

Murgana I: wind power near the plant

Local wind project to complement Aurubis solar generation in Pirdop

27,5 MW

planned capacity

11 × 2,5 MW

Shanghai Electric W2500-126

< 4 km

straight-line distance to plant

Construction permit No. 01, validity confirmed through 23 June 2030

Target commissioning in 2028, subject to technical and legal review

Permit status of Murgana I

Permit covers 11 turbines, a substation and electrical lines.

Environmental procedures completed for 11 turbine sites (decisions 2008/09).

Valid construction permit; applicability to the W2500-126 is under review.

A 2010 site protocol documents the original opening of construction.

MURGANA II: approx. 350 ha | UP TO APPROX. 120 MW TOTAL

Strategic vision including Murgana I; expansion requires separate development and permits.

Sources: permit No. 01 (2010), Chelopech (2020), environmental decisions (2008/09); Murgana II vision: Green Solution.

Murgana I: permitting dossier

Supporting evidence for the project overview on page 1

Permitted project scope

VALID THROUGH 23 JUN 2030

Permit No. 01 of 19 Feb 2010: 11 turbines, 110/20 kV substation, 110 kV overhead line and 20 kV cable.

In force since 16 Mar 2010; Chelopech municipality confirmed validity until 23 Jun 2030 on 23 Jun 2020.

Site protocol of 9 Jul 2010 records construction opening, alignment and level.

Environmental decisions 2008/09

No. 15-9/2008: project approved following EIA;

subproject with three turbine sites.

No. CO-205: five sites, full EIA not required.

No. CO-184: three sites, full EIA not required.

Together, 11 sites covered by environmental procedures.

Wind measurements and yield

DEWI: three masts; 21 months at 41 m,

shorter series at 50 and 70 m.

Long-term estimate: 7.3 m/s at 80 m.

Nordex reference: P50 62.5; P90 51.6 GWh/y.

Long-term yield uncertainty: 14%.

Current plan: 11 × SE W2500-126 = 27.5 MW.

Before construction: check turbine dimensions against earlier decisions; recalculate SE yield.

Sources: permit No. 01; Chelopech confirmation; site protocol; environmental decisions 15-9, CO-205, CO-184; DEWI-W WP 07-003.03 (2009) and DEWI-W WP 09-244 (2009), p. 4. As of 24 Sep 2026.

Project site and industrial neighbour

Views of Murgana and Aurubis Pirdop



Murgana: site view



Aurubis Pirdop and solar park



Aurubis: infrastructure view

Images show the project site and existing infrastructure.

Grid connection, line route and suitable delivery point require technical review.

Photos from project developer; plant/solar image visibly credited © Aurubis.

Pirdop: Shanghai Electric wind and solar

W2500-126 net yield scenario; equal installed capacity, wind in MW and solar in MWp

Reference	per 1 MW	per 2.5 MW	per 27.5 MW
SE: approx. 2,630 h*	approx. 2.6 GWh/y	approx. 6.6 GWh/y	approx. 72 GWh/y
Solar: Aurubis	approx. 1.4 GWh/y	approx. 3.4 GWh/y	approx. 38 GWh/y

Calculation and turbine types

SE: $11 \times \text{W2500-126 at 2.5 MW} = 27.5 \text{ MW}$; assumed net capacity factor 30%.

$8,760 \text{ h} \times 30\% = 2,628 \text{ full-load hours} = 2,628 \text{ MWh per MW}$; 6,570 MWh/y per turbine.

Solar: Aurubis projects 55,000 MWh/y for its expanded approx. 40 MWp park.

Per MWp: $55,000 / 40 = 1,375 \text{ MWh/y}$; per 2.5 MWp: 3,438; per 27.5 MWp: 37.8 GWh/y.

Context: 126 m rotor approx. 200 W/m² vs Nordex N90 approx. 393 W/m²; historical net factor approx. 26%.

SE scenarios at 26–34% net: approx. 63–82 GWh/y. DEWI Nordex P50 (62.5 GWh/y) for context only.

Wind can complement solar at night and in low-sun periods; hourly profiles need review.

*30% net is an assumption, not an SE forecast. P50/P90 require a power curve and new energy yield study.

Sources: SEWP W2500-126 offer; DEWI-W WP 09-244 (2009); Aurubis Pirdop solar (2024).

Shanghai Electric W2500-126

Turbine offered for Murgana I: 11 units rated at 2.5 MW each

2,5 MW

Rated capacity per turbine

Calculated swept area approx. 12,469 m²; confirm hub height and technical details with SE.

W2500-126

126 m rotor per model designation*

11 units

27.5 MW total

Included in the project-specific SEWP offer

11 turbines with blades, hubs, nacelles, generators and converters.

Towers, transformers, controls and central SCADA monitoring.

Technical support for installation and commissioning; service offer provided.

Larger rotor than Nordex N90: potential yield benefit requires a new energy yield study.

SE power curve, hub height and site analysis are needed for annual and hourly yield.

Source: SEWP, non-binding Murgana W2500-126 offer (2026). *126 m from model name; confirm datasheet.

Direct line: proximity creates an option

Straight-line distance does not establish an approved route or grid connection

Murgana to the plant

Less than 4 km straight-line,
confirmed by the developer.

Current EPC assumption

CPCEC budgets a 5 km outgoing line
to an assumed grid connection point.

Joint review of a direct line to Aurubis

Route, actual length, land rights and crossings.

Voltage level, delivery point, protection and connection capacity.

Permits, regulatory model, construction cost and line operation.

Match hourly wind output with plant demand and solar production.

Indicative EPC: €46.92m (approx. €1.7m/MW), per CPCEC offer.

Not full project CAPEX: review roads, foundations, local taxes and direct line separately.

Source: CPCEC, Updated Indicative EPC Price, 11 Sep 2026. Assumed 5 km outgoing line is not an Aurubis route.

Launch joint project review

Assess Murgana I now; consider Murgana II as a future expansion

01

Yield

Request SE power curve, updated wind data and energy yield study with P50/P90.

02

Value to Aurubis

Compare load profile to assess coverage, timing and CO₂ impact.

03

Line and permits

Review line route and applicability of permits to the W2500-126.

04

Commercial model

Review PPA, equity participation and timeline; assess 2028 commissioning target.

For Aurubis: agree to a structured review and appoint a contact person.

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