

Eleonóra Marišová – Jelena Milovanović – Zuzana Ilková – Martin Mariš – Lucia Paľšová
– Kristína Mandalová

Legislation, support and development of renewable energy resources and business

Legislatíva, podpora a rozvoj obnoviteľných zdrojov energie a podnikania

Abstract Growing renewable energy plants on agricultural land and its further energy usage presents a significant importance for implementing long-term strategy of Slovakia in the area of acquisition and use of renewable energy sources (RES). Renewable energy plants together fulfil the objectives of Europe 2020 strategy and they contribute to diversification of energy resources. The paper draws on the EU and national legislation regulating growing renewable energy plants and compares the legislative conditions of growing energy plants on agricultural land in Slovakia and Serbia as accessing country into the EU. The paper points also on supporting schemes for establishment of plantations for renewably energy plants on agricultural land. At the same time it analyses the legislation regulating biomass production for energy purposes and policies for business development in this area. Since large proportion of agricultural land in Slovakia is located in areas for intensive use of inappropriate plants, attention should be paid to the growing of industrial and fast growing energy plants on marginal lands. The introduction of these crops into the land management system should be considered as one of the most important innovation in plant production and their cultivation should become a supported business.

Keywords renewable energy plants - Europe 2020 strategy – legislation - business, disadvantaged regions - energy diversification - supporting schemes

Abstrakt Pestovanie energetických rastlín na poľnohospodárskej pôde a ďalšie využitie ich energie predstavuje zásadný význam pre realizáciu dlhodobej stratégie Slovenska v oblasti získavania a využívania obnoviteľných zdrojov energie (OZE). Energetické rastliny splňajú ciele stratégie Európa 2020 a prispievajú k diverzifikácii energetických zdrojov. Príspevok vychádza z právnych predpisov EÚ a národnej legislatívy upravujúcej pestovanie energetických rastlín a porovnáva legislatívne podmienky pestovania energetických rastlín na poľnohospodárskej pôde na Slovensku a v Srbsku, ako kandidátskej krajiny o členstvo v EÚ. Príspevok tiež poukazuje na podporu programov pre zakladanie plantáží pre pestovanie energetických rastlín na poľnohospodárskej pôde. Zároveň analyzuje právne predpisy upravujúce výrobu biomasy na energetické účely a rozvoj podnikania v tejto oblasti. Vzhľadom k tomu, že veľký podiel poľnohospodárskej pôdy na Slovensku sa nachádza v oblastiach, pre intenzívne používanie nevhodných rastlín by sa mala pozornosť venovať pestovaniu priemyselných a rýchlorastúcich energetických rastlín na marginálnych pôdach. Zavedenie týchto plodín do systému

hospodárenia s pôdou by malo byť považované za jednu z najdôležitejších inovácií v rastlinnej výrobe a ich pestovanie by sa malo stať podporovaným v oblasti podnikania.

Kľúčové slová energetické rastliny- stratégia Európa 2020 - legislatíva – podnikanie – znevýhodnené regióny – diverzifikácia energie – podporné programy

Introduction

European Union has defined in the area of energy its main priorities, namely sustainability, stability of energy sources, safety and security of energy supply, its efficient use and preference of renewable energy sources. The reason is not only protecting the environment but also reducing dependence on fuel imports and creating new jobs.

However, latest data shows that the EU imported 53% of its energy at a cost of around EUR 400 billion, which makes it the largest energy importer in the world. European renewable energy businesses have a combined annual turnover of €129 billion and employ over a million people (Eur'Observateur 2014 Report.) EU companies have a share of 40% of all patents for renewable technologies (global EU share of all patents is 32%). The challenge is to retain Europe's leading role in global investment in renewable energy. (UNEP-BNEF: Global Trends in Renewable Energy Investments, 2014). Today, the European Union has energy rules set at the European level, but in practice it has 28 national regulatory frameworks.

Therefore, EU Commission issued by COM/2015/080 “The Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy”. The goal of a resilient Energy Union with an ambitious climate policy at its core is to give EU consumers - households and businesses - secure, sustainable, competitive and affordable energy. Achieving this goal will require a fundamental transformation of Europe's energy system. The strategy finds that the retail market is not functioning properly. Many household consumers have too little choice of energy suppliers and too little control over their energy costs. An unacceptably high percentage of European households cannot afford to pay their energy bills. Energy infrastructure is ageing and not adjusted to the increased production from renewables. EU's energy policy is to go to right direction: that of an Energy Union.

Material and methods

The paper is focused at legislation, support and development of renewable energy resources and business in this field. The aim of the paper is to highlight importance of the legislation of renewable energy sources within implementation of the EU visions and requirements. Case of Slovakia, the EU member state and Serbia, as a state in the EU accession process, were selected. The research covers the EU criteria and requirements in the field of renewable energy resources (RES) and legislation of Slovakia as well as the Serbian one.

Observations are based on the analysis of how the regulations were designed and how the current legislation relating to RES and national support of fast growing trees meet the EU vision as well as the business regulations in this area in both state. Observations have qualitative character. Based on them, we can discuss the state of fulfilment of mandatory national targets for the overall share of energy from renewable sources in gross final consumption of energy and for the share of energy from renewable sources in transport in Slovakia and in Serbia.

Material of the survey consists of respective EU, Slovak and Serbian legislation and strategic documents. The methods of comparison and analysis were used. At the EU level, the main document was Directive 2009/28/EC of the European parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC as a common framework for the promotion of energy from renewable sources according to which each member state shall adopt a national renewable energy action plan. For analysis of legislative conditions of growing energy plants in Slovakia and Serbia strategic document were used. It was mainly Rural Development Program 2014-2020 In Slovakia and Biomass Action Plan in Serbia and also number of other laws that help to analyse legislation of renewable sources.

Results and Discussion

EU legislation

The use of energy from renewable sources in the EU is regulated by Directive 2009/28/EC of the European parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

This Directive establishes a common framework for the promotion of energy from renewable sources. It sets mandatory national targets for the overall share of energy from renewable sources in gross final consumption of energy and for the share of energy from renewable sources in transport. It lays down rules relating to statistical transfers between Member States, joint projects between Member States and with third countries, guarantees of origin, administrative procedures, information and training, and access to the electricity grid for energy from renewable sources. It establishes sustainability criteria for biofuels and bio-liquids.

According to Article 3, each Member State shall ensure that the share of energy from renewable sources, calculated in accordance with Articles 5 to 11, in gross final consumption of energy in 2020 is at least its national overall target for the share of energy from renewable sources in that year, as set out in the third column of the table in part A of Annex I. Such mandatory national overall targets are consistent with a target of at least a 20 % share of energy from renewable sources in the Community's gross final consumption of energy in 2020. In order to achieve the targets laid down in this Article more easily, each Member State shall promote and encourage energy efficiency and energy saving.

Each Member State shall adopt a national renewable energy action plan. The national renewable energy action plans shall set out Member States' national targets for the share of energy from renewable sources consumed in transport, electricity and heating and cooling in 2020, taking into account the effects of other policy measures relating to energy efficiency on final consumption of energy, and adequate measures to be taken to achieve those national overall targets, including cooperation between local, regional and national authorities, planned statistical transfers or joint projects, national policies to develop existing biomass resources and mobilise new biomass resources for different uses, and the measures to be taken to fulfil the requirements of Articles 13 to 19.

The European Union support

A working single market is necessary to fully exploit synergies of generating renewable electricity and producing biofuels. Directive 2001/77/EC on the promotion of electricity produced from renewable energy and Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport were the main legal acts, laying down the general conditions for developing the legal environment for enterprising on the field of renewable energy resources. The newest legal acts are The Renewable Energy Directive 2009/28/EC (RED) and the Fuel Quality Directive 2009/30/EC (FQD) which lay a sustainability scheme for biofuels used in transport and bio-liquids used in electricity, heating and cooling.

The renewable energy policy was formally institutionalized by adopting the documents “Energy efficiency action plan” in 2006 “Road map for renewable energy” in 2007, “Energy 2020 a strategy for competitive, sustainable and secure energy” in 2010, and “a policy framework for climate and energy in the period 2020 to 2030” in 2014. The most complex document incorporating broad topics renewable energy policy included (resource efficient Europe initiative), focusing on economic growth and development is EUROPE 2020 strategy.

The overall goal of renewable energy policy is to fulfil at least 20% of its total energy needs with renewables by 2020 – to be achieved through the attainment of individual national targets. All EU countries must also ensure that at least 10% of their transport fuels come from renewable sources by 2020.

Slovak National legislation and support

Slovak republic is an integral part of the European Economic Community and an active contributor to Europe 2020 strategy (resource efficient Europe initiative included). Slovakia has taken in part of resource efficient Europe initiative decisive steps. Several documents were adopted. Broadly, the topic of the renewable energy resources was integrated in Rural Development Program 2014 – 2020. More specifically, Biomass Action Plan 2008-2013, Strategy of higher use of the renewable energy resources in Slovakia and Strategy of energy security of Slovakia till 2030 have been adopted. The overall strategic goal is to increase the

share of renewable energy resources on total gross energy consumption by 20% in EU countries. For Slovakia, the specific goal was set at 14% of the share (11.3% share in 2011) till 2020.

Cultivation of fast growing trees on agricultural land is governed by Act No. 220/2004 Coll. on the conservation and use of agricultural land and by Act No. 245/2003 Coll. concerning integrated pollution prevention and control and on the amendment of certain acts. The amendment to this Act and the Act No. 57/2013 Coll. with effect from 1 April 2013 establishes the principles and procedure for the establishment of plantations of fast-growing trees on agricultural land and establishes a register area of plantation of these plants, which leads the district office, land and forest department. On the basis of the amended adjustment is no need to apply for a temporary withdrawal of agricultural land the land that determines the founder of plantations for the cultivation of fast-growing trees, also there is no need to apply for a change of land type. However, must be complied with legal requirements specified in § 18a of the Act. The plantation of fast growing trees can be based on the agricultural land area of more than 1 000 m² and is classified under the code of valuated soil-ecological units (BPEJ/VSEU) in the fifth to ninth qualitative group, or soil contaminated hazardous substances or on land classified in accordance VSEU code to the third or fourth group, if the land is located on flood plains, is waterlogged, or exposed to wind erosion. The crop of fast growing trees cannot be based on the land that is in the third to fifth degree of territorial nature and landscape protection. A person who chooses to base crop, must apply for registration Land and Forest Department of the relevant district office.

After fulfilment of requirements the certificate of registration area of a crop of fast growing trees is issued to the founder. The certificate contains a registration number for each separate area of a crop of fast growing tree species, date of establishment and termination of fast growing tree species, surface of proposed area for the establishment of vegetation on the basis of cadastral data identification, obligation effecting agricultural land reclamation at the latest during the last year of fast growing tree species and the obligation to ensure protection of surrounding agricultural land against self-seeding from the area of fast growing trees.

The species composition of plantations is not defined by this law but may not cultivate invasive species under the Act No. 543/2002 Coll. on nature and landscape protection, as amended.

The law also does not provide the legal form of the person who chooses to found fast-growing plantation species. Law states a person or founder of the crop, this implies that the person or founder of the crop may be a legal entity or natural person who has an interest extend the scope of its business focused on growing plants or herbs intended for energy exploitation. Cultivation of fast growing tree species can be interesting investment plan for large enterprises, but also opportunities for small and medium-sized businesses farming on agricultural land. In the cultivation as well as in the production of energy materials - biomass of fast-growing trees the legal form of the grower, producer is not decisive.

According to the current legislation on agricultural land may enterprise an individual self-employed farmer, whose legal status is governed by Act No. 219/1991 Coll. Business of self-employed farmer consists in carrying out of agricultural production, including forest and water management, personally or through other persons.

Self-employed farmer performs agricultural production in their own name, on his own account and responsibility. A natural person who has decided to do business as a self-employed farmer should contact local authority to report this activity. Municipal office is issuing the certificate of registration of self-employed farmer then the entrepreneur has to apply statistical office for the allocation number and notify the business to a relevant tax authority, relevant social and health insurance companies. Legal relations of the self-employed farmer in the implementation of agricultural production such as commercial contractual relationships are governed by the Commercial Code.

The advantage of this form of business is easy way of obtaining business license, the disadvantage in our opinion, is the responsibility of the entrepreneur for the results of business with all assets.

Any natural person may associate with another natural or legal person or persons for the purpose of joint ventures and establish a legal person, trading company or cooperative. The legal status of these legal persons is regulated by Act No. 513/1991 Coll. Commercial Code.

According to results of agricultural surveys carried out by the Statistical Office of the Slovak Republic as part of the European project of agricultural statistics of the EU to 31.10.2013 in agriculture undertook in SR 2,618 self-employed farmers, 3 public companies, 1833 limited liability companies, 3 limited partnerships, 131 joint stock companies, 567 cooperatives, five state-owned enterprises. The largest group consists of self-employed farmers (2618) who cultivate in average 52.95 hectares of agricultural land, the second largest group are the limited liability companies (1833) with an average area of 369.33 hectares of cultivated land, and then cooperatives in the number of 567 with an average area of 1 234.75 hectares of agricultural land, the legal form of joint stock companies had 131 subjects with an average area of agricultural land 1062.72 ha. From the survey follows that a limited liability companies cultivated in total 676.977.42 ha, cooperatives 700.102.44 ha, joint stock companies 139 220.12 ha and self-employed farmers 138.515.11 ha of agricultural land.

Nowadays, the using rate of renewable energy resources in Slovakia is unfavourable. According the Rural Development Program 2014 – 2020, the situation is characterized by the low production of renewable energy both in agriculture (0,0756 kT/1000 ha) and forestry (0,382 kT/1000 ha) in 2010, well below the EU average (0,102 kT/ha) for agriculture and (0,4556 kT/1000 ha) for forestry, respectively. Particularly, for instance the overall acreage of the fast growing plants for production of biomass is insignificant (only 66 ha) in 2011 (Rural Development Program 2014 – 2020).

For 2030, Slovakia had set ambitious goals. The overall strategic goal is to significantly increase the share of all potential sources of renewable energy on the gross production of primary energy and gross consumption of energy, respectively.

Amount of renewable energy sources till 2030

Množstvo obnoviteľných zdrojov energie do roku 2030

Table 1

	2010	2015	2020	2025	2030
Biomass	31000	50000	74000	90000	120000
Solar energy	300	3000	12000	22000	37000
Geothermal energy	200	2000	7000	10000	14000
Water energy	18000	20000	22000	23000	24000
Wind energy	300	x	x	x	x
Energy waste	200	x	x	x	x
Total	50000	77000	120000	150000	200000
Share of renewable energy [%]	6,4	9,5	14,0	18,0	24,0

Source: The Ministry of economics of Slovak republic, Strategy of energy security of Slovakia till 2030

The development of the renewable energy resources is the object of the interest at the level of EU and national level. Various support measures have been adopted. Support policy became the part of the Rural Development Program 2014 – 2020. Within this document, renewable energy resources is the part of the second goal of Rural Development Program 2014 – 2020 : sustainable management of natural resources and adaptation on climate change, within the scope of the second priority: increased proportion of biomass and waste, crop residues, livestock excreta and other renewable energy sources for energy production.

Concrete measures are related to investments to tangible assets of agricultural enterprises. Investments are directed to the production, processing and use of renewable energy sources, particularly the establishment of fast growing plants pastures, etc. Type of support is based on grants, thus non-refundable payments. Beneficiaries should be physical and legal persons, enterprising in agriculture, possible in relation with public partnership.

The basic rate of support is set at 50% of all eligible costs in the case of less developed regions (without Bratislava region) and 40% of all eligible costs in the case of Bratislava region. The support should be raised by 20% besides filling special conditions.

Another form of support there are subsidies for already or newly established fast growing plants pastures. Applications for direct payments are submitted to the agricultural payment agency who farms on arable land (registered) in Slovak republic. Applicant should meet certain

criteria according the Guidelines of Ministry of agriculture and rural development on regulation No.342/2014 Coll.

- acreage should be at least 1 ha
- land should be occupied by eligible species of trees (specified in table)
- beneficiary should keep maximal cycle of collection
- fast growing trees should be planted in monocultures or in mix fast growing trees
- number of plants should be at least 2000

The single payment area was set at 205,57eur/ha in 2014 according the Journal of Ministry of agriculture and rural development on amount of additional direct payments in crop production no. 722/2014 -100.

The market does not provide the optimal level of renewables in the absence of public intervention. This is due to market and regulatory failures: low levels of competition and unfair competition with other fuels, in particular subsidies for fossil fuels and nuclear energy, the incomplete internalization of external cost and rigid electricity system design inhibit the growth of renewable energy.

To counter and correct such situations public authorities intervene. Public intervention at regional, national or local level, can take different forms. Examples include state aid to certain sectors or companies in the form of grants or exemptions from taxes and charges, the imposition of public service obligations, and regulation through general measures. Assistance on the energy renewable resources can be provided in the form of investments and operating assistance.

Aid intensity for investment aid as a part of the eligible costs

Intenzita pomoci pre investičnú pomoc ako súčasť oprávnených nákladov

Table 2

	Small enterprise	Medium-sized enterprise	Large enterprise
Aid for undertakings going beyond Union standards or increasing the level of environmental protection in the absence of Union standards (aid for the acquisition of new transport vehicles)	60% 70 % if eco-innovation, 100 % if bidding process	50% 60 % if eco-innovation, 100 % if bidding process	40% 50 % if eco-innovation 100 % if bidding process
Aid for environmental studies	70%	60%	50%
Aid for early adaptation to future Union standards	20%	15%	10%
more then 3 years	15%	10%	5%
between 1 and 3 years before the entry into force of the standards			
Aid for waste management	55%	45%	35%

Continue of Table 2			
	Small enterprise	Medium-sized enterprise	Large enterprise
Aid for renewable energies Aid for cogeneration installations	65%, 100% if bidding process	55%, 100% if bidding process	45%, 100% if bidding process
Aid for energy-efficiency	50%, 100% if bidding process	40%, 100% if bidding process	30%, 100% if bidding process
Aid for district heating and cooling using conventional energy	65%, 100% if bidding process	55%, 100% if bidding process	45%, 100% if bidding process
Aid for remediation of contaminated sites	100%	100%	100%
Aid for relocation of undertakings	70%	60%	50%
Aid in the form of tradable permits	100%	100%	100%
Aid for energy infrastructure District heating infrastructure	100%	100%	100%
Aid for CCS	100%	100%	100%

The aid intensities mentioned in this table maybe increased by a bonus of 5% points in regions covered by Article 107(3)(c) or by a bonus of 15% points in regions covered by Article 107(3)(a) of the Treaty up to a maximum of 100% aid intensity.

Source: *Guidelines on State aid for environmental protection and energy 2014 - 2020*

National legislation and support in Serbia

In 2014 Serbia began a new phase of the European integration process; namely, accession negotiations for the EU membership. In this process, Serbia will face numerous challenges. The reform of the overall institutional arrangements and agricultural, forestry and biomass production policy will be of extreme importance for the sustained and accelerated development of these areas, as well as preparing to absorb the pre-accession assistance from the EU. The complexity of these sectors and its multidimensional impact on social and economic structures suggest that the government cannot avoid its leading role in socially responsible and structurally sustainable development (Bogdanov and Rodic, 2014).

One of the major steps is the acceptance and the implementation of the EU body of law (*Acquis Communautaire*), as for agriculture, rural development and related issues (fisheries, food safety, renewable energy sources etc.) represent approximately 40 percent of the total *Acquis*. Therefore, the biggest challenge in the negotiation process is Chapter 11 (Agriculture and Rural Development), Chapter 12 (Fisheries), and Chapter 13 (Food Safety) (Eberlin *et al.* 2014).

In order to encourage investment in renewable energy sources (RES), Republic of Serbia has adopted a number of laws and documents. The White Paper on Renewable Energy, as the first document published in 1997, establishes the obligation of share of renewable energy reaches 12% by 2010 and pointed some very important principles for the renewable energy usage, such as:

preventing climate change, reducing air pollution, security of energy supply, encouraging competition and encouraging industrial and technological innovation. Biomass Action Plan (APB) in 2005 was defined as a document that should specify measures to promote biomass in heat and electricity and transport, followed by the subsequent actions related to common issues concerning biomass supply, financing and research. All these documents established sustainability criteria for biofuels and liquid fuels. APB for Republic of Serbia was in accordance with its obligations under the Energy Community Treaty and in the spirit of the Directive 2009/28/EC (Jurekova and Drazic (eds.) 2011).

Timeline of major national initiatives and adopted documents, which, directly or indirectly, relate to biomass production from renewable energy sources

Časová os hlavných národných iniciatív a prijatých dokumentov, ktoré sa priamo alebo nepriamo týkajú produkcie biomasy z obnoviteľných zdrojov energie

Table 3

2004	Law on Energy
2005	Energy Development Strategy of the Republic of Serbia (RS) till 2015
2006	Strategy on Agriculture Development; Forestry Development Strategy
2007	Program for realization of the Energy Development Strategy of the RS till 2015, for period 2007-2012
2008	Decree on: - Amendments to the Regulation on the Implementation Program of the Energy Development Strategy of the RS by 2015, for the period from 2007 to 2012. - Incentives for the production of electricity using renewable energy sources and co-generation of electricity and heat - Conditions for acquiring the status of privileged power producers and the criteria for assessing the fulfilment of these conditions
2009	Law on Agriculture and Rural Development
2010	Biomass Action Plan 2010-2012; Law on Forests
2012	National Strategy for Sustainable Use of Natural Resources
2013	National Action Plan for Renewable Energy Sources
2014	Law on Energy; Strategy on Agriculture and Rural Development 2014-2024; Energy Development Strategy till 2025 with projections till 2030
2015	Forestry Development Program (NFP) (drafting phase)

The National Action Plan for Renewable Energy Sources of the Republic of Serbia (2013) is a document that encourages investment in renewable energy sources (RES), and which set the target for use of renewable energy sources by 2020, and the manner of their implementation. The plan arose from the international commitments that the Republic of Serbia took over in 2006 through the Law on ratification of the treaty for establishing the energy community between the European Community and the Republic of Albania, Bulgaria, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, Romania, Serbia and the United Nations Interim Mission in Kosovo in accordance with resolution 1244 of the United Nations. The Republic of Serbia has, by signing this agreement, adopted to implement various directives in the field of renewable energy sources, and in accordance with Directive 2009/28/E3 Serbia accepted binding targets for member states of the European Union to ensure that renewable energy by 2020, account for 20% of gross final consumption at EU level; also, in the same period, Serbia accepted to improve energy efficiency for 20%. The Republic of Serbia, in

accordance with Directive 2009/28/E3 and the Decision of the Ministerial Council of the Energy Community (18/10/2012), has set itself the ambitious target of 27% RES in gross final energy consumption in 2020, and in relation to that goal adopted significant number of laws and administrative provisions.

According to the Law on Energy (2014), producer from renewable energy sources is an energy facility generating electricity from renewable energy sources and is entitled to guarantees of origin pursuant to this Law. The use of energy from renewable sources is in the interest of the Republic of Serbia. The objectives of the use of renewable energy sources shall be established on the basis of energy needs, economic capacities and obligations of the Republic of Serbia undertaken pursuant to confirmed international agreements. The Ministry shall prescribe the method of calculation of the share of energy from renewable sources in the gross final energy consumption, the method of calculation of the amount of electricity generated from hydro power plants and wind power plants, the energy content of fuels used in traffic, the method of calculation of the impact of biofuels, bioliquids and their comparable fossil fuels on greenhouse gas emissions, as well as the method of calculation of the amount of energy from heat pumps.

According to the new Energy Development Strategy till 2025 with projections till 2030, following priority related to renewable energy sources is planned: “the establishment of sustainable energy, through the implementation of energy efficiency measures, renewable energy sources and the use of standards for the protection of the environment and reducing harmful impact on the climate.” In order to develop the energy system, the Strategy envisaged, among other mechanisms, increasing of the share of energy from renewable sources in gross final energy consumption for 27%, with the efficient use of energy over a wide range of applications. With the aim of environmental protection, the Strategy recognizes the global tendency of the energy industry which increasingly relies on renewable sources and less on exhaustible resources. Based on the statistics of "green" energy system in Serbia, hydropotentials are most commonly used renewable energy potentials while remaining renewables are still in the development stage. Strategic national goals are to use available renewable resources in the production of electricity in power stations, final consumption, as well as for traffic. This strategy emphasizes that sustainable energy, among other mechanisms, can be reached through creating economic, commercial and financial conditions for increasing the share of energy from renewable energy sources.

Unfortunately, the Strategy on Agriculture and Rural Development 2014-2024 does not elaborate potentials from renewable energy sources in agriculture and forestry in detail. The Strategy recognizes importance of public awareness raising related to renewable energy sources usage and cultivation of energy crops as an operational goal for the implementation of the priority area number 9: Environmental protection and natural resources conservation.

Institutional framework that provides support related, directly or indirectly, to renewable energy sources business development can be presented at three important levels:

1. *State level* - Ministry of Mining and Energy and Energy Agency; Ministry of Agriculture and Environmental Protection with Directorate of Forests, Rural Development Sector and Serbian Environmental Protection Agency; Ministry of Education and Science; Ministry of Finance
2. *Provincial level* - Provincial Secretariat for Energy and Mineral Resources; Provincial Secretariat for Agriculture, Water Management and Forestry; Provincial Secretariat for Finance; Provincial Secretariat for Science and Technological Development; Provincial Secretariat for Urbanism, Construction and Environment Protection.
3. *Operational level (regional and local)* - Local Government; Agricultural Extension Service; Public Forestry Enterprises: "Srbijašume“, "Vojvodinašume" and National Parks; Electric Power Industry of Serbia (EPIS); Private Forest Owners Associations (PFOA); Agricultural Holdings; Woody biomass Private companies/Entrepreneurships; Business Association "ToplaneSrbije".

According to the Decision on setting the Energy Balance of the Republic of Serbia for 2015, balancing energy from renewable energy sources includes the production and consumption of electricity from large and small water flows, wind and solar energy, biogas and the production and consumption of heat from geothermal energy and biomass (firewood, pellets and briquettes). Planned production of primary energy from renewable energy sources in 2015 amounted to 1,891 Mtoe which is almost the same as the estimated production in 2014, which amounts to 1,913 Mtoe. In the structure of the planned total domestic production of primary energy in 2015, renewable energy accounts for 17.5%. In this structure, the highest share has solid biomass 59%, then 40% of the hydropower potential, while biogas, wind, solar and geothermal energy account for less than 1%. Production and consumption of solid biomass includes the production and consumption of firewood, pellets and briquettes for energy purposes (for heating). In the framework of the Energy Community in the field of renewable energy sources and for defining goals, research was carried out on biomass consumption for all Parties to the Energy Community Treaty. This study demonstrates the production and consumption of biomass for 2009 and 2010. On the basis of these data, a goal in the field of renewable energy sources that the Republic of Serbia needs to reach in 2020 has been defined, and it's 27% share of renewable energy in gross final energy consumption. Planned production of solid biomass in 2015 is 1,121 Mtoe. From this amount very small amount is consumed by power stations, only 0,002 Mtoe which is at the same level as in 2014. The planned final consumption of biomass amounts to 1.033 Mtoe. In the structure of consumption, industry accounts for 18%, households with 79%, and other sectors with 3%. The consumption of solid biomass takes place predominantly within the household sector for heating purposes. The use of firewood for heating needs is characteristic of rural areas and peripheral parts of the suburbs. As a rule, rural areas gravitate to areas with high production of wood, so firewood has the most acceptable price and there is no alternative. The use of firewood in the peripheral parts of suburban settlements will remain in the coming years. This is due to the low purchasing power of the population on the one hand and the high cost of conventional fuels (heating oil, liquefied petroleum gas, coal), slow construction of gas distribution networks and expensive installation of gas installations on the other hand, as well as lack of financial subsidies and favourable credit conditions.

Entrepreneurship based on renewable energy sources lacks appropriate financial support in Serbia. The Fund for Improving Energy Efficiency is a budgetary fund of the Republic of Serbia envisaged for the efficient use of energy. It started to operate in 2014, and the financial support from the fund is earmarked for projects to increase energy efficiency in the public sector, and projects of citizens and the private sector in the same area. Unfortunately, the fund is aimed mostly for energy efficiency improvement of buildings through adaptation for energy saving. There is no financial support for energy crops cultivation or biomass production through establishment of fast growing trees plantations. Department for Forests within the Ministry of Agriculture and Environmental Protection operates the Budgetary fund for forests which supports afforestation activities and establishment of plantations which can be aimed for biomass production but there is no specific financial support for energy crops and fast-growing trees cultivation.

The reliance of the rural poor population in function of biomass is rarely measured and is usually not included in the valuation of total household resources for entrepreneurship, which may lead to the development of inappropriate strategies that disregarding environmental protection in the fight against poverty. Special attention should be paid to small scale farms. Owing to the fact that they account for the majority of the overall farm structure, small family farms are an unavoidable part of the rural economy that requires special attention. Their number is continually decreasing as the consequence of aging, migrations, the process of globalization, concentration and centralization of capital in agriculture and many others (Djordjevic-Milosevic and Milovanovic 2014).

Conclusions

The EU legislation in the area of renewable energy sources reflects the longterm dependency on energy imports and the need of stability of energy sources.

The Energy Union strategy is designed to help deliver our 2030 climate and energy targets and make sure that the European Union becomes the world leader in renewable energy.

The current national legislations give to any business (entrepreneur) the possibility to extend the scope of its business in the cultivation of energy crops on the basis of diversification of activities. In Slovakia, entrepreneurs have the opportunity to very effectively use less quality agricultural land by the cultivation of energy crops and the implementation of production on the assumptions of fulfilling the strict conditions stipulated by law no. 220/2004 Coll. on the conservation and use of agricultural land. We see the biggest problems in proving ownership of land on which the entrepreneur wants to establish a plantation or prove the tenancy with the agreement of owners of the land. Proving fulfilment of this condition is for entrepreneurs in Slovakia very difficult because of the persistent fragmentation of land ownership and predominant business on leased land. Another problem is seen in the lack of targeted support for the establishment and management of crop land for energy crops.

Rural economy of Serbia face a number of challenges but also open opportunities for the development of competitiveness, which is the requirement for balance between agricultural production and other economic activities, environmental protection and social development. Rural development has typically focused on improving agricultural production and promoting market orientation, however, as the examples of other countries in the EU accession process has shown (e.g. Slovakia), such an approach could threaten the survival of the rural population. To improve the quality of life in rural areas, reduce poverty and prevent social and environmental degradation, measures to support the diversification of the rural economy in a way that is socially, economically and environmentally sustainable are necessary. Biomass production is one of the key sectors with significant potential for diversification of rural economy.

Summary

The paper is mainly focused on EU and national legislation related to renewable energy resources and business in this field. There is a comparison of legislative conditions of growing energy plants in Slovakia and Serbia. The European Union support lies in the promise to ensure that at least 10% of transport fuels of all EU countries come from renewable sources by 2020. In EU countries goal is to increase the share of renewable energy resources on total gross energy consumption by 20% and in Slovakia it is a 14% till 2020. In Slovakia is low production of renewable energy in recent years so any goals seems to be ambitious but it is possible to use support from the EU in the form of grants and subsidies. Situation in Serbia is different however it is an accessing country which adopted number of laws and documents to encourage renewable energy sources. First document was adopted in 1997 – The White Paper on Renewable Energy and in 2005 it was Biomass Action Plan which was in accordance with its obligations under the Energy Community Treaty and Directive 2009/28/EC. With that directive Serbia accepted binding targets for member states of the EU and also accepted to improve energy efficiency for 20% by 2020. In Serbia is missing a financial support in this area. There is the Fund for Improving Energy Efficiency, but mostly focus on energy efficiency improvement of buildings and there is no financial support for energy crops cultivation or biomass production. For entrepreneurs in Slovakia is possibility to use less quality agricultural land but problem is to prove ownership of land intended for cultivation and Serbia will face many of challenges in this area.

Acknowledgements

The paper was prepared in the frame of APVV project SK-SRB-2013-0031: Revitalization of small agricultural farm through energy crops cultivation and biomass production and in the frame of project TR31078 - Ecoremediation of degraded areas through agro-energy crops production, supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia

References

1. BOGDANOV, N. – RODIĆ, V. 2014. Agriculture and agricultural policy in Serbia. In *Agriculture Policy and European Integration in Southeastern Europe*, UN FAO: 153-171.
2. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank. A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy /* COM/2015/080 final */
3. DJORDJEVIĆ-MILOŠEVIĆ, S. – MILOVANOVIĆ, J. 2014. Linking Rural Livelihood Diversity and Sustainable Development. Faculty of Applied Ecology Futura Singidunum University Belgrade: 1-193.
4. EBERLIN, R. – LUDVIG, K. – DZIMREVSKA, I. – SPASOVSKA, K. – ERJAVEC, E. 2014. Objectives and Approach. In *Agriculture Policy and European Integration in Southeastern Europe*, UN FAO: 3-8
5. Fuel Quality Directive 2009/30/ EC (FQD). Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0088:0113:EN:PDF>
6. Guidelines of Ministry of agriculture and rural development on regulation no. 342/2014. Available at <http://www.apa.sk/index.php?navID=1&id=6473>
7. http://europa.eu/rapid/press-release_IP-15-5358_sk.htm
8. <http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=14372>
9. Journal of Ministry of agriculture and rural development no. 722/2014-100. Available at <http://www.mpsr.sk/index.php?navID=126&year=2014>
10. JUREKOVA, Z. - DRAZIC, G. (eds.). 2011. External and internal factors influencing the growth and biomass production of short rotation woods genus *Salix* and perennial grass *Miscanthus*. Fakultet zaprimenjenu ekologiju Futura Beograd. 177p.
11. JUREKOVÁ, Z. – MARIŠOVÁ, E. – KOTRLA, M. – KONČEKOVÁ, L. – TÓTHOVÁ, M. 2011. Comparative studies of adaptability and productivity of energy crops and plants grown on agricultural land of Southern Slovakia and Serbia. In *Integrovaný rozvoj vidieka 2011*. Nitra :Slovenská poľnohospodárska univerzita, 978-80-552-0574-8, s. 9-11.
12. JUREKOVÁ, Z. – MARIŠOVÁ, E. 2008. Ecological limits and legal aspects of growing energy crops in Slovakia. In *Acta regionalia et environmentalica*. ISSN 1336-5452. Roč. 5, č. 2, s. 46-50.
13. KOTRLA, M. – PRČÍK, M. 2013. Environmental and socio-economic aspect of growing *Miscanthus* genotypes. In *Scientific papers*. ISSN 2247-3527. Vol. 13, iss. 1, s. 201-204.
14. MAFWM. 2013. The Strategy of agriculture and rural development of the Republic of Serbia (2014–2024), The Ministry of Agriculture, Forestry and Water Management of the Republic of Serbia: 1-138.

15. NACIONALNI AKCIONI PLAN ZA KORIŠĆENJE OBNOVLJIVIH IZVORA ENERGIJE REPUBLIKE SRBIJE (NAPOIE) (National action plan for Renewable Energy Sources of the Republic of Serbia) (Official Gazette of the Republic of Serbia 53/2013).
16. NÁVRH STRATÉGIE ENERGETICKEJ BEZPEČNOSTI SR DO ROKU 2030. Available at:
17. ODLUKA O UTVRĐIVANJU ENERGETSKOG BILANSA REPUBLIKE SRBIJE ZA 2015.Godinu (Decision on setting the Energy Balance of the Republic of Serbia for 2015) (Official Gazette of the Republic of Serbia 147/2014).
18. RURAL DEVELOPMENT PROGRAM 2014 – 2020. Available at <http://www.mpsr.sk/index.php?navID=935&navID2=935&sID=43&id=8644>
19. REPORT EUR'OBSERVEUR 2014.
20. THE RENEWABLE ENERGY DIRECTIVE 2009/28/EC (RED). Available at <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32009L0028>
21. UNEP-BNEF: Global Trends in Renewable Energy Investments (Globálne trendy investícií do energie z obnoviteľných zdrojov) 2014.
22. ZAKON O ENERGETICI (Law on Energy) (Official Gazette of the Republic of Serbia 145/2014).

Delivered: September 11, 2015

Contact addresses

prof. JUDr. Eleonóra MARIŠOVÁ, PhD., Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia, +421376415072, eleonora.marisova@gmail.com

prof. Dr. Jelena MILOVANOVIČ, Singidunum University, Belgrade, Požeška 83a, tel:011/3541439, jelena.milovanovic@futura.edu.rs

doc. JUDr. Zuzana ILKOVÁ, PhD., Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia, +421376415073, zuzana.ilkova@uniag.sk

JUDr. Lucia PALŠOVÁ, PhD., Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia, +421376415079, lucia.palsova@gmail.com

Ing. Kristína MANDALOVÁ, PhD., Slovak University of Agriculture in Nitra, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia, +421376415070, k.mandalova@gmail.com
