

**BIODIESEL, BIOGAS, BIOMASS AND GEOTHERMAL ENERGY
RENEWABLE ENERGY SOURCES (RES) – BASIS FOR A SUSTAINABLE DEVELOPMENT
OF THE REGION
SERVICES BY BLUEWATERS**



Renewable energy sources (biogas, biomass and geothermal energy) are being used for production of heat and electric energy as well as for production of alternative fuels. Therefore the RES play a significant role in the European energy future and the strategic energy policy.

Biodiesel is a methyl-ester produced from plant-based and animal-based oil. It can be extracted from oil of rape seed, sunflower, soy beans etc. or from recycled waste cooking oil. It is the fuel of the future for the motor vehicles since it can be used both as an alternative for fossil diesel or supplementary to it in various proportions. In comparison with fossil diesel biodiesel has higher level of lubricancy which has a positive impact on motors.

Biogas is a product of an anaerobic rotting process of the biomass. It consists of around 60% methane, 35% CO₂ and 5% oxygen and water steam. Produced biogas is being used for winning of heating and/or electric energy.

Biomass as a renewable energy source is being produced mostly in the rural areas from waste wood, sawmill by-products and agriculture and its use for energy purposes (heating, electricity) has both positive economical as well as ecological impact on the region.

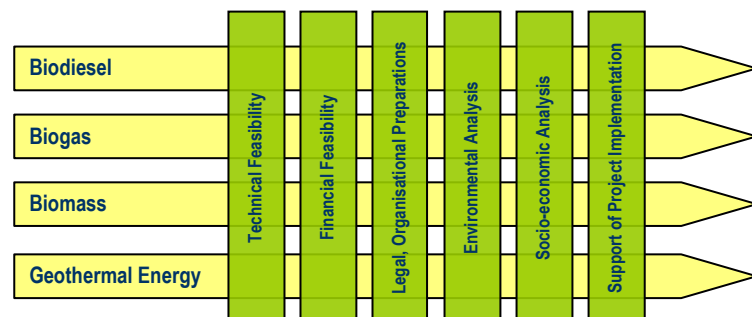
Geothermal energy enables the production of thermal and electric energy in closed and environmental friendly cycle.

Having in mind the geological and geographical characteristics of the region as well as the results of different studies, it is apparent that Serbia and Vojvodina have a high potential for energy production from renewable sources. By turning to usage of alternative fuels and production of energy from alternative sources the region could by largest part cover its demand for fossil energy.

Projects related to renewable energy sources that initiated and implemented by **BLUEWATERS** have, beside their positive ecological impact, numerous positive effects on the sustainable economical development of the region. New working places along the value chain in the fast growing RES-sector are being created and additional foreign investments attracted into the region.

BLUEWATERS offer their consulting services in the field of RENEWABLE ENERGY SOURCES and that way actively support the agro-businesses by adapting and implementing the best practice technological solutions for usage of biomass for energy production.

BLUEWATERS support the SMEs concerning the implementation of economically and environmentally sustainable strategies and by connecting them with best practice technical solutions.





BLUEWATERS also support private companies, municipalities and other public or private institutions and organisations to accomplish their infrastructural projects related to renewable energy sources by:

- providing documents for participation in international and domestic tenders,
- accomplishing technical feasibility studies and identifying proper technologies for local needs,
- elaborating detailed financial analysis and
- providing support in all legal and organisational issues.

Existing long-year cooperation with relevant local organisations enables us to realise the projects quickly and efficiently keeping in mind the cost effectiveness.

BLUEWATERS provide their services on either modular or comprehensive basis – depending on client’s requirements. Please find a detailed list of our services and reference projects as well as our contact coordinates on the next pages.

Technical Feasibility

- Assessment of resource potentials
- Elaboration of catalogues of requirements regarding quality, characteristics and composition of the resources
- Identification of appropriate technology provider
- Working out of facility scheme (process charts, supply chain)
- Elaboration of tender documents
- Elaboration of production site analysis
- Elaboration of logistical concepts regarding resources and by-products



Financial Feasibility

- **Calculations on investment costs**
- Costs for real-estate and facilities, construction costs
- Calculations of operational and maintenance costs
- Pricing for products and by-products
- Cost-Benefit-Analysis
- Sensitivity analysis, Break-even analysis



- **Financing**
- Elaboration of different financing concepts regarding debt capital, grants and subsidies, venture capital and mezzanine financing
- Assessment of support schemes on different levels
- Project support (regional, national, international, bilateral)
- Support to municipalities and private companies in the field of environmental infrastructure

- **Business plan**
- Risk management and risk mitigation
- Regional market
- Competition analysis
- Strategies for market entry, marketing concept, PR activities
- Demand - side analysis (identification of value chains and bulk purchasers)
- Business calculations



- **International cooperation**
- Participation in EU-wide research and development projects with partners from scientific institutes and universities and partners from private research and development companies



Legal and Organisational Preparation

- **Financial and company law**
- Review of project consortia
- Liabilities of associates and managing directors
- Organisational structures
- Design of contracts
- Legal and organisational requirements for PPP-models



- **Organisation**
- Elaboration of operating concepts
- Elaboration of managing contracts
- By-laws
- Foreign investment laws
- Analysis on organisation and participation models

- **Other legal parameters**
- Insolvency law
- Trade law
- Liabilities
- Trademark protection
- Procurement law
- Employment law



Environmental Analysis

- Environment impact of pollutants
- Plann usage of natural resources
- Environmental impact of the facility

Socio-economic Analysis

- Economic impact on the region
- Job potential in the region
- Impact regarding the social responsibility



Support for Project Implementation

- Support for identifying, financing and funding sources
- Support during the tender phase
- Support for contract negotiations and contract security
- Project coordination and management during the project implementation phase


REFERENCES

Project title	Tasks	Country	Client	Year
VIENNA Lighting Technologies	Developing a technology matrix for lighting products	Austria	City of Vienna, MA 27	2007
EBRD – UKEEP	Energy efficiency audits for industrial companies	Ukraine	EBRD	2007-2008
Geothermal Energy in Kocani	Planning and realisation of modernisation and expansion of geothermal well and power plant	Macedonia	Austrian Development Agency	2006-2010
Biodiesel Mladenovo	Feasibility study, public awareness and project management	Serbia	Austrian Development Agency, Private Investor	2006-2008
Biogas Panonija	Feasibility study, public awareness and project management	Serbia	Austrian Development Agency, Private Investor	2006-2008
Energy performance labelling for buildings	Display energy efficiency of buildings and show improve potentials	Austria	Private real estate trustee	2006 – ongoing
ILEAP – Interactive Learning of Energetic Utilisation of Agricultural Products and By-products	Development of a curriculum in renewable energy systems for farmers and agro-managers	EU	Leonardo Da Vinci, EU	2005-2007
PROBIOBALKAN	Specific support action to promote energy from biomass	Serbia, Croatia, Hungary, Austria	FP 6 R&D	2004-2006
Energy efficiency and renewable energy potential in Vojvodina	Market study and project identification	Serbia	Austrian Control Bank	2004-2005
ALTENER – Geothermal energy	Financial, technical, organisational and socio-economic feasibility study	EU	EC – ALTENER	2003-2005
Biodiesel from mixed sources	Financial, technical, organisational and socio-economic feasibility study	Germany	Private Company	2004
Biodiesel production project for an existing oil mill	Financial, technical, organisational and socio-economic feasibility study	Serbia	Biodiesel producer	2004
Biodiesel from waste cooking oil	Financial, technical, organisational and socio-economic feasibility study	United Kingdom	Private Company	2004
Agro-industrial cycle	Financial, technical, organisational and socio-economic feasibility study	Serbia	OeKB, Agricultural Secretariat Vojvodina	2003
Biodiesel production project for an agricultural Combine	Technical Biodiesel Supply Chain	Serbia	Agricultural Combine	2003
INTUSER – Information Network on the Technology of Utilisation and Sustainability of Energy Resources	Promotion and Dissemination of RES, creating public awareness	EU	EC Directorate for Research	2002 - 2004

BLUEWATERS Environmental Consultants
 Amalienstrasse 3, 1130 Wien, Österreich
 Homepage: www.bluewaters.at
 Tel.: +43 1 876 31 90, Fax: +43 1 876 31 90 90
 E-Mail: office@bluewaters.at

BLUEWATERS YU d.o.o.
 Bulevar Mihajla Pupina 25
 21000 Novi Sad, Srbija
 Tel.: +381 21 480 46 00, Fax: +381 21 480 46 23
 E-Mail: tamara.miricki@bluewaters.co.yu