

dti
Low Carbon Buildings Programme



Segen is meeting the need for affordable clean energy.

Segen is committed to the production of clean and affordable energy through the development of sustainable energy generation projects.

Segen is an authorised distributor and installer for the Gaia 11kW turbine which is the most efficient and cost effective small wind turbine in its class currently available on the UK market. The Gaia small wind turbine generates truly exceptional levels of power even in relatively low wind conditions.

Segen can supply, install and support the Gaia turbine to power community and local authority projects, farms, country estates, industrial units, rural domestic properties, offices, schools and many more applications.

Segen works in a partnership with site owners, financiers, suppliers and other stakeholders to guide projects through the process until the energy starts to flow and beyond.



▶ **Gaia 11 Wind Turbine**



HIGHLIGHTS

Overview

An 11kW small wind turbine suitable for powering farm, community and local authority projects, country estates, industrial units, rural domestic properties, offices, schools and many more applications.

Performance

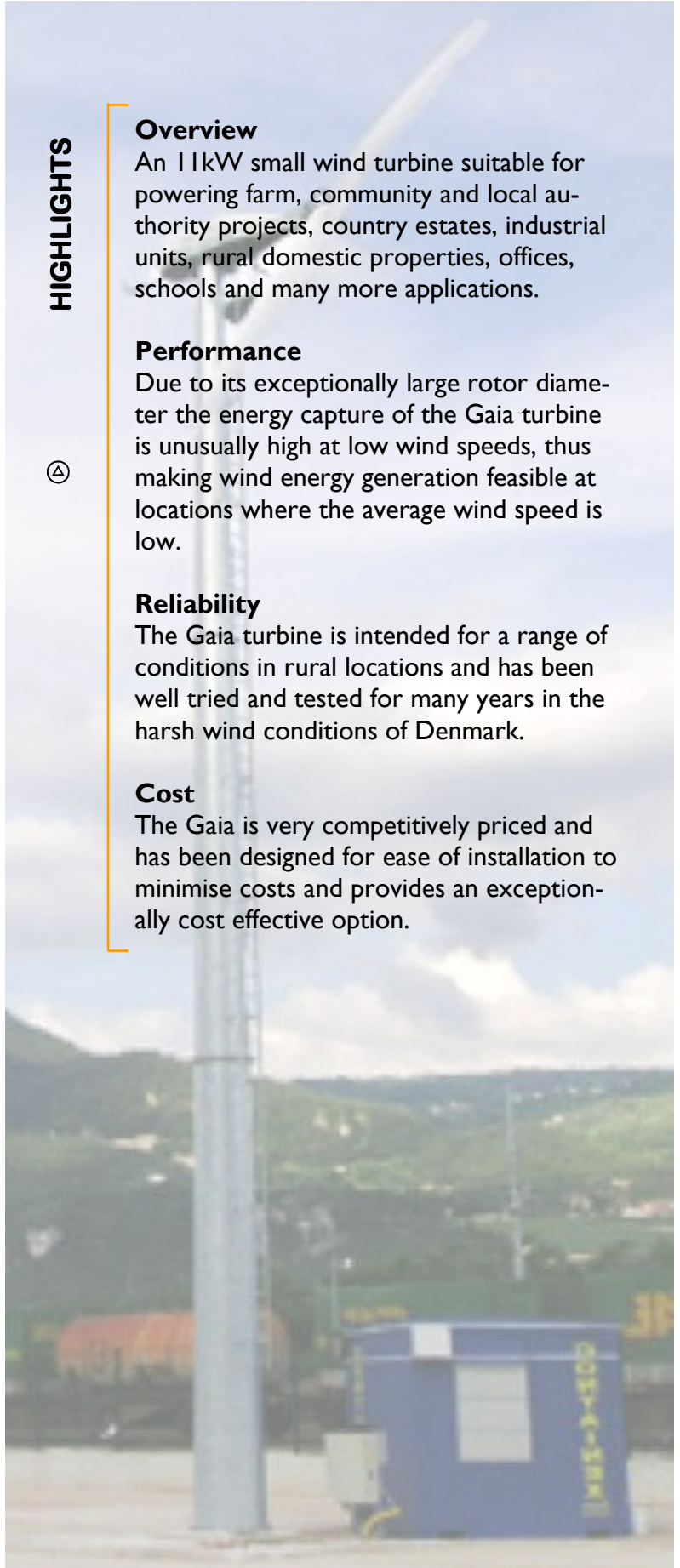
Due to its exceptionally large rotor diameter the energy capture of the Gaia turbine is unusually high at low wind speeds, thus making wind energy generation feasible at locations where the average wind speed is low.

Reliability

The Gaia turbine is intended for a range of conditions in rural locations and has been well tried and tested for many years in the harsh wind conditions of Denmark.

Cost

The Gaia is very competitively priced and has been designed for ease of installation to minimise costs and provides an exceptionally cost effective option.



▶ Gaia 11 Technical Specification



DESIGNED FOR MAXIMUM ENERGY GENERATION

Energy from the wind

Aerodynamic

The Gaia has an industry leading rotor diameter of 13m giving an exceptionally high 133 sq. m of swept area. This enables the turbine to generate much higher levels of power at the lower average wind speeds typically found near most properties. Giving the Gaia industry leading energy generation capability.

Electrical

For very high electrical efficiency, a 3-phase grid synchronised generator is used which means there is no need for separate inverters as with most other small wind turbines on the market today.



Reliability

The Gaia wind turbine has been developed according to 'Danish design'; the design basis for most of the large wind turbines on the market today. It is based on a modular design using components that have been carefully selected to provide high quality, maximum reliability and low maintenance requirements.

The turbine has been approved according to the official HB-standards laid down by the Danish Government. Gaia-Wind is the only manufacturer of small wind turbines to have achieved this approval, which ensures top product quality to all customers.

Characteristics

Generator rating	11 kW at 10 m/s
Rotor speed	56 rpm (fixed)
Cut-in wind speed	3.5 m/s (7.8 mph)
Cut-out wind speed	25 m/s (56 mph)
Rotor diameter	13 m
Rotor orientation	Downwind
Number of blades	2
Blade material	Glass Fibre
Control system	Passive stall
Gearbox	Two stage low noise
Brakes	Mechanical
Generator	11 kW, 3 phase, 400 Volts @ 50 Hz
Yaw control	Free yawing
Tower height	18m
Tower	Tube or Lattice.

Performance

At a particular location, the wind speed will vary about an annual mean value. The expected energy yields for the Gaia 11 at various annual mean wind speeds (AMWS).

AMWS m/s	Annual MWh	Daily kWh
4.0	18.9	51
4.5	25.1	68
5.0	31.3	85
5.5	37.0	101
6.0	42.4	116
6.5	47.0	128
7.0	51.2	140

Note: The annual electricity consumption of a medium size home is in the region of 4 to 6 MWh. This is equivalent to a daily consumption of 11 to 16 kWh.



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