visiontask
development consultants

Biogas Energy for All

The renewable energy of the future, **ON SALE NOW**!

WIND|WATER|SOLAR|BIOMASS

Let us introduce ourselves.

VisionTask is a pioneer in the renewable energy industry. The company is based in Central Greece and during its operation has helped discover new ways of developing and commercializing renewable energy right at the heart of the resource – wherever the location and whatever the condition. We, at VisionTask, are committed to provide the present and future generations a better life with clean and renewable energy. The company has successfully deployed its expertise and technology to develop energy and infrastructure projects across the Greek region. We add value at every stage of the operation – from geoscientific assessment to environmental compliance and from power plant operation to social acceptability. Our advocacy is to help meet the growing demand for energy delivered by low carbon power options.

We provide world class consulting, design and project management services in renewable energy projects from pre-feasibility studies through design to commissioning and operations. In particular, we focus on co-generation and energy conversion processes that have potential for long-term sustainability. At VisionTask we are passionate about renewable energy and the world's transition to a more sustainable future. We believe that the intelligent use and generation of energy is a vital part of this process. Our mission is to supply well designed, reliable, independent, on or off-grid solar, wind, water and biomass power systems. Our company's core philosophy is based around quality of products, quality of service and quality of life. We believe that quality and sustainability are irrevocably linked, and it's at the heart of everything we do.

Biogas: a low cost renewable energy resource for all

There are many good reasons to implement a biogas plant ranging from environmental protection and waste reduction to renewable energy production. With energy security and cost becoming increasingly important considerations for all nations as traditional fossil fuel reserves begin to run low, biogas is a renewable low cost energy resource manufactured from organic waste that could just be the answer. Europe currently imports over 60% of its fuel requirements but could actually generate up to 50% of its total needs locally using biogas technology. Biogas technology is nothing new – it was used by the Chinese and Persians as long as 3,000 years ago to make fuel. Biogas is created by the anaerobic digestion (AD) of all biodegradable natural materials except wood which occurs at landfill sites. The resultant gas contains high amounts of methane, which when harnessed can be used as an emission-free green energy source suitable for CHP or gas engines. Biogas represents a major opportunity to significantly reduce costs and lower the carbon footprint by turning waste into energy and fuel, which can then be used across multiple industry sectors. The digestate from this process can also be used as an environmentally-friendly fertiliser or weed killer. Digestate has improved ability of lubrication due to the higher homogeneity and availability of nutrients. The paired against digestate as fertilizer can replace the use of fossil fertilizers and has at least economic and environmental dimension.

In addition to lowering emissions and reducing carbon footprint which helps to combat climate change, biogas also provides an unlimited low cost renewable energy resource which can significantly reduce national reliance on fossil fuel imports. It also contributes to meeting the EU's Renewable Energy Directive, whereby countries will be required to source 20% of their energy requirements from renewable resources by 2020, and the Landfill Directive which seeks to

significantly reduce the level of biodegradable waste going to landfill. Germany has been using biogas as an alternative heat and energy source for the last two decades and currently has approximately 4,000 facilities in operation around the country. Sweden has also been exploiting its biogas potential for many years, most of which is upgraded to biomethane for use in the transport sector. Biogas will be one of the fuels of the future, offering a whole range of environmental, cost saving and energy security benefits for all. For a small to medium-sized plant, return on investment is usually achieved between three to five years, depending on the local tariff system.

Biogas licenses on sale

We have a good number of biogas licenses on sale. Five different projects that have been taken under different company names are located in the central part of Greece in the middle of the biggest agricultural area of the country. Each license has a capacity of $1MW_{el}$ and is located close to each other achieving economies of scale. The licenses have been fully developed from our company and it has been quite a long-winded process from confirming suitability of the feedstock for anaerobic digestion (AD), defining technology to follow, receiving required permits and authorizations (from local and national government authorities).

As a wide range of biomass types can be used as substrates for the production of biogas from AD, we have positioned the projects in areas with high quantities of animal manure and agricultural residues and by-products. All necessary preliminary designs have been approved by the local authorities and the projects are almost ready to have a go-on for construction. In addition to that, pre-contracts with local farmers and breeders have been signed, binding the necessary quantities of raw material for the proper operation of each of the project. Each of the five biogas plants as main feedstock will use:

- Cattle manure 40 t/day with wet 85%.
- Maize silage 48 t/day with wet 70%.

Biogas plant will produce biogas in amount of 10.793 m^3 per day with methane content 55 –60%. Produced biogas will be used to generate electricity, heat power and valuable organic biofertilizer (solid and liquid). Electricity can be used by the plant and sold to national electricity grid. Heat power will be utilized for farm and biogas plant and other needs. Organic bio fertilizers after biogas plant are ready for use without the necessity for any storage or additional treatment. Fertilizers can be sold to local farmers as valuable commodity that replaces chemical fertilizers in more effective and ecological friendly way. As an option solid organic fertilizer can be granulated, packed and sold for export.

Technological process of biogas production

Feed stock in quantity of 88 tons per day will be transported to biogas plant area and discharged to preliminary tank. Substrates are loaded to preliminary tank by portions of 100-110 tons with interval 4-6 hours. In preliminary tank substrate humidity is increased up to 90%. In preliminary tank, substrate is heated up to temperature 20-25°C by heating manifold. Substrate pipelines are equipped with valves «M» that switch substrate flow and directs to each digester. All

valves are controlled by automatic system. In digesters substrate is heated up to temperature 36-38°C. Heating system is installed on the walls and bottom of the digesters, thus constant temperature sustains on whole digesting period. Digester operating regime is mesophilic.

Heated substrate in digester is mixed periodically (20-25 minutes in hour) by submersible agitators. Average time of digestion is 14-15 days. Biogas goes up and gathers in gasholder. Gasholder volume is 700m^3. Gasholder weather protective film protects gasholder from precipitation and damage by foreign objects. Weather protective film is fixed firmly by special system under air pressure from air blower. To protect gasholder from overpressure, digesters are equipped by safety valves, which starts working at pressure 5mbar and bleeds biogas to atmosphere. Sulphur is removed from biogas by addition of strict and definite quantity of air into digesters.

Biogas then goes through gas pipeline to compressor, where the pressure is raised up to 80-100 mbar to meet engine requirements. Gas pipeline is equipped with condensate discharge unit. All the units work based on gauges limiting values. Biogas is supplied to co-generation power plant, where it is used as fuel for production of electric and heat power. Heat from co-generator goes through heat exchanger for heating digesters. Heating equipment is used for distribution of heat between biogas plant facilities.

The digested substrate from each digester goes to digested substrate tank and then by pump is derived to separator where it is separated to solid and liquid bio-fertilizer. Solid bio-fertilizer discharged to the separation area and transported for storage, liquid filtrate is directed to filtrate tank. Then it is processed through drying process to produce high quality bio-fertilizer at less than 15% wet. That bio-fertilizer will be sold bagged, offering more income to the company.

All technological processes are controlled and operated by automatic system. Biogas plant work is visualized at central control room monitor. The control room is equipped with central control unit, which allows switch of any biogas plant module into automatic or manual mode with local or remote control.

A great investment with a high rate of return

The various sources of energy are the core of our investment and energy policy in Greece. Renewable Energy Sources (RES) play an important role in the evolving energy sector of the country. Biomass and biofuels are considered potent market with high growth potential. Offered countless opportunities for investors to obtain raw materials and benefit from the purchase price of the energy produced (feed-in tariffs). In Greece, the agricultural sector accounts for more than 5% of GDP, almost three times the average 1.8 % in the EU context, the companies involved in biomass and biofuels will find abundant sources of raw materials. Furthermore, the commitment of the Greek government to replace 10 % of current fossil fuels with biofuels by 2020 will entail considerable opportunities for the next decade.

True advantages for someone to invest in buying biogas electricity production licenses:

- ✓ Abundant raw materials in the central area of Greece.

- ✓ Agricultural sector corresponding to 5.2 % of GDP.
- ✓ High market prices of produced energy (*feed in tariffs*).
- ✓ Commitment to use biofuels.
- ✓ Favorable, long-term legal framework to ensure the reliability of the investment environment.
- ✓ The development of RES in Greece ensured by conventional binding targets that require the participation of renewable energy by 40% by 2020 from the current contribution of 10%.

Using biomasses like liquid manure or corn offers impressive possible rates of return. The generated biogas can be directly transformed into usable energy that can be sold profitably. Biogas plants are very efficient at digesting waste. Any other system will consume energy. Biogas plants produce energy. Aside from the ecology the main benefits are the production of biogas and bio-fertilizers. Additional benefits: electrical and heat power, bio-methane, savings on capital costs for waste cleaning systems when constructing new facilities. A summary of the economics of a 5 MW_{el} plant installed capacity is summarized below. The calculations provide an overview about all relevant costs and revenues of the specific biogas project located in the central parts of Greece.

ECONOMICS OF A BIOGAS PLANT OF CAPACITY 5MW_{el}		
Type of Plant	Power Plant with drying unit	Power Plant with 10.000 m^2 Tomato Greenhouse
Cost of Implementation (€)	**25.000.000**	**25.000.000**
Annual Production (kWh)	41.750.000	41.750.000
Turnover (€)	**11.912.750**	**14.162.750**
Cost of Production (€)	5.882.210	6.304.710
Gross Profit (€)	6.030.545	7.858.045
Profit before Depreciation and Tax (€)	**5.220.545**	**7.048.045**
Net annual income (€)	**4.205.910**	**5.564.035**
Net income 10 years (€)	45.655.005	59.270.780
Net income 20 years (€)	91.310.010	119.750.000
Profitability Index 10 years (€)	41,72 %	48,19 %
Value Added Index	60,12 %	65,45 %
IRR	**23,68 %**	**32,85 %**
Depreciation of Investment	4,7 years	3,5 years

Our project is well established. Your time to invest is now!

Our project is well designed and has the approval of local farmers and residents. It is very important we have already signed preliminary agreements for the provisioning of raw materials for the unit by the locals. At the other, approvals from Public Authorities have been received and the project is very close to sign the final terms of connection to the grid. A list of the approvals received is shown below.

- ✓ Forest Service/Document status of the land : Approval has been issued.
- ✓ Urban Planning Local authorities : Approval has been issued.
- ✓ Newer Monuments & Technical Department : Approval has been issued.
- ✓ Byzantine Antiquities Department : Approval has been issued.
- ✓ Prehistoric and Classical Antiquities Department : Approval has been issued.
- ✓ General Tourism Organization : Approval has been issued.
- ✓ Aviation authorities : Approval has been issued.
- ✓ National Defense General Staff : Approval has been issued.
- ✓ Veterinary Local Authorities : Approval has been issued.
- ✓ Environmental Department : Approval on print.
- ✓ PPC – Terms of connection to the grid : Awaiting approval.

There are investment tools that could use someone who wants to invest in this type of project in Greece today. The new economy is now being formed in Greece and offers a variety of attractive investment opportunities across a broad range of investment sectors. The major reform efforts are opening up new investment horizons that encourage both new and already established companies. The energy policy of Greece, in order to create sustainable, competitive and secure energy sources, has developed a comprehensive regulatory and market framework for the energy sector. In conjunction with the legislative framework for investments in Greece, provides excellent opportunities for investment especially in Renewable Energy Sectors. As the planet faces varied and challenging questions about the production and supply of energy, Greece takes a central position in the organization's energy future as a strategic energy hub of Southeast Europe and an attractive investment location.

Greece's Investment Incentives Law governs the terms and conditions of direct investment in Greece and provides for incentives, available to domestic and foreign investors, dependent on the sector and the location of the investment. In February, 2011, the New Investment Law that introduces new values, new procedures and new financing tools, was voted on and passed by the Greek Parliament. Greece's new Investment Incentives Law creates an outward-looking investment environment. It provides an efficient institutional framework for all investors and speeds the approval process for pending, approved investment projects. It aims at modernizing and improving the institutional framework for private investments, subject to investment laws. Investment Law provides a 50% subsidy for renewable energy projects.

Finally, in April 2013 the Greek Parliament passed legislation to offer residency to non European Union purchasers of properties over €250,000 (about $323,000). The new law offers a five year buyer's residency as well as the chance of obtaining a Schengen Visa that can enable the holders and their families (spouses and children under the age of 18) to freely travel in the Schengen area of 25 European countries for three consecutive months at a time. The residency can be renewed after the initial five year period. Now, the prospects for the non European Union house hunters to find a bargain in the Greek «buyer's» real estate market or energy sector seem even more promising.

Be a part of a success story project and call us today!

Each Project can be also sold separately at 1MW$_{el}$.

Our world is full of energy!

Building a green environment

If you are interested, please contact us today! Special SALE offer applies now!

Buy the license and built the project!

Contact us on: info@visiontask.gr

or call us on: ++30.4310.23121 (att. Dr. Christos Tsitsirigos)

visiontask
development consultants
WIND|WATER|SOLAR|BIOMASS

visiontask
development consultants

ATHENS T. +30.210.6014741
TRIKALA T. +30.4310.23121

www.visiontask.gr
info@visiontask.gr