	130,183	132,457	631,980
May-16	120,385	107,126	112,763	114,931	122,175	577,380
Jun-16	81,357	77,059	71,271	79,543	77,506	386,736
Jul-16	132,522	140,050	130,462	138,156	141,528	682,718
Aug-16	129,124	138,939	142,574	133,260	74,905	618,802
Sep-16						0
Oct-16						0
Total	2,165,820	2,284,047	2,259,738	2,239,915	2,161,429	11,110,949
%	19.5%	20.6%	20.3%	20.2%	19.5%	100.0%

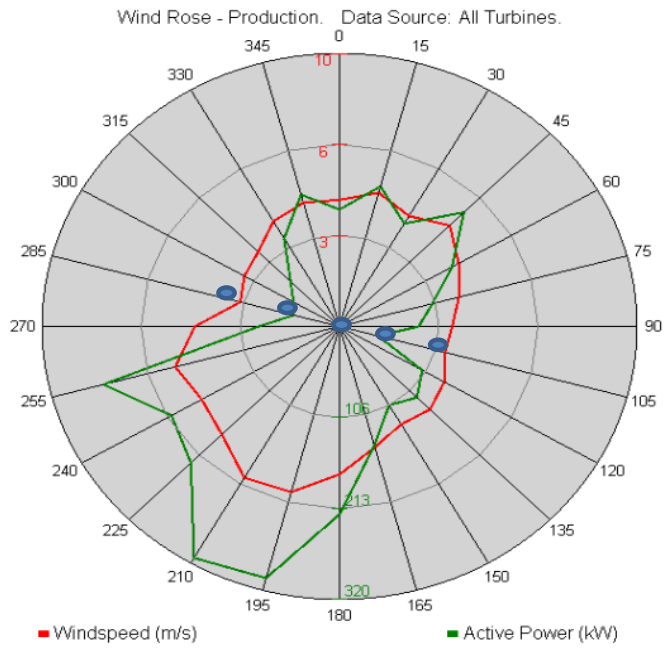
Estimated lost output in kWh due to mechanical failure and above 24 hours								Total after
	T1	T2	T3	T4	T5	Total	Line Loss	Line Loss
Nov-15						-	-	-
Dec-15	38,685					38,685	832	37,853
Jan-16	13,220					13,220	536	12,684
Feb-16						-	-	-
Mar-16				18,000		18,000	558	17,442
Apr-16						-	-	-
May-16		15,324				15,324	1,039	14,285
Jun-16						-	-	-
Jul-16			6,962			6,962	301	6,661
Aug-16					68,514	68,514	2,995	65,519
Sep-16						-	-	-
Oct-16						-	-	-

	YTD					Cumulative			Capacity Factor	Availability	Wind Speed m/s	Historic data							
	2015/2016					2015/2016						Average	2014/2015	2013/2014	2012/2013	2011/2012	2010/2011	2009/2010	2008/2009
	Actual Including Outages	Actual	Historic Av Budget	Variance	Line Loss	Actual	Historic Average	Variance											
Nov-15	1,696,830	1,696,830	1,029,728	164.8%	2%	1,696,830	1,029,728	65%	36.3%	98.5%	7.20	1,029,728	668,345	725,115	826,190	838,750	1,040,420	1,938,119	1,171,155
Dec-15	2,362,382	2,311,565	1,209,079	191.2%	2%	4,008,395	2,238,807	79%	47.7%	96.9%	8.70	1,209,079	1,480,305	1,460,625	1,377,105	1,724,080	498,995	1,010,235	912,210
Jan-16	1,424,346	1,423,810	1,177,814	120.9%	4%	5,432,205	3,416,621	59%	29.5%	97.2%	6.80	1,177,814	1,606,080	1,472,935	1,001,975	1,297,035	1,041,950	683,190	1,141,535
Feb-16	1,481,015	1,481,015	941,511	157.3%	5%	6,913,220	4,358,132	59%	32.5%	97.6%	7.20	941,511	864,905	2,024,105	679,390	728,005	1,161,200	622,215	510,755
Mar-16	1,041,698	1,041,140	931,421	111.8%	3%	7,954,360	5,289,553	50%	21.7%	96.7%	5.60	931,421	1,076,865	839,245	1,004,105	470,930	589,550	915,735	1,032,800
Apr-16	604,495	604,495	760,509	79.5%	4%	8,558,855	6,050,061	41%	13.2%	96.9%	5.00	760,509	532,085	540,620	1,344,095	994,110	634,940	637,085	483,385
May-16	552,535	538,250	844,569	63.7%	7%	9,097,105	6,894,631	32%	11.7%	96.8%	5.00	844,569	969,785	766,650	915,240	634,345	1,202,020	380,665	1,202,895
Jun-16	362,010	362,010	632,268	57.3%	6%	9,459,115	7,526,899	26%	8%	97.4%	4.30	632,268	735,295	211,075	848,400	1,121,805	795,565	268,615	348,430
Jul-16	659,901	653,240	588,964	110.9%	4%	10,112,355	8,115,863	25%	13.8%	96.3%	5.10	588,964	637,240	338,445	370,585	575,445	460,895	619,750	967,500
Aug-16	657,269	591,750	648,424	91.3%	4%	10,704,105	8,764,288	22%	12.5%	87.9%	5.00	648,424	517,790	628,115	510,790	581,425	513,435	671,210	761,260
Sep-16			615,771	0.0%			9,380,059					615,771	358,825	178,425	395,320	750,075	1,079,775	694,335	777,250
Oct-16			911,437	0.0%			10,291,496					911,437	396,475	1,049,530	1,173,090	859,350	1,231,920	853,350	567,510
TOTAL	10,842,482	10,704,105	10,291,496	104.0%	4.26%				22.7%	96.2%	5.99	10,291,496	9,843,995	10,234,885	10,446,285	10,575,355	10,250,665	9,294,504	9,876,685

estimated figure

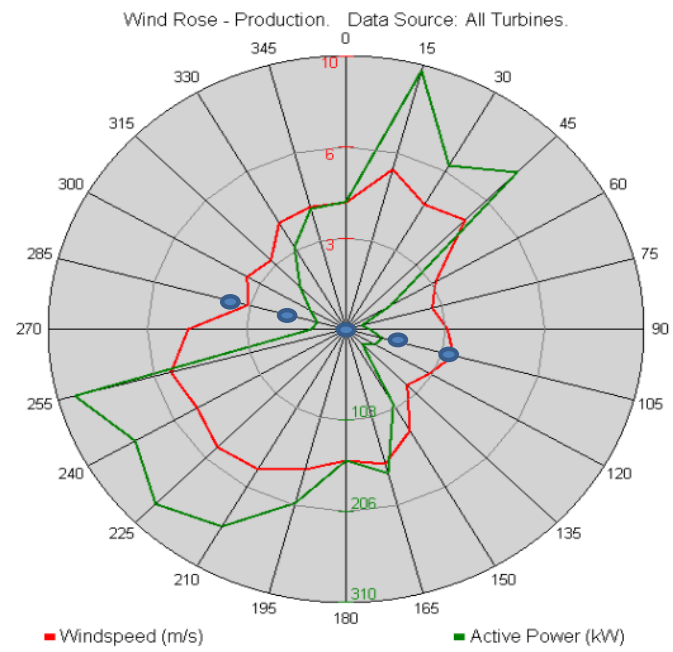
100.00% 95.65% 99.45% 101.50% 102.76% 99.60% 90.31% 95.97%

Wind Rose



YTD Wind Rose (from Nov 2015)

● Direction of Turbines



1st - 31st Aug 2016