

EUROPEAN POLICY REGARDING ENERGETIC SECURITY IN THE FIELD OF RENEWABLE ENERGY

Maria POPESCU¹, PhD,
Free International University of Moldova

In recent years the European Union has been working continually to promote green energy. Renewable energy presents certain social, economic and environmental benefits, has a low environmental impact, therefore, can support economic growth on a sustainable basis. Theme analyzes progress in the EU, trends and long-term scenarios in renewable resources. Renewables have a high potential to stimulate EU industrial competitiveness. Developing new energy sources with low carbon is very important to avoid high costs of climate change and pollution conditions. Renewable energy can use all our energy requirements: electricity production, transport and domestic heating. Hydropower and wind are exclusively used for generating electricity, while biomass, geothermal and solar can be used to produce electricity and heat.

Keywords: *renewable resources, competitiveness, energy security, sustainability.*

În ultimii ani, Uniunea European a fost preocupat în permanen de promovarea energiei verzi. Energia regenerabil prezint anumite beneficii sociale, economice i de mediu, are un impact redus asupra mediului, deci, poate sus ine o cre tere economic pe baze durabile. Tema analizeaz , progresele înregistrate în spa iul UE, tendin ele i scenariile pe termen lung în domeniul resurselor regenerabile sunt benefice. Energiile regenerabile au un poten ial ridicat de stimulare a competitivit ii industriale a UE. Dezvoltarea de noi surse de energie cu emisii reduse de carbon este foarte important pentru a evita costurile ridicate generate de schimbarea condi iilor climatice i de poluare. Energia regenerabil poate fi utilizat pentru toate cerin ele noastre energetice: producerea de electricitate, transport i înc lzirea locuin elor. Hidroenergia i energia eolian se folosesc doar pentru generarea de electricitate, în timp ce biomasa, energia geotermal i cea solar se pot folosi pentru a produce electricitate i c ldur .

Cuvinte-cheie: *resurse regenerabile, competitivitate, securitate energetic , sustenabilitate.*

JEL Classification: Q21, Q28, Q47, Q48.

Introduction. The European Union is the first in the world in terms of renewable energy, a sector with considerable economic importance. The continued development of renewable energy technologies,

¹ © Maria POPESCU, blondin42003@yahoo.com

renewable energy production has increased substantially and costs decreased. The development was uneven in EU countries which have yet renewables, only a small share in the energy mix and because the external costs of fossil fuels, such as environmental impact, renewable energy is not competitive.

Renewable energy-wind, solar, hydroelectric, geothermal, biomass and biofuels – are alternatives to fossil fuels that contribute to the reduction of greenhouse gas emissions, diversify energy supply and reduce dependence on volatile markets and free reliability of fossil fuels, especially oil and gas. The European Union is a leader in technologies for producing energy from renewable sources, which owns 40% of patents in this area worldwide.

EU renewable energy policy is now more important than ever. Renewable energy has a vital role in reducing emissions of greenhouse gases and other pollution, and increases security of supply and supports European industry in the field of green energy industry occupying the leading position worldwide. For this reason, EU leaders agreed to adopt binding national targets for increasing the share of renewable energy using so that it should reach 20% throughout the EU by 2020 [1].

Günther Oettinger, Commissioner for Energy said that the objectives set out in the Renewable Energy Directive, is “headline” of the entire European regulatory framework in this area. The European Strategic Energy Technology provides the framework for the development of new industrial initiatives; energy labeling and eco-design standards for energy efficiency helps to increase energy efficiency and reduce energy consumption; also the Renewable Energy Directive provides rules for reducing administrative procedures, training of field labor, sustainability criteria for biofuels and bioliquids, and other regulatory reforms to ensure mass deployment of green technology that we need to achieve the target of 20%.

Renewables have a high potential to stimulate EU industrial competitiveness. The development of new energy sources with low carbon is very important to avoid high costs of climate change and pollution conditions. High-tech green industrial development creates new green jobs currently being 1.5 million employees with a turnover of over 50 billion euros. Supported the continuation of this development, the sector could provide another million jobs by 2020, with a substantial increase in turnover.

Renewable energy can use all our energy requirements: electricity production, transport and domestic heating. Hydropower and wind are exclusively used for generating electricity, while biomass, geothermal and solar can be used to produce electricity and heat.

Background and recent advances in renewable energy in the EU

In its communication of January 10th, 2007 entitled “Renewable Energy Roadmap – Renewable energies in the XXI century: building a more sustainable future that establishes a long-term strategy for renewable energy in the EU by 2020”, the Commission proposed a binding target that by 2020, 20% of EU energy consumption to come from renewable energy sources, a binding target that by 2020, 10% of the consumption of transport fuels to come from biofuels and creating a new legislative framework. At the 2007 Spring European Council, EU leaders endorsed policy objectives for 2020 [2].

Renewable Energy Directive adopted by co-decision on April 23rd, 2009 (Directive 2009/28/EC and repealing Directives 2001/77/EC and 2003/30/EC) has set a binding target that, by 2020, a proportion of 20% of EU energy consumption to come from renewable energy sources, secondary objective broken down into binding national targets, taking into account the different starting points of Member States. In addition, all Member States must ensure that, by 2020, 10% of transport fuels come from renewable sources. The Directive also defined various mechanisms which Member States can apply to achieve its goals (support schemes, guarantees of origin, joint projects, cooperation between member states and third countries) and sustainability criteria for biofuels [3].

In 2010, Member States have adopted national action plans in the field of renewable energy. European Commission assessed the progress made by Member States towards reaching the targets for 2020 on renewable energy in 2011 and 2013. The latest report shows that the growth in renewable energy has improved significantly, and most Member States have reached interim targets set out in the Directive of 2009.

However, given that the trajectory for achieving the final goal becomes harder to follow towards the end, almost all Member States should make further efforts to meet the targets set for 2020. The latest figures from Eurostat show that renewables represent 14% of energy consumption in the EU-28 in 2012. In its report, the Commission draws attention to a number of concerns about further developments deviation of Member States from their own national action plans on renewable energy, persistence of administrative barriers related and route network exploitation of renewable energy, disturbing recent

changes in national support schemes for renewable energies and finally, late transposition of the directive into national law. The Commission has already initiated a series of actions for failure to fulfill obligations related to failure to transpose the Directive by some Member States (notably Poland and Cyprus) [4].

In its communication of June 6th, 2012 entitled “Renewable Energy: a major player in the European energy market”, the Commission has identified areas where efforts should be intensified in 2020 for the production of renewable energy in the European Union continues to grow in 2030 and thereafter, particularly for technologies in the renewable energy sector to become less expensive, more competitive and, ultimately, adapted to the market (with support schemes granted only to less developed technologies) and to encourage investment in renewable energy sector (by gradually reducing subsidies to fossil energies sector, a market of carbon dioxide thoughtful functional and energy taxes) [5].

In November 2013, the Commission provided further guidance on support schemes for renewable energy and the use of cooperation mechanisms for achieving renewable energy targets at least cost the Commission announced a complete overhaul grants which Member States are authorized to provide renewable energy sector, preferring public offerings, and the first fixed rate obligations instead of commonly used fixed tariffs. New guidelines on state aid in the field of environment and energy, to be published in July 2014 will shape the new framework for support schemes for renewables [6].

The EU has already begun to prepare for the period after 2020 in order to clarify the arrangements provided for investors by 2020. Renewable energy plays a key role in the long-term strategy outlined in the Commission Communication “Energy Roadmap 2050” [7]. Decarbonisation of the power sector projects proposed in the roadmap indicates to achieve a proportion of renewable energy to at least 30% by 2030. However, the roadmap suggests that in the absence of other interventions, the increase in the energy sector after 2020 renewable sources will slow, following the publication in March 2013 Green Paper “A Framework for 2030 for climate policy and energy” [8].

The Commission, in its communication of January 22nd, 2014 entitled “A framework for climate and energy policy during 2020-2030” [9] proposed not to renew binding national targets for renewable energy beyond 2020. Binding objective that 27% of consumption energy must come from renewable sources provided only at EU level. The Commission expects the binding national targets for emissions of greenhouse gases to stimulate growth in the energy sector. The shift has led to intense debate with Council and Parliament.

The European Parliament has always pleaded in favor of renewable energy sources and stressed the importance of setting mandatory targets for 2020 [10] and, more recently, for 2030. In February 2014 Parliament adopted a resolution [11] criticizing the Commission’s proposals on the climate and energy for 2030 as limited and lacking ambition. It asked the obligation that 30% of EU energy consumption to come from renewable energies, to be achieved by binding individual national targets and objectives extend beyond 2020 on transport fuels. In addition, Parliament called in the past the long-term establishment of a system of incentives for renewables EU-wide [12], arguing at the same time supporting smart grids [13]. The Parliament also asked the Commission on numerous occasions to propose a legal framework for renewable energy for heating and cooling in order to increase their share in energy production.

In recent years the European Union has been working continually to promote green energy. Thus, even in the Maastricht Treaty established the objective of stimulating sustainable growth, while protecting the environment. The Amsterdam Treaty added to the EU principle of sustainable development. Additionally, the European Commission proposed on March 3rd, 2010 “Europe 2020 Strategy” as a 10-year agenda for economic and social development of the European Union. This strategy aims to “smart, sustainable and inclusive growth” with greater coordination of national and European policies. The Strategy promotes as one of the main objectives, reducing emissions of greenhouse gases by at least 20% compared to 1990 levels or by 30% if there are conditions, and increasing the share of renewable energy in final energy consumption to 20%, to achieve a 20% increase in energy efficiency [14].

Background and recent advances in renewable energy in the EU

Expanding renewable energy is a main objective of the Europe 2020 strategy for smart, sustainable and inclusive growth. The European Commission’s Communication COM (2012)/271 entitled “Renewable Energy: a major player in the European energy market” is emphasized the importance of diversifying supply sources by promoting renewable energy. According to this document, the European

Commission will continue to concentrate its renewable energy *in the following areas*:

- Fostering the integration of renewable energy sources in the internal energy market and addressing incentives for investment in electricity production;
- Promoting and guiding the increased use of cooperation mechanisms which allow Member States to achieve their national binding targets by trading renewable energy and to reduce such costs;
- Ensuring better regulation of energy cooperation in the Mediterranean region, taking into account that, in the Maghreb, an integrated regional market would facilitate large-scale investments in the region and enable Europe to import more electricity from renewable sources.

The conclusions of the European Commission Communication COM (2012)/271, shows that regardless of the form it will take objectives of energy from renewable sources by 2020 they must ensure that renewable energy is part of the European energy market, with support limited but effective, where appropriate, and subject to a high volume of transactions. It also highlights the need to ensure owned maintaining global leadership of the European Union in terms of research and industry. European Commission recommends the further development of renewable energy resources in an effective and affordable, and the opportunities related to competitiveness, economic growth and employment [15].

Table 1 presents data on available energy annually per square meter of the surface world for 6 renewable sources. Energy technologies based on renewable resources generates relatively little waste or pollutants which contribute to acid rain, urban smog, or cause health problems and do not impose additional costs for environmental remediation or landfilling. Holders of energy systems based on renewable resources should not be concerned about potential changes to global climate generated by excess of CO₂ and other polluting gases. Solar energy systems, wind and geothermal do not generate CO₂ in the atmosphere, but when biomass absorbs CO₂ and thus regenerates the whole process of generation, use and regeneration of biomass lead to almost zero CO₂ global issues.

The concept of sustainable development refers to the kind of economic development which ensures meeting the needs of the present generation without compromising the ability of future generations to meet their own requirements. Sustainable development puts to the fore, with regard to the energy industry, the following objectives: refocusing energy production technologies and implementing risk control them; preserve and enhance the resource base, reducing CO₂ emissions, developing renewable resources, decision-making processes unification of energy, the economy in general and environmental protection in particular. The “renewable energy” means energy derived from a wide range of resources, all having the ability to renew itself, such as: hydropower, solar, wind, geothermal and biomass (garbage, municipal, industry and agriculture) [16].

Table 1

The no. of criteria	Renewable resource	Annual delivered energy (kWh/mp)
1	Wind energy (intermittent)	11 (at the average wind speed)
		18 (at the maximum wind speed)
2	Solar (depending on latitude, altitude and cloud coverage 5 – 10)	600...2600
3	Geothermal (geysers)	160...200
4	Photovoltaic (intermittent)	50...100
5	Biomass	15 (low calorific value)
		45 (high calorific value)

Source: The benefits of regenerable energy [accessed on September 14, 2015]. Available on: bookshop.europa.eu/

Biomass is derived from different types of organic materials, such as energy plants (oilseeds, plants containing sugar) and forestry waste, agricultural or urban waste including wood and household waste. Biomass can be used for heating, cooling, electricity and biofuel use in transport. The use of biomass significantly reduces greenhouse gas emissions. The carbon dioxide that we release during the combustion of biomass is offset by the amount absorbed during plant cultivation concerned. But there are always some emissions from processes like cultivation and fuel production, which makes the biomass not being completely carbon-free. Different types of biomass use different technologies and processes for

the production of organic energy. Solid biomass (like wood and straw) can pass through several processes, including combustion, pyrolysis, hydrolysis or gasification, after producing bioenergy. Biogas can be produced from organic waste through fermentation and can be obtained from gas from landfills. He can power vehicles adapted to the operation on gas.

Arguments in support of the use of biomass: diversifying sources of energy supply; replaces conventional fuels with high CO₂ emissions; contribute to recycling; protect and create jobs in rural areas; EU maintains its leading position in the field of bioenergy.

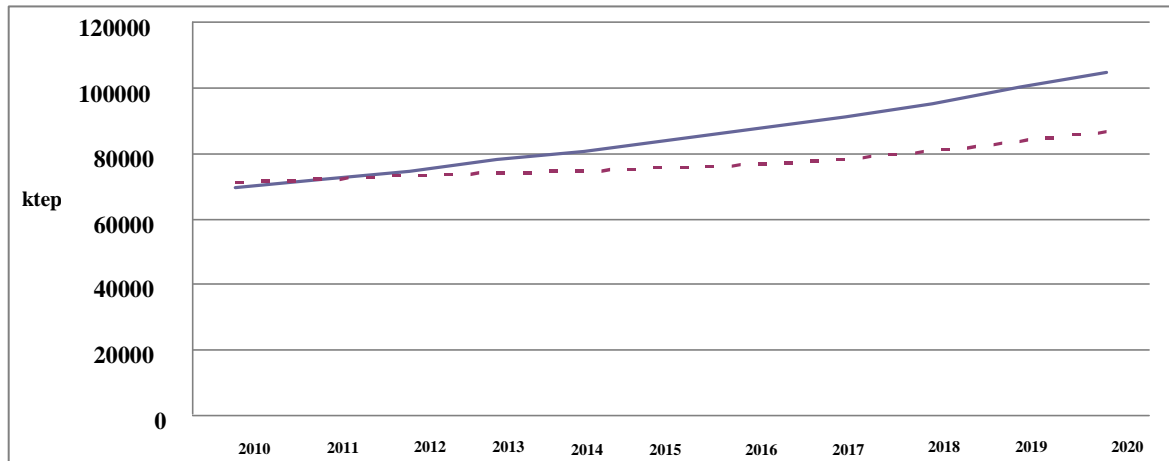


Fig. 1. Trend planned to estimated trend (phantom) energy from biomass in the EU

Source: European Commission, Report on progress in renewable energy, COM (2013) 175.

Biofuels and bioliquids originate renewable resources using biomass (organic matter or plants). Currently, biofuels are the only energy resource widespread that can replace fossil fuels in the transport sector. There are two main types of biofuels: biodiesel and bioethanol. Both are liquid fuels derived mainly from the present agricultural crops or plants.

Biodiesel is produced mainly from oilseeds such as rapeseed or sunflower, the result of the reaction between vegetable oils and methanol. Bioethanol is produced mainly by fermentation of sugar from sugar beet, different cereals, fruits or even wine. Second-generation biofuels, explicitly promoted by the new directive, are currently made from cellulosic biomass feedstock consisting of. It can get so new methods of biofuel production from agricultural, forestry, wood, pulp and paper, including byproducts and waste, more complex processes.

Arguments in support of biofuels: widespread are the only renewable source that can be an alternative to fossil fuels in transport; contribute to recycling; allow diversification of energy sources for the country that are not producing oil; reduce CO₂ emissions and other pollution; creates jobs, especially in agriculture and forestry.

Solar energy. The sun is the primary energy source in the world, and solar power systems can harness the sun as a clean energy source and high temperature to generate heat or electricity. Conversion of solar radiation for heating and cooling has a wide range of applications including domestic hot water, space heating and industrial processes, cooling assisted by the sun, desalination and swimming pools.

Even the simplest solar thermal systems can provide enough hot water to a certain extent (sometimes higher). Although such systems are clearly more productive in sunny regions, return these new equipment to enable them to contribute at least providing heating and hot water supply anywhere in the EU (sometimes in combination with existing boiler systems). Solar energy can be used in a cooling system of air-conditioning systems creating heat sink.

Arguments in support solar energy: diversifies energy supply; produces no noise, harmful emissions or polluting gases; creates jobs and stimulates the local economy locally and technological development; use a free and inexhaustible energy source; it can generate both heat and electricity; it requires a minimum of maintenance.

Wind energy is one of the most promising renewable energy technologies, is an area where there were numerous achievements that have increased power generation efficiency. Between 1991 and 2006, cumulative wind power capacity in the EU increased on average by 33% per year.

Between 1995 and 2009, cumulative capacity of wind power installations in the EU increased from 2497 MW to 74,767 MW [6]. Modern wind turbines extract energy from the wind by transferring the momentum of moving air to rotor blades. The power that can be generated by the turbines depends on air density, wind speed and turbine size. The rotors of most wind turbines are oriented and move according to the wind direction. The energy is concentrated in a rotary shaft and is transformed into electricity.

Arguments in support of wind energy: It is a source of clean energy without carbon dioxide emissions; indigenous energy supplies at lower cost; it is already an important export industry; although the landscape changes around it can take place unhindered farming/industrial; it can be implemented both on land and offshore.

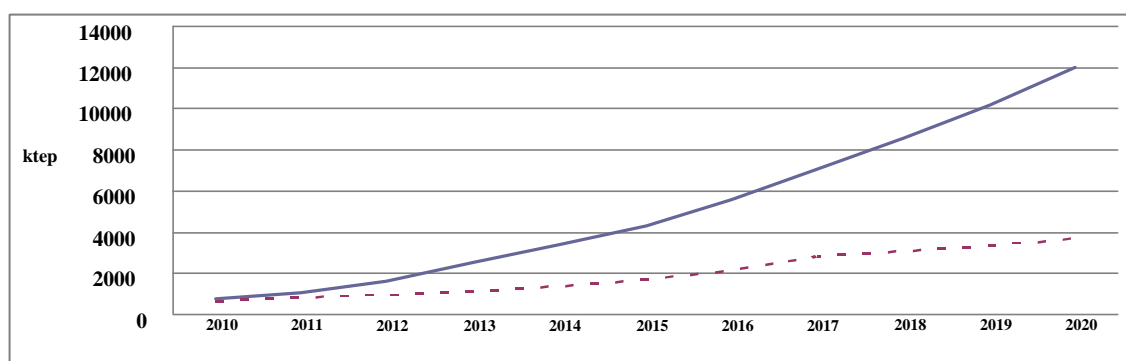


Fig. 2. Trend planned (blue) to estimated trend (dotted) of offshore wind energy in the EU
Source: European Commission, Report on progress in renewable energy, COM (2013) 175.

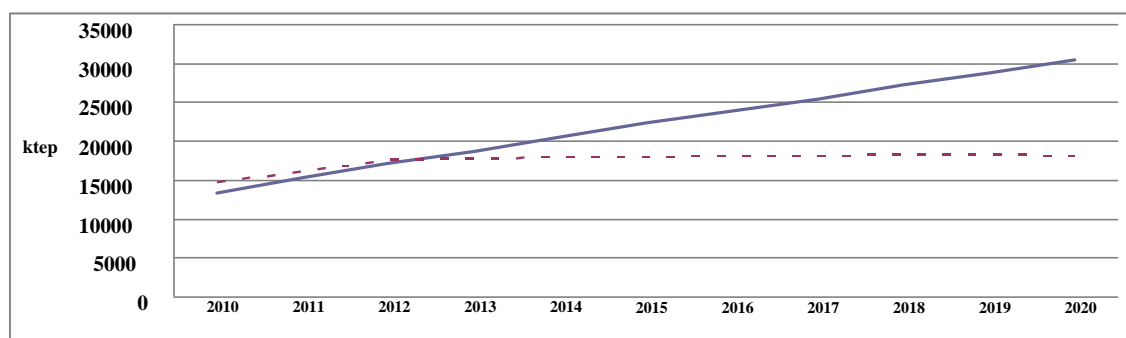


Fig. 3. Trend planned to estimated trend (dotted) onshore wind energy in the EU
Source: European Commission, Report on progress in renewable energy, COM (2013) 175.

Hydropower is made using the motion of a water body, such as a river, a channel or a stream of water. Hydropower schemes useful energy obtained from the potential energy of water, whose course is characterized by a certain level difference (referred to as “liquid column height”). For such systems is the need for a capture zone of the precipitation, a hydraulic pressure, a pipe or device to carry the water to a turbine and a turbine housing which contains the power generation equipment and the water control. After use, the water returns to its natural course. Small hydro systems are defined generally as having a nominal capacity of less than 10 MW, while large dams have large storage tanks.

Small hydro is useful for producing electricity, especially in remote areas. The major approaches saturation point, which determines the orientation of small hydro, still largely untapped.

Arguments in support of small hydro: diversifies energy supply; contributes to local development; helps to maintain river basin; promotes rural electrification; has a high energy efficiency.

Geothermal energy is used for hundreds of years and for heating water for baths. It is obtained from the earth’s natural heat in dry, steam or liquid and can be used for electricity generation and heating. The deep geothermal resources include hydrothermal systems (hot water and/or steam contained in porous rock or faulted), geothermal systems under pressure (hot water aquifers under high pressure) and hot rock geothermal systems (geological formations dry, but unusually hot). In Europe, the heat pump is the most promising way of using geothermal energy.

This consists in extracting heat from hot geothermal fluid found in shallow and transfer that heat to water or air which is used to provide heat. Even at shallow depths of 50-100 m, there is enough heat in the earth that can be extracted using heat pumps – often located in the gardens of suburban houses – and used directly to heat household. Heat pumps using ambient air or water resources is another way of capturing ambient heat for the use in housing and other buildings.

Arguments in support of geothermal energy: reduces emissions of greenhouse gases; uses an inexhaustible energy source; can provide heat directly; requires less land area than other energy resources, is available continuously.

Photovoltaic energy. European Commission highlighted in 2013, there is a surplus that will take some time, but efforts in research and investment in infrastructure can provide 50% of energy for heating and cooling in the EU by using solar thermal energy 2050 which includes a roadmap for implementation and show conditions – non-technological framework that will achieve this ambitious goal by 2050.

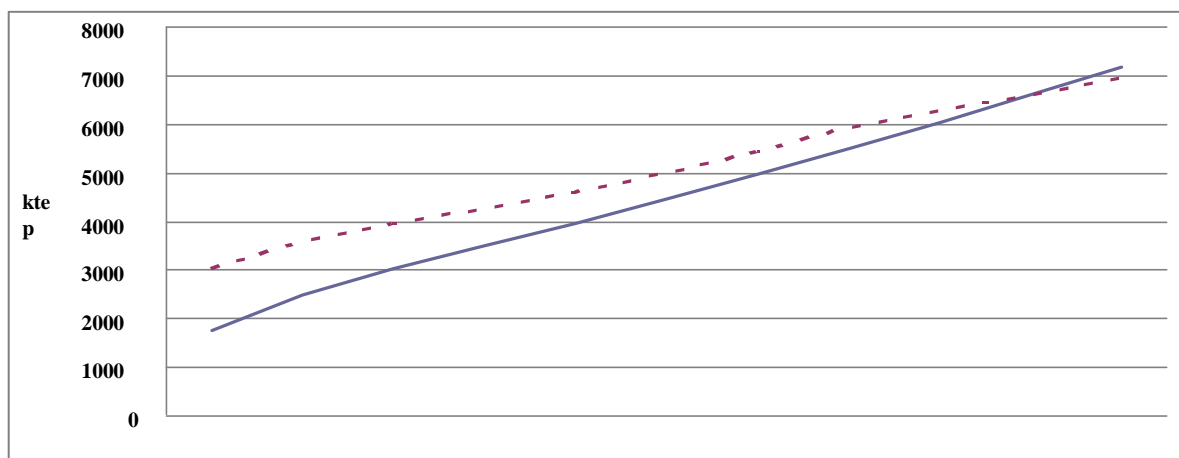


Fig. 4. Trend planned to estimated trend (dotted) of PV in the EU

Source: European Commission, Report on progress in renewable energy, COM (2013) 175.

Trends and long-term scenarios for renewable energy. The challenges facing Europe include energy issues such as increasing dependence on imports, limited diversification, high and volatile energy prices, increasing global energy demand, security risks affecting producing countries and transit threats increasingly larger of climate change, slow progress in energy efficiency challenges arising from the growing share of renewable energy and the need for a maimare transparency, better integration and interconnection energy markets. European energy policy has in its center a whole variety of measures that are meant giving achieve integrated energy market and ensure security of supply and sustainability of the energy sector [16].

Table 2

Share of renewable energy in final energy consumption in%

Countries	2006	2007	2008	2009	2010	2020
EU27*	9,0	9,9	10,5	11,7	12,4	20,0
Belgium	2,7	3,0	3,3	4,6	-	13,0
Bulgaria	9,6	9,3	9,8	11,9	13,8	16,0
Czech Republic	6,5	7,4	7,6	8,5	9,2	13,0
Denmark	16,5	18,0	18,8	20,2	22,2	30,0
Germany	6,9	9,0	9,1	9,5	11,0	18,0
Estonia	16,1	17,1	18,9	23,0	24,3	25,0
Ireland	2,9	3,3	3,9	5,1	5,5	16,0
Greece	7,0	8,1	8,0	8,1	9,2	18,0
Spain	9,0	9,5	10,6	12,8	13,8	20,0
France	9,6	10,2	11,1	11,9	-	23,0

Countries	2006	2007	2008	2009	2010	2020
Italy	5,8	5,7	7,1	8,9	10,1	17,0
Cyprus	2,5	3,1	4,1	4,6	4,8	13,0
Latvia	31,1	29,6	29,8	34,3	32,6	40,0
Lithuania	16,9	16,6	17,9	20,0	19,7	23,0
Luxembourg	1,4	2,7	2,8	2,8	2,8	11,0
Hungary	5,1	5,9	6,6	8,1	-	13,0
Malta	0,2	0,2	0,2	0,2	0,4	10,0
Netherlands	2,7	3,1	3,4	4,1	3,8	14,0
Austria	26,6	28,9	29,2	31,0	30,1	34,0
Poland	7,0	7,0	7,9	8,9	9,4	15,0
Portugal	20,8	22,0	23,0	24,6	24,6	31,0
Romania	17,1	18,3	20,3	22,4	23,4	24,0
Slovenia	15,5	15,6	15,1	18,9	19,8	25,0
Slovakia	6,6	8,2	8,4	10,4	9,8	14,0
Finland	29,9	29,5	31,1	31,1	32,2	38,0
Sweden	42,7	44,2	45,2	48,1	47,9	49,0
United Kingdom	1,5	1,8	2,3	2,9	3,2	15,0
Croatia	13,8	12,4	12,2	13,2	14,6	20,0
Norway	60,6	60,5	62,0	65,1	61,1	67,5

Source: Eurostat* share of energy consumption from renewable sources in gross final consumption of energy. Final energy consumption is the energy used in households, industry, services, agriculture and transport.

Table 3

Increasing renewable energy

Global indicators of energy from renewable sources	2008	2009	2010	2011	2012	2013
Investment in new capacity of renewable resources (annual, mil. USD)	130	160	211	257	244	214
Power capacity from renewable energy (GWe)	1,140	1,230	1,320	1,360	1,470	1,560
Hydroelectric capacity (GWe)	885	915	945	970	990	1,000
Wind capacity (GWe)	121	159	198	238	283	318
Capacity solar/photovoltaic (GWe)	16	23	40	70	100	139
Solar hot water capacity (GWth)	130	160	185	232	255	326
Ethanol production (annual) (10 ⁹ liters)	67	76	86	86	83	87
Production of biodiesel (annual) (10 ⁹ liters)	12	17.8	18.5	21.4	22.5	26
Countries with policy targets for renewable energy use	79	89	98	118	138	144

Source: "REN 21 Renewables 2013 Global Status Report", accessed on January 30, 2014.

Renewable energy is an option "no regret", but there were some concerns about the cost and impact on the internal market. By reducing the costs of technologies, many renewable energy sources are becoming more competitive and ready to join the market (eg wind energy terrestrial). Their integration will require large-scale networks smarter energy distribution and solutions for energy storage. It may be necessary and consideration of mechanisms to ensure regional capacity [17].

The European Parliament resolution of May 21st, 2013 is a comprehensive analysis of the challenges and opportunities for renewable energy in the EU internal energy market (2012/2259 (INI)). In this document there are clear references to a number of renewable energy on the internal energy market, namely:

- Renewable energy sources, along with energy efficiency and flexible and intelligent infrastructure are the recommended options and that renewables will, in the EU, an increasing share in the energy supply, both in the supply of electricity and in the field of heating (which

encompasses about half of energy demand in the EU) and cooling, and transport, and energy dependence of Europe will decrease conventional energy sources;

- It believes that objectives and milestones established in 2050 to present a credible perspective for the future in terms of renewable energy in the EU;
- Recalled that all scenarios presented by the European Commission Energy Roadmap 2050 allocated a quota of at least 30% RES in the EU energy mix by 2030 and proposes that the EU efforts to obtain a greater share and invites the Commission to propose a binding target of RES in the EU for 2030, taking into account the effects of possible interaction with other environmental objectives and energy policy, in particular the objective of reducing GHG emissions and the impact on the competitiveness of EU industries, including industrial sectors SRE;
- To see that cooperation mechanisms provided for in Directive 2009/28/EC on the promotion of renewable energy have not yet used widely, but it is planning a series of cooperation schemes and stresses that better use of existing opportunities for cooperation could bring considerable benefits;
- Noted that the EU should strive at its industrial capacity, research and development, if it wants to maintain its technology leadership in renewable energy sources and stressed the need to ensure a competitive environment for the operation and internationalization of SME organizations, and to endeavor to reduce bureaucratic obstacles. Only innovation through research and development can ensure the continued leadership of the EU market in renewable energy technologies;
- Proved that it is essential, in the context of plurality of support mechanisms in the Member States, to encourage greater convergence and an appropriate European support mechanism after 2020. In the long term, a more integrated system to promote RES in the EU, which takes full account of regional differences and geographical and existing supranational initiatives, and is part of a general effort aimed at decarbonising, could help provide the most efficient in terms of costs for renewable energy and a level playing field, which may allow their full potential.

At the summit in Paris in December 2015, the G7 leaders pledged to “cleanse” the world economy on fossil fuels forever. For two years, activists against climate change played a key role in mobilizing global civil society for this, as the main organizers of the March of citizens for climate action proportions, which drew nearly 700,000 people in the street; gathered 2.7 million signatures for a petition which demanded 100% clean energy; were sent a quarter of a million messages to environment ministers from around the world before the UN climate summit in Lima from 1 to 12 December 2014 and were organized dozens of demonstrations, surveys and campaigns in the media (all funded community) which asked ambitious national and global targets for reducing carbon emissions. They have contributed to changing the attitude of politicians towards this subject, paving the way for a stunt in the last two months before the G7 summit. It’s not just fossil fuels. G7 Summit reached a deal on ambitious climate action in general. Here are the plans for the summit in Paris:

- The decarbonisation of of the global economy until the end of the century;
- The signing of a legally binding agreement;
- Efforts to change the energy sector in 2050;
- Adoption of a 70% reduction target in carbon emissions by 2050 (compared to 2010);
- Develop a plan for targeting the 100 billion dollars to the climate protection programs in developing countries;
- Creation of security and protection systems four times more effective for 400 million poor people and affected by climate change.

Conclusion. Renewable energy has many social, economic and environmental benefits, can be regenerated, so can support sustainable economic growth. Also it does not produce waste or toxic products such as carbon dioxide or other chemical pollutants, so has minimal impact on the environment. As social benefits plan, the renewable energy industry has provided new job opportunities in the EU.

Renewable energy presents disadvantages; it is difficult to generate the amount of electricity as large and steady as those produced by traditional fossil fuel generators; security of supply; Renewable energy often depends on the weather, the source of power, hydro generators need rain to fill dams; Wind turbines need to activate them; solar collectors need blue skies and sun to collect heat and electricity. Therefore, most experts recommend an energy mix option, depending on the resources and needs of each region.

But the main obstacles to boosting renewable energy production difficulties are the high costs. The European Commission underlines that the recent economic crisis has led investors to exercise caution towards the energy sector. Liberalized EU energy markets, the growth of renewable energy depends on private sector investment. The European Commission’s Communication COM (2012)/271, highlights the level of risk so high, especially in countries with strained capital markets, leading to a high cost of capital,

thus increasing costs of energy projects renewable sources, which reduces their competitiveness. In this regard, the European Commission highlights the importance of simple administrative systems, of stable and reliable support schemes and facilitate access to capital, to increase the competitiveness of renewable energy.

All Member States should take into account the challenges of achieving large-scale energy security, respectively security of energy supply, resource efficiency and innovative solutions for renewable energy. Therefore, the “Strategy 2020 - A strategy for energy competitive, sustainable and secure energy” and the experience of other EU Member States shows that renewables are a viable alternative and preferred other alternatives current energy, because it provides both energy security and environmental protection at the same time, in order to support sustainable development of the EU in future.

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Recommended for publication: 12.10.2015