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Actor analysis Biomass Romania

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FOREWORD

Romania has the opportunity to make an important step to increase the efficient use of biomass within the country. This would contribute to the achievement of the goals set out in the draft EC directive on the use of energy from renewable sources, reduce the Romanian emission of CO₂, improve the efficiency of various industries and create new market opportunities for private business.

In this study it is performed a survey on the Romanian biomass stakeholders and legislative framework.

Acronyms

CAP – Common Agricultural Policy

MAI – Ministry of Administration and Interior

MEc – Ministry of Economy

MAPDR – Ministry of Agriculture, Forestry and Rural Development

MM – Ministry of Environment

RES - Renewable Energy Sources

RE - Renewable Energy

HG- Governmental Decision-(GD)

OUG - Govern Emergency Ordinance (GEO)

SAPS - Single Area Payment Scheme

CNDP - Compensatory National Direct Payments

Units prefixes

k – Kilo (10^3)

M - Mega (10^6)

G -Giga (10^9)

T -Tera (10^{12})

t - Tons

1. Introduction

The renewable energy sources represent a new market in Romania, with much less market actors than in the developed countries but with promising perspectives for the future. Unfortunately there is no developed RES industry in Romania today but only small-scale projects developed by research institutes or small companies.

Biomass is currently used only for heating purposes. 54% of the heat generation from biomass comes from woodwaste burning; in other words, 89% of the district heating and food preparation – in rural areas – is based on vegetal waste. About 70% of the remarkable firewood resources are currently utilized. Also the utilization rates of industrial by-products are quite good: almost 40% for solid by-products and over 80% for black liquors. The great amount of other biomass usage consists solely of straw.

Regarding the targets, in the last few years opportunities for biomass utilization have been developed as Romania has adopted the primary legislative framework for promoting renewable sources. The “Romanian Strategy for Renewable Energy Sources Utilization” provides the necessary framework, general principles for developing action programme for renewable energy sources and sets targets for increasing reuse of waste, including wood and agricultural residues. Within the frame of this strategy, there are provided measures to take, which, through turning into account the biomass energy potential, should reach an equivalent consumption of about 3,347.3 toe until 2010, with an average energy output of 97.5 toe (1134 GWh).

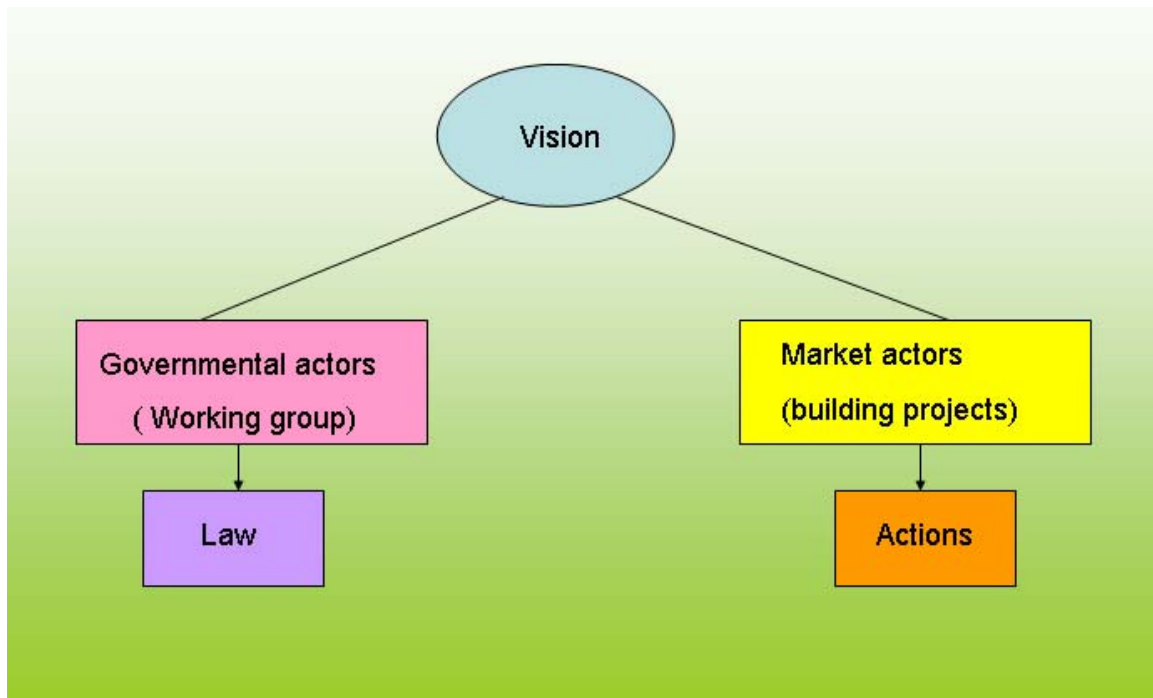
Also most topical is the RES 2020 target. Bioenergy is called to have a decisive contribution to this target fulfilment.

In realizing bioenergy implementation different actors play different roles and can either boost or slow down the development.

The objectives of the study is to map all relevant Romanian stakeholders that could participate to convene on policy matters and give recommendations on how to link policy to action.

Two different platforms can be expected:

- 1) a governmental interdepartmental platform developing a governmental vision and legislation;
- 2) a business platform for developing projects and undertake actions;



2. Regulatory framework on biomass

2.1. Governmental and public stakeholders

Bioenergy is a cross-cutting topic, bringing together a range of policy areas, including agriculture, forestry, energy, transport, rural development, and climate change. Each area recognises the importance and benefits of developing the biomass sector as part of their overall policy.

2.1.1. Governmental bodies

✓ [Ministry of Economy](#) contributes to the development and implementation of the strategy and governance in the economy and energy, ensuring the use of financial leverage and foreign exchange in accordance with the requirements of market economy and to stimulate business initiative.

Within the Ministry of Economy, the biomass related bodies are The *Directorate of Quality and Environment*, *Department of Energy* and *the Intermediate Body for Energy*.

The Department of Energy is responsible for energy policy, is quite naturally, a key renewable energy stakeholder. The Intermediate Body for Energy, which is in charge of energy related aspects disbursing structural funds, is also considered an important renewable energy stakeholder.

The Directorate of Quality and Environment is responsible for the analysis and management of necessary funds to be allocated annually from the state budget, MEF budget to support the activities of market supervision made for areas competence in regulating to the MEF; and also for monitoring the progress of funding contracts for support of market surveillance activities.

✓ [Ministry of Regional Development and Housing \(MRDH/MDRL\)](#) has as main areas of activity planning, national and regional territorial development, cross-border, transnational and interregional cooperation, urban planning, spatial planning, housing construction.

In these areas, the MRDH manages 48 programmes financed from European and national funds: the Regional Operational Programme 2007-2013 (REGIO), European territorial

cooperation programmes, PHARE - Economic and Social Cohesion programmes, PHARE - Cross-border cooperation programmes, programmes of territorial development etc.

✓ **Ministry of Environment and Sustainable Development**

The Ministry of Environment and Sustainable Development is responsible to enforce the environment legislation and is handling carbon financing / joint implementation issues.

Further they are responsible for the energy-related aspects of financing parts of the energy sector through Sector Operational Programme 'Environment' (SOPE). Financing under SOPE will focus on meeting Romania's commitments to reduce *emissions per unit of fuel used* rather than renewable energy projects that reduce *absolute emissions* by displacing fossil fuels.

✓ **Ministry of Transport**

The emergence of biofuels and the high proportion of transport fuel in the national energy balance involve the Ministry of Transport as significant stakeholder in this renewable energy assignment.

✓ **Ministry of Agriculture, Woods and Rural Development**

The Ministry of Agriculture and Rural Development is in charge to the deployment of policies related to agriculture and forests development, main sources for biomass.

✓ **Romanian Agency for Energy Conservation (ARCE)**

ARCE is the specialized body at national level in the field of energy efficiency, with legal personality, operational, organizational and financial autonomy, in the subordination of the Ministry of Economy, with funding from own incomes and subsidies granted from the state budget.

ARCE is empowered to ensure the implementation of the provisions of the laws regarding renewable energy as well.

The structure of the ARCE is constituted from the central apparatus and 12 territorial branches.

✓ **National Regulatory Authority for Municipal Services (ANRSC)**

ANRSC was established in 2002 as a public institution of national interest under the subordination of the Ministry of Internal Affairs and Administrative Reform.

The Authority has the aim to regulate, monitor and control at the central level the activities from the community services field, including production, transport and distribution of the thermal energy in centralized system and public lighting. They are defining the price for thermal energy.

✓ **Romanian Energy Regulatory Authority (ANRE)**

ANRE - is a public independent body of national interest whose mission is to 'create and implement the appropriate regulatory system to ensure the proper functioning of the electricity and heat sector in terms of efficiency, competition, transparency and consumer protection. In discharging its competencies and tasks, ANRE works together with other central or local public administration bodies, electricity and heat undertakings, with international organisations in the field, so that interests of all sector players may be harmonized and transparency of the regulatory process assured'.

ANRE is an important stakeholder in Renewable Electricity in two major respects. Firstly, ANRE oversees the Green Certificates Scheme, which is Romania's primary tool to promote the use of RES at the present time. Generators producing power from biomass may benefit from the scheme. ANRE's role in ensuring that 'interests of all sector players may be harmonized' is likely to be tested in the coming years, as more biomass use will come online.

✓ **Power Market Operator (OPCOM)**

OPCOM operates as well the Green Certificates Market, meaning that it is the legal person who assures Green Certificates trading and determines the prices on the Centralized Green Certificates Market, performing the functions established by the Regulation for organizing and functioning of the Green Certificates Market (Order no. 15 / 2005 issued by ANRE).

✓ **National Agency for Agricultural Consultancy (ANCA)**

ANCA as a governmental body is transferring the know-how and give consultancy to private farmers. ANCA should disseminate and promote information in the rural area on biomass raw material crops. Also ANCA may estimate and monitor the potential and the development of the biofuel crops. ANCA has a network of local agencies in the whole country.

✓ *Transelectrica*

The Romanian power transmission system is managed by Transelectrica and comprises about 8,950 km overhead electric lines in-between 110 kV – 750 kV.

As transmission and system operator (TSO), Transelectrica coordinates the operation of the system and provides regulated third party access to the Romanian electricity transmission network under transparent and non-discriminatory conditions to all market players.

Transelectrica keeps the Green Certificates Register

✓ *Romanian Auto Register (RAR)*

RAR is subordinated to the Ministry of Transport, in charge with road vehicles quality regulations and environment protection in transport as well. RAR gives license for different vehicles types, controls de vehicles technical inspection activity. RAR has its own test laboratories to certify and approve vehicles engines performances and quality.

✓ *The Academy of Agricultural and Forestry Sciences (ASAS)*

"Gheorghe Ionescu-Sisesti" (A.A.F.S.) is a public specialized institution of academic recognition and scientific coordination with juridical personality, financed through extra-budgetary income, functions according to its own statute, under the coordination of the Ministry of Agriculture, Forestry and Rural Development (M.A.F.R.D.) and collaborates with the Ministry of Education and Research (M.E.R.).

They perform studies related to biomass market, and energy from biomass.

✓ *University of Agricultural Sciences and Veterinary Medicine (USAMV)*

Profile USAMV for research in Cluj-Napoca is reflected in the priority areas set by the faculties and parts that will be promoted in future. They relate to: agriculture, horticulture, animal husbandry and Biotechnologies etc). USAMV performs also studies related to the technical and economical analysis of biomass production.

2.1.2. Non governmental bodies

✓ [Romanian Municipalities Association \(AMR\)](#)

101 municipalities and the six Sectors of Bucharest Municipality are members of AMR, which aims to strengthen the position of municipalities as a dialogue partner of the Romanian Government and Parliament; training and improving the expertise of local government officials and personnel; promoting forms of collaboration between municipalities; organize specialists' bodies to analyse and offer solutions in solving specific problems of the public administration and local communities. One of the today main challenge of the local authorities is securing the local heating services for residential and public buildings.

✓ [Romanian Biofuels Technology Platform BIOCARO](#)

The aim of **BIOCARO** Platform is to contribute to the development of cost-competitive world-class biofuels technologies, to the creation of a healthy biofuels industry and to accelerate the deployment of biofuels in Romania through a process of guidance, prioritization and promotion of research, development and demonstration. As a research activity initiative, the Romanian Technological Platform “Biocar” is promoting biofuels development, in relation to the European objectives.

✓ [Energy Cities' Network \(OER\)](#)

OER (The Romanian "Energy Cities" Network) is a nongovernmental organization, gathering 37 members, important municipalities interested in improving the energy efficiency in public services (district heating, public lighting, water and gas supply, waste collection and storage, local transportation, etc.) and in promoting renewable energy and the environment protection.

✓ [Association Biofuels producers in Romania \(ABR\)](#) links market stakeholders, mainly biofuels producers interested in biofuels market development. They are lobbying for the building of a distinct renewable Directorate within the Ministry of Economy.

Also they intend to represent and centralise the members biofuels output and to offer it as a bulk package on the market in order to become a visible partner for big market buyers as PETROM or ROMPETROL.

✓ [*Association Biofuels in Romania*](#) links market stakeholders interested in biofuels market development.

✓ [*Romanian Patronal Forestry Association \(ASFOR\)*](#) is a nongovernmental association that contributes to the strategy development for industry and wood exploitation in the context of sustainable development and in accordance with its environmental responsibilities.

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✓ [*COGEN Romania*](#)
The Professional Association was founded in February 2003 by 22 members. Currently the association has 34 members, which are mainly thermal energy production and distribution units in 32 large cities in Romania. It should be noted that at the time of foundation the association was only present in several large cities. In 2004 important DH operators such those in Bucharest, Constanta, Cluj and Craiova joined the association and now more than 80% of the thermal energy market of Romania is covered by COGEN Romania.

COGEN ROMANIA deals with fundamental questions of the technical and economic development of district-and local heating and the heat and power industry. It investigates the possibilities of cost-effective generation and distribution of district-and local heating of all sizes. It is concerned with energy-political and legal questions, especially with optimization and rationalization projects as quality assurance.

✓ [*Climate Action Network Romania \(RACRO\)*](#)
Registered in April 2008 and comprising 10 NGOs members, Climate Action Network Romania (RACRO) mission is to reduce the impact of human activities on the climate and to mitigate climate change. They are involved in a series of projects aims to raise the awareness of educational actors and public officials regarding climate changes in order to improve the environmental policies with regards the waste management, promoting good practices in agriculture and forest management etc.

✓ [*The European Institute of Romania \(EIR\)*](#)

EIR is a public institution whose mission is to provide expertise in the field of European Affairs to the public administration, the business community, the social partners and the civil society.

They are conducting studies, policies and strategy analyses to support Romania's development within the European Union, and exercising its attributes as a Member State.

- ✓ Bioamass processors association BRACON (office@bracon.ro)
- ✓ Pellets Manufacturers Patronage ECOENERGIA

2.1.3. Research bodies

- ✓ **[National Institute of Wood \(INL\)](#)**

The National Institute of Wood is responsible, under the coordination of Ministry of Economy and the Ministry of Agriculture, Wood and Sustainable Development for the elaboration of feasibility studies and of execution projects of wood biomass pilot plants and demonstration units and thermal plants. Also they are involved in studies on biomass potential.

- ✓ **[Energy Research and Modernizing institute \(ICEMENERG\)](#)**

Their mission is development of scientific research and technological engineering activities for increasing energy efficiency of electric and thermal energy over the entire production, distribution and transport chain and RES promotion.

They perform studies on the RES development strategies and the potential of biomass energy.

- ✓ **[OVM ICCPET](#)**

This research institute with activity in the heat producing technologies is actively involved various research projects, as gasification of biomass, cofiring etc.

An example of such project is "The corn crop usage as biomass source for thermal energy generation" .

- ✓ **[National Agricultural Research and Development Institute \(ICDA\) Fundulea](#)**

ICDA Fundulea is recognized as one of the main agricultural research unit from Romania, due to the results obtained in research - development field regarding the cereals, industrial and forage crops. They promote the biofuels production from diverse crops, including the sweet sorghum.

✓ *The National Institute for Agricultural Machines (INMA)*

INMA Bucharest has the oldest and the most prestigious researching activity in the domain of agricultural machinery and related agricultural technologies, including production of biofuels.

Biomass related projects in which they are involved:

- Technology for promotion in Romania of energy crop MISCANTHUS
- Promotion of a technology of vegetal oil extraction, and their use as biofuel in agricultural farms.
- Pilot station of biodiesel production

✓ *Rompetro Quality Control, ROMCONTROL SA, Petrom (INCERP Ploiesti), Master* are authorized laboratories to develop analyses on fuels and biofuels quality.

✓ *The Research Institute for Analytical Instrumentation (ICIA)*

ICIA, has expertise in various fields, including clean technologies and biofuels technologies, and more general in biofuels use development in Romania. They performed studies related to:

- Technologies for biomass sugar beet use for obtaining biogasoline, 2006
- Diesel ecological biofuels and glycerine obtained by chemical processing of renewable resources, 2006
- Strategy for biofuels development in Romania. 2008

✓ *The Research Institute for Industrial Ecology (ECOIND)*

The institute developed a "Campaign to inform the public about the benefits of using biofuels and other renewable fuels "

✓ *Institute for Studies and Design in Energy (ISPE)*

ISPE is a engineering organization that offers a wide range of services from technical and financing consulting through to commissioning. They approach as well the RES and biomass areas.

✓ [National Institute *http://www.icim.ro/of Research and Development for Environmental Protection \(ICIM\)*](http://www.icim.ro/of)

With a history of 57 years, INCDPM-ICIM Bucharest is now a widely recognized research institute in the environmental field subordinated directly to the Ministry of Environment and Sustainable Development.

An important project in which they are partners is VALBIRO project:” Biomass energy valorisation in the context of sustainable development of renewables energy.

✓ [Forest Research and Management Institute \(ICAS\)](#)

Forest Research and Management Institute (ICAS) was founded in 1933, as a public institution of national concern, specialized in research work and implementation new technologies in the public and private forestry sectors, in order to assure sustainable management of Romanian forest.

ICAS is member of IUFRO (International Union of Forest Research Organizations), EFI (European Forest Institute), IPGRI (International Plant Genetic Resources Institute), ISTA (International Seed Testing Association) and EARSeL (European Association of Remote Sensing Laboratories).

The institute activates in next domains: forestry ecology, forestry economy, forestry genetics, forestry protection etc.

2.2. Bioenergy related regulations

Renewable energies in Romania are governed by legislation – primary laws, e.g. the Electricity Law no. 13/2007, the Heat Supply Law, the Mining Law and the Water Law – as further developed by governmental decisions and regulatory orders. The legal framework is very complex and detailed and lead to considerable workloads for both applicants and the authorities concerned, but also to some confusion. In general the RES regulatory framework is in line to the RES European energy policy.

Two laws are cross cutting several RE sectors: the Electricity Law that governs both power and cogeneration (CHP), and the Law on Public Service of Heat Supply that regulates heat production.

In implementing the European Union's Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market, Romania has chosen to promote the production of energy from renewable sources by adopting a system, based on "Green Certificates" (as more fully detailed in Government Decisions 443/2003 and 1892/2004).

Under this approach, the price of energy from renewable resources depends on the market and the relevant authorities establish the quantity of energy that should be produced from renewable sources. The national targets in terms of electricity produced from renewable sources for 2012 were set at one third of the total gross domestic consumption of electricity. This target has now been moved up.

According to the applicable legislation, the producers of energy from renewable sources who are registered and approved by the Romanian Energy Regulatory Authority (ANRE) sell it to the electricity suppliers at the market price.

In order to reduce the production costs and to maintain profitability, the producers receive from Transelectrica (the main Romanian transmission and system operator) as additional compensation one green certificate for each Megawatt hour (MWh) of green energy delivered to the electricity network. The green certificates are sold by the producers to the energy suppliers at prices within a minimum and a maximum value provided by the 2004 Decision.

For the period 2008 through 2014, the value of the green certificate trading on the markets is set within a band with a minimum trading value of Euro 27 per certificate and a maximum trading value of Euro 55 per certificate.

In a press release dated 12 January 2009, Opcom (the Romanian energy market operator) announced that in the December auction of green certificates, energy suppliers bought 7,213 certificates at a price of RON 194.09 (about Euro 55) per certificate. As of 31 December 2008, trading of green certificates issued for the year 2008 increased by 400% in comparison to trading for certificates for the year 2007 on a year-on-year basis.

Table 1. Bioenergy regulation in Romania

<i>National legislation</i>	
<u><i>GD 443/2003 on the promotion of electricity produced from renewable energy amended by GD 958/2005</i></u>	<ul style="list-style-type: none"> ✓ Establishes the legal framework that increases the contribution of renewable energy sources to the electricity production. ✓ Settles for the electricity produced from renewable sources a target of 33% from the gross national electricity consumption for the year 2010. ✓ Sets the criteria that tariffs are non-discriminatory between E-RES and conventional ✓ Settles that connection should be based on the special Regulation on Connection that include settlement of costs ✓ Determines ANRE to provide priority to E-RES ✓ Requires an evaluation of the regulatory framework and proposals for modifications of barriers and simplifications of procedures to be submitted to the Ministry
<u><i>GD 1535/2003 Strategy for using renewable energy resources</i></u>	<ul style="list-style-type: none"> ✓ Integration of renewable sources of energy in the national energy system structure; ✓ Diminishing the functional and technical as well as psycho – social barriers for renewable resources valuation and identification the costs and economic efficiency; ✓ Promoting private investments; ✓ Assuring independency of the energy consumption at the national economy level; ✓ Assuring energy supply for the insulated communities; ✓ Creating conditions for participating in European green certificates market for Romania.
<u><i>GD 1429/2004 approving the regulation regarding the origin certification of the electricity produced from RES</i></u>	<ul style="list-style-type: none"> ✓ Specifies the conditions to obtain the guarantee of origin; ✓ Stipulates the content of the document and sets the validity of the guaranty to 1 year; ✓ Defines the method to calculate the electricity produced from RES by a unit firing both biomass and conventional fuel.
<u><i>GD 1892/2004</i></u>	<ul style="list-style-type: none"> ✓ Establishing the promotion system for electricity production from RES, with subsequent modification
<u><i>Ministerial Order 344/2004 regarding environment protection and in particular soils when</i></u>	<ul style="list-style-type: none"> ✓ Transpose Directive 86/278/CCE ✓ Encourage use of sewage sludge in agriculture in conditions of right utilisation taking account of

<p><u>sewage sludge is used in agriculture</u></p>	<p>quality of soil and agriculture production to be not affected;</p> <ul style="list-style-type: none"> ✓ Establish obligation that sludge must be treated before being use in agriculture. It may be authorised, under conditions to be laid down by them, the use of untreated sludge if it is injected or worked into the soil ✓ Establish the values for concentration of heavy metals (cadmium, cooper, nickel, lead, zinc, mercury) in soil when the sludge are used, the values of concentration of heavy metals in sludge and the annual maximum quantities of heavy metal used in agriculture soils. ✓ The responsibilities of sludge generators and users are: <ul style="list-style-type: none"> - to inform the local environmental authority and sludge users about the potential harmful elements present in the sludge; - to contact the sludge users and evaluate the possibilities for the sludge to be used; - to assure the transport and the spreading of the sludge
<p><u>GD 645/2005</u></p>	<ul style="list-style-type: none"> ✓ For approval of Romania's national strategy on climate change during 2005-2007
<p><u>GD 958/2005</u></p>	<ul style="list-style-type: none"> ✓ For the amendment of GD 443/2003 related to the promotion of electricity from RES and also for the amendment of GD 1892/2004 establishing the system for electricity production from RES
<p><u>GD 1395/2005</u></p>	<ul style="list-style-type: none"> ✓ Related to the approval of the existing and planed measures plan to promote the energy production and consumption from RES
<p><u>GD 1844/2005</u></p>	<ul style="list-style-type: none"> ✓ Transpose Directive 2003/30/EC (5.75% - end 2010)
<p><u>GEO-125/2006</u></p>	<ul style="list-style-type: none"> ✓ Direct payments scheme area for energy crops in EAGF (art. 10)
<p><u>Law on Public Service of Heat Supply no. 325 of 14 July 2006</u></p>	<ul style="list-style-type: none"> ✓ Vests the responsibility of centralized heat supply with the local communities. ✓ Among the stated principles of the Law in addition to efficiency, sustainable development, rice transparency, non-discriminatory access is listed the use of RES. There is also an obligation to analyse in studies the further development of RES. ✓ The technical conditions to access to the heat networks are regulated by A.N.R.S.C, and developments are based on technical-economic studies and conditions to be approved by GD.
<p><u>The Law on Community Services of Public Utilities no. 51 of 8 March 2006</u></p>	<ul style="list-style-type: none"> ✓ Public utility services are under the responsibility of local public administration authorities and are set up, organized and administered as per decisions adopted by local or county councils, the community

	<p>development associations.</p> <ul style="list-style-type: none"> ✓ Local public administration authorities have the exclusive competency as per the law to set up, organize, coordinate, monitor and control the operation of the public utility service and adopt decisions regarding drawing up and approval of their own strategies.
<u>National Programme for Rural Development for the period 2007-2013</u>	<ul style="list-style-type: none"> ✓ Provides investments for: <ul style="list-style-type: none"> - production and sustainable use of renewable energy on the farms; - establishment of forest species cultures with short production cycle and by vegetative regeneration, in order to produce renewable energy (Measure121) - systems of production and supply of energy from renewable sources as part of an integrated project (Measure 322); - Production and use of renewable energy and biofuels (Measure 123);
<u>GD 219/2007 – on promotion of cogeneration based on a useful heat demand</u>	<ul style="list-style-type: none"> ✓ Requires that a guarantee of origin must be issued on request ✓ Priority connection to the grid must be ensured by the grid operator ✓ Reporting obligations to EU ✓ Calculation of electricity from CHP
<u>GD 456/2007</u>	<ul style="list-style-type: none"> ✓ Marketing diesel gasoline mixed with bioethanol and biodiesel
<u>GD 219/2007</u>	<ul style="list-style-type: none"> ✓ Transpose into Romanian legislation the Directive 2004/8/EC on the promotion of cogeneration based on useful application of heat.
<u>GD 1570/2007</u>	<ul style="list-style-type: none"> ✓ <u>Establishing a national system for estimating anthropogenic emissions of greenhouse gas emissions from sources or detention by sinks of carbon dioxide, covered by the Kyoto Protocol</u>
<u>Ministerial order no. 15/2008</u>	<ul style="list-style-type: none"> ✓ <u>on measures of good agricultural and environmental conditions in Romania</u>
<u>GD 22/2008</u>	<ul style="list-style-type: none"> ✓ <u>on energy efficiency and promotion of the renewable energy sources use in the final consumption</u>
<u>Law 220/2008 to establish a promotion system for production of energy from renewable energy sources</u>	<ul style="list-style-type: none"> ✓ Sets targets for E-RES in final energy consumption: 33% by 2010, 35% by 2015, 38% by 2020 (large hydro included) ✓ Quotas for 2021-2030 are expected to be higher ✓ Covers hydro up to 10MW, wind; solar; geothermal and associated gases; biomass; biogas; fermented waste gases ✓ Sets mandatory quotas with ‘fixed price’ Green Certificates. <ul style="list-style-type: none"> • The rates are: <ul style="list-style-type: none"> - 1 GC/ 1 MWh for re-technologized small hydro - 1 GC / 2 MWh for non-rechnologized small hydro with 1 - 10 MW capacity

In the agricultural year 2003/2004 Romania introduced the direct payment per cultivated hectare in order to have a similar mechanism with the CAP. This support from the state budget was 62.6 Euro per cultivated hectare for the benefit of 4.4 million farmers, of which about 3.4 million were subsistence households. In 2004 Romania had the best agricultural year from the last decade, due to favourable climatic conditions but also to an increase of the public support for agriculture. Even under comparatively good conditions, in 2004 the productivity in the Romanian agriculture was only 17.2 % of the average level of EU25 (Fig. 1).

The productivity gap in agriculture is higher than at general macroeconomic level.

By 2013, Romania is expected to implement the European agricultural model, which is characterized by viable, market-based production structures, while supporting rural development and environmental protection. Measures will be taken to support producers so as to enable them to adapt farming practices to the consequences of climate change inasmuch as these changes will affect the level and variability of crop yields and the numbers of livestock. Production chains will be established, including chains for the sustainable production of biomass and biofuels.

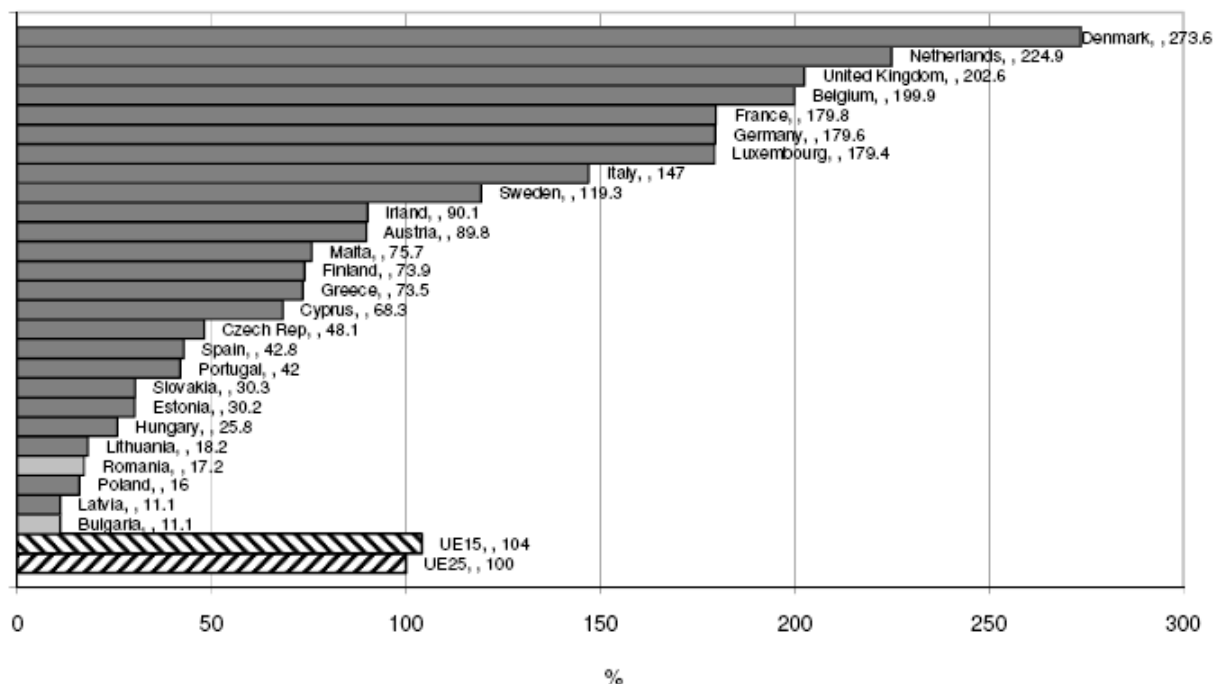


Fig.1. Agricultural gross value added at producer prices/ annual work unit in the European Union in 2004 (EU-25 = 100%)

Source: Calculation based on data from Eurostat Yearbook 2005 and on-line data base

[National Strategic Plan for Rural Development 2007-2013 \(PNS\)](#) is the programmatic document that defines the strategy for rural development after accession of Romania and is a necessary step to accessing European funds for agriculture. The document was developed based on strategic guidelines for rural development of the European Union.

National Strategic Plan for Rural Development 2007-2013 aims to increase economic dynamism of rural areas in Romania, while maintaining social dynamism of sustainable agriculture, ensuring the preservation and improvement of natural resources.

[The Policy and Strategy of Development for the Romanian Forestry \(2001-2010\)](#) is an important instrument in order to harmonize national legislation with EU legislation specific conventions and international agreements to which Romania is a signatory.

[Act nr 46 on 2008- Forestry Code](#) – it contains provisions relating to administration and forest management, specifications for the protection, guarding both the forest property as public and private, mass exploitation of timber and the penalties involved for breach of this code.

SWOT analysis

Area	Strengths	Weaknesses	Opportunities	Threats
<i>Agriculture</i>	<ul style="list-style-type: none"> - Large land resources with highest agricultural potential; - Existing structures of commercial agriculture farms and a good potential for increase and strengthen this category; - Existing of guarantee fund for agriculture 	<ul style="list-style-type: none"> - Low competitiveness (yields, low productivity), low number of contracts with industry; - High costs in small sized farms due to land fragmentation; - Incapacity of small farms to invest for modernisation. 	<ul style="list-style-type: none"> - Increase of purchasing power in urban area, interest for traditional and natural product in EU. - EU rules encouraging producers groups, private-public cooperation. 	<ul style="list-style-type: none"> -SAPS and CNDP’s reductions resulting from ‘cross-compliance’
<i>Forestry</i>	<ul style="list-style-type: none"> - Valuable forest resources, high level of legislative protection; - High level of foresters education; - Very good management of forest based on planning. 	<ul style="list-style-type: none"> - Improperly management of woodwork; - Small size of private forestry areas; - Low level of the education of forestry 	<ul style="list-style-type: none"> - Association of private forestry areas for a better management. - Increase of forests value through certification process; 	<ul style="list-style-type: none"> - Low level of information regarding the structural funds; - World competition. - Some presence of illegal logging; - Small size of private

	<ul style="list-style-type: none"> - Forestry area programs and legislation for increasing forest area; - Important forestry area contributing to limit the GHG impact, the erosion and to maintain the biodiversity. 	<ul style="list-style-type: none"> owners; - Forest affected by flooding in the last years; - Small number of forestry road. - Lack of Forests cadastre; - Low developed forestry road network. 	<ul style="list-style-type: none"> - Potential for increasing the forest area by afforestation; - Potential for biomass production; - Ecologic reconstruction on the degraded land; - Development of National System of shelterbelts; - Setting up and strenghting of the forest public awareness. 	<ul style="list-style-type: none"> property; - Natural risks.
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2.4. Environmental legislation on emissions

Substituting fossil fuels by biomass fuels reduces GHG emissions and may provide carbon credits. Therefore the environmental policies and strategies are a powerful driving tool for bioenergy development.

The core of the environmental protection legislation in Romania is the OUG no.195/2005, M.Of. no 1196/30 December 2005 (Ordonanță de urgență 195/2005 privind protecția mediului), approved and amended by the Environmental Protection Law No. 265/2006 replacing the Law No. 137 of 29 December 1995 (the “Environmental Protection Law”).

In 2008, the OUG no.164/2008 M.Of. no.808/3 December 2008 – is amending the OUG nr. 195/2005, and introduces the Natura 2000 approval document.

The legislation regarding air quality is also very important in this context. For the transposition of the Directive 2000/69/EC relating to limit values for benzene and carbon monoxide in ambient air, the following legal acts were adopted:

- Order of the Minister of Waters and Environmental Protection NO. 745/30.08.2002 establishing the agglomerations and the classification of the agglomerations and of the areas for the assessment of air quality in Romania.
- Order of the Minister of Waters and Environmental Protection No. 592/25.05.2002 for the approval of the Norm establishing limit values, threshold values and criteria and methods of assessment of sulphur dioxide, nitrogen dioxide and nitrogen oxide,

particulate matter (PM10 and PM2,5), lead, benzene, carbon monoxide and ozone in the ambient air.

The environmental permitting for biomass related projects, as for any other energy projects, are related to the following phases:

- **Strategic Environmental Assessment SEA**

The main stages for obtaining the accord at the level of Area Urbanism Plan (“Aviz de mediu pentru planul de urbanism zonal-PUZ”) are:

- a. the first version of the plan
- b. the Environmental Report

- **Environmental Impact Assessment**

Usually the biomass related projects (facilities for producing biofuels, power or heat) are considered might have “significant” environmental effects and go through an environmental assessment. According to the law, in order to obtain the Environmental Approval for the Construction phase (“Acordul de mediu”), and implement the project, the project proponent has to pass two stages:

- a. Prepare the Technical documentation (Technical Memoir)
- b. Environmental Impact Assessment and the Report to the EIA (two different reports).

The procedure foresees that the documents are debated within task groups meetings (as many as 10-12), and within public meetings as well. It is possible that the presence of the reports elaborator is required in working groups established by the Authorities.

The Environmental Accord is issued in respect of a series of terms & conditions to be met during the construction phase of the park. The biomass project developer/owner should monitor these conditions and prepare the necessary reports

Sometimes the Environmental Accord is issued in respect of a series of terms & conditions to be met during the operation phase of the facility as well.

Biomass projects related constructions are treated as constructions. Their construction, use and demolition have to fulfill all the requirements relating to the investment process. There is a general principle that every construction should be designed and built in the manner set out in regulations, including technical and building regulations, and in accordance with the principles of technical knowledge.

The main laws governing the constructions are:

- [Law no. 50 1991](#), [M.Of. no. 993/2004](#) on the authorisation of construction works, as further amended, M.Of, nr. 371 /15 May 2008 and OUG nr. 214/2008
- [Law 350 of 06/07/2001](#), M.Of 373/10.07.2001, amended by [Law no.289 of 7 July 2006](#) on territory management and urbanism.

The law creates the legal frame for the management of the entire territory of Romania on the principle of hierarchy, cohesion and integration on a national, regional and county level. The main objectives of this law are to ensure: a balanced economic and social development of the regions and zones; the improvement of life standards for individuals and human collectivities; a responsible management of natural resources and environment protection; a rational use of the territory. Contains detailed stipulations related to urbanism, to the competencies of central and local public administration, to planning regarding the territory and urban management, etc. Annex 1 lists the categories of documents required in the area and the bodies in charge to approve them while annex 2 defines a number of terms used within the text of this law.

Maintaining the high quality of our environment is an important element in the *development of a sustainable biomass industry*, with potential impacts on soil and water quality, air quality, biodiversity, landscape and GHG emissions. Impacts on the environment from the development of the raw material and use of biomass for energy will be mitigated through applying best practice in land management, meeting air quality standards and implementing planning regulations.

2.5. Permits and financing

The licensing system as set out in the energy, environment and construction laws. The secondary legislation are quite complex and involves many different administrative decisions in terms of several categories of authorizations and several authorities both at the central level as well as at the local level.

The granting of the licenses is furthermore subject to detailed procedures as authorized in the relevant energy laws. These procedures may be found at both the Government level and at the Regulator's level e.g. GD no. 540 of 7 April 2004 as modified by GD 553 of 6 June 2007 on electricity licenses, and ANRE Application forms. It is beyond doubts that further

licences/approvals based on environmental, planning and building laws and regulations are also required for the investor in RES and involves different levels of authority – not the least local authorities.

Granting establishment permits for RES-E

According to art. 15. (1) Section 1 of Law No electricity. 13/2007 with subsequent modifications and additions to art. 6. (1) of the Rules for granting licenses and permits in the electricity sector, approved by GD no. 540/2004, with subsequent modifications and additions, ANRE grant permits for the establishment:

- a) works for the realization of a unit for the production of electricity / power and heat in cogeneration or / new capacities in the production of such units, if installed electrical power of that unit, and capacity / production capacity which is set up more than 1 MW;
- b) works for retrofitting of a units for the production of electricity / power and heat in cogeneration or one / some of the capabilities of the production of such units, if installed electrical power of that unit, and retrofitting capacity / production capacity is greater than 1 MW;
- c) works to achieve a new line or power stations having rated voltage of 110 kV or more;
- d) works for the realization of a new line or power stations with rated voltage of 110 kV or higher.

Granting licenses

According to art. 15. (1) section 2 of Electricity. Law No. 13/2007 with subsequent modifications and additions to art. Article 8. (1) of the Rules for granting licenses and permits in the electricity sector, approved by GD no. 540/2004, with subsequent modifications and additions, ANRE grant permits of establishment for the commercial exploitation of capacities that produce heat in cogeneration and capacities with separate production of heat which are located in common buildings with cogeneration capacities and uses some common technological installations;

Thermal energy prices/tariffs review

Typically, the review of tariffs is made every three years.

In special cases, charges review may take place before the period of three years, but no sooner than three months after the last rate change under the following conditions:

- a) by self-restructuring or national companies;
- b) the occurrence of structural changes in the cost of acquisition, of the levels of consumption on types of pressure or heat, leading to variations in unit costs over 5%;

Elements that underlie prices / tariffs background for heat are justified expenses:

- a) operating;
- b) Financial - differences on exchange and interest payments due on the rates for current loans.

Reference prices of gigacalory are established depending on the specific area, and winter conditions, the ability to pay of the population, fuels used to produce heat. Another possibility is local budgets to allocate aid to the population for paying heat.

Local Reference Price (PLR), unique only at the same locality level, determine the difference between the price of generation, transmission, distribution and supply of thermal energy (Pet), the subsidy provided by local government (local Sauthority) and the unitary offset of the fuel used to produce thermal energy in centralized systems (Cfuel).

$$PLR = Pet - \text{local Sauthority} - C_{\text{fuel}} \text{ (lei / Gcal)}$$

For February 2009, PLR varied between a minimum value of about 85.4 lei/Gcal lei in Hunedoara district and a maximum of 324.32 lei/Gcal in Vâlcea district.

Financial supporting mechanism

In the adopted financial mechanism, incentives are focused around green certificates. ANRE Ordinance 15/2005, which is on the regulation for management and operation of the Green Certificates market presents in detail the procedure to trade the Green Certificates. The actors on the GC market are:

- the Regulatory body (ANRE) which supervises the process,
- the Transport Operator which issues the GCs,
- the Distribution Operator who measures and reports monthly, the green electricity quantities,
- the GC Market Operator who manages the GCs market.

The Origin Guarantee can be suspended by the Authority if within the last 6 months of the plant operation the electricity delivered by RES-E producer amounts less than 10MWh.

The Network Operators have the obligation to guarantee the transport and the distributions of RES-E without putting in danger the network safety. The tariffs for transport and distribution of RES-E have to be indiscriminate even if it is produced in the isolated areas with a low density of population.

An assessment of the effectiveness of the quota system made by ANRE has issued the following conclusion (on a scale from 1 to 3 points): efficiency – 3 points, efficiency of the costs – 2 points, investor's safety – 2 points and conformity with a free electricity market principles – 3 points.

The eligible RES-E producers are:

- qualified RES-E producers for the Priority Electricity Market using a special procedure issued by the ANRE (Romanian Energy Regulatory Authority),
- RES-E auto-producers that need the electricity network for transport and distribution.

RES-E production in a biomass co-firing technology is established well enough to multiply the total produced electricity by a factor representing the biomass chemical heat input divided by the total chemical heat input (biomass+fossil fuel).

The biomass RES-E producers get 3 GCs for each MWh delivered. The GC can be traded on the GC market or through bilateral negotiation.

Most probably in the next 3-4 years, the GC offer will be lower than the GC demand, so the GC will be paid close to the maximal value of 55 Euro/MWh. It results some 150 Euro/MWh from the GC for biomass electricity. To this income should be added the price of the electricity traded on the normal electricity market (around 40 Euro/ MWh). So as grand total it may results **up to 190 Euro/MWh**. As the biomass CHP may be controlled to supply power to the grid within peak hours, the price of CHP electricity may be even higher.

To encourage investments in energy production from renewable sources in Romania, investors can receive additional incentives such as exemptions or reductions of taxes for a period of three

years on profit reinvested in the development of the project or financial contributions from the State towards newly created work places.

Furthermore, individuals using renewable sources to produce a minimum of 20% of their own consumption needs are entitled to deduct from the global annual income up to 50% of the costs of equipment and installations purchased in order to produce electricity from renewable sources, depending on their monthly revenue.

In respect to the funds available to support the investments in the construction and modernization of power plants, Government Decision 750/2008 has approved a scheme of regional state aid elaborated in accordance with the Sector Operational Program "Increase of Economic Competitiveness" - Priority Axis 4 "Increasing energy efficiency and security of supply, in the context of combating climate change".

The funds are available until the end of 2013. The estimated budget is Euro 200 million consisting of non-reimbursable funds from the EU and domestic sources to be allocated to projects not exceeding EUR 50 million in value. The eligible applicants are small, medium and large businesses. The level of financing is 40% for the enterprises located in Bucharest-Ilfov region and 50% for the other regions of development.

No other tax incentives are granted for energy from RES.

The European Union structural funds and the Romanian Environment Fund may support part of the biomass projects investments.

3. Market actors on biomass

3.1. Biomass suppliers

Biomass differs from other alternative energy sources in that the resource is variable, and it can be converted to energy through many conversion processes.

The suppliers may be divided according to the biomass resources:

- ✓ **Forest products:** wood, logging residues, trees, shrubs and wood residues, bark etc. from forest clearings;
- ✓ **Agricultural waste,** agricultural production wastes, agricultural processing wastes, crop residues,
- ✓ **Agricultural crops for biofuels**

- ✓ **Municipal wastes:**, urban wood wastes, urban organic wastes,
- ✓ **Industrial wastes:** wood processing industry waste, mill wood wastes
- ✓ **Energy crops:** short rotation woody crops, herbaceous woody crops, grasses, starch crops (corn, wheat and barley), sugar crops (cane and beet), forage crops (grasses, alfalfa and clover), oilseed crops (soybean, sunflower, safflower);

a) Suppliers for forest products:

The total area of the forests is about 63.700 km² of which 60 % in the mountains. The total volume of wood in the Romanian forests is about to 1.6 m³. The average annual growth of the forests is 33.000 thousand m³ per year. The exploitable potential is about 22.000 thousand m³ per year.

Harvest time varies from species to species, being usually between 30 and 80 years. At harvest 25 ... 45% of the volume is in the form of scrap (in Romania in 2005: loss of 414,103 m³ and 869,103 m³ technological shell) and thus wood biomass is an important energy resource.

According to data supplied by the National Institute of Wood, waste and sawdust shavings from wood exceed 1 million m³ in present; estimating that in 2010 this amount will reach approx. 1.5 million m³.

Currently, 55% of forest fund are state-owned, 15% in public ownership of territorial administrative units, 11% forests are privately owned establishments and religious education, 8% of private forest ownership of legal persons and 11% forests to private individuals.

b) Suppliers for agricultural waste

- Big agricultural land owners or landholders
- Small agricultural land owners which should be organized in cooperatives to collect the raw material

The main barrier for centralized and efficient solutions is the small size of agricultural lots (average area is about 0.8 ha) and the large number of owners (about 6 mil. people) having 2-6 lots each.

Legal status of agricultural holdings	Agricultural holdings total (number)	Agricultural area in use (ha)	Average agricultural area in use (hectares per agricultural holding)
Total	3.931.350	13.753.046,5	3,5
Individual agricultural holdings	3.913.651	8.966.308,6	2,29
Units with legal status	17.699	4.786.737,9	270,45

Another important problem is collecting and transport of resulted residues.

c) Suppliers for agricultural crops for biofuels

The status is similar to the suppliers for agricultural waste.

d) Suppliers for municipal wastes

- Local authorities, as the municipal services for waste management, heating, water supply are under their responsibility. dedicated companies may be employed to collect, transport, select, and preliminary prepare the waste in order to be used for energy purposes

e) Suppliers for industrial wastes

- The suppliers are the industries producing such waste.

The most natural use of the industrial waste is for the energy needs of the industry itself, which become a self producer of heat or heat&power. In Romania the typical case is the medium size wood processing industry.

For the moment, still appears the abnormal and temporary situation that a significant part as the resulted bark and saw dust has no utilization, because the costs for collection and transport are too high. Such waste may be collected and used for small district heating systems, in localities close to the area of waste production. The SAWDUST 2000 project is typical fro such applications.

f) Suppliers for energy crops

Forest crops for energy production is a whole new chapter for our country. For some species short rotation system may reduce the life cycle of trees from 3 to 15 years. In this way it can be

provided a significant additional quantity of wood biomass available for energy production. Species recommended for cultivation in this system are poplar and all types of willow.

The key to economic success is the establishment of an effective logistics of harvest, recovery, compaction, transport and sorting material. Among them a significant share in the economic balance is collection and transport.

g) Suppliers for manure

The farmers who built large pigs or cows farms, approaching SAPARD funds. The animal dejections (600 to 2000 tones/year) are now an environmental problem.

Currently, there are registered [1] around 6.5 millions pigs. Some one hundred large farms "split" around 3 million pigs, one million heads are dispersed to the three thousand individual breeders, the rest being spread as 1-2 pigs per individual farms.

The typical facility may be a 190 kW rated CHP operating on biogas.

3.2. Bio-diesel producers

In the table bellow we can see the biodiesel producers repartition on county level and region.

No.	Bio-diesel producers	Unique Registration	Trade Register no.	Address
1	CHEMISSION SRL	18419045	J1/185/2006	Loc. Cugir, jud. Alba
2	REM PETROL TRADE SRL	15644000	J3/1010/2003	Pitesti, jud. Arges
3	VIROMET SA	1126350	J8/340/1991	Victoria, jud. Brasov
4	PROCERA BIOFUELS SRL	18786319	J51/370/2006	Loc. Fundulea, jud. Calarasi
5	BIOVILLE SRL	16891938	J13/8032/2004	Ramnicu de Jos jud. Constanta
6	RBD SIGMA SRL	17122126	J13/88/2005	Loc. Sacele jud. Constanta
7	BIO DIESEL SRL	18815244	J16/1227/2006	Picaturile, jud. Dolj
8	PROFILAND SRL	5340402	J17/700/1994	Galati, jud. Galati
9	ARTEGO SA	2157428	J18/1120/1991	Tg. Jiu, jud. Gorj
10	ULTEX SA	2083347	J21/106/1991	Tandarei, jud. Ialomita
11	NICOLZOE IMPEX SRL	6214607	J21/623/1994	Slobozia, jud. Ialomita

12	EXPUR SA	2091480	J21/261/1991	Urziceni, jud. Ialomita
13	AUTOELITE SRL	14232256	J24/631/2001	Baia Mare, jud. Maramures
14	BIOCHEM POWER SRL	19657312	J26/1988/2006	Loc. Sangeorgiu de Mures, jud Mures
15	ANYKPROD SRL	17834914	J28/510/2006	Sat Petculesti, jud. Olt
16	BIOMOTOR PROD SRL	18924519	J28/581/2006	Loc. Deveselu, jud.Olt
17	LETSOL IMPORT EXPORT SRL	19142103	J28/197/2007	Salcia, jud. Olt
18	BLITZ TANSPORT COMPANY SRL	18197216	J29/2537/2005	Comarnic, jud. Prahova
19	HALCIU SRL	6783840	J36/861/1994	Daeni, jud Tulcea
20	ULEROM SA	15242193	J37/88/2003	Vaslui, jud. Vaslui
21	CEROLA SRL	6051720	J38/833/1994	Rm.Valcea jud. Valcea
22	V & G OIL 2002 SRL	8760559	J39/601/1996	Odobesti, jud. Vrancea
23	PRIO BIOCOMBUSTIBIL SRL	17494111	J40/7182/2005	Bucuresti, sector 3

No.	Bioethanol producers	Unique Registration	Trade Register no.	Address
1	MAREX SA	6815364	J9/1998/1994	Braila, jud Braila
2	BIO FUEL ENERGY SRL	21553020	J34/279/2007	Zimnicea, jud Teleorman

In 2008 there were registered 27 producers with a total capacity of 285 thousand tones biodiesel/year.

Regarding bioethanol, in 2007 there were registered 5 investors in the bioethanol factories intending to develop capacities of 450 thousand tones bioethanol/year.

According to Article 201 of The Fiscal Code (Law 371/1.08.2006) has stipulated that from 2007 January 1st, biofuels should be exempted from excise duty.

But this position has been changed so that Ministry of Economy and Finance has removed, from 1st January 2008, the exemption from excise duty performed for biodiesel, because maintaining this law would be contrary to Community law.

Refineries are obliged to cope with the bio-fuel quota, which is defined in the European Directive 2003/30/EC as a quota calculated on the basis of energy content of all petrol and diesel for transport purposes placed on the market. Government Decision No. 1844/2005 sets “reference targets”, defined as minimum bio-fuel content in the fuel volume.

There are about ten refineries in Romania, five of whom (nos. 1 – 5, below) are owned by the three major players - Petrom-OMV, Rompetrol Rafinare and Petrotel-Lukoil. The other refineries (nos. 6 – 10) account for only 1% of the market, are owned by small players, and have difficulty remaining competitive. This could limit their possibilities to work with bio-fuels.

Main oil refineries, potential clients for indigenous biofuels production are mentioned in the table below.

Table 2. Main refineries in Romania - location and ownership, 2008

Refinery	Location	Owner
<i>1. Arpechim</i>	<i>Pitesti, Arges county</i>	<i>PETROM</i>
<i>2. Petrobrazi</i>	<i>Commune Brazi, Prahova county</i>	<i>PETROM</i>
<i>3. Rompetrol Rafinare (Refinery Petromidia)</i>	<i>Navodari – Constanta county</i>	<i>ROMPETROL</i>
<i>4. Rompetrol Vega</i>	<i>Ploiesti, Prahova county</i>	<i>ROMPETROL</i>
<i>5. Petrotel Lukoil</i>	<i>Ploiesti, Prahova county</i>	<i>LUKOIL</i>
<i>6. Rafo Onesti</i>	<i>Bacau county</i>	<i>Balkan Petroleum Ltd, UK</i>
<i>7. Darmanesti (closed for the moment)</i>	<i>-</i>	<i>-</i>
<i>8. Astra Romana</i>	<i>Prahova county</i>	<i>Kreyton Fund. Cyprus (47.45%) Asirom (21.89%) Broadhurst fund (17.37%)</i>
<i>9. Steaua Romana</i>	<i>Campina, Prahova county</i>	<i>Omnimpex Chemicals, Bucuresti</i>
<i>10. Petrolsub (closed for the time being)</i>	<i>-</i>	<i>-</i>

3.3. Heat and CHP actors

As mentioned before, the biomass is used for heat production in small and medium size boilers.

Until now in Romania there are no CHP plants using biomass.

The most suitable applications for heat producing facilities and CHPs are in:

- Small and medium size towns which have already a district heating plants that provide the town with heat and warm domestic water, using fossil fuels. The local district heating may be switched to biomass use.
- Small and medium size industries, producing within their technological process biomass waste, able to be used for the energy factory needs.

Examples of companies which introduced heat producing facilities are:

Ulerom Vaslui	FREE	Sunflower husk boiler
Focsani Municipality	DEPA	Installation of landfill gas recovery system for supply of existing boiler
Vatra Dornei, Vlahita, Gheorghieni, etc	DEPA	Sawdust boilers

3.4. Manufacturers of installations

Most of the installations suppliers on the Romanian market are just trading European or international products. Only a few of the installations or components are produced in Romania. In all cases, there are a large number of companies able to offer qualified experience for mounting, assembling, construction and commissioning of such installations, mainly small and medium size solid biomass boilers.

A list of these installations suppliers is given in the annex 1.

3.5. Financers

Structural Funds- are financial instruments through which European Union is acting to eliminate economical social regions contradictions with the purpose of making an economical and social cohesion. Some projects financed by structural funds are presented in *Priority Action Program for biomass Action Plan (2008-2020)*.

Environment Fund- the purpose for which it was created for the environment, to credit financially and to implement priority projects for environment protection.

In the table below are presented 5 project that obtained funding from Environmental Fund.- AFM.

Table 3. Projects financed by AFM

<u>Beneficiary</u>	<u>Project name</u>	<u>Implementation time</u>	<u>Investment RON</u>
<u>S.C. INDUSTRY TRANSILVAN S.R.L.</u> <u>Gheorgheni, jud. Hraghita</u>	Biomass potential use in the basin Gheorgheni-line processing of wood waste to briqueting	6 mounts	<u>1.029.670,32</u>
<u>.C."GERFOR" S.R.L.,</u> <u>Mun. Sebes</u>	„ Thermal plant on biomass, Radauti, Jud. Suceava"	9 mounts	<u>4.610.512,60</u>

Other funding source for RES development was granted by the **sectoral plan of the Ministry of Economy**

Table 4. Projects financed Ministry of Economy

Project name	Total value 2008 Value/2009 value/2010 value	Duration -months-
Evaluation of the wood potential resource for use in industry	250 40/150/60	24
Campaign of information concerning advantage of utilisation of biofuels and another renewable carburant	200 100/100	12

FREE

Romanian Fund for Energy Efficiency (FREE) is a center of national interest in promoting trade financing projects for efficient use of energy recovery and renewable energy.

Until now, the Romanian Energy Efficiency has concluded contracts for funding amounting to 11,431 million U.S. dollars. Details of contracts are listed below:

Table 5. Projects financed by FREE

Beneficiary	Beginning date	Study	Loan thousands \$	Annual Energy Savings (toe)	Recovery Period (years)
Spitalul Clinic Județean Oradea	22 september 2006	Mounting of two boilers on pellets and equipment attachments	324	187	5.6
A6 Impex S.A. Dej	21 november 2007	Installing a wood waste boiler	1594	7743	5.1

In the table below it can be seen the involvement of the market actors on different biomass technology field.

Table 6. Technology/ Market actors interaction

Heat from Biomass	XX	XX	XX	XXX
CHP	X		X	X
Biofuels	XXX	XX	XX	XXX
	Governmental	Nongovernmental	Research	Developers

X- level of interest

4. Overview of previous or on going biomass studies including Romania

ACCESS

The Accelerated Penetration of Small-Scale Biomass and Solar Technologies (ACCESS), Intelligent Energy Europe programme, January 2006- December 2007.

The project addresses small-scale technologies that utilise biomass and solar energy for space heating and hot-water supply in dwellings with individual and local heating systems in Bulgaria, Czech Republic, Hungary, Romania and Slovakia.

Romanian partner: Institute for Studies and Power Engineering (ISPE)

The project aims to accelerate the penetration of these technologies in the targeted countries.

Particular project objectives:

- To systemize data about the biomass resources that indicate the potential for energy utilization in each country.
- To outline the perspectives to the development of this potential.
- To enable interested stakeholders to identify the optimal scheme for combined utilization of solar thermal and biomass energy.
- To propose financing mechanisms that would aid the low-income residents to afford the concerned technologies.

REHES

Renewable Energy for heat Supply in Dwellings with Individual and Local Heating Systems (REHES), European Commission FP6, 2006-2007

The project REHES addresses the heating and hot-water supply in dwellings with individual and local heating systems in Bulgaria, China (Beijing region), Romania, and Turkey.

Romanian partner: Centre for Promotion of Clean and Efficient Energy in Romania (ENERO)

Particular objectives:

- to identify optimal low-cost and efficient technologies that utilize renewable energy sources (RES) for heating and hot-water supply in the studied buildings, on the basis of the EU experience;
- to involve more actively the market actors, both from the concerned countries and from the EU, in the transfer and distribution of these technologies;
- to propose measures that would remove the barriers to the penetration of the optimal technologies;
- to formulate priorities for future research;

CEUBIOM

Classification of European Biomass Potential for Bioenergy Using Terrestrial and Earth Observations (CEUBIOM), European Commission, FP7, 2008-2011

Romanian partner: Centre for Promotion of Clean and Efficient Energy in Romania (ENERO)

Strategic objectives:

- Develop a common methodology for gathering information on biomass potential using terrestrial and earth observations
- Disseminating information, best practices and methodology on using earth observations in the assessment of biomass potential
- Use e-technologies for disseminating information, best practices on the use and applicability of developed harmonised methodology.

BAP DRIVER

Leveraging the development of national biomass strategies & action plans, based on a balanced assessment approach for policy makers (BAP driver), Intelligent Energy Europe, 2007-2009

Romanian partner: Institute for Studies and Power Engineering (IPSE)

Objectives:

- Enhance transparency & assess current biomass strategies & policy frameworks (incl. BAP) across the EU
- Exchange ideas, transfer knowledge & build capacities (“lessons learned” etc.) on biomass strategies & policy options, especially on specific key issues in the field
- Develop an operational guideline for development and monitoring of balanced national biomass strategies & action plans across the EU
- Contribute to national policy processes for development & monitoring of biomass strategies and action plans
-

BIOEAST

Strategy for deployment of biofuels for transport in the Eastern European market (BIOEAST), European Commission, ALTENER programme, 2003-2005

Romanian partner: Centre for Promotion of Clean and Efficient Energy in Romania (ENERO)

Objectives: to examine, develop, and propose strategies for the increase of biofuels use in the transport sector of Greece, Bulgaria and Romania; either by exploiting their own potential or through trading with Ukraine. It was the first study to approach biofuels production in Romania

COFITECK

Co-firing- from research to practice: technology and biomass supply know-how promotion in Central and Eastern Europe, FP 6, European Commission, 2006-2009

Romanian partner: Centre for Promotion of Clean and Efficient Energy in Romania (ENERO)

Objective:

- ✓ general- to contribute to the optimal development of co-firing in the NMS of CEE region through promotion and dissemination of existing knowledge on co-firing in the energy sector.
- ✓ specific: dissemination of knowledge on the co-firing in electricity production plants, with focus on:
 - new and economically feasible technological solutions for co-firing of biomass and coal (e.g. comparison of direct and indirect co-firing),
 - the biomass supply chain (local biomass potential, logistics, biomass market organisation, etc.).

PROBIOPOL

Biogas Polygeneration for Romania is an EU project financed as a Specific Support Action within Sixth Framework Programme in the priority area of sustainable energy systems, October 2007 – January 2010

Romanian partners: Regional Environmental Center for Central and Eastern Europe/ Country Office Romania (REC Romania), Project Developer Ltd.(ProDev), The General Association of the Engineers in Romania (AGIR) branch Cluj/Sibiu,

Objectives:

Kick-starting the market for large-scale biogas polygeneration in Romania

- Demonstrating energy self-sufficiency of agro industrial companies
- Analysing the options and feasibilities of biogas facilities in Romania
- Supporting policy and decision-makers to address biogas investment
- Initiating two large-scale biogas polygeneration plants in Romania with up to 10,000,000 kWh.

PHARE Project:

RO 2005/017-553.03.10.2.2 , Technical and Economic Potential of RES in Romania

Duration: 2008

Client: The Ministry of Economy

The study updated the technical and economical potential, including for biomass resources.

AGRIFOREENERGY

Promoting the use of biomass from agricultural and forestry sector for heating, electricity and transport purposes

Romanian partner: Chiminformdata

Duration: January 2006 – February 2008

The project addresses the barriers lack of co-operation, information and training within the agricultural and forestry sector and lack of public awareness among decision makers. One of the objectives is to integrate the agricultural and forestry sector into the energy market as raw material supplier (e.g. woodchips) or as energy supplier (e.g. bioheat).

BICEPS

Biogas integrated concept a European Program for sustainability

January 2007-Septemer 2011

Romanian partner: OVM-ICCPET SA.

- demonstrate the generation of electricity, heat and refrigeration from biogases
- the project will demonstrate two 1 MW molten carbonate fuel cell systems (MCFC) using biogas / landfill gas and generating electricity, heat and refrigeration.

BiG>East

Biogas for Eastern Europe

Romanian partner: [SC Mangus Sol SRL](#)

Duration: October 2007- August 2009

BiG>East promotes the production and use of biogas as a secure and sustainable energy source in several target countries of Southern and Eastern Europe. This is achieved by knowledge transfer from biogas experts of Western Europe to farmers, biogas plant operators and decision makers in Southern and Eastern Europe.

BioDieNet

Developing a network of actors to stimulate demand for locally produced biodiesel from used cooking oil.

Romanian partner: ABMEE Brasaov

Duration: January 2007- December 2009

BioDieNet is a project by the Intelligent Energy for Europe Programme to facilitate the uptake of used cooking oil to produce biodiesel. The objective of BioDieNet is the promotion of localised biodiesel production for transportation purposes, by means of the active involvement of local Energy Agencies in more than 10 European countries.

Biodiesel Chains

Promoting favourable conditions to establish biodiesel market actions

Romanian partner: Interco Concept (ITC)

Duration: January 2006-December 2007

The overarching goal of this project is to understand & promote favourable conditions for the establishment of biodiesel market chains in selected countries which have had limited developments to date.

BioMotion

Information, Motivation and Conservation strategies for biofuels with consideration of the special regional structures

Romanian partner: UASVM Romania

Duration: September 2007 – April 2010

The BioMotion project aims for the goal to use more biofuels like Pure Plant Oil, Biodiesel, Ethanol and Biogas and simultaneously decrease the consumption of fossil fuels on a local and regional level.

Specific barriers to the implementation of biomass projects in Romania include:

1. Lack of regulations for tax incentives for utilization of biomass wastes;
2. Romania has no energy or carbon taxes on any type of fuel or energy;
3. Lack of financial sources for production and utilization of briquettes and pellets

REFERENCES:

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2. http://www.energie-cites.org/db/campeni_569_en.pdf
3. <http://www.managenergy.net/products/R857.htm>
4. Ministry of Economy
5. Ministry of Environment and Rural Development
6. <http://www.rosilva.ro>
7. 2008 Romanian Statistic Yearly book
8. Romanian Energy Regulatory Authority
9. Eurostat Yearbook 2005
10. <http://www.mapam.ro>

BIOMASS STAKEHOLDERS (Biodiesel producers: (source: On-line publication – “Banii Nostrii”)

ANNEX II

Producer	Capacity	Address	Tel/Fax	E-mail
SC Ultex SA Tandarei,	36.000 tons/year	Tandarei, Ialomita, str. Teilor nr .51	Tel: 0243.273355 Fax: 0243.273600	ultex@ultex.ro
SC Autoelite SRL	30.000 tons/year	AUTOELITE Ltd. Str.Baii no. 3 , Baia Mare	Tel/Fax 40-262-277 382	siromex@binet.ro
SC Biovector SRL	10800 tons/year	Bacau	Tel:-	-
SC Biocombustibil SRL	10800 tons/year	Bucuresti	Tel: 0314056863	-
SC Tibi Oil	5.780 tons/year	Prahova, Comarnic, str Podu Lung	Tel: 0244345225	office@tibioil.ro
SC Marsat SA,	12 tons/24 h; 360 tons/month	Str. Stefan cel Mare, nr. 268, Roman, Neamt	tel: 0233 741427; 743701 fax: 0233 743701	office@marsatsa.ro comercial@marsatsa.ro
SC Halciu SRL	3.600 tons/year	Topolog, Tulcea	Tel : 0723305892	Halciu Stere
SC Argus SRL	3.600 t/year	B-dul Carol I nr. 39, Rm. Valcea	Tel: 0350809965 Fax: 0250712232	Obogeanu Dedy http://www.dedy-vit.ro year
SC Agromixt SRL	1800 t/ year	Str. Popa Tun Nr.1 A , Buzau	Tel: 0751120990	agromixt2001srl@yahoo.com -
SC Helianthus SRL	3 tons/24 h; 90 tons/month	Galati	Tel: 0236-868671	-
SC Biodiesel Transilvania	144.000 tons/year	Sibiu	Tel: 0269 232 806	-

REBIS	150 thousand tons/year	Str. Electronicii 22, Bucuresti	Tel: 4021 252 54 95	www.rebis.ro office@rebis.ro
SC Biomart SRL	50 thousand tons/year	Bucuresti	Tel: 0314056863	eduard.vissarion@martifer.ro
SC Bioetanol SRL	36.000 tons/year	Ialomita	Tel: 0232246000	
SC Ulerom SA	25.000 tons/year	Vaslui	Tel: 0235360332	ulerom@yahoo.com
SC Biodiesel Company	7.200 tons/year	Radauti	Tel:-	-
SC Nicol Zoe SRL Gimbasani, Suceava	7.200 tons/year	Str. Ipatescu Ana, Nr. 66, Slobozia, Jud. IALOMITA,	Tel: 0243220188	-
SC Agromec SA Orastie, Ialomita	7.000 tons/ year	Ialomita	Tel:-	-
SC CGC Agria SRL,	3.600 tons/ year	Str. FERMELOR 20 Piatra Neamt	Tel:-	-
AF Agropres, Arad, Neamt	2.160 tons/ year	STR. 231, Nr. 81, Loc. PECICA	Tel: 0257469153	-
PROFILAND	70 thousand tons/year	Str. Portului nr.157, Galati	Tel: 0236/460361 0721228684	gabriel.turta@intfor.ro
PRIO BIOCOMBUSTIBIL SRL	100 thousand tons/year	Bucuresti	Tel: 0242640110	-
CHIMOFARM	15 thousand tons/year	Neamt	Tel: 0.233.741.449	office@chimofarm.ro
MARSAT SA	4.320 thousand tons/year	Neamt	Tel: 0233 741427	office@marsatsa.ro
NICOL ZOE IMPEX SRL	7 thousand tons/year	Ialomita	Tel: 0243220188	-

BIOMASS STAKEHOLDERS (Governmental actors)

ANNEX III

NR. CRT.	Name	Adress	Contact person	Tel/fax, email, web
1	Ministry of Economy Directorate of Quality and Environment	Calea Victoriei, nr. 152, sector 1, București	Cristiana ION Georgeta LIVANU	georgeta_livanu@minind.ro Tel: 0212025280 http://www.minind.ro
	Ministry of Economy Directorate of Energy Policy	Calea Victoriei, nr. 152, cod 010096, Bucuresti	Alexandru SÂNDULESCU	sandulescu@minind.ro Tel:0212025 385 http://www.minind.ro
2	Ministry of Environment and Sustainable Development	B-dul Libertatii nr. 12, Sector 5, Bucuresti	Malina FRĂȚEANU	malina.frateanu@mmediu.ro Tel: 021 301 83 49 http://www.mmediu.ro
3	Ministry of Transport	Bulevardul Dinicu Golescu nr. 38 ,Sector 1, Bucuresti	Cristina PALLOȘ	Tel:021.319.95.65 http://www.mt.ro
4	Ministry of Agriculture	Bucuresti, B-dul Carol I, nr. 24, sector 3	Miron MOLDOVAN	feadr@madr.ro Tel: 021-307-23-00 http://www.madr.ro/
5	Ministry of Regional Development and Housing	Str. Apolodor, nr. 17, Latura Nord, sector 5	Vasile BLAGA	info@mdrl.ro Tel: 037 211 14 09 http://www.mdrl.ro
6	ARCE	Calea Victoriei nr. 118, sector 1, Bucuresti	Irina NICOLAU	nicolau@arce.ro Tel:0723912142 http://www.arceonline.ro
7	ANRSC	Str. Romulus nr.6, Sector 2, Bucuresti	Diana GHEORGHE	dgheorghe@anrsc.ro Tel: 021/ 326.17.81 http://www.anrsc.ro
8	ANRE	Str. Constantin Nacu nr. 3, Bucuresti	Georgeta STÂNCIULESCU	gstanciulescu@anre.ro http://www.anre.ro/
9	OPCOM	Bd. Hristo Botev 16-18, sector 3, Bucuresti	Gherghina VLĂDESCU	gherghina.vladescu@opcom.ro Tel: 021 3071.456 http://www.opcom.ro
11	ANCA	Str. Doamnei nr.17-19, Bucuresti, sector 3	Ștefan MANTEA	agentiaagricola@anca-maap.ro Tel: 021/317. 36. 02 http://www.consultantaagricola.ro/
12	TRANSELECTRICA	Str. Armand Calinescu, nr. 2-4, sector 2	Simona OPREA	Tel:021 3035 610 http://www.TRANSELECTRICA.ro

BIOMASS STAKEHOLDERS (Institutes, NGOs, Associations)

ANNEX IV

NR. CRT.	Name	Adress	Contact person	Tel/fax, email, web
1	RAR	Calea Grivitei, nr. 391A, sector 1, Bucuresti	Serban URJAN	serban.urjan@rarom.ro Tel: 021 318.17.30 http://www.rarom.ro
2	Rompetrol Quality Control,	Navodari	Cornelia BALBAE	Tel: 0241.506.254 http://www.rqc.ro
3	ROMCONTROL SA	Str. Polona nr. 16, Bucuresti	-	bucuresti_laborator@romcontrol.ro Tel:021 313.16.79 http://www.romcontrol.ro/
4	Petrom (INCERP Ploiesti)	Bulevardul Republicii 291 A, Ploiesti	-	Tel: 0244598738 http://www.incerp.ro/
5	BIOCARO	Str. Donath 67 400293 Cluj	Adriana GOG	adriana.gog@icia.ro Tel:0264 420590 http://biocaro.ro/
6	Asociatia Biocombustibili	Bucuresti	Alexandru DOBRE	Tel:0212120678, 0726191128
7	COGEN Romania	Str. Rabat, Nr. 15 Sector 1, Bucuresti	Zelici LUDOVIC	office@cogen.ro lzelici@yahoo.com Tel: 031 405 7437
8	FALR	Str Eforiei, nr. 5, sector 5, Bucuresti	Adrian MIROIU	falr@falr.ro Tel:021 3150590 http://www.falr.ro/
9	OER	M. Kogalniceanu nr. 23, Brasov	Camelia RAȚA	Tel:0268 474 209 http://oer.ro
10	ABR	-	Marian IENACHIOIU	Tel:0746080500 http://www.asociatia-biocombustibili.ro
11	INL	Sos. Fabrica de Glucoza nr.7, Sector 2, Bucuresti	Radu INDRIEȘ	radu.indries@inl.ro Tel: 021-2331556 http://www.inl.ro/
12	ICEMENERG	Blv. Energeticienilor, S3, bucuresti	Gheorghe OLTEANU	golteanu@icemenerg.ro Tel: 021 346 52 41 http://www.icemenerg.ro/

13	OVM ICCPET	Calea Rahovei nr.266-268, Bucuresti	Ioana PREDESCU	predescu@ovm-iccpet.ro Tel: 021/405.77.80 http://www.ovm-iccpet.ro
14	ICDA	Nicolae Titulescu, nr.1, judetul Călărași	Marian VERZEA	office@incda-fundulea.ro Tel: 0242 642044 http://www.ricic.ro
15	ASAS	B-dul. Marasti Nr. 61, Sector 1, Bucuresti	Cristian HERA	asas-it@asas.ro Tel:0 21-3184450 http://www.asas.ro/
16	INMA	B-dul Ion Ionescu de la Brad, Nr. 6, Sector 1 Bucuresti	Ionel Cornelia MURARU	cmuraru@inma-ita.ro Tel: 0742 226 193 http://www.inma.ro
17	USAMV	Calea Mănăștur, nr.3-5,	Sevastita MUSTE	contact@usamvcluj.ro Tel: 0740033130 http://www.usamv.ro
18	ICIA	Str. Donath 67 400293 Cluj-Napoca Romania	Adriana GOG	Tel: 40 264 420590 http://www.icia.ro
19	ECOIND	Panduri, nr. 90-92, sector 5	Margareta NICOLAU	Tel: 021410.67.16 http://www.incdecoind.ro
20	ISPE	Bulevardul Lacul Tei 1-3, Bucuresti, 020371	Carmencita CONSTANTIN	Tel: 0 212107080 http://www.ispe.ro
21	INCDA Fundulea	Fundulea	Alexandru BUDE	saulescu@incda-fundulea.ro Tel: 0213154040 http://www.incda-fundulea.ro
22	ICIM	Spl. Independentei nr. 294, sector 6, Bucuresti	Neculai MIHAILESCU	icim@icim.ro Tel: 021 318 20 57 http://www.icim.ro
23	ICAS	Sos. Stefanesti 128, O77190 Voluntari, Ilfov	Claudia MORAR	icas@icas.ro Tel:021 350 32 38 http://www.icas.ro
24	ROMSILVA	Bd. Magheru numărul 31, sectorul 1, Bucuresti	Filip GEORGESCU	office@mp.rosilva.ro Tel: 021 317 10 05 http://www.rosilva.ro
25	Asociatia Biocombustibili in Romania	Str. Mantuleasa 6		0314242769 office@asociatia-biocombustibili.ro