

WASTE to ENERGY PROJECT

Cogeneration of Heat and Electricity of 22 MWe1 In Greece



**Athens,
March 2018**

LOCATION

Rhodes Island,
Southern Aegean, Greece

INVESTMENT COST

Total Cost of Investment	90.000.000€
Plasma Gasification	40.017.602€
Electric generators	17.351.509€
Main & Support Buildings	13.710.314€
Assistant Installations	9.070.512€
Project Management	3.846.143€
Connection to electricity Grid	2.979.552€
Engineering	2.340.359€
Various expense	447.761€
Plot purchase	236.247€

FINANCIAL PLAN

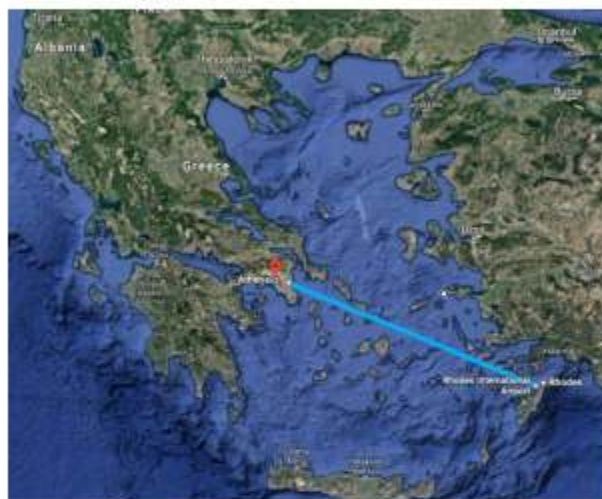
30% Equity
70% Bank Loan
12 years tenor
2 years construction period
4% final interest
6 months grace period
3-month installments

REVENUES SOURCES

Total Revenues	28.690.235€
Electric power	16.137.000€
Thermal power	4.600.000€
Gate fee	4.000.000€
Products produced	2.900.000€
Scrap	660.735€
Industrial wastes	392.500€

1. DESCRIPTION OF PROJECT

The purpose of the project is the development of a plant with total capacity of 22 MW (electrical) and of 38MW thermal power heat using urban waste in the island of Rhodes, Southern Greece.



2. PROJECT DATA

- almost 100.000 ton annually of solid wastes.
- production of electric power to network is 165.000 kWh annually
- Feed in Price at 97,80 €/kWh (85€/MWh + 15% thermal energy to grid per kWh)
- Guaranteed through PPA for twenty years according to law 4414/2016.
- production of thermal power to network is 115.000kWh annually
- Selling price at 40,00 €/kWh.

MAIN MACHINERY & FACILITIES

- Gasification- plasma torches: 336tn/hour
- Gas processing cost (syngas) & exhaust gas processing
- Electric production 22MW
- Tele heating network 36 kW-tn 5.500m
- Voltage lifting substations for network distribution

OPEX

Total cost of operations: 5.901.711€

Maintenance:	2.067.167€
Staff Cost:	1.592.867€
Utilities:	924.943€
Project insurance cost:	516.792€
Renewable sources fee:	555.964€
Administrative:	168.958€
Marketing:	75.020€

Adjustments per year

Staff Cost:	1%
Administrative:	1%

CONTACT DETAILS

George Floras
BELT AND ROAD ASSOCIATES MANAGING PARTNER
101, Magnisias str, Dionisos, Attiki, 14572, Greece
email: gfloras@beltandroadassociates.com
skype: gfloras1 WeChat ID: gfloras
tel. +306974910050
www.beltandroadassociates.com

4. TECHNOLOGY

- Plasma gasification technology
- Main advantages of plasma gasification are:
 - the reduction of construction of new landfills,
 - zero methane emissions,
 - zero danger to pollute the aquifer,
 - high performance and effective use of raw materials

5. FINANCIAL DATA

Assumptions

Income Tax:	29%
Reserves:	5%
Contingencies:	1% of net Sales
Depreciation method:	Constant Rate
Inflation rate:	1,3%

Results and indexes

Capex:	90.000.000€
Opex:	5.901.711€
Net sales:	33.376.945€
EBITDA:	27.141.464€
EBITDA margin:	81,31%
GPR:	82,32%
NPR:	45,52%
DSCR:	3,14
IRR:	20,01%
WACC:	5,32%
NPV:	140.895.963€
Payback period:	6years
Cost of equity:	11,10%