



EIE-05-113

BIODIESEL CHAINS

Promoting favourable conditions to establish biodiesel market actions

Strategy formation

D 17 SWOT Analysis

Case studies: Belgium, Bulgaria, Cyprus, Greece, Poland, Romania

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Biodiesel Chains:

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WP 5 „Strategy Formation“ Progress Report

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Pikermi, December 2007 (content status October 2007)

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1. Introduction

1.1 General framework

In times of shrinking fossil energy resources, biodiesel is a visible alternative for satisfying a significant part of today's transport needs. Among many others, the main advantages of biodiesel are its potential to reduce greenhouse gas emissions and its contribution to secure energy supply. On the other hand, the production of biodiesel is land and cost intensive.

In order to get an overview of advantages and disadvantages of biodiesel toward mineral diesel, a SWOT analysis was conducted in the framework of the Work Package 5 (WP5) "Market Structure" of the project Biodiesel Chains. This analysis addresses biodiesel taking into account the specific characteristics of the countries involved. It will serve as a basic document for creating a favorable policy framework to promote biodiesel in Bulgaria, Belgium, Cyprus, Greece, Poland and Romania.

1.2 Biodiesel Chains project

The overarching goal of the project is to understand and promote favourable conditions for the establishment of biodiesel market chains in selected member states which have had limited developments to date. This proposed work will focus on countries – Greece, Belgium, Poland, Cyprus, Romania and Bulgaria – that are making limited progress in creating markets to achieve European liquid biofuel policies and targets compared to leading member states such as, amongst others, France, Austria and Germany.

The work is focussed on ALTENER/STEER VKA8 "supply chain and market structures for alternative fuels requiring separate supply chains. The work will also contribute to HKA1 "mobilising local energy actors" and "establishing favourable conditions for local energy markets and services". To achieve the abovementioned objective, six work packages will be undertaken with the following specific objectives:

- Biodiesel market status (WP1): to critically analyse current market developments in biodiesel in participating countries in relation to wider EU25 biofuel markets, including drivers, barriers and windows of opportunity.
- Emerging best practice (WP2): to collate information on emerging best practices and commercialisation of biodiesel in leading European member states and understand how this can be adapted and transferred to participating countries.
- Market structures (WP3): to determine how to create country-specific favourable conditions to increase penetration of biodiesel.
- Strategy formation (WP4): to work with market actors to agree and articulate strategies to establish biodiesel market chains in participating member states.

- Mobilize actors (WP5): to create networks of relevant stakeholders to initiate dialogue and mobilize market actors.
- Dissemination (WP6): to actively promote the findings of this project to target stakeholder groups, including information and awareness campaigns in each participating member state.
- WP7 will provide the basic infrastructure to operate the project.
- WP8 will deal with aspects of common dissemination activities.

2. The SWOT Analysis method

2.1 General description

SWOT Analysis, is a strategic planning tool used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project or in a business venture. It involves specifying the objective of the business venture or project and identifying the internal and external factors that are favorable and unfavorable to achieving that objective. The technique is credited to Albert Humphrey, who led a research project at Stanford University in the 1960's and 1970's using data from the Fortune 500 companies.

2.2 Internal and external factors

The aim of any SWOT analysis is to identify the key internal and external factors that are important to achieving the objective. SWOT analysis groups key pieces of information into two main categories:

- Internal factors – The strengths and weaknesses internal to the organization.
- External factors – The opportunities and threats presented by the external environment.

The internal factors may be viewed as strengths or weaknesses depending upon their impact on the project's objectives. The results are often presented in the form of a matrix.

SWOT analysis is just one method of categorization and has its own weaknesses. For example, it may tend to persuade project administrator to compile lists rather than think about what is really important in achieving objectives. It also presents the resulting lists uncritically and without clear prioritization so that, for example, weak opportunities may appear to balance strong threats. It is prudent not to eliminate too quickly any candidate SWOT entry. The importance of individual SWOTs will be revealed by the value of the strategies it generates. A SWOT item that produces valuable strategies is important. A SWOT item that generates no strategies is not important.

2.3 Specific application method

The objective of the present SWOT Analysis is to demonstrate the advantages and disadvantages of the introduction of Biodiesel in the fuel market of the countries involved.

3. SWOT analysis for a biodiesel development strategy

3.1 General aspects

A comparison between biodiesel and its counterpart fossil fuel has been carried out and is presented in the table below, as far as their strong and weak points are concerned.

Biodiesel	Diesel
STRENGTHS	
<p>Production of biodiesel contributes to independence of energy supply:</p> <p>98% of the energy used in the transport sector comes from fossil fuels. Oil reserves are estimated to be limited at 50 years. Biodiesel is contributing to the diversification of sources and technologies benefiting to the EU economy.</p>	<p>Extraction, refining and distribution of diesel dates back to 19th century. The diesel engine dates back to Rudolf Diesel's invention in 1891 and is well developed.</p>
<p>Mitigating climate change: Biodiesel reduces GHG emissions (30-71%). GHG emissions are leading to irreversible damages to the ecosphere affecting the environment, economic development, food security and livelihood. In EU, transport is responsible for about 21% of all GHG emissions, it is also the only sector which experienced an increase of 24% of GHG between 1990-2003.</p>	<p>Diesel has a higher energy content</p>
<p>Biodiesel contributes to rural development: EU farmers would find new market opportunities thus participating to the objectives of increasing GDP, employment, social welfare and diversification of the rural economy</p>	<p>The EU has the Refining and distribution infrastructure capacities</p>
<p>Rising prices of crude oil and finiteness of resources ensures economic viability of biodiesel.</p>	
<p>Biodiesel prices are not fluctuating on uncertainties like armed conflicts / shortage in supply</p>	

Biodiesel is a very efficient heating oil	
Biodiesel is a renewable fuel	
Biodiesel quality is assured at EU level by EN 14214.	
Biodiesel has a better performance because of higher oxidation content and higher cetane number	
Biodiesel increases lubricity and can contribute to longer fuel injector life	
Biodiesel is almost free of sulphur	
Biodiesel contains fewer aromatic hydrocarbons	
Biodiesel has low vapour pressure	
Biodiesel is a better solvent than diesel (cleans the engine)	
Biodiesel is classified as a non – toxic product (level 1 for water toxicity)	
Biodiesel is biodegradable within 28 days	
Biodiesel produces valuable co-products like glycerine and meals which each have an added value and outlets (contributing to self sufficiency of protein meals for animal feed, chemical industry, energy uses etc)	

WEAKNESSES

Feedstock production (i.e. Rapeseed oil) needs land and requires significant amounts of inputs like fossil fuel based fertilizers and pesticides.	98% of the energy used in the EU transport sector comes from fossil fuels which is imported. Diesel is finite since proven reserves with annual production are estimated to be limited at about 42 years
An inappropriate use of pesticides and fertilizers may lead to negative effects for the environment (water)	Crude oil comes from restricted regions where conflicts are channelled
GHG reduction potential may be neutralized if land use change occurs (converting land with high carbon stock for biofuel production)	High risk of disastrous and long term environmental impacts of oil spills
Vegetable based feedstock yields may be fluctuating sub-	Crude oil extraction, refining and use contribute to climate change

ject to adverse weather	and other environmental damages
Price of vegetable oil may be rising because of higher demand and increase prices of Biodiesel production.	Diesel prices as crude oil are continuously rising.
Because external costs are not stringently included through differentiated tax treatment Biodiesel costs more compared to diesel.	The external costs of diesel (environmental pollution, climate change effects, treatment for cancers etc) are very high
The energy content of Biodiesel is lower than the one of Diesel (37-38 MJ/kg instead of 42MJ/KG)	Diesel contains higher quantities of sulphur and aromats
Vehicles need minor modifications on seals and piping if used at 100% unless specifically guaranteed by vehicle manufacturers.	conflicts, abuse of human rights and corruption are often issues linked to fossil oil resources.
	International oligopolies control the fossil fuel sector.
Additives are required to prevent degradation of biodiesel if stored for more than 3 weeks.	
Biodiesel may attract water molecules from atmospheric moisture or condensations	
High blends need a separate distribution system	
Biodiesel emits more NOx emissions compared to diesel fuel	Diesel particle emissions are carcinogenic
	Diesel is highly toxic and is more pollutant

3.2 Specific aspects to the European Market

Biodiesel	Diesel
STRENGTHS	
<i>Feedstock production</i>	
<p>Developing Biodiesel would be in line with the Lisbon objectives and the Millennium development goals as identified as the major challenges for the energy policy for Europe (sustainability, security of supply, competitiveness)</p>	
<p>Biodiesel, with bioethanol, are the only large scale substitute available for diesel and petrol in transport.</p>	
<p>Production of biodiesel contributes to independence of energy supply:</p> <p>The Commissions Institute for Prospective Technological Studies assumes that the annual short-term security of supply benefits under a 14% biofuels scenario for 2020 could be estimated at 1 billion €</p>	
<p>Under a 14% scenario the annual petrol and diesel consumption of the EU may be reduced by 43 Mtoe which means avoided imports</p>	
<p>Under a 14% scenario the annual savings of CO2 equivalents are evaluated at about 103 Million tonnes (based on 2006 JEC data)</p>	
<p>Under a 14% biofuels scenario it is evaluated that 144 000 jobs may be created in the EU</p>	
<p>Under a 14% biofuels scenario it is estimated that this would lead to an increase of the EU GDP of 0,23%</p>	
<p>Member states have been able to expand producing biodiesel feedstocks thanks to the support of the Common Agricultural Policy and the specific aid for energy crops</p>	
<p>According to impact assessments more than 92% of rapeseed oil could be provided domestically to cover the needs for a minimum 10% incorporation</p>	
<p>About 80% of biodiesel could be produced from domestic feedstocks to reach the minimum 10% target in 2020</p>	

<i>Legislation and taxes</i>	
The European Union set indicative biofuels targets for 2010 (5,75%)	
The European Commission and the European Council endorsed a minimum 10% binding biofuel target for 2020	
Directive 2003/96 provides the possibility of tax exemption for biodiesel	
<i>Biodiesel production</i>	
The EU has already a production capacity of 10,2 million tonnes in 2007 and may reach the 2010 targets with 2 years in advance	
77% of the global biodiesel production worldwide is produced in Europe	
Biodiesel production had a yearly growth rate of 54% from 2005 to 2006	
Biodiesel is contributing to the diversification of feedstock sources and technologies developments to the benefits of the EU economy.	
Biodiesel production will contribute in achieving the Lisbon and Millennium Development goals	
<i>Market</i>	
The European Union secured a market through the ambitious biofuels targets for 2010 (5,75%) and 2020 (minimum 10%).	The infrastructure related to the transport sector is dedicated to diesel
The additional supply of biodiesel will cover the additional demand for fuel for diesel cars (assumed to be 55% of the total consumption of EU transport fuels in 2020)	Diesel is more consumed in Europe than petrol, the demand is accentuated by the dieselisation of the car park. Trucks have almost 100% diesel engines.

WEAKNESSES

<i>Feedstock production</i>	
Price of vegetable oils makes out 80% of the production costs for biodiesel made from vegetable oils.	

Imports of feedstocks may be required to achieve the targets of 2020 (approx 26%)	
The Blair House agreement is seriously limiting further biodiesel feedstock production on set aside land (limited to 1 million tonnes of soya bean meal equivalent of by-products resulting from biodiesel production)	
<i>Biodiesel production</i>	
Competition of end uses for feedstock and co-products with other sectors and interest groups	
Biodiesel production was uneven among member states (only Germany, accounting for 2/3 of total production, and Sweden achieved their indicative targets of 2005)	
<i>Legislation and taxes</i>	
A combination of tax exemption with biofuels obligation have proved to be most effective but not always in place because of national budget constraints	
There is no EU wide obligation of mandatory blending biodiesel	
High blending requires separate labelling	
Total tax exemption for biodiesel is limited by article 16 of directive 2003/96 (no overcompensation)	
Biodiesel requires detaxation in order to be competitive (extra costs to national budgets)	
no EU mandatory obligation of pure biodiesel use	
no EU mandatory obligation upon fuel suppliers and distributors to sell pure biodiesel	
Current EN 14214 standard establishes tighter quality parameters than for standard diesel	
Current EN 590 standard is limiting incorporation of biodiesel to 5% v/v	
<i>Market</i>	
Limited arable land and thus obligation to import feedstock.	The diesel demand is superior to current supply (30 Million tonnes of imports from Russia in 2006)
The distribution network needs to be adapted to pure biodiesel.	
Guarantees for pure biodiesel use are not uniform and consistent at EU level	

Consumers are kept in the dark about pure biodiesel compatible cars and where to purchase pure biodiesel	
Public transport companies are not obliged to use biodiesel at high blends.	

OPPORTUNITIES

Feedstock production

Biodiesel production can be done in accordance with sustainability principles and without endangering food supply. This will be made possible notably by raising the EU oilseeds production. Currently amounting to 23 Mo tons, the EU oilseeds production is expected to reach 35 Mo tonnes by 2015-2020.	
The possible contradiction between fuel and food production will be more easily solved by developing new and non-edible feedstock varieties (jatropha).	
The full potential of biodiesel pathway using waste as a feedstock should be further developed (used cooking oils, tallow). To increase biomass availability.	
Competition with food application is often largely overstated: less than 4% of palm oil imported in the EU is used for biodiesel production.	
The largest part of future biodiesel demand, even in the perspective of the 2020 target can be produced mainly from raw material originating from the EU. There is indeed an important potential in terms of surfaces and yields for oilseeds, especially in the new Member states. It will thus strengthen the impact of the 10% target.	
According to the Commission DG Agriculture, the 10% target will not stretch land resources since by 2020 biofuels production will represent 15% of EU arable surfaces.	
Biodiesel production development will improve the EU self-sufficiency in terms of vegetable proteins. The EU has currently a deficit in protein meals for animal feed. The development of biodiesel production in the EU has already increased the availability of oilseeds meals by 3 Mo tonnes since 2002. The further development of the production should provide an additional 8 Mo tonnes by	

2015-2020, thus increasing the EU self-sufficiency ratio from 20% to 30%.	
Price increases will be offset by the expected growth of world vegetable oils production which is already reaching 120 Mo tonnes (compared to 20 Mo tonnes biodiesel worldwide).	
<i>Biodiesel production</i>	
The 10% target will mean in practice that 25 to 28 Mo tonnes biodiesel will have to be placed on the market by 2020. Production will need to increase by around 15% each year until that date. This is all the more true since the BtL contribution to diesel substitution will only be marginal by 2020.	
Mills and glycerine as co-products from biodiesel production present a commercial value. In addition, since they substitute for other items that do not need to be produced (chemical glycerine for example), it will give an additional credit for biodiesel production in terms of green-house gas savings.	
<i>Legislation</i>	
The 10% target will be legally binding and will need to be reached in every Member states.	
The revision of the Fuel Quality Directive 98/70 will oblige fuel suppliers to annually reduce the GHG emissions of the fuel supplied by 1% until 2020. This will of course call for a greater use of biodiesel to be blended with conventional diesel.	
A number of Member states have recently introduced biodiesel mandates. This will contribute to balance the burden of support policies by transferring part of the costs from national budgets to fuel suppliers.	
<i>Research</i>	
R&D on new feedstock should be encouraged, especially with regard to those pathways with extremely interesting CO2 balance, such as algae. This will increase the availability of raw materials.	
Further research on biodiesel production, but also on car engines will facilitate the use of higher blends.	
<i>Market</i>	
Biodiesel will have an impact in terms of security of sup-	

<p>ply: the pattern of EU fossil fuels consumption namely indicates the dominance of diesel demand. This has to be considered in relation to the enduring and growing diesel deficit as well as increasing gasoline surplus at EU level. In 2005, the EU imported 24 Mo tonnes diesel (mainly from Russia) and exported 19 Mo tonnes gasoline (mainly to the US). In 2006, this proportion raised to 30 Mo tonnes, for diesel imports and gasoline exports respectively.</p>	
<p>Considering the point above, and the fact that biodiesel today represents 80% of all biofuels consumed in the EU, the 10% biofuels target for 2020 validated by the European Council in March 2007 will be reached by substituting more diesel than gasoline.</p>	
<p>The undergoing revision of the EN 590 standard to raise the allowed share of FAME in diesel from 5% to 10% will give a further opportunity for the biodiesel market to develop. To maximise this effect, no labelling requirement should apply to blends at and below 10%</p>	
<p>Diesel production from refineries is more energy intensive (16 MJ/MJ compared to 14 MJ/MJ for gasoline) so there is a case for substituting more diesel than gasoline.</p>	
<p><i>International Trade</i></p>	
<p>The development of biodiesel production is an interesting outlet for agricultural production in developing countries.</p>	
<p>Biodiesel production can be implemented in parallel with socio-economic policies of rural development.</p>	
<p>New investment opportunities in developing countries will therefore arise for EU biodiesel producers.</p>	
<p>The creation of an EU separate custom code for FAME as of January 2008 (38249091) will allow more precise statistics on FAME imports in the EU. It will be a further tool for tracking unfair subsidised biodiesel exports entering the EU.</p>	

THREATS	
<i>Feedstock</i>	
The problem of competition with food application risk remaining a major issue and impact on the industry's image.	
Land availability and feedstock production can impinge on the development of biodiesel production.	
The suppression of mandatory set-aside for cereals will increase competition for land use.	
<i>Market</i>	
In the short term, there is a risk of over-capacities if the appropriate market measures are not taken (standards...)	
The revision of the EN 590 standard could take a long time. The 5% ceiling would thus hindered the developments of the industry still for several months, except if the EU diesel definition is modified in a similar way, either under the revised FQD or under the new Directive on Renewable Energies.	
Raising the FAME incorporation rate in EN 590 to 10% might not be enough to reach the 10% target for 2020 (in energy content) which represent nearly 11,5% in volume. The FAME content should be raised to 15% as from 2015.	
The lack of preparedness for high blends, both from the side of the car-manufacturing industry and the public, could be an obstacle for reaching ambitious targets.	
There is also a lack of awareness-raising measures (communication and media campaign) in favour of biodiesel towards the public.	
<i>Legislation</i>	
New legislative developments at national level, including the setting up of sustainability schemes could lead to a fragmentation of the internal market.	
In terms of sustainability, biofuels and biodiesel in particular could pay the price of unsustainable practices in the food sector. It is therefore crucial that	

sustainability principles apply to all biomass regardless of the final use, to avoid discrimination between operators.	
<p>The 10% target could mean the end of national support schemes.</p> <p>Article 16-6 of Directive 2003/30 provides that national detaxation schemes should be repealed once an EU obligation has been set up. Revising Directive 2003/96 will require unanimity in the Council (Article 93 of the EC Treaty on the harmonisation of indirect taxation).</p>	
There is currently a lack of an EU reference, established in a transparent and democratic manner, for assessing the CO2 impact of biofuels. This could have major implications in the framework of the debate on sustainability.	
Research	
It should be avoided that research on “second-generation” is used as procrastination tool, while the emphasis should be clearly on improving the potential of existing technologies.	
International Trade	
There is currently a lack of fair trade bases for international trade in biodiesel.	
Highly subsidised exports of US “B99” biodiesel are strongly disrupting the development of the EU industry. This is a price setting mechanism since US producers are able to sell in Europe with a discount of more than 200 €/ton. There are currently no indications that the legislative loophole could be closed soon.	
Argentineans Differentiated Export Taxes (DETs) granted to biodiesel represent an additional threat for the EU biodiesel industry. DETs create an incentive to process vegetable oils into biodiesel for the sole purpose of export. Contrary to the B99 mechanism, DETs are not contrary to WTO law.	

4. SWOT in the participating member states

The demonstration of the results is based upon tables showing the strengths, weaknesses, opportunities, and threats. These tables provide an overview of the advantages and disadvantages of biodiesel market in the countries involved. Tables with the strengths, weaknesses, opportunities, and threats for each country separately are also provided to facilitate articulating of strategic steps towards the '*promotion of favourable conditions for the establishment of biodiesel market chains in selected countries which have had limited developments to date*'.

4.1 Belgium

STRENGTHS	
Market deployment	<ul style="list-style-type: none"> ↪ The capacity of biodiesel production achieves 770 000 t, which corresponds to around 9.9%_{vol} of the diesel market by 2010. ↪ Any plant has a good access to inland waterways, road, train and some sea ↪ The Belgian biodiesel market is protected up to 2013 from imports by the quotas attributed to Belgian producers.
Policy	<ul style="list-style-type: none"> ↪ Biodiesel market protected up to 2013 from imports by quotas attributed to Belgian producers ↪ Strong governmental involvement in favor of biofuels. The Walloon government finances the project "Biofuels Facilitator" to help the development of these chains in the Walloon Region. ↪ Public transport companies can benefit of a proportional tax reduction with the increase of biodiesel content. ↪ Tax system maintains neutrality for state budget.

WEAKNESSES	
Resources/ Security of supply	<ul style="list-style-type: none"> ↪ Limited available arable land, small farming size, low yields lead to low inland rapeseed production and heavy reliance on imports. Due to the low level of inland rapeseed production in Belgium, imports will be necessary. The need of raw material to achieve the biodiesel production capacity (> 870 kt biodiesel) is up to 2175 kt. ↪ The energy cropping premium of 45 €/ha is too low ↪ Seed oils have established markets so competition with food, feed, and fuel is highly expected
Market deployment	<ul style="list-style-type: none"> ↪ Biodiesel production is limited to 4 producers, which could have an impact on prices. ↪ The quantities of biodiesel that can be marketed are not flexible
Policy	<ul style="list-style-type: none"> ↪ There is no obligation of blending biodiesel for fuel suppliers ↪ No tax exception for high blends is foreseen ↪ Lack of incentives for the use of high blends of biodiesel in captive fleets

	<p>other than public transport companies.</p> <p>↪ The energy cropping premium of 45 €/ha is too low to be considered as a motive for farmers in countries with low farming size, such is Belgium.</p>
Social acceptance	<p>↪ Absence of proper information campaigns for farmers and consumers.</p>

	OPPORTUNITIES
Resources/ Security of supply	<p>↪ Waste vegetable oils could be an interesting raw material.</p> <p>↪ The proximity of the Belgian and Dutch ports will ease the import of feedstock to catch up with existing capacities</p>
Market deployment	<p>↪ Increase biodiesel uses for heat applications to provide more market opportunities</p> <p>↪ Implementation of sustainability certification for feedstock and biodiesel productions</p>

	THREATS
Resources/ Security of supply	<p>↪ With the high price of rapeseed, biodiesel becomes less competitive</p> <p>↪ Due to shortages in feedstock, Belgium could extensively rely on imports of unsustainable feedstock, such is palm oil</p>
Market deployment	<p>↪ Lack of interest from end users (except for Total, fuel suppliers do not wish to blend biodiesel)</p> <p>↪ Public transportation companies show no interest on biodiesel</p>

4.2 Bulgaria

STRENGTHS	
Resources / Security of supply	<ul style="list-style-type: none"> ↪ Excellent conditions for growing diverse resource options (rapeseed, sunflower and other oil crops) and well established production tradition. In Bulgaria large quantities of sunflower are traditionally grown with sunflower seed exports ranging between 250,000 and 500,000 tons annually. ↪ Availability of arable lands to reach the targets and relatively short transport distances to improve economics of the supply chain
Market deployment	<ul style="list-style-type: none"> ↪ High number of biodiesel plants in Bulgaria. About 80 new biodiesel plants in the last 2 years were announced. ↪ Bulgarian technology providers have gained international experience in building biodiesel plants in a cost effective way (in Latvia, Romania and other countries)
Socio-Economics	<ul style="list-style-type: none"> ↪ Lower price than the price of the mineral diesel oil with about 8-10% in Bulgaria.
Policy	<ul style="list-style-type: none"> ↪ Since June 2006 B100 is tax exempted. Also B5 is tax exempted.
Social acceptance	<ul style="list-style-type: none"> ↪ Some activities are organized for increase of rape seed production. ↪ Biodiesel has a very good image in Bulgaria. This is confirmed by the fact that in the last 2 years have been installed about 80 new biodiesel plants. Enthusiasm exists both from biodiesel producers and from biodiesel consumers;

WEAKNESSES	
Resources/ Security of supply	<ul style="list-style-type: none"> ↪ Feedstock production largely depends on many vagaries of nature, including extreme weather conditions and pest attacks. Annual production of rape seed is comparatively low – about 20 000 tons annually. Rape seed cultivation is possible, but occasional climatic conditions seem to involve risks, e.g. if rainfalls in September-October are not sufficient or if winter temperatures are too low. ↪ No tradition for rape seed and high oleic sunflower varieties
Technology	<ul style="list-style-type: none"> ↪ Traditionally grown sunflower does not comply to the EU standard EN 14214. With high oleanic types of sunflower, this problem could be solved, but not all sunflower in Bulgaria is highly oleanic.
Market deployment	<ul style="list-style-type: none"> ↪ Poorly developed administrative capacity for business support by locations; ↪ Conservative management in the enterprises; ↪ Low quality and shortage of business services in Bulgaria

	<ul style="list-style-type: none"> ↪ Poorly developed network for supply and delivery of biodiesel ↪ High energy intensity of the economy ↪ Low labor productivity ↪ Lack of appropriate fixed investments, such as refineries, storage houses and delivery network. ↪ Difficult access to financial resources
Policy	<ul style="list-style-type: none"> ↪ Excise tax is still due only for blended biodiesel, which considerably limits the biodiesel market. This subsidy is currently being introduced in Bulgaria and some improvement of administrative capacities is needed. ↪ Environmental permits, licensing and certification process is long and complicated – maybe more difficult to other countries.
Social acceptance	<ul style="list-style-type: none"> ↪ Absence of proper information campaigns for farmers and consumers.

OPPORTUNITIES	
Market deployment	<ul style="list-style-type: none"> ↪ The accession of Bulgaria to the EU will create long term perspectives for the national industry <ul style="list-style-type: none"> ↪ High demand of other MS with insufficient agricultural capacities will create additional outlets for national biodiesel production. ↪ The 10% binding target will require an increase in production (some 25-28 Mio tons will need to be marketed. That will create long term perspectives for the national industry. ↪ Benefits from the EU regulations on agricultural subsidies, legal assistance, support to RTD, etc ↪ Increased attraction for foreign investors. For instance the Spanish company Greenfuel Corporation is contemplating the construction of a 45,000 tons/y plant in Pleven region. This may increase the ability for local producers to raise capital. It should also facilitate new biodiesel technologies. ↪ National opportunities – B50 in public sector and captive fleets. At national level, the Ministry of Energy is aiming at developing higher blends for the public sector and captive fleets (B50), which could give an incentive to biodiesel production. ↪ Integration of the Bulgarian enterprises in the European Business Networks

	THREATS
Resources/ Security of supply	<ul style="list-style-type: none"> ↳ Possible feedstock shortages. Some producers are already experiencing raw material shortages due to poor state of the country's farm sector. The Bulgarian Energy Efficiency Agency called for a rapid increase of sunflower output by 60% to cover the biofuels targets.
Technology	<ul style="list-style-type: none"> ↳ Traditionally grown sunflower does not comply to the EN 14214. This is potentially a major obstacle to biodiesel development, since sunflower is the main feedstock available for large-scale biodiesel production in Bulgaria.
Market deployment	<ul style="list-style-type: none"> ↳ Recession of the international markets. ↳ The enterprises do not implement the European requirements as scheduled. ↳ Bad management. ↳ In a short term perspective, some investment risks still exist concerning the operational load of biodiesel production capacities.
Policy	<ul style="list-style-type: none"> ↳ Political instability on the Balkans. ↳ Support mechanisms are not yet clear enough in Bulgaria. There is not complete certainty what future changes in support mechanisms could be and what will be the period of applicability of the currently existing support mechanisms. ↳ Even after the adoption of the new RES law, the excise tax still applies to biodiesel blended with conventional diesel, which is hindering the development of the biodiesel market ↳ Biodiesel can be produced only at a licensed excise storage/ warehouse since it is considered under national law as an excise tax product (although the excise tax is zero). In order to receive a license companies need to have a registered capita of at least 255,000 €, which is difficult to get as biodiesel businesses are mainly small and medium size.

4.3 Cyprus

	STRENGTHS
Resources / Security of supply	<ul style="list-style-type: none"> ↗ The supply chain of biodiesel can be characterized by relatively short transport distances, in case of domestically produced and locally used feedstock. ↗ The increasing need of rapeseed contributes to the use of set-aside land. ↗ The biodiesel is produced from natural renewable plants and respectively from their waste;
Market deployment	<ul style="list-style-type: none"> ↗ Any plant has a good access to sea.
Social acceptance	<ul style="list-style-type: none"> ↗ In Cyprus, all the current participants (mainly the implicit Biodiesel small & medium scale producers) in the process of Biodiesel market development are enthusiastic.

	WEAKNESSES
Resources/ Security of supply	<ul style="list-style-type: none"> ↗ Biomass production is land consuming. Significant lack of available cultivable land in Cyprus. ↗ Feedstock production requires relatively important level of irrigation water. ↗ Semi-arid conditions, small farming size and low yields prevent cost effectiveness, so biodiesel production will heavily rely on imports. ↗ Biomass production could benefit the set-aside lands but these are limited in number and land area.
Market deployment	<ul style="list-style-type: none"> ↗ Lack of administration and management know-how on every stage of the emerging biodiesel market. ↗ The main biodiesel market development motive is the threat of fine imposition from EU in virtue of the delay of implementing the EU and national goals concerning the introduction biodiesel in the national transport fuel distribution network (this is apparently a counterproductive motive). The lack of an immediate business motive for the introduction of Biodiesel forces the concerned companies to expect from the government to take up all the cost of promotion and statutory and technical framework implementation. ↗ Non-existence of any (rather small to large scale) vegetable oils extraction industrial unit.

Policy	<ul style="list-style-type: none"> ↪ No tax reduction for high blends is foreseen. ↪ The energy cropping premium of 45 €/ha is too low to be considered as a motive for farmers in countries with low farming size, such is Cyprus. ↪ The land-water lack imposes the strategy of Biodiesel imports. This fact consists of a major counterproductive factor (lack of significant motives toward domestic feedstock production). ↪ Quality debate for biodiesel & pure plant oil and genetically modified crops ↪ Incomplete statutory framework.
Social acceptance	<ul style="list-style-type: none"> ↪ Absence of proper information campaigns for farmers and consumers.

OPPORTUNITIES	
Resources/ Security of supply	<ul style="list-style-type: none"> ↪ Waste vegetable oils could be an interesting raw material. ↪ Identify low input supply options as part of land use strategies for the future climate (e.g. water restrictions, etc.). ↪ Since biodiesel is of rising interest, there exist many research initiatives. The multiple peculiarities that arise in Cyprus case may lead to significant innovative research initiatives. ↪ New more efficient energy crops will be found for biofuels production ↪ The biodiesel feedstock production has the opportunity of introducing less water consuming energy cultivations. That is of great importance for the case of Cyprus.
Technology	<ul style="list-style-type: none"> ↪ Since biodiesel is of rising interest, there exist many research initiatives. ↪ New and more efficient conversion technologies will be found and existing technologies will be improved.
Market deployment	<ul style="list-style-type: none"> ↪ Increase biodiesel uses for heat applications to provide more market opportunities ↪ Develop a National Biomass Action Plan that would coordinate biomass policy to promote heating, electricity and transport ↪ Opportunity to ensure consistency between energy and environmental policies and enhance cooperation between relevant organizations.

THREATS	
Resources/ Security of supply	<ul style="list-style-type: none"> ↪ Biofuel production is limited to feedstock production and land availability.

	<ul style="list-style-type: none"> ↪ Feedstock production largely depends on many vagaries of nature, including extreme weather conditions – draught years in Cyprus. ↪ International trade: Low cost supply from neighboring Balkan countries etc.
Technology	<ul style="list-style-type: none"> ↪ Lack of normalisation of high blends
Market deployment	<ul style="list-style-type: none"> ↪ The biodiesel market is at along lasting birth stage in Cyprus. ↪ Biodiesel has not yet been actually introduced in transport fuel market. ↪ Technical difficulties that concern the control (quality and economic) of the market force the relevant governmental departments to delay the Biodiesel market development instead of promoting it. ↪ The nearly absolute absence of public transportation means in Cyprus contradicts to the market development: <ul style="list-style-type: none"> ➤ No capability of exploiting the public fleets for the fuel's promotion ➤ No capability of immediate use of Biodiesel (as for the effort of achieving the national goal) in such fleets ↪ The delay spotted on the development of Biodiesel market in the transportation fuel market may lead to the immediate and poorly organised and publicly supported introduction of this alternative fuel.
Policy	<ul style="list-style-type: none"> ↪ Lack of statutory experience regarding the implementation of a new/alternative energy market on the part of governmental departments. ↪ The political lobby for biofuels in Cyprus can be characterized as minor when compared to the lobby of fossil fuels. ↪ Implementation lags of the statutory developments.
Social acceptance	<ul style="list-style-type: none"> ↪ Lack of good information on high blends of biodiesel to key-public (captive fleet managers, public transport companies, etc). ↪ Environmental unions are contradicting to the Biodiesel market implementation bringing forth concerns about the import of GMOs. ↪ The lack of public awareness causes the emergence of concerns about the functional compatibility of biodiesel to the currently used engines.

4.4 Greece

	STRENGTHS
Resources / Security of supply	<ul style="list-style-type: none"> ↳ Biomass can be produced locally by traditional crops (sunflower, rape seed, cotton seeds) and using conventional growing methods and equipment. ↳ Diverse resource options, i.e. sunflower, rapeseed, soy, cotton. Potential for good yields from other oil crops (rapeseed) that are not traditionally grown. Around 500 ha have been grown with rape seed this year in Greece. ↳ Current agricultural industries potential suppliers of raw material (cotton industry). ↳ The supply chain of biodiesel can be characterized by relatively short transport distances, in case of domestically produced and locally used feedstock. ↳ The increasing need of rapeseed contributes to the use of set-aside land, which, however, is limited. ↳ The biodiesel is produced from natural renewable plants and respectively from their waste;
Market deployment	<ul style="list-style-type: none"> ↳ High number of biodiesel plants: from 1 in 2005 to 13 in 2007 in Greece. ↳ Any plant has a good access to inland, road, train and sea.
Policy	<ul style="list-style-type: none"> ↳ Emissions & Biofuels Directives (2003/87/EC, 2003/30/EC) could be a means for high biomass demand. Since May 2005, the EU directive (2003/30/EC) was adapted by National Law. A zero excise tax rate was introduced for biodiesel blends up to 5% (B5) for the quantities required to meet the targets: 2% in 2007, 3% in 2008, 4% in 2009, 5% in 2010. ↳ Uncertain policy framework (new CAP) leads farmers to seek new cropping options. About 500 ha were sown with rapeseed in Greece recently. ↳ External political pressure on RES & bioenergy (Biomass Action Plan, Biofuels Platform, etc.). Regional support for the first Biofuels Platform in central Greece was set up.
Social acceptance	<ul style="list-style-type: none"> ↳ Great publicity and high interest shown by the seed producing/importing companies.

	WEAKNESSES
Resources/ Security of supply	<ul style="list-style-type: none"> ↳ Biomass production is land consuming. Significant lack of available cultivable land in Greece. ↳ Small farming size and low yields prevent cost effectiveness, so most

	<p>of the biodiesel plants rely on imports from abroad.</p> <ul style="list-style-type: none"> ↪ Feedstock production largely depends on many vagaries of nature, including extreme weather conditions and pest attacks. It also requires relatively important level of irrigation water and chemicals and the yields are not guaranteed. ↪ Semi arid conditions restrict yielding potential thus irrigation is essential. As a consequence, biomass production cost is too high, mainly due to irrigation and nitrogen input requirements. Irrigation costs can compensate for the high yields produced. ↪ Biomass production could benefit the set-aside lands but these are limited in number and land area. ↪ No tradition for rape seed and high oleic sunflower varieties
Technology	<ul style="list-style-type: none"> ↪ Biodiesel produced by sunflower oil does not to comply with the maximum admissible iodine number, specified in EN 14214. With high oleanic types of sunflower, this problem could be solved.
Market deployment	<ul style="list-style-type: none"> ↪ The quantities of biodiesel that can be marketed are not flexible. ↪ The main motive for market development is the full detaxation of the biodiesel produced. However, the officially announced quantities of biodiesel that will be tax exempted refer only up to year 2007. ↪ No use of pure biodiesel in the market. ↪ Oilseeds have established markets. Therefore competition with food, feed & fiber markets is highly expected.
Policy	<ul style="list-style-type: none"> ↪ To cover the target for 5.57% of diesel substitution with locally produced biodiesel, a dramatic reform of the existing cropping systems is required. ↪ No tax reduction for high blends is foreseen. ↪ The energy cropping premium of 45 €/ha is too low to be considered as a motive for farmers in countries with low farming size, such is Greece. ↪ Quality debate for biodiesel & pure plant oil. ↪ Environmental permits, licensing and certification process is long and complicated. The licensing procedure for the biodiesel plants is controlled and permits are issued by the local authorities instead of a central ministerial control. Thus, controls of biodiesel plants credibility/feedstocks are not efficient. ↪ Biomass production for energy purposes does not reduce agricultural premiums and subsidies. In a Greek survey it was calculated that equal premiums and subsidies are required in order farmers to grow biodiesel profitably. ↪ The quota system and the annual calls of interest create insecure investment conditions and competition among the investors. Calls of interest are announced only until 2007.

OPPORTUNITIES	
Resources/ Security of supply	<ul style="list-style-type: none"> ↳ Identify low input supply options as part of land use strategies for the future climate (e.g. water restrictions, etc.). ↳ Optimise the use of residues and process by-products (press case and glycerine) to improve economics. ↳ As biodiesel is of rising interest, there exist many research initiatives on higher-yielding crops and more efficient growing techniques.
Market deployment	<ul style="list-style-type: none"> ↳ Increase biodiesel uses for heat applications to provide more market opportunities ↳ Implementation of sustainability certification for feedstock and biodiesel productions
Policy	<ul style="list-style-type: none"> ↳ The EU directives are promoting the use of Biodiesel. The EU has set targets to increase the market share of biofuels (2 % 2005; 5.75 % 2010; 10% 2020). ↳ Introduce a 'policy mix' with tax exemptions & promotion measures in order to create secure market conditions. ↳ Increase the energy cropping premium ↳ Develop a National Biomass Action Plan that would coordinate biomass policy to promote heating, electricity and transport. ↳ Ensure consistency between energy and environmental policies and enhance the cooperation between relevant organizations ↳ Simplify and better control the licensing procedure. A specific spatial plan for RES is being prepared in Greece, focusing on areas of high RES, including biomass (high biomass production, low transportation distances, etc)
Social acceptance	<ul style="list-style-type: none"> ↳ Create communication channels & synergies with the farming community ↳ Involve all stakeholders in the formulation of the long-term national energy strategy ↳ Establish organizational arrangement among relevant and actively involved organizations to achieve effective coordination in data analysis, quantitative forecasting and policy evaluation activities for energy demand and supply and energy-related GHG emissions.

THREATS	
Resources/ Security of supply	<ul style="list-style-type: none"> ↳ Problem of competition food vs non-food. ↳ International trade: Low cost supply from neighboring Balkan countries

	<ul style="list-style-type: none"> ↳ Sustainability: Careful selection of crops to minimize risks of erosion, water scarcity, etc. in the future supply chains.
Technology	<ul style="list-style-type: none"> ↳ Lack of normalisation of high blends. ↳ Variety of feedstocks with different physical- chemical properties which affects quality.
Market deployment	<ul style="list-style-type: none"> ↳ Not well established market, limited end uses (only transport sector. Too many biodiesel plants, their annual capacity being 4 times higher than the 5,57% target of 2010. Distortion of the food market if locally produced oils will be used for biodiesel production. ↳ Not flexible production quotas
Policy	<ul style="list-style-type: none"> ↳ Uncertainty deriving from annual quota system. Uncertainty deriving from the licensing procedures control that may lead to frauds.
Social acceptance	<ul style="list-style-type: none"> ↳ Greece suffers from a high level of local resistance and administrative barriers to new energy infrastructure ↳ Lack of good information on high blends of biodiesel to key-public (captive fleet managers, public transport companies, etc). ↳ Greece suffers from a high level of local resistance and administrative barriers to new energy infrastructure

4.5 Poland

	STRENGTHS
Resources / Security of supply	<ul style="list-style-type: none"> ↳ Biomass can be produced locally by traditional crops (mainly rape seed) using conventional growing methods and equipment. ↳ Large potential crop surfaces able to produce the feed stock required to meet the 5.75% target in 2010
Technology	<ul style="list-style-type: none"> ↳ Biodiesel quality is regulated by a European norm, EN14214 and a Polish standard.
Market deployment	<ul style="list-style-type: none"> ↳ Biodiesel production capacity is currently being upgraded.

	WEAKNESSES
Policy	<ul style="list-style-type: none"> ↳ There is lack of legal guarantees that the tax reductions and exemptions in Poland will be maintained in the long term, even though they have already been in place for a long time.

	<ul style="list-style-type: none"> ↪ The lack of clear legislation prevents trade in biofuels and rules out investment decisions in Poland.
Social acceptance	<ul style="list-style-type: none"> ↪ Absence of proper information campaigns for farmers and consumers.

OPPORTUNITIES	
Resources/ Security of supply	<ul style="list-style-type: none"> ↪ Agricultural productivity continuously rose since many years, decreasing costs for feedstock production. ↪ Individual groups of farmers are allowed, even encouraged, to produce biodiesel for their own purposes.
Policy	<ul style="list-style-type: none"> ↪ Develop a National Biomass Action Plan that would coordinate biomass policy to promote heating, electricity and transport. ↪ The EU directive and Polish national fuel strategy promote biofuels. ↪ Additional area payment for energy crops required to further exploit the Polish agricultural potential for non-food crops. ↪ Mandatory blending of fossil fuels with biofuels from the 1st January (EU and national payments) ↪ Opportunities to use a variety of blends (i.e B5, B20 and B100) ↪ Tax exemptions and mandatory blending obligations could largely increase use of pure plant oil and biodiesel. ↪ New regulations on the functioning of the market for biodiesel and other biofuels will enter into force.

THREATS	
Market deployment	<ul style="list-style-type: none"> ↪ Of all transport fuels, biofuels have a market share of barely 0.92% (2006) in Poland. ↪ Public transportation companies show weak interest on biodiesel. ↪ Most of the Polish national production of biofuels is exported, confirming thus the absence of real internal market conditions for biodiesel which, if they are not established may represent a threat for the future development of the industry.
Policy	<ul style="list-style-type: none"> ↪ In Poland the political lobby for biofuels is weak when compared to the lobby of fossil fuels.

4.6 Romania

STRENGTHS	
Resources / Security of supply	<ul style="list-style-type: none"> ↳ Biomass produced locally by traditional crops (sunflower, rapeseed) ↳ Large potential crop surfaces, 3-4 times larger than needed to produce the feed stock required to meet the 5.75% target in 2010
Market deployment	<ul style="list-style-type: none"> ↳ Good inland waterways and maritime network, with both direct access to the Black Sea and the proximity with the Danube river. For instance, the port of Kostanza is the largest seaport on the Black Sea and is located at the cross roads of major trade routes linking the markets of the landlocked countries from Central and Eastern Europe with Central Asia and the Far East. The port is also connected with the Danube river through the Danube-Black Sea Canal. ↳ Many investments in processing rape seed installations (36 announced producers) out of which 8 are already (June 2007) fiscal licensed.
Policy	<ul style="list-style-type: none"> ↳ Blending obligation for 2% in 2007, 3% in 2008, 4% in 2009, 5% in 2010 in parallel to full detaxation of FAME content in blends. Penalties foreseen for the fuel suppliers failing to reach the mandatory share of FAME ↳ Emissions & Biofuels Directives (2003/87/EC, 2003/30/EC) could be a means for high biomass demand. A legal framework was established in Romania with law obligation to car diesel fuel distributors to sale only mix of biodiesel and diesel, 2% in 2007, 3% in 2008, 4% in 2009, 5% in 2010. National target aligned with EU 2003/30 of 5.75% biofuels in 2010.

WEAKNESSES	
Resources/ Security of supply	<ul style="list-style-type: none"> ↳ Feedstock production largely depends on many vagaries of nature, including the extreme weather conditions prevailing in the country
Infrastructure	<ul style="list-style-type: none"> ↳ While Romania is a major crossroad for international economic exchanges in Europe, insufficient investment has been made so far in the transport infrastructure
Policy	<ul style="list-style-type: none"> ↳ A national strategy and an Action Plan to implement the biodiesel deployment strategy is not yet elaborated.
Social acceptance	<ul style="list-style-type: none"> ↳ Absence of proper information campaigns for farmers and consumers.

	OPPORTUNITIES
Market deployment	<ul style="list-style-type: none"> ↳ Agricultural sector makes up 10% of the country's GDP, although Romania's economy is nowadays mainly service-driven ↳ Romania is in the position to supply other EU countries either feedstock or biodiesel. If coupled with biodiesel produced in Ukraine, more than 15% of the EU needs are satisfied. ↳ Investments in the transport sector. In the recent years, Romania has benefited from several grants for the modernization of the road transportation (EU funds from ISPA, World Bank, IMF, etc) so that it could rapidly catch up with EU15 standards. ↳ Opportunity for all Member States to sale biodiesel in Romania. ↳ Large automobile industry producing cars in Romania with extended guaranties for biodiesel (new prototype for B100 already presented in Beijing exhibition in November 2007)
Policy	<ul style="list-style-type: none"> ↳ The Romanian Government is considering a promotion campaign in favor of biofuels, if the recently adopted measures (blending mandate) are not triggering a rapid change in consumer behavior.

	THREATS
Resources/ Security of supply	<ul style="list-style-type: none"> ↳ Feedstock production largely depends on many vagaries of nature, including extreme weather conditions – draught years.
Policy	<ul style="list-style-type: none"> ↳ Low blending mandate (only 3%) ↳ Low penalty for the fuel suppliers who fail to meet the mandate.