Renewable Energy and Solar Business in the European Union

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Abstract

The solar business faces major challenges related to the constantly changing regulatory framework, corporate interests and public pressure. Successful adaptation to the high requirements of regulators and competitive alternative energy sources is needed. The solar business is one of the levers with which the European Union has consistently underlined its commitment to international cooperation and the fight against the effects of greenhouse gas emissions. The formation of the internal market in the energy sector requires the elimination of many barriers and trade barriers, the approximation of tax and pricing policies, norm and standards measures, and environmental and safety regulations. This requires the development and implementation of successful strategies by solar energy producers, traders and consumers.

Keywords: solar business, renewable energy sources (RES), European Union (EU), renewable energy, photovoltaic systems

Introduction

The solar business is of great importance for the future of the whole energy sector; its research will allow discovering potential opportunities and possible threats to its development in the member states of the European Union. It needs strategic thinking, which allows outlining possible alternatives and long-term development. It is related to making strategic decisions about its goals and strategies. It aims to reorganize the business and focuses on the creation and implementation of effective strategies. It requires analyzing and forecasting trends in global energy policy with a view to discovering and exploiting the favorable opportunities for photovoltaic development. Also, it helps to reduce its vulnerability and recognizing serious threats. It requires an objective assessment of the potential built in the new sector and integrates the strategic actions of law enforcement and law enforcement authorities in line with the European ones.

Encouraging of that type of business and the renewable energy sources (RES) is one of the main purpose of the energy policy of EU. It aims is to double the share of RES in the total energy consumption and to reach 20% of that consumption in the whole EU (Directive 2011/77/EC and Directive 2009/28/EC). Decision № 1230/2003/EO about "Intelligent Energy – Europe" (IEE) contains measures to promote RES and to increase the energy efficiency. There are sub-programs supporting projects for the development of solar business and expanding cooperation between the EU and developing countries in the field of RES. The Framework Program amounted to more than € 200 million for the period up to 2013. Nevertheless, the European Commission and the European Parliament debated much more amounts.

At the UN Conference in Kyoto in December 1997, the importance of creating a concerted action plan to reduce greenhouse gases (in particular CO_2) has become apparent. The EU has pledged to reduce its CO_2 emissions by 8% over 1990 levels. One of the world's largest emissions trading schemes has been set up.

The renewable energy and the solar business in EU

Although, the energetics falls within the scope of action of the EU, the energy policy remains responsibility of the Member States in accordance with the principle of subsidiarity. At present, the EU is dependent on oil and gas imports. Therefore, the EU's constant concern for increasing the use of RES and reducing the greenhouse effect can be noted.

According to the Comision, the Parliament and the Council of Europe, the energy policy must constitute part of the general goals of EU economic policy, based on market integration and deregulation. In addition, the state intervention must be limited to what is necessary to protect the public interest and prosperity, sustainable development, consumer protection and economic and social cohesion. However, beyond these common objectives, energy policy must pursue specific objectives that reconcile competitiveness, security of supply and environmental protection.

The Commission set the overall framework: "Strategic Energy Review in the EU" which should help to achieve the main goals. Specific proposals have been made, such as the creation of the internal gas and electricity market, ensuring that the EU's internal energy market ensures security of supply and solidarity between Member States and calls for a genuine community debate on different energy sources to address the challenges of climate change changes in a way that is consistent with the Lisbon goals, relying on the Strategic Energy Technology Plan and strengthening the Common Foreign Energy Policy.

On 23 and 24 March, European Consilium called for an Energy Policy for Europe (EPE) and called on the Commission and the Council to prepare a set of actions with a clear timetable in order to be able to adopt a priority action plan.[1] EPE has three main objectives:

Enhance security of supply by developing a common approach to foreign policy and engaging in dialogue with Member States and partners.

Ensuring the competitiveness of European economies and availability of affordable energy by working together with Member States to complete the opening up of the internal market for electricity and gas to all consumers.

Promoting environmental sustainability by enhancing EU leadership by adopting an energy efficiency action plan, continuing the development of renewable energies and implementing the biomass action plan, relying on support for research, development and demonstration activities.

Accept the common energy targets; the EU sets different sector goals, including: maintaining the percentage of solid fuel in total energy consumption; increasing the ratio of natural gas in the energy balance; establishing maximum safety conditions as a prerequisite for the planning, construction and operation of nuclear power plants; increasing the share of (RES). Agreement has been reached that at least a doubling of the share of renewable energy sources in total energy consumption should be made. The Commission should make this objective a concrete measure. There is some opposition to individual measures and many disputes about whether and in what form they are implemented at EU level.

The European Parliament recognizes the crucial importance of RES and shows the importance of setting mandatory targets for 2020, which sends a clear signal to market players and national policy makers, pointing out that RES are the future of EU energy and part of the EU's environmental and industrial strategy. The Commission sets out measures to increase the use of photovoltaic products and businesses, create market-based incentives, and remove barriers to the development of the electricity market from RES. The European Strategy for Sustainable, Competitive and Secure Energy places particular emphasis on RES, the full potential of which will only be realized with a long-term commitment to their development and deployment.

The EU Framework Program for Research covers many energy, research, development and demonstration projects to support energy policy objectives. They aim at improving the level of perception, competitiveness and scope of traditional energy, promoting the perception of new forms of energy for energy-saving and rational use.

The Seventh Framework Program for research, technological development and demonstrations activities of the European Community runs from 2007 to 2013, established research tasks to be carried out to achieve the main objectives of reducing energy consumption. It also proposes wider cooperation and focus on research in this area, including proposals to fund these actions.

In order to remove various barriers and measures and to improve the marketing of the internal market, additional electricity grids were opened on 25 July 1996 for large industrial users.

The increasing dependence of some Western countries on energy imports and their increased energy vulnerability create a favorable environment for future interstate conflict of resources. In order to understand changes in EU energy policy, it is necessary to identify the main challenges for energy development in the Eurozone.

Europe is poor on its own energy resources. Production costs for coal mining on average for Europe are 4-5 times higher than world prices. Oil has two to seven time's higher production costs than those in the Middle East, for example, with reserves for about 4-5 years. Natural gas accounts for about 2% of the world's reserves, and for limited consumption, it can

[1] Green Energy Handling Agency (www.oem-ag.at)

be extracted for another 20 years. 2% of the world's uranium reserves are in the EU, mostly in France, and the yield may last another 40 years. There is significant RES potential but it is not enough to meet industrial demand.

The main challenge facing the Community remains the increasing dependence on energy resources, but the EU has limited response opportunities. Dependence on imported resources will reach 70% in 2020 and dependence on oil - 90%

The main importer of natural gas is Russia, importer of oil - the Middle East. In addition to this dependence, which requires flexible geopolitical solutions, the environmental consequences of the use of organic fuels are compounded.

The EU is responsible for creating around 20% of the world's carbon dioxide emissions. Notwithstanding all measures and commitments, in 2010-2013, this emission are 20% above and not 8% below the 1990 level, as required by the Kyoto Protocol. In addition to limiting greenhouse gas emissions, significant investment resources must also be provided to meet the limitations of other anthropogenic gases. At the same time, the EU has a share of 15% of the energy consumption in the world; the average annual growth of consumption is 1-2%.

The growth of energy consumption is mainly concentrated in the service and household sector. Industry in the EU is stabilizing its energy consumption thanks to its investment in modernization. This applies to both the old Member States and the newly acceded countries.

Transport remains a significant consumer of energy resources, accounting for about 67% of oil consumption. Forecasts for growth in transport resource consumption amounted to about 16% for cars and 90% for aviation for 50% traffic growth.[1]

EU`s energy policy

Europe's energy policy faces a number of energy challenges, including: growing import dependency, insufficient diversification, high and unstable energy prices, rising global energy demand, security risks affecting producer and transit countries , growing threats related to climate change, slow progress in energy efficiency, challenges related to the use of an increasing share of RES and also the need for greater transparency, further integration and interconnection of energy markets. Energy policy uses a number of measures to achieve a competitive energy market, security of energy supply and the sustainable development of the energy sector.

Strategic changes tend to gradually reduce the role of oil, coal, with natural gas dominating new capacities, the nuclear sector is relatively maintaining its share, and its future depends on several factors - the process of implementing the Kyoto Protocol, competitiveness, public acceptability, the achievement of common nuclear safety standards, etc.

Due to the great importance of gas and oil for the security of the EU's energy supply, the Union has adopted a number of measures to ensure that risk assessments are carried out and that adequate plans for preventive and contingency planning have been developed. A number of regulations on measures to ensure the security of energy supply were adopted in October 2010 to strengthen crisis prevention and response mechanisms. In some, Member States are required to maintain minimum stocks of oil corresponding to the larger of the following two quantities: average daily net imports over a period of 90 days or average daily inland consumption over a period of 61 days.

In response to the crisis in Ukraine in March 2014, the European Council called on the Commission to present by June 2014 a comprehensive plan to reduce the EU's energy dependence. The plan encourages measures to help the EU secure good positions in order to be able to develop the technologies it needs to achieve its policy goals and at the same time to ensure that, its companies can take advantage of the opportunities offered by a new approach to energy.

The European Parliament supports the idea of a common energy policy for solving issues of competitiveness, security and sustainable development. It has repeatedly called for coherency, determination, cooperation and solidarity between Member States in meeting the current and future challenges of the EU internal market and the political commitment of all EU Member States, as well as a strong European Commission initiative to progress towards achieving of the 2020 targets.

Parliament aims at a stronger integration of the energy market and the adoption of ambitious objectives in terms of renewable energy, energy efficiency and greenhouse gas emission reductions. In this context, the EU stresses that the new energy policy must support the long-term goal of reducing greenhouse gas emissions by 80-95% by 2050. It also supports the diversification of energy sources and supply routes. In view of Europe's growing dependence on fossil fuels,

[1] Communication from the Commission to the European Parliament, The Council and the Economic and Social Committee: Update of the Nuclear Illustrative Programme in the Context of the Second Strategic Energy Rewiew.

Parliament welcomed the SET-Plan as it is convinced that it will make a significant contribution to sustainability and security of supply and will which is absolutely indispensable for the achievement of the EU 2020 energy and climate goals.

The Common European Energy Policy can be described as follows: measures to increase energy efficiency, management of the consumption of imported petroleum products, actions to stimulate RES and an open option for the use of nuclear energy. The success of this policy is measured by the specific efforts of the specific countries in the community, the efforts of the energy industry and consumers.

Characteristics of solar business in the EU

The essence of the solar business and the energy produced by RES in the EU countries has in three main directions:

- Fighting climate changes;
- Promoting the creation of growth and jobs;
- Limiting the EU`s external dependence on gas and oil imports.

At the heart of the policy is Europe's main energy goal: by 2020, the EU should reduce greenhouse gas emissions in its energy consumption. This objective will allow the EU to measure progress in redeploying the modern energy sector to one that will respond fully to challenges such as sustainability, competitiveness and security of supply. The goal is to achieve a 30% by 2030 and by 60-80% by 2050. The concerns are not only about climate change, but also about the security of Europe's energy supply and economy and the welfare of its citizens. Achieving the goal can limit the increasing risk to the EU from greater instability and higher oil and gas prices contribute to a more competitive EU energy market and promote technology and employment.

Strategically this means that the EU will take the lead in the world in preparing a new industrial revolution that will benefit both developed and developing countries. In order to achieve this objective, the Commission also proposes to focus attention on a number of energy policy measures:

- improving energy efficiency;
- increasing the share of energy from RES;
- new measures to ensure that the benefits of the internal energy market will reach every consumer;
- increasing solidarity between Member States with a longer-term view of developing energy technologies.

This includes a 10-point energy action plan and a timetable for the measures that the EU will implement to achieve the new strategic goal. In addition, EU Member States must ensure guaranteed access to green electricity producers' electricity systems, including housing and small business installations.

Photovoltaic systems:

The sun is the largest renewable resource for power generation throughout the solar system. Thanks to this, photovoltaic systems have a very high degree of technology and have a very long economic life - up to 30 years.

The widespread use of solar electricity means large equipment on large areas with "sun-harvesting" equipment in the regions where the radiation of our main light and heat source is the strongest. Experts predict that this will be done by 2050. The solar battery should become more efficient, more reliable and above all operate more economically.

In the future, panel coatings will play a crucial role. Thanks to the latest nanoparticle coatings, the size of which is only one millionth of a millimeter, cost savings of 80% can be expected compared to today's silicon technology for the production of photovoltaic systems. The new conception of color-sensitive nanocrystalline semiconductor coatings has led to an increase in efficiency, even in low diffuse lighting. The imposition of photovoltaic modules as a mass product is already a fact. But their price is still not competitive enough. Development and refinement continues to be a difficult process and many of the initial expectations are not met. Nevertheless, over the past 20 years, the cost of solar equipment has fallen by nearly 60%.

Thanks to such strategies and strategic prospects, photovoltaic business helps to avoid CO_2 emissions. The advantages of photovoltaic power generation are obvious. That`s why the EU and the Member States are keen to increase significantly the share of cogeneration in the production of electricity and heat in the coming years.

The strategic prospects in the European Union are mainly geared to a larger market share of panels for solar electricity generation. Many of the leading European companies are converting part of their plasma panel production into solar line production lines. Companies invest hundreds of millions of euros in 2010 to build production lines. Teams are prepared to

work on new projects and the companies rely on the results of their research to develop this new business into a profitable business. Industry experts estimate that solar panels will account for 80% of the solar-powered electricity business.

The objectives of European energy are 20% less greenhouse gases than 1990 levels, 20% less energy consumption and 20% share of total energy consumption from renewable energy sources.

The sun is an immense source of energy. However, until today his role in the energy industry was almost negligible in the context of the use of underground natural resources. There is an accelerated depletion of natural resources as well as an increase in the level of toxic pollution. The steadily rising prices of electricity, oil, gas, oil cause a corresponding response. Consumers reduce fuel use and scientists are looking at ways to develop alternative energy sources, new and effective ways to meet energy needs. In the new energy sector, massive use of solar energy practically has no geographical and climatic constraints.

Solar energy becomes the main source of electricity. The sunlight technologies are not something new. Modern, sophisticated technologies uses sunlight energy everywhere - from illuminating premises in buildings to powering vehicles. In many European countries, solar systems are proven effective and are present in almost every home or business. The consumption of solar energy systems will increase especially in Japan and Germany. The initial investments are justified by the high efficiency in reducing energy costs and it fully satisfy the need of energy. An important aspect of solar systems are their ecology. According to experts, using of sunlight as an energy source will increase drastically in the next years. Other even thinks that the Sun will become a major energy source until 2050. Support for the use of solar energy is also boosted in southern European countries such as Spain, Italy and Greece. In these countries, governments are increasingly aware that the sun's energy can be used to protect the environment and energy dependence from other countries.

Growth is already a fact - after 2009 photovoltaic business grew by more than 70% and reached a global volume of 4 GWp and the sector was over EUR 16 billion. Average annual growth over the past 5 years is about 50%.

Compared to other non-energy business, the return on photovoltaic power plants is longer and therefore the profits are lower. At the expense of the lower profit in the production of ecological electricity, the market risk for the realization of the production is 0, because the latest amendments to the Energy Law and the special Law for stimulating the use of renewable energy sources, guarantee 100% preferential price. However, even without preferences, the energy business to produce green energy is less at risk than most other types of business due to the high degree of universality of the commodity - electricity and the liberalization of the market. In a liberalized market, each manufacturer can determine to whom to sell electricity. No doubt, investments in photovoltaic parks and systems as well as in solar parks are the new winning wave for legally guaranteed investments.

Conclusions:

The modern world faces the challenge of energetic and the environment, a challenge that is clear for Europe and shared by all Member States. There is a tremendous need to provide competitive and clean energy in the conditions of climate change, increasing global demand for energy and uncertainties about future deliveries. If a Member State fails to tackle the challenge, it will affect the rest. If problems arise outside the EU, they can affect the whole of the EU. That is why Europe needs a stable energy policy amid a depletion of energy and a growing dependency on raw materials imports. It is likely, most of the oil and gas producing countries in some time to face the inability to increase their own production capacity to the planned level and the supply commitments made because of their limited reserves. Soon the first effects of resource depletion will be felt, the more likely the interruptions in the supply of energy products will endanger the energy and national security of our country. That`s why the solar business is the future.