

# VTT : Production statistics of wind energy in Finland

## Monthly report

11 / 2005

Paikka/Site	Valmistaja	Pnom kW	Rotor m2	z m	Start kk/vv	Tuotanto/Production				Downtime		12 kk		2005 MWh
						MWh	kWh/m2	h	CF	h	MWh	h		
Huittinen 1	NORDTANK	75	314	40	03/03	5.9	19	78	0.11	-	56	751	51	
Korsnäs 1	NORDTANK	200	475	33	11/91	45.8	96	229	0.32	32	364	1820	321	
Korsnäs 2	NORDTANK	200	475	33	11/91	37.9	80	190	0.26	79	366	1831	319	
Korsnäs 3	NORDTANK	200	475	33	11/91	44.9	94	225	0.31	6	381	1906	334	
Korsnäs 4	NORDTANK	200	475	33	11/91	43.8	92	219	0.30	4	337	1686	292	
Jalasjärvi 1	WINDWORL	220	491	31	07/03	15.4	31	70	0.10		129	586	113	
Sottunga 1	VESTAS	225	573	32	01/92	48.5	85	215	0.30	0	425	1890	371	
Eckerö 2	VESTAS	225	661	35	07/04	42.7	65	190	0.26	25	402	1789	337	
Suodenniemi 1	VESTAS	225	661	50	12/04	19.7	30	88	0.12	-	239	1064	212	
Äetsä 1	VESTAS	225	661	52	09/05					-	0	0	0	
Siikajoki 1	NORDTANK	300	755	31	04/93	70.6	94	235	0.33	0	631	2102	576	
Siikajoki 2	NORDTANK	300	755	31	04/93	77.7	103	259	0.36	0	657	2189	596	
Kalajoki 1	NORDTANK	300	755	31	04/93	57.5	76	192	0.27	0	524	1746	464	
Kalajoki 2	NORDTANK	300	755	31	04/93	38.7	51	129	0.18	198	365	1216	330	
Kemi 1	NORDTANK	300	755	35	08/93	48.1	64	160	0.22	0	392	1307	330	
Kemi 2	NORDTANK	300	755	35	08/93	59.7	79	199	0.28	0	480	1599	416	
Kemi 3	NORDTANK	300	755	35	08/93	55.0	73	183	0.25	0	444	1481	385	
Pori	NORDTANK	300	755	31	09/93	95.4	126	318	0.44	0	768	2559	667	
Hailuoto 1	NORDTANK	300	755	31	10/93	119.4	158	398	0.55	0	807	2689	733	
Hailuoto 2	NORDTANK	300	755	31	10/93	122.4	162	408	0.57	0	811	2703	714	
Lammasoivi 2	BONUS	450	1075	35	10/96	57.6	54	128	0.18	193	526	1169	463	
Lammasoivi 1	BONUS	450	1075	35	10/96	38.0	35	84	0.12	215	697	1549	632	
Hailuoto 3	NORDTANK	500	1093	36	04/95	0.0	0	0	0.00	720	500	1000	348	
Hailuoto 4	NORDTANK	500	1093	41	06/95	154.3	141	309	0.43	0	1246	2492	1128	
Kuivaniemi 1	NORDTANK	500	1093	36	08/95	128.0	117	256	0.36	0	971	1941	877	
Ii	NORDTANK	500	1093	39	01/97	122.4	112	245	0.34	10	853	1707	771	
Eckerö 1	VESTAS	500	1195	41	08/95	136.0	114	272	0.38	5	1285	2570	1119	
Kökar	ENERCON	500	1276	44	10/97	144.6	113	289	0.40	71	1424	2847	1239	
Värdö	ENERCON	500	1276	55	09/98	109.9	86	220	0.31	8	1069	2138	936	
Finström 1	ENERCON	500	1276	55	10/98	115.5	91	231	0.32	8	1210	2420	1057	
Finström 2	ENERCON	500	1276	55	10/98	111.7	88	223	0.31	8	1191	2383	1042	
Siikajoki 3	NORDTANK	600	1452	49	04/97	189.7	131	316	0.44	0	1511	2518	1376	
Siikajoki 4	NORDTANK	600	1452	49	04/97	192.3	132	321	0.45	0	1513	2522	1376	
Lemland 1	VESTAS	600	1521	45	11/97	157.2	103	262	0.36	8	1298	2164	1134	
Lemland 2	VESTAS	600	1521	45	11/97	155.4	102	259	0.36	8	1299	2165	1136	
Lemland 3	VESTAS	600	1521	45	11/97	132.3	87	221	0.31	5	956	1593	802	
Lemland 4	VESTAS	600	1521	50	11/97	136.7	90	228	0.32	5	1171	1952	1021	
Lammasoivi 3	BONUS	600	1521	41	11/98	103.4	68	172	0.24	0	1563	2605	1398	
Olos 1	BONUS	600	1521	41	11/98	114.8	76	191	0.27	0	1065	1775	1000	
Olos 2	BONUS	600	1521	41	11/98	88.9	58	148	0.21	0	939	1566	896	
Olos 3	BONUS	600	1521	40	09/99	109.1	72	182	0.25	36	1077	1794	990	
Olos 4	BONUS	600	1521	40	09/99	96.9	64	162	0.22	0	1034	1724	992	
Olos 5	BONUS	600	1521	40	09/99	112.1	74	187	0.26	14	1131	1885	1040	
Föglö	ENERCON	600	1590	65	09/99	185.4	117	309	0.43	17	1720	2867	1504	
Finström 3	ENERCON	600	1590	65	10/99	136.7	86	228	0.32	8	1388	2313	1215	
Lumparland 1	ENERCON	600	1590	65	08/03	158.9	100	265	0.37	5	1466	2443	1273	
Lumparland 2	ENERCON	600	1590	65	08/03	150.9	95	252	0.35	5	1395	2325	1212	
Lumijoki 1	VESTAS	660	1735	50	03/99	163.4	94	248	0.34		1496	2266	1450	
Sottunga 2	VESTAS	660	1735	55	01/05	215.6	124	327	0.45	0	1341	2032	1341	
Kuivaniemi 2	NEGMICON	750	1521	50	10/98	201.4	132	269	0.37	0	1627	2170	1434	
Kuivaniemi 3	NEGMICON	750	1521	50	10/98	119.2	78	159	0.22	264	1290	1720	1099	
Kuivaniemi 4	NEGMICON	750	1521	50	10/98	191.1	126	255	0.35	0	1600	2133	1413	
Närpiö 1	NEGMICON	750	1810	45	09/99	241.4	133	322	0.45	28	1916	2555	1685	
Kuivaniemi 5	NEGMICON	750	1810	50	11/99	80.9	45	108	0.15	480	1597	2129	1386	
Kuivaniemi 6	NEGMICON	750	1810	50	11/99	227.7	126	304	0.42	0	1936	2581	1722	

<i>Paikka/Site</i>	<i>Valmistaja</i>	<i>Pnom kW</i>	<i>Rotor m2</i>	<i>z m</i>	<i>Start kk/vv</i>	<i>Tuotanto/Production MWh kWh/m2 h CF</i>				<i>Downtime h</i>		<i>12 kk MWh h</i>		<i>2005 MWh</i>
Kuivaniemi 7	NEGMICON	750	1810	50	11/99	226.4	125	302	0.42	0	1832	2442	1628	
Meri-Pori 1	BONUS	1000	2290	60	06/99	246.4	108	246	0.34	0	1923	1923	1672	
Meri-Pori 2	BONUS	1000	2290	60	06/99	262.1	114	262	0.36	3	2259	2259	1965	
Meri-Pori 3	BONUS	1000	2290	60	06/99	265.3	116	265	0.37	0	2211	2211	1946	
Meri-Pori 4	BONUS	1000	2290	60	06/99	264.1	115	264	0.37	0	2234	2234	1936	
Meri-Pori 5	BONUS	1000	2290	50	06/99	272.8	119	273	0.38	80	2257	2257	1954	
Meri-Pori 6	BONUS	1000	2290	50	06/99	337.0	147	337	0.47	0	3024	3024	2643	
Meri-Pori 7	BONUS	1000	2290	50	06/99	320.6	140	321	0.45	7	2712	2712	2344	
Meri-Pori 8	BONUS	1000	2290	50	06/99	322.8	141	323	0.45	0	2990	2990	2610	
Kotka 1	BONUS	1000	2290	60	09/99	242.0	106	242	0.34	0	1785	1785	1636	
Kotka 2	BONUS	1000	2290	60	09/99	269.7	118	270	0.37	0	1996	1996	1844	
Kokkola 1	WINWIND	1000	2463	70	06/03	276.7	112	277	0.38	-	2542	2542	2258	
Kokkola 2	WINWIND	1000	2463	70	06/03	303.0	123	303	0.42	-	2667	2667	2389	
Oulunsalo 2	WINWIND	1000	2463	70	08/03	339.2	138	339	0.47	-	2929	2929	2690	
Oulunsalo 3	WINWIND	1000	2463	70	08/03	351.6	143	352	0.49	-	2965	2965	2727	
Oulunsalo 4	WINWIND	1000	2463	70	08/03	337.1	137	337	0.47	-	2970	2970	2711	
Kristiinankaupunki 1	WINWIND	1000	2463	70	12/03	302.0	123	302	0.42	-	3346	3346	2962	
Kristiinankaupunki 2	WINWIND	1000	2463	70	12/03	383.9	156	384	0.53	-	3107	3107	2825	
Kristiinankaupunki 3	WINWIND	1000	2463	70	12/03	311.4	126	311	0.43	-	3182	3182	2805	
Eurajoki 1	WINWIND	1000	2463	60	10/04	228.0	93	228	0.32	-	2076	2076	1843	
Oulu 1	WINWIND	1000	2827	56	09/01	250.0	88	250	0.35	-	2436	2436	2186	
Oulunsalo 1	NORDEX	1300	2827	65	08/99	355.8	126	274	0.38	0	2662	2048	2381	
Uusikaupunki 1	NORDEX	1300	2827	69	10/99	272.5	96	210	0.29	0	1017	782	1017	
Uusikaupunki 2	NORDEX	1300	2827	69	10/99	265.7	94	204	0.28	0	1671	1285	1357	
Hanko 1	ENERCON	2000	3848	65	09/04	315.5	82	158	0.22	10	2643	1322	2294	
Hanko 2	ENERCON	2000	3848	65	09/04	283.8	74	142	0.20	11	2432	1216	2109	
Hanko 3	ENERCON	2000	3848	65	09/04	277.6	72	139	0.19	9	2378	1189	2066	
Hanko 4	ENERCON	2000	3848	65	09/04	280.5	73	140	0.19	9	2414	1207	2097	
Inkoo 1	ENERCON	2000	3848	65	09/04	165.6	43	83	0.12	396	2387	1193	2122	
Inkoo 2	ENERCON	2000	3848	65	09/04	173.8	45	87	0.12	396	2409	1205	2122	
Inkoo 3	ENERCON	2000	3848	65	09/04	225.6	59	113	0.16	392	2805	1403	2471	
Meri-Pori 9	BONUS	2000	4536	80	07/02	746.7	165	373	0.52	0	7365	3683	6547	
Kuivaniemi 8	VESTAS	2000	5027	78	12/02	573.6	114	287	0.40	148	5039	2520	4337	
Raahe 1	BONUS	2300	5333	80	06/04	759.1	142	330	0.46	0	6399	2782	5723	
Raahe 2	BONUS	2300	5333	80	06/04	762.0	143	331	0.46	0	6638	2886	5972	
Raahe 3	BONUS	2300	5333	80	06/04	805.9	151	350	0.49	0	6666	2898	5982	
Raahe 4	BONUS	2300	5333	80	06/04	840.5	158	365	0.51	0	6940	3017	6215	
Raahe 5	BONUS	2300	5333	80	06/04	713.8	134	310	0.43	16	6385	2776	5742	
Oulu 2	WINWIND	3000	6362	90	12/04					-	521	174	521	
<b>Reported Total</b>	<b>79740 kW</b>				<b>Reported no 92</b>	<b>19759 MWh</b>					<b>175094</b>		<b>155716</b>	
	<b>82965 kW</b>				<b>Total no 94</b>	<b>20558 MWh (estimate)</b>								
<b>Average</b>		883				100	239	0.33						
<b>Min</b>		75				0	0	0.00						
<b>Max</b>		3000				841	165	408	0.57		7365	3683	6547	

	Perämeri	Selkämeri	Ahvenanmaa	Suomenlahti
<b>Production indeces sliding 12 months :</b>	123 %	99 %	93 %	103 %
<b>Production indeces for month number 11</b>	145 %	109 %	102 %	120 %
<b>month as % of average yearly production:</b>	16 %	12 %	11 %	16 %

Production indeces: IL ENERGIA (100 % is average of 1987-2001)

Taulukon selitykset / Explanations: Pnom: Nimellisteho / Nominal power. Rotor: Pyyhkäisyypinta-ala / Rotor swept area. z: tornin korkeus / Hub height. Start: aloituskk / Month of grid connection (mm/yy). Production divided by area swept (kWh/m2), divided by nominal power (h), and capacity factor (CF). Downtime seisokkiaika (includes also grid failures, which don't reduce technical availability). 12 kk: Sliding 12 month production (MWh) and sliding production divided by nominal power (h). 2005: Production from the beginning of the year (MWh).  
-: Häiriöaikaa ei raportoitu / Down time hours not available