

## GENERAL CONSIDERATIONS ON RENEWABLE SOLAR ENERGY AS A SOLUTION IN SUSTAINABLE DEVELOPMENT

CRISTINA IONICI<sup>1</sup>, TEODORA LAZAR<sup>2</sup>

**Abstract:** This paper presents a small study on the need to use renewable energy in the context sustainable development. In the first plenary session of 2018, in Strasbourg, the MEPs introduced the new amendments to the provisions of the Clean Energy Package for all Europeans. In the European context of energy policies The Paris Agreement confirmed the EU's approach until then, namely the implementation of the climate and energy policy framework for 2030. MEPs also want to protect the right of citizens to produce, store and consume their own electricity from renewable sources, without paying taxes or fees. renewable energy in the EU registers a turnover of 30 billion euros and provides 350,000 jobs. As technologies have developed, some forms of energy, especially solar energy, have seen more intensive use. But development has not been equal in the EU, and renewable energies represent only a small share of the total EU energy mix compared to the dominance of gas, oil and coal.

**Keywords:** electricity, efficiency, renewable energy, photovoltaic systems.

### 1. INTRODUCTION

By mobilizing up to 177 billion euros of public and private investments on a program with the year 2022, this package can generate growth of up to 1% of GDP in the next decade and can create 900,000 new jobs. . The package also includes actions to accelerate innovation in clean energy and to renovate buildings [1], [4]. It provides for measures to encourage public and private investment, to promote the EU's industrial competitiveness and to mitigate the impact of the clean energy transition on society. It is possible to estimate the development trend of electricity from renewable sources, forecast until 2030, figure 1 [12].

The objectives of the European energy policy in the form of 20-20-20 refer to:

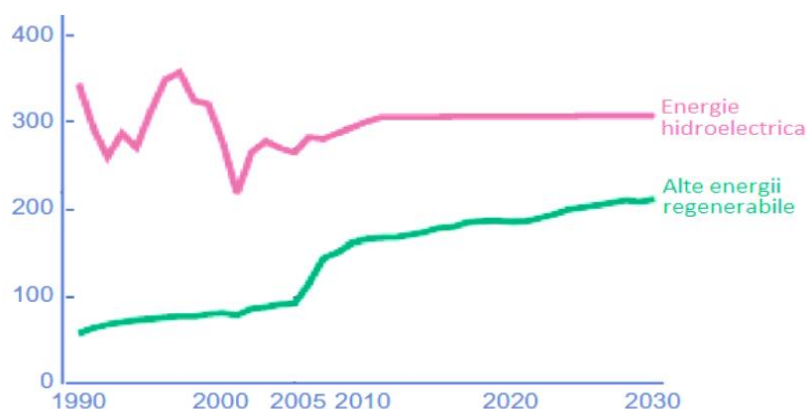
- Decrease of 20% reduction in energy consumption from fossil fuels by adopting measures to improve efficiency and save energy consumption, such as thermal insulation of buildings or the use of economical light bulbs.

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<sup>1</sup> Ph.D., Lecturer Eng., Constantin Brancuși University of Târgu-Jiu, feliciaionici@gmail.com

<sup>2</sup> Ph.D., Asist. Eng., University of Petroșani, teomititica@yahoo.com

- Production of at least 20% of the energy requirement by using renewable resources.
- Achieving the first two objectives by 2020 and increasing energy efficiency by 20%. On a broader level, the report on the provisions of this package made by the Committee for.



**Fig.1.** Development trend of electricity from renewable sources until 2030 (in billion kWh s)

The European Parliament's Industry, Research and Energy (ITRE) contains numerous amendments in the 3 areas of interest: renewable energy, energetic efficiency and control mechanisms.

## 2. RENEWABLE ENERGY

The European Parliament's Industry, Research and Energy Committee (ITRE) has called for a binding EU target of increasing the percentage of renewable energy to 35%. Thus, if in 2020, the EU countries agreed that the percentage of renewable energy should increase to 27% by 2030, the MEPs stated that it should be at least 35%. For the transport sector, they argued that at least 12% of the energy consumed in each EU member state should be produced from renewable sources such as solar or wind energy. MEPs also want to protect the right of citizens to produce, store and consume their own electricity from renewable sources, without paying taxes or fees. renewable energy in the EU registers a turnover of 30 billion euros and provides 350,000 jobs the work. As technologies have developed, some forms of energy, especially solar energy, have seen more intensive use. But development has not been equal in the EU, and renewable energies represent only a small share of the total EU energy mix compared to the dominance of gas, oil and coal considers the security of energy supply from internal sources a primary objective for ensuring national energy security [3], [5].

### ➤ Energetic efficiency

ITRE members have proposed a new energy efficiency target of reducing energy consumption by 40% by 2030 (ie 34% reduction in primary energy consumption compared to 2005 levels). Improving energy efficiency can reduce CO2 emissions, but also an annual bill of 350 billion euros for energy imports [2], [8].

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An important area for improvement is the heating and cooling of buildings, which account for 40% of all energy consumed in the EU. About 75% of these are energy inefficient.

In December 2020, negotiators from the Parliament, Council and Commission agreed that EU countries should prepare long-term national strategies to support the renovation of residential and non-residential buildings. The aim is that by 2050 buildings in the EU will no longer emit greenhouse gases and reduce CO<sub>2</sub> [9].

Finally, by 2022, 90% of fuel/petrol stations along the Trans-European Network roads are expected to be equipped with recharging points for electric vehicles.

➤ Control mechanisms.

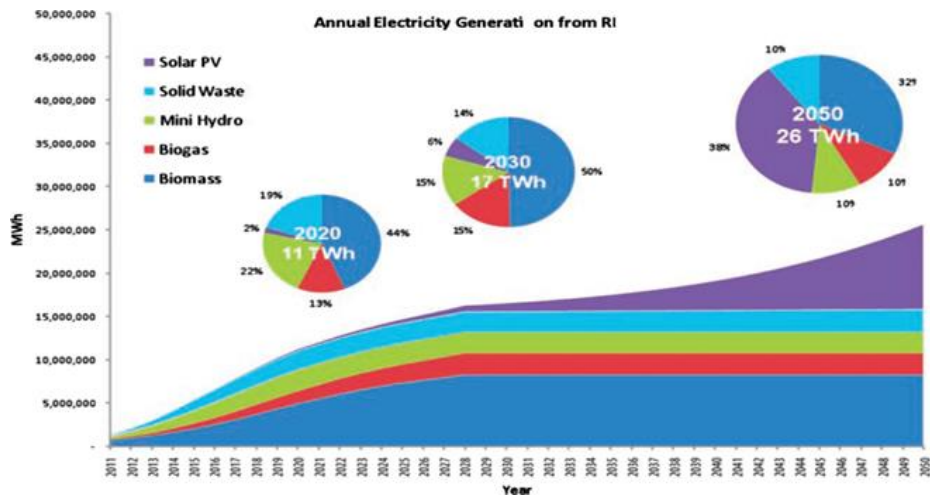
At the same time, MEPs proposed the establishment of a cooperation and control mechanism to monitor progress towards achieving the EU's energy and climate change objectives by 2030, especially in terms of energy efficiency and renewable energy.

Even though the Clean Energy Package 2020-2030, also known as the Winter Package, has so far raised doubts as it was considered not to be ambitious enough, this is the EU's first serious attempt to create a single renewable energy market [7].

### 3. SOLAR ENERGY - A SOLUTION IN SUSTAINABLE DEVELOPMENT

The national energy strategy provides a vision and proposals for the development of the energy sector until 2030 and is centered around a set of fundamental strategic principles and objectives [12].

The energy sector contributes essentially to the development of Romania, through its profound influence on the competitiveness of the economy, the quality of life and the environment. In order to support consumers' expectations in the long term, the Romanian energy sector must become economically more robust, more technologically advanced and less polluting, and the national potential to produce green energy is presented in figure 2 [10].



**Fig.2.** Renewable energy production potential

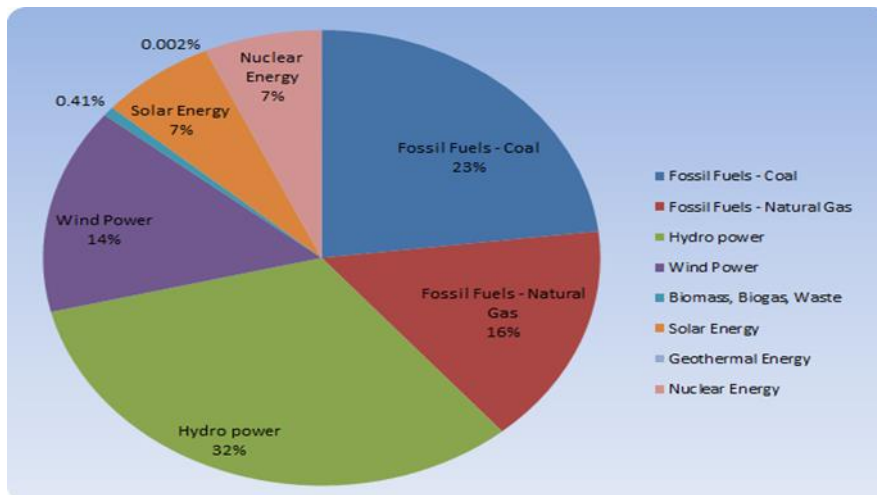
The complex energy profile of our country makes all EU measures important. In this sense, Romania considered it necessary to get involved and promote projects such as the Nabucco gas pipeline, the AGRI interconnector, the PEOP pipeline. Also, it is desired to emphasize the role of the Black Sea on the energy map of the EU, through the prism of the multiple assets of this basin (potential hydrocarbon reserves, positioning on the Caspian hydrocarbon transport route, cooperation platform in the field of renewable energies between the riparian countries) [6].

Romania must develop an active and competent presence in the intra-community energy market, in coordination with Eastern European countries, with similar energy system structures. As long as the Western Balkans and Ukraine do not participate in the ETS system, electricity produced there based on fossil fuels has the competitive advantage of not reflecting the cost of GHG emissions in the production cost [5].

The EU promotes its energy policies in South-East Europe through the Energy Community, which brings together the countries of the EU as well as those of South-East Europe and the Black Sea Basin, aiming to extend its market rules in this space.

Romania's fundamental strategic objectives are: energy security, to ensure the competitiveness of the economy, respectively the transition of the energy sector towards a sustainable development model, supported on the foundation of good governance of the energy sector and ultimately aiming to ensure energy for all consumers and its affordability by reducing energy poverty and protecting vulnerable consumers.

The evolution of dependence on energy imports influences the type of primary energy, Romania fulfilled its European commitment for 2020 to increase the SRE share to 24% of gross final energy consumption (SRE share), reaching a level of 26.3 for this indicator % in 2020 [11]. Figure 2.1 shows the structure of energy production for the next 20 years, according to Romania's Energy Strategy.



**Fig.3.** Structure of energy production in the 20 year in Romania

The transfer of electricity, through the transmission and distribution networks, from producers to final consumers implies the possibility of access to the network for all

participants involved in this process. Access to the network represents the right of a producer, distributor, supplier or consumer to connect to the electric transmission and distribution networks, under the conditions required by the technical norms. ..Solar energy refers to a renewable source of energy that is directly produced through light and solar radiation, figure 4.



**Fig.4.** Photovoltaic systems

At the distribution level, free access ensures the distribution of energy from a supplier to the final consumer through the distribution network. This can be used: to generate electricity through solar (photovoltaic) cells; to generate electricity through thermal power plants; to generate electricity through solar towers; to heat blocks directly, through heat pumps or solar ovens.

The advantages of solar energy start from the fact that it is available in huge quantities, is inexhaustible (at least for a few billion years) and is ecological. The means of capturing solar energy are not polluting and have no harmful effects on the atmosphere.

#### **4. CONCLUSIONS**

Photovoltaic systems can be a reliable power source for telecommunication systems, especially in isolated areas, at long distances from the network. Examples of this are telecommunication towers, passenger information transmitters, mobile telephone transmitters, radio stations, emergency call units and military communication installations. These systems can range in size from a few watts for emergency alert systems to several kilowatts for radio stations. Of course, these systems are independent units, in which the batteries provide an alternating voltage that meets current demands. Practice has shown that such PV systems can operate for a long period of time without complex maintenance work.

Photovoltaic solar energy is appreciated as one of the most promising sources of energy in the future. Not only the sun's rays are a source of renewable energy, they are completely free and available. Solar energy is clean, unlimited and produces no emissions. It does not pollute water or air and is completely silent. It is capable of providing consistent power for residential or commercial use and the technology used to produce modern photovoltaic systems has become better, more cost-effective and more

accessible than before. In today's world where new sources of energy are always sought after, the future of solar photovoltaic energy has never been brighter.

In the conditions where the degradation of the Earth reaches an increasingly high level, this problem is starting to be taken into account by more and more people, and this can be seen. And as technology develops, solar energy will be used more and more.

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