

NORDEX N-54/1000 1000-200 54.0 !-!

File C:\WindPRO Data\WTGs2.5\NORDEX N-54-1000 1000-200 54.0 !-!.wtg

Company NORDEX
Type/Version N-54/1000
Rated power 1 000,0 kW
Secondary generator 200,0 kW
Rotor diameter 54,0 m
Tower Other - unknown
Grid connection 50 Hz

Origin country DE
Blade type LM 26
Generator type Two generator
Rpm, rated power 21,5 rpm
Rpm, initial 14,3 rpm
Hub height(s) 60,0; 70,0 m
Maximum blade width 0,00 m
Blade width for 90% radius 0,00 m
Valid No
Creator EMD
Created 1999-11-09 00:00
Edited 1999-11-09 00:00



Power curve: Windtest 03/96 1.225 25.00 -1.00
Source Windtest WT462/96

Source date	Creator	Created	Edited	Default	Stop windSpeed	Air density	Tip angle	Power control	CT curve type
					[m/s]	[kg/m3]	[°]		
1996-03-27 00:00	EMD	2000-12-19 11:17	2001-06-15 17:17	Yes	25,0	1,225	-1,0	Stall	Standard stall

Power curve

Wind speed [m/s]	3,62	4,07	4,52	4,99	5,47	5,97	6,52	7,01	7,49	8,01	8,49	8,99	9,49	9,96	10,47
Power [kW]	1,30	14,80	30,00	50,90	78,30	104,80	129,30	179,70	233,10	297,20	362,20	427,30	496,60	548,40	624,10
Ce	0,020	0,156	0,232	0,292	0,341	0,351	0,333	0,372	0,395	0,412	0,422	0,419	0,414	0,396	0,388

Wind speed [m/s]	11,01	11,48	11,97	12,53	12,98	13,41	14,04	14,49	14,95	15,87	16,38	16,76
Power [kW]	697,70	744,60	794,50	857,00	885,10	906,50	999,50	1 037,30	1 082,60	1 133,70	1 109,90	1 086,60
Ce	0,373	0,351	0,330	0,311	0,289	0,268	0,257	0,243	0,231	0,202	0,180	0,165

Ct curve

Wind speed [m/s]	1,00	2,00	3,00	4,00	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00	13,00	14,00	15,00	16,00	17,00	18,00	19,00	20,00	21,00	22,00	23,00	24,00	25,00	26,00	27,00	28,00	29,00
Ct	0,10	0,10	0,10	0,80	0,82	0,85	0,82	0,78	0,74	0,68	0,62	0,55	0,49	0,43	0,38	0,32	0,28	0,25	0,21	0,20	0,19	0,17	0,16	0,15	0,14	0,13	0,12	0,11	0,10

HP curve comparison

Vmean [m/s]	5	6	7	8	9	10
HP value [MWh]	1 099	1 797	2 538	3 241	3 875	4 432
Windtest 03/96 1.225 25.00 -1.00 [MWh]	1 027	1 709	2 456	3 201	3 892	4 495
Check value [%]	7	5	3	1	0	-1

The table shows comparison between annual energy production calculated on basis of simplified "HP-curves" which assume that all WTG's performs quite similar - only specific power loading (kW/m²) and single/dual speed or stall/pitch decides the calculated values. Productions are without wake losses.
For further details, ask at the Danish Energy Agency for project report J.nr. 51171/00-0016 or see WindPRO manual chapter 3.5.2.
The method is refined in EMD report "20 Detailed Case Studies comparing Project Design Calculations and actual Energy Productions for Wind Energy Projects worldwide", jan 2003.
Use the table to evaluate if the given power curve is reasonable - if the check value are lower than -5%, the power curve probably is too optimistic due to uncertainty in power curve measurement.

