

**Project:** Biomass & other RES Projects

**Location:** Greece

**The Market:**

The global biomass power market size was valued at USD 51.2 billion in 2020 and is expected to grow at a compound annual growth rate (CAGR) of 5.9% from 2020 to 2028. Favorable government regulations encouraging thermal power stations to switch from coal to cleaner fuels, such as biomass, are expected to play a vital role in the market growth over the forecast period. Biomass generates bioenergy that is used across several end-use markets to minimize dependence on fossil fuels, reduce Greenhouse Gas (GHG) emissions, and improve the security of energy supply. Moreover, the decline in coal usage along with the growing use of wood biomass for distributed electricity production is anticipated to positively influence the industry landscape.

The U.S. market is projected to witness a substantial growth owing to rising implementation of climate change laws requiring usage of renewable sources for power generation purposes. Biomass fuels are used as a primary energy source in the U.S. and are majorly sourced from wood-derived biomass and municipal waste biomass

In addition, new developments aimed at using more biomass for fuel are set to boost regional market growth. Biomass serves as a sustainable and low-carbon alternative to conventional fossil fuels while allowing local groups to use domestically available biomass sources. It makes efficient utilization of crop residues, the unused portions of urban waste, and wood manufacturing wastes. The government organizations are emphasizing on utilizing biomass for electricity production as a part of energy security and energy efficiency strategy. Such initiatives aim to augment the share of clean renewables in the overall energy mix of national economies.

Bioenergy is the energy produced through the burning of biomass or biomass fuels. According to the International Energy Agency (IEA), bioenergy power production rose by 5% in 2019 that is only a percent less than the 6% yearly rate required to meet the 2030 Sustainable Development Scenario goals. Market developments and recent policy changes in emerging nations are expected to further provide a positive outlook to the market growth.

Greece is a privileged country, as far as the exploitation of RES is concerned, due to its geographic position. The RES potential in Greece is mainly attributed to the favorable wind energy and solar conditions which have been evaluated as extremely advantageous.

Renewable energy sources capture a significant share of electricity generation in Greece. This is the result of the rapid growth in wind and solar installed capacity that occurred during the past decade and the overall decrease in total electricity supply.

At the beginning of the 1990s, electricity generation was mainly driven by hydroelectric plants, whereas wind turbines emerged a decade later and gradually increased their share. Law 3468/2006 provided the first clear legislative framework to assist the generation of electricity from solar power and transposed the Directive 2001/77 of the European Parliament into national Law, setting a high priority in promoting the energy production from RES.

In 2017, the previously upward trend in installed capacity continued, mainly driven by wind power installations. 2018 proved to be the second-best year for wind power installations after 2011, with the deployment of 253MW new capacity reaching 2555 MW in total.

Solar power installations accompanied by the rest of RES in Greece remained relatively stable. The solar power sector covered nearly 7% of the country's electricity needs with a total installed capacity of 2,461MW (2140MW in Solar parks and 351 MW in Photovoltaics (PVs) with capacity lower than 10kw), bringing Greece to one of the highest places worldwide in terms of PV contribution to total electricity demand.

Apart from solar power (both small and large installations) which are relatively stationary over the past two years, biogas-biomass and small hydroelectric stations show a small increase.

Historically, despite the strong interest from investors and the beneficial financial incentives for installation of RES, their growth rate could have been even greater, but the uncertainty of potential investors for the sustainability of the RES support mechanism delayed significantly their penetration to the system.

Over the recent years, a series of regulatory measures has been adopted aimed at assisting RES penetration, such as reducing the time required in the license process.

Thanks to the favorable Feed-in-Tariffs (FITs) supporting scheme and decreasing technology costs the country managed to achieve a significant growth in wind and solar photovoltaics.

According to the new RES support scheme, operating aid will be granted for the electricity generation from RES in the form of a sliding Feed in Premium, in addition to the market price that will be formed in the market.

Bioenergy in Greece is considered as a " problem-solving " form of energy production and energy saving, especially in the wastewater and agro-industrial sectors where the main applications exist. Bioenergy use was estimated at 39 PJ/year, in 2001, about 3.4% of the total primary energy consumption in the country by that year. Of this, biomass (mostly wood consumed directly in the domestic/residential sector) accounted for 64,4%, or 0.946 Mtoe. Domestic use of wood (burning of wood in open hearths for cooking, water and space heating) accounted for about 74% (0.70 Mtoe) of total biomass energy production. The remaining 26% (0.24 Mtoe) was produced by the combustion of wood by-products and agricultural residues, and the utilisation of biogas produced in landfills, agro-food industries and municipal wastewater treatment plants. The market for bioenergy in Greece presented considerable growth after a number of financial incentives introduced in 1997. However, the field has much more potential than the already exploited and there are certain technical and non-technical factors hindering further commercial development.

### **The Project:**

The project consists of the following sub-projects totalling 17 MW in 9 different plants:

1. [B5-219 - Florina 5MW Biomass](#)
2. [B5-220 - Grevena 5MW Biomass](#)
3. [B1-239 - Aerino 1 MW Biomass](#)
4. [B1-244 - Mataraga 1 MW Biomass](#)
5. [B1-F01 - Skydra 1 MW Biomass](#)
6. [B1-245 - Paschalitsa 1 MW Biomass](#)
7. [B1-247 - Karditsa, Prodromos, 1MW Biomass](#)

8. [B1-250 - Achaia, Olenia 1 MW Biomass](#)
9. [B1-259-Karditsa,Kalamakia 1 MW Biomass](#)

**Budget and economic Figures:**

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|-----------------------------|----------------|
| • Total Project Budget:     | • 65,200,000 € |
| • Investment by AENAOS LLC: | • 22,820,000 € |
| • Leverage:                 | • 42,380,000 € |
| • Expected EBITDA:          | • 10,800,000 € |

**Current Status:**

Ready to Invest

**To Do:**

- Due diligence for each project (technical, legal, financial)
- Acquisition of the projects through the acquisition of 5 relevant SPVs