ANNEX III. C_t curve for the selected wind turbines

Source: GdES, COMSAEMTE

SWT-3.6-120 wind turbine

Ct-Curve

The thrust coefficient Ct is used for the calculation of the wind speed deficit in the wake of a wind turbine.
Ct is defined by the following expression:

Ct   = F / (0.5*ad*w^2*A)

where

F	=	Rotor force [N]
ad	=	Air density [kg/m3]
w	=	Wind speed [m/s]
A	=	Swept area of rotor [m2]

The calculated Ct curve is valid for standard air density conditions of 15 deg.C air temperature, 1013 mBar air pressure, 1.225 kg/m3 air density, clean rotor blades, wind shear exponent less than 0.2, and horizontal, undisturbed air flow with 10% turbulence intensity.

Wind [m/s]	Ct -
0.0	0.000
1.0	0.000
2.0	0.000
3.0	0.000
4.0	0.869
5.0	0.866
6.0	0.872
7.0	0.870
8.0	0.870
9.0	0.865
10.0	0.775
11.0	0.675
12.0	0.544
13.0	0.394
14.0	0.305
15.0	0.244
16.0	0.199
17.0	0.166
18.0	0.140
19.0	0.120
20.0	0.104
21.0	0.091
22.0	0.080
23.0	0.071
24.0	0.063
25.0	0.057
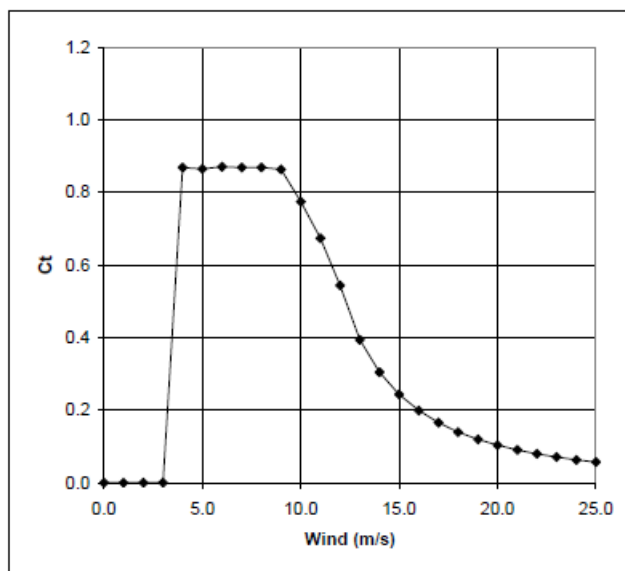
ANNEX III. C_t curve for the selected wind turbines

Source: GdES, COMSAEMTE

VT-105-3.3 MW

10.4 Operational Envelope - Ct Values, Sound Power Levels and Power Curve

The following conditions apply for the Ct Values, Sound Power Levels and Power Curve:

The following values refer to Hub Height (HH).

Item	Value
Wind Shear	0.10 – 0.16 (10 min. average)
Turbulence Intensity	8 – 12% (10 min. average)
Blades	Clean
Rain	No
Ice/Snow on Blades	No
Leading Edge	No damage
Terrain	IEC 61400-12-1
Inflow Angle (Vertical)	0 + 2°
Grid Frequency	50 ± 0.5 Hz

10.4.1 Performance Ct Values

Wind Speed (m/s)	C_t (Mode 0)
3	0.8470
4	0.7962
5	0.8007
6	0.8008
7	0.8009
8	0.7805
9	0.6990
10	0.6047
11	0.4915
12	0.3556
13	0.2725
14	0.2153
15	0.1740
16	0.1432
17	0.1196
18	0.1012
19	0.0866
20	0.0748
21	0.0652

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