

# Miscanthus and Bioenergy

## OVERVIEW

This investment project combines energy farming, bioenergy production and pulp and paper manufacture, resulting in supply of energy crop, power & heat, cellulose, sodium lignosulfonate and organic fertilizers within the cluster, as well as reduction of CO2 emissions.

The project consists of:

- Miscanthus giganteus plantation – 2500 ha, 20-22 t/ha/year
- Biomass cogeneration plant – 1,5 MWeI and 6 MWth
- Cellulose plant – 50 t/d of cellulose (pulp board), 330 d/year

Vertical integration will provide a high level of sustainability for the entire business.

## BUSINESS MODEL AND MARKET STRATEGY

Miscanthus giganteus is cultivated on degraded lands (avoiding competition with agriculture) and its crops can be used as feedstock both for CHP and cellulose production.

Biomass plant will burn Miscanthus and wood chips (obtained by clearing of self-forested lands ahead of Miscanthus planting) and generate power and heat, supplying both to the cellulose plant and feeding excess electricity to the local grid.

Cellulose plant (China) will use Miscanthus and/or wheat straw as raw material and supply three products:

- 50 t/d of cellulose (pulp board) to be sold to paper/carton manufacturers at the internal market. It can also be used as raw material/additive in multiple other goods, like HDF/MDF, plastics, concrete, animal bedding, etc.
- 20 t/d of sodium lignosulfonate. It's widely used in chemical, foundry and construction industries to manufacture concrete, dyes and pigments, machinery, porcelain, etc;
- 15 t/d of organic fertilizers to be sold to local farmers.



*Miscanthus × giganteus* is a perennial grass, which automatically grows back after harvest. Due to its ability to grow on marginal land, its water efficiency, low fertilizer needs, carbon sequestration, high yields and soil enhancing qualities, it is considered to be “ideal” energy crop and to provide negative emissions.

**PROJECT LOCATION** - urban-type settlement Kamianyi Brid, Zhytomyr region, Ukraine.

**PROJECT COMPANY:** MISCANTHUS TECHNOLOGY

**PROJECT PARTNERS:** ORGANIC-D, INDIAN SOLAR

**MATURITY OF PROJECT:** Greenfield

**CURRENT STATUS:** First 60ha of Miscanthus plantation were planted in Spring 2023. 10ha plot of industrial designation is available for the CHP and cellulose plant (grid connections: 10kV cable line, gas pipe of medium pressure, a capped well, two water reservoirs near the plot). Feasibility studies for CHP and cellulose plant are under way. EPC-contractors and executive parties are being selected.

A 50ha nursery plantation of Miscanthus will be planted in Spring 2024 for future propagation of the planting material and establishment of a 1500ha commercial plantation.

	Miscanthus plantation	Biomass CHP	Cellulose plant
Project cost	€ 4500/ha	€ 7 M	€ 9.3 M
PBP	5 years after Cellulose plant		

## IMPACT

The project reduces CO2 emissions, improves ecology of marginal soils, creates much needed jobs for the local community, provides tax payments to the local budget, replaces considerable imports of cellulose in Ukraine, provides raw materials for numerous industries and agriculture.

## GENDER FOCUS

The project provides equal opportunities for men and women.