



Fast-growing biomass plantations for bioenergy end users

Project partner



βιοενέργεια

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Pilot project concept

The project aims to develop electricity and thermal energy production from biomass. In the long term, the project includes the installation and operation of a power plant that will operate based on biomass. The total installed power for this plant will be 2.5 MWe and 7.5 MWth. The electrical side of this power plant/station will connect and provide supply to the National Greek Network of Transmission and Distribution of Electricity. The thermal energy can be used to cover heating needs locally (district heating). Due to its rural location and the adjacent activities, scenarios envisage the supply of the biomass materials from adjacent greenhouses and fast-growing plantations to significantly reducing the operating costs.

The biomass needs for the venture can be supplied from the agricultural sector, food industry and wood processing industries of the region of Western Macedonia in Greece. The biomass material will be collected from the local producers and processed accordingly. This is a crucial point for the success of the operation as it ensures the smooth flow of production and simultaneously engaging two major parts, creating a new supply and production chain.

AZ Bioenergia has already signed contracts with farmers in the region for harvesting of their production for biomass purposes. In addition, AZ Bioenergia experimented with the cultivation of paulownia for biomass in an area of 0.6 ha (580 trees) within the vicinity of the proposed power plant location.



Partners

AZ Bioenergia selected the company KOEM Consulting as an external consultant, who supported the preparation and the evaluation of potential investment proposals. In addition, it examined the model of logistics and supply chain management. Specifically, the research proposed solutions and guidance for network configuration, distribution strategy, and inventory management.

SecureChain Project Partners



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Results

In 2013, AZ formed a pilot greenhouse in order to cultivate and experiment with Paulownia plants, a fast-growing biomass crop. Later in 2013, the seedlings were transplanted from the greenhouse into the field. Since then, the company is monitoring their development with regular measurements.



So far the results are encouraging regarding the first 3 years of growth (2014-2017). The goal for 2018 is to create a larger scale greenhouse in order to produce larger numbers of seedling plants for energy purposes. AZ expects to undertake first harvest trials by December 2018.

The power plant implementation will be placed on land section registry 169 at Alonakia of Kozani Municipality, on a total surface area of 2.44 hectares. Licenses have been obtained from the Regulatory Authority for Energy (RAE) and the associated environmental authorities of the region of Western Macedonia, while the connection specifications of the Transmission Greek Electricity Distribution Network (DEDIE) and the installation license are in the pipeline and expected to be delivered.

However, there are significant delays in this venture, which raise concerns about the feasibility of the investment concerning the power plant construction. During the project, the discussions with the SecureChain partners and foreign experts from BOKU and UPC have made substantial contribution towards re-examining the whole business model.

At the same time, an opportunity has appeared due to the imminent closure of the Lignite Power Plant of Amyndeo that also provides thermal energy to the District Heating network of the town of Amyndeo. The power loss is going to be substituted by a biomass plant of 30MW, which requires substantial biomass quantities from the regional market. In this context, the AZ company is keen to seizing the opportunity and examines the upscaling of the Paulownia plantations, either through their own production, or through the production of farmers under AZ guidance.

A follow-up activity of coaching and assistance of technical and logistical solutions and technical support from the Regional Lead Partner is foreseen after the end of SecureChain. This includes support towards identifying potential funding, expanding the networking and developing the business case.