

**Westmill Wind Farm
Performance Review**

Jul-15

01/07/2015-31/07/2015					
Period	Energy		Turbine Availability		Energy Since
Turbine	Days	[kWh]	Subtotal [%]	Total [%]	Startup [kWh]
T01	29	122,028	80.8	96.6	16,378,278
T02	29	136,493	86.8	96.4	16,203,130
T03	29	133,081	86.8	97.2	15,885,110
T04	29	134,662	84.5	95.5	15,206,214
T05	29	141,325	85.4	96.9	16,201,508
Totals					
Average	29	133,518	84.9	96.5	79,874,240
Sum		667,589			

	July	Since Start Up
Production at SubStation		
Active Energy Import	6,046	kWh
Active Energy Export	637,333	
Budget	701,786	
Actual Export	637,240	
Variance to budget	-9%	
Line Loss	5%	

Reactive Energy		
Reactive Energy Import	#REF!	6,079,046 kVArh
Reactive Energy Export	#REF!	1,517,605 kVArh

Reliability		
Turbine Availability	84.9%	96.5 %
Capacity Factor	13.50%	18.5 %

Outage Time		
Total	#REF!	#REF! hours

Estimated figures until meter reading confirmed

Notes/Errors	
All Turbines stopped due to grid outage between 4 - 6 July and 25 - 26 July caused by storms in the area.	
Asymetry error twice on T1.	
Main switch for 690V cut-out in T4. SKM replaced part.	
SKM carried out servicing on site	

Daily output Jul-15

Grid

Export Active Energy Period	Total [kWh]	Total [kWh]	T01 [kWh]	T02 [kWh]	T03 [kWh]	T04 [kWh]	T05 [kWh]
31/07/2015	3,316	3,922	682	763	656	739	1,082
30/07/2015	3,503	4,051	976	738	797	836	704
29/07/2015	8,444	9,273	2,700	2,118	1,999	475	1,981
28/07/2015	57,728	59,370	11,708	11,632	11,543	11,949	12,538
27/07/2015	82,888	84,763	15,844	16,820	16,666	17,281	18,152
26/07/2015	22,922	23,616	4,627	4,924	4,746	4,629	4,690
25/07/2015	108	0	0	0	0	0	0
24/07/2015	15,369	16,174	3,272	3,474	3,200	3,228	3,000
23/07/2015	6,649	7,512	1,285	1,470	1,379	1,559	1,819
22/07/2015	19,183	20,503	4,304	4,024	3,852	4,118	4,205
21/07/2015	36,700	38,190	7,131	7,641	7,721	7,742	7,955
20/07/2015	36,180	37,326	7,469	7,689	7,543	7,262	7,363
19/07/2015	29,174	30,497	5,580	6,102	5,987	6,351	6,477
18/07/2015	13,016	14,286	2,415	2,922	2,847	2,998	3,104
17/07/2015	33,376	34,733	6,817	7,007	6,781	6,999	7,129
16/07/2015	5,330	6,403	1,476	1,076	970	1,015	1,866
15/07/2015	3,757	4,839	901	1,006	1,024	931	977
14/07/2015	9,705	10,855	1,913	2,223	2,174	2,255	2,290
13/07/2015	37,798	39,192	4,402	8,824	8,665	8,776	8,525
12/07/2015	33,055	34,386	137	8,499	8,451	8,574	8,725
11/07/2015	20,828	21,961	4,182	4,337	4,213	4,532	4,697
10/07/2015	7,365	8,385	1,763	1,816	1,627	1,661	1,518
09/07/2015	2,764	2,990	732	604	552	561	541
08/07/2015	39,405	40,873	9,648	7,789	7,597	7,827	8,012
07/07/2015	64,638	66,364	12,901	13,226	13,243	13,408	13,586
06/07/2015	15,600	16,227	2,549	3,763	3,502	3,350	3,063
05/07/2015	0	0	0	0	0	0	0
04/07/2015	0	0	0	0	0	0	0
03/07/2015	8,086	8,776	1,979	1,629	1,320	1,468	2,380
02/07/2015	5,987	6,328	1,555	1,202	1,080	1,215	1,276
01/07/2015	14,459	15,794	3,080	3,175	2,946	2,923	3,670
Totals	637,333	667,589	122,028	136,493	133,081	134,662	141,325

	100.0%	18.3%	20.4%	19.9%	20.2%	21.2%
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turbine down for less than 24 hours
 turbine down for more than 24 hours

WESTMILL YEAR TO DATE PRODUCTION

2014/2015						
PRODUCTION PER TURBINE						
	T1	T2	T3	T4	T5	Total
Nov-14	145,563	136,679	141,314	135,848	138,533	697,937
Dec-14	314,010	299,571	287,472	308,379	310,532	1,519,964
Jan-15	337,047	326,961	322,084	328,929	331,589	1,646,610
Feb-15	183,839	182,303	178,361	177,334	172,812	894,649
Mar-15	224,238	223,137	219,405	219,963	223,855	1,110,598
Apr-15	78,929	126,558	126,416	128,413	131,358	591,674
May-15	204,777	209,663	194,757	203,459	215,245	1,027,901
Jun-15	154,386	156,143	149,855	151,809	153,519	765,712
Jul-15	122,028	136,493	133,081	134,662	141,325	667,589
Aug-15						0
Sep-15						0
Oct-15						0
Total	1,764,817	1,797,508	1,752,745	1,788,796	1,818,768	8,922,634
%	19.8%	20.1%	19.6%	20.0%	20.4%	100.0%

Estimated lost output in kWh due to mechanical failure and above 24 hours							Total after Line Loss
	T1	T2	T3	T4	T5	Total	Line Loss
Nov-14						-	-
Dec-14			26,687			26,687	696.31
Jan-15						-	-
Feb-15						-	-
Mar-15						-	-
Apr-15	48,302					48,302	4,864.62
May-15						-	-
Jun-15						-	-
Jul-15						-	-
Aug-15						-	-
Sep-15						-	-
Oct-15						-	-

	YTD					Cumulative			Capacity Factor	Availability	Wind Speed m/s	Historic data							
	2014/2015					2014/2015						Average	2013/2014	2012/2013	2011/2012	2010/2011	2009/2010	2008/2009	2007/2008
	Actual Including Estimated Outages	Actual	GH P90 Budget	Variance	Line Loss	Actual	GH P90 Budget	Variance											
Nov-14	668,345	668,345	1,113,177	-40.0%	4%	668,345	1,113,177	-40%	14.6%	99.6%	6.05	1,089,958	725,115	826,190	838,750	1,040,420	1,938,119	1,171,155	
Dec-14	1,506,295	1,480,305	1,246,274	18.8%	3%	2,148,650	2,359,451	-9%	30.7%	96.6%	6.36	1,163,875	1,460,625	1,377,105	1,724,080	498,995	1,010,235	912,210	
Jan-15	1,606,080	1,606,080	1,355,172	18.5%	2%	3,754,730	3,714,623	1%	33.3%	99.4%	7.55	1,106,437	1,472,935	1,001,975	1,297,035	1,041,950	683,190	1,141,535	
Feb-15	864,905	864,905	1,234,187	-29.9%	3%	4,619,635	4,948,810	-7%	20.0%	99.8%	5.38	954,278	2,024,105	679,390	728,005	1,161,200	622,215	510,755	160,710
Mar-15	1,076,865	1,076,865	1,197,875	-10.1%	3%	5,696,500	6,146,685	-7%	23.6%	99.6%	5.90	910,643	839,245	1,004,105	470,930	589,550	915,735	1,032,800	1,522,135
Apr-15	575,522	532,085	943,781	-43.6%	10%	6,228,585	7,090,466	-12%	12.1%	83.2%	4.76	793,141	540,620	1,344,095	994,110	634,940	637,085	483,385	917,750
May-15	969,785	969,785	846,983	14.5%	6%	7,198,370	7,937,448	-9%	20.8%	92.2%	5.84	826,681	766,650	915,240	634,345	1,202,020	380,665	1,202,895	684,955
Jun-15	735,295	735,295	750,185	-2.0%	4%	7,933,665	8,687,633	-9%	16%	99.5%	5.30	617,550	211,075	848,400	1,121,805	795,565	268,615	348,430	728,960
Jul-15	637,240	637,240	701,786	-9.2%	5%	8,570,905	9,389,418	-9%	12.3%	84.9%	5.30	582,068	338,445	370,585	575,445	460,895	619,750	967,500	741,855
Aug-15			725,985	-100.0%		10,115,403						667,086	628,115	510,790	581,425	513,435	671,210	761,260	1,003,370
Sep-15			859,070	-100.0%		10,974,473						652,478	178,425	395,320	750,075	1,079,775	694,335	777,250	692,165
Oct-15			1,125,277	-100.0%		12,099,750						985,003	1,049,530	1,173,090	859,350	1,231,920	853,350	567,510	1,160,270
TOTAL	8,640,333	8,570,905	12,099,750		4.44%				20.4%	95.0%	5.83	10,349,198	10,234,885	10,446,285	10,575,355	10,250,665	9,294,504	9,876,685	7,612,170

estimated figure

85.53% 84.59% 86.33% 87.40% 84.72% 76.82% 81.63%

Wind Rose

