

# OUR ENERGY IS GREEN



FIRST SLOVAK  
POWER PLANT  
FOR FERMENTED  
MIXTURE



# ABOUT THE COMPANY



ECOSTART

# 7 years

OF OUR ACTIVITIES IN  
SLOVAKIA IN NUMBERS

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**370 000 MWh**  
of green electric energy  
produced for Slovak  
households.



**100 000 tons**  
of recovered biodegradable  
and other waste and material,  
which would otherwise  
end up in a landfill.



**180 000 tons**  
of sewage sludge recovered  
in our controlled aerobic  
fermentation process.

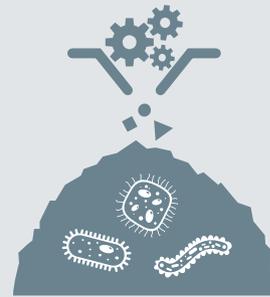
**ECOSTART a.s. is the operator of the first Slovak power plant for the production of green electricity from a fermented mixture, while the uniqueness of the project lies mainly in the recovery of dewatered stabilised sewage sludge from municipal waste water treatment plants. The power plant has been in operation continuously since February 2012 and the entire volume of electricity production is delivered directly to the regional distribution system.**

The fermented biomass mixture consists of biomass, such as energetic wood chips, bark, plant biomass and phytomass, subsidiary products, and also of microbiological mediums, which help effectively manage controlled aerobic fermentation process.

These raw materials are mixed together in certain proportions to form a homogeneous fuel that undergoes a controlled aerobic fermentation process and is subsequently handled for energy recovery.

The fermentation process is carried out by aerobic fermentation bacteria, which naturally occur in soil, water and air, or accumulate naturally in compost. In one gram of homogenised fuel, there are several million or even billion fermentation bacteria, which, as a comprehensive organism, work on the overall conversion of the raw material mixture resulting in a fermented mixture that has excellent quality parameters as a fuel from renewable energy sources. The fermentation composting process is in no way dangerous to human health.

# HOW DOES



## COLLECTION OF RAW MATERIALS

Dewatered stabilised sewage sludge from municipal wastewater treatment plants, branches, bark, mown grass, old unusable hay and straw, waste wood, old unrepairable wooden pallets and other raw materials are used in the production of microbiological medium that serve as a reservoir of fermentation bacteria. The microbiological medium is further used in the production of the fermented mixture.

## FERMENTATION PROCESS

The raw materials are mixed and homogenised in well-defined proportions using state-of-the-art equipment, and the fermentation process is then carried out by aerobic fermentation bacteria that occur naturally in soil, water and air, or accumulate naturally in compost. These bacteria enter the fermented mixture via a microbiological medium.

# S IT WORK?



## **ECOLOGICAL COMBUSTION**

The resulting fuel - fermented mixture is conveyed to the combustion boiler. Thanks to innovative technologies, air contamination with heavy metals and particulate matter (fly ash) does not occur as the installed electrostatic precipitator "separates" 99.6 % of the solid particles from the flue gas.

## **ENERGY ASSESSMENT**

The entire volume of electricity production is supplied directly to the regional distribution system. Approximately 55 500 MWh of green electricity from renewable sources with an installed capacity of 7.03 MWe are produced annually.

# WE COOP

WITH THE SURROUNDINGS  
AND THE PUBLIC



ECOSTART

# OPERATE

ECOSTART a.s. has extensive experience in the management of fermentation bacteria that it has acquired and applied not only to its composting plants and fermentation hall, but also to the composting plants of its contractors. This rich experience can be applied in almost every composting plant and range from community composting up to industrial levels.

The company also helps the surrounding municipalities and their inhabitants, as well as small and larger companies and self-employed traders in the recovery of biodegradable waste, such as branches, leaves, waste from gardens, parks, etc.

ECOSTART financially supports mainly regional cultural, social and educational activities and projects. It employs more than 40 employees from neighborhood and creates conditions for the creation of additional jobs for its suppliers and partners.

**For the comfort of the inhabitants, in addition to the requirements of the legislation, modern technologies such as odour neutralisation, noise barriers and blinds, acoustic noise silencers on the chimney and the like have been used.**



# THE ENVIA





# ENVIRONMENT

## & ECOSTART

**ECOSTART a.s. cares about the environment and therefore seeks to minimise the negative impacts on the environment. The company has implemented the environmental management system STN EN ISO 14001 as well as the quality management system in accordance with STN EN ISO 9001 and the occupational health and safety system in accordance with STN OHSAS 18001.**

To confirm the responsible approach to nature and natural resources, the company has undergone a PEFC certification process. ECOSTART a.s. also introduced several environmental management practices and activities that help to improve biodiversity in its own premises.

At the same time, several hundred trees of local biotopes and flower and honey meadow plantings on adjacent areas in the company premises have been planted. A water ecosystem was built, nests for house martins and other birds were installed and houses for beneficial insects were placed in the green plant zones.

By optimising production processes and logistics, ECOSTART a.s. has streamlined the fermentation processes. As a result of these optimisations, the fermentation production process has been splitted into several sub-steps taking place in different plants, thus significantly reducing the impact of some of the negative aspects of production at the Badín power plant site.

# FUTURE DIRECTIONS FOR



# R THE COMPANY

Looking ahead, ECOSTART a.s. sees considerable potential in streamlining the process of fuel preparation and production, which is key to the overall efficiency of renewable electricity production.

As the fact, that fermented mixture is used for energy purposes as pilot project by ECOSTART a.s., company wants to devote a large part of its activities to research and development processes in the field of fermentation processes and fermentation microorganisms.

With the growing trend of the development of healthy Slovak groceries, ECOSTART a. s. plans to use the scientific knowledge gained from the study of fermentation and composting processes and utilize them also in the production of green and nutritious fertiliser - compost.



## WITH COMMON FORCES FOR HEALTHY ENVIRONMENT

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The state of the environment in Slovakia and also in the world is changing at a very fast pace. Climate change and other negative impacts caused by human activity are beginning to catch up with us, and it is our responsibility to maintain appropriate conditions and a healthy environment for future generations. One of the ways is the use, development and promotion of sustainable and renewable energy sources.

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Ing. Pavol Fitko  
Member of the Board



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