

THE IMPACT OF RENEWABLE ENERGY POLICIES ON THE QUALITY OF LIFE

Abstract

The last decades are marked by the increase in energy consumption coupled with population growth in states offering a higher quality of life to their citizens. In this context, the use of renewable energy is essential both from an economic perspective and from the impact on the environment

The paper analyzes the quality of life concept from the perspective of renewable energy policy as well as the perception of the society regarding the use of renewable energy and its role in improving living conditions. The first part of the paper provides an overview of the literature regarding the impact of renewable energy policies on quality of life. The main features of the literature are investigated and the significant deficiency as well as gaps in knowledge are highlighted, suggesting some directions for further studies. The second part of the paper focuses on the challenges facing renewable energy in the context of climate change and of energy supply importance. The final part draws the conclusions.

Keywords: healthy and ecologically balanced environment, quality of life, energy security, energy supply, Europe 2020 Strategy

JEL CODES: Q20, Q21, Q28, Q29

IMPACTUL POLITICILOR DE ENERGIE REGENERABILĂ ASUPRA CALITĂȚII VIEȚII

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Rezumat

Ultimele decenii sunt marcate de creșterea consumului de energie asociată cu creșterea populației în statele ce oferă o calitate superioară a vieții cetățenilor săi. În acest context utilizarea energiei regenerabile devine esențială atât din perspectivă economică cât și al impactului asupra mediului.

Lucrarea analizează conceptul de calitate a vieții din perspectiva politicii de energie regenerabilă și percepția societății cu privire la utilizarea energiei regenerabile și a rolul său în îmbunătățirea condițiilor de viață. Prima parte a lucrării oferă o imagine de ansamblu asupra literaturii de specialitate privind impactul politicilor de energie regenerabilă asupra calității vieții. Sunt investigate principalele caracteristici din literatură și se evidențiază deficiențele semnificative, precum și lacunele în cunoaștere, fiind sugerate câteva direcții pentru studii ulterioare. A doua parte a lucrării se concentrează asupra provocărilor cu care se confruntă energia regenerabilă în contextul schimbărilor climatice și al importanței aprovizionării cu energie. În partea finală sunt prezentate concluziile.

Cuvinte cheie: mediu sănătos și echilibrat din punct de vedere ecologic, calitatea vieții, securitatea energetică, furnizarea de energie, Strategia Europa 2020.



1. INTRODUCTION

The advance in science and technology has greatly contributed to economic growth and industrial development. Such a development is critical to the future because it leads to progress and improve quality of life. However, if it is not carefully controlled, it could cause severe damage to the natural environment leading to air, water and soil pollution with a negative impact on quality of life. Moreover, it was found that natural systems were affected by burning fossil fuels used for energy generation needed for industrial processes and motor vehicles circulation. Therefore, it is important to take into account the impact of this evolution on the environment and the quality of life.

Analyzing the current situation of energy worldwide, it is clear that energy consumption per capita is much higher in industrialized countries than in developing countries. The industrialized countries represent more than 20% of the world's population while consuming more than half of the energy produced at global level. Certainly, improving the quality of life in developing countries could only be achieved through access to energy. In this regard, there is a strong concern about the increasing demand on fossil fuels, CO₂ emissions and environmental degradation in general as well as the impact of this demand on the depletion of natural resources.

The volatility of oil prices, environmental protection constraints, the increased demand for fossil fuels and constant exhaustion of this energy sources worldwide increases the need to find efficient alternative energy solutions. In addition, high operating and maintenance costs, geographical difficulties concerning fuel supply, environmental pollution and noise pollution as well as damage to human health represent disadvantages that raise questions about the use of fossil fuels.

In contrast, low operating and maintenance costs of renewable energy supply systems offset the initial investment costs, making them the most effective and competitive alternative sources of energy. In this respect, renewable energy sources (wind, solar, wave, tidal, biomass, geothermal and hydropower) provide energy independence and security, helping to protect the environment and improving the quality of life.

The type of energy has a direct impact on quality of life not only nationally but globally as well. Both industrialized and developing countries in the energy sector deal with common problems such as depletion of natural resources, pollution, climate change, etc. Therefore, solutions and strategies for promoting close cooperation in order to support the advancement of developing countries are necessary.

An efficient use of renewable resources could contribute significantly both to stimulate the economy and reduce pollution, which would bring direct benefits to the business and increase the overall capacity of regional players in enhancing the development based on science and technology. Moreover, renewable technologies could become not only an essential tool for protecting the environment, but also for creating new jobs and developing disadvantaged areas. Despite the enormous benefits generated by the use of renewable energy sources, their use is not exploited to its full potential due to technical, economic and social constraints. Compared to conventional energy sources, which have benefited from decades of research and development and a well-established industrial base, the modern use of renewable energy is still in its infancy.

The experience of recent years suggests that achieving an appropriate policy and an institutional framework could play a key role in promoting the use of renewable energy. Thus, many governments have begun to implement different policies in order to support renewable energy production. Political support has been widely recognized as a key aspect of the implementation of renewable energy systems. In this regard, many countries have set goals and plans in order to promote and develop renewable energy.

Renewable energy policy begins to emerge more distinctly in the European Union. Moreover, the awareness of the fact that the nation state is not the only arena of energy policy and some challenges could be better achieved at EU level, increases among EU citizens as well as among policy makers. However, further work is needed for the implementation of this policy at EU level.

Despite the stability of energy consumption in the last two decades, the European Union depends heavily on imported fossil fuels, having the tendency to increase long-term imports dependence. In order to prevent uncertainty regarding energy supply caused by the imports dependence and minimize negative impacts on the environment and on the quality of life caused by the use of coal and natural gas and oil, the widespread use of renewable energy is vital. This is emphasized in the Europe 2020 strategy which supports the sustainable economic growth by promoting a more efficient economy from the perspective of resources use, being greener and more competitive.

Moreover, the EU's long term objective is the transition towards a low carbon economy by 2050. In addition, the size and complexity of the electricity system imperatively requires that challenges and risks of the transition towards a low carbon economy should be carefully considered. Furthermore, the reevaluation of nuclear energy future in some Member States after the Fukushima nuclear accident in Japan has a particular significance in the light of the challenge of moving towards a low carbon energy system.

The greater access to renewable energy is not a panacea for poverty reduction, but it could contribute significantly to its reduction. The energy produced from renewables could lead to the creation of new jobs in different areas, where land cannot be used for agriculture. Therefore, the use of renewable resources offers the possibility of introducing remote or unproductive lands in the economic cycle. Moreover, the introduction of these lands into the economic cycle (desertified areas, uncultivated and salty areas) leads to more active involvement of business and local authorities in the process of harnessing renewable energy sources.

Addressing energy needs does not automatically leads to improving the living conditions, but it is an opportunity to build a healthy and ecologically balanced environment on long term which implicitly contributes to improved quality of life. In addition, it becomes increasingly clear that economic development depends on a supply of clean, safe and stable energy which is often a vital component for supplying a number of productive activities and for ensuring the proper functioning of essential services.

2. LITERATURE REVIEW

The field of renewable energy is treated with great interest in the literature. The studies emphasize its role in reducing imports dependency (Valentin, 2011; Păceșilă, 2013; Bettgenhäuser et al, 2014; European Commission, 2014; Ozturk, 2014) and greenhouse gas emission (Profiroiu, 2007; Stern, 2007; IPPC, 2011). Meanwhile, other studies highlight that the use of renewable energy has beneficial effects on human health, facilitates access to energy (Mahapatra et al, 2009), has a major impact on reducing poverty (Institute of development Studies, 2014) and increases employment opportunities, competitiveness and sustainable growth (Ragwitz et al, 2006; Council, 2009; Edenhofer and Stern, 2009; OECD, 2011; Zamfir, 2011).

Several authors have highlighted the different barriers hampering the development of renewable energy: rigid regulations, bureaucracy, power networks underdeveloped and difficult access to them, high cost of networks connectivity, instability of support schemes (Wiser and Pickle, 1998; Painuly, 2001; Beck, et al, 2004; Haas et al, 2004; Mitchell et al, 2006; OECD/IEA, 2008; Shackley and Green, 2007; Sovacool, 2009b; Gross et al, 2010, Sonja, 2011).

Although the literature is replete with studies regarding the benefits of using renewable energy, the papers have not investigated the field from the perspective of the quality of life. However, a few studies analyze the benefits of renewable technologies on the quality of life in rural areas (Remmer and Kaye, 2001; Etcheverry, 2003), as well as the link between the energy needs and the quality of life improvement in underdeveloped countries (Paster and Santamarina, 2012).

An essential role in encouraging the development of renewable technologies is assigned to public policies. This aspect has been highlighted by Fri (2003), Trancik (2014) și Johnstone et al (2010) who consider that public policies stimulate the production of renewable energy which becomes cheaper from one year to another. The opinion of these authors is supported by Warbroek (2013) which mentions that public policies represent an important instrument used to achieve the objective of Europe 2020 Strategy contributing to reducing the negative effects caused by carbon dioxide emissions. The empirical research conducted by Marques and Fuinhas (2012) regarding the contribution of public policies to the use of renewable energy sources is also important.

However, although there are numerous studies analyzing the impact of public policies on the development of renewable energy generation and technologies (Menanteau et al., 2001; Dijk et al., 2003; Beck et al, 2004; Kofoed-Wiuff et al, 2006; Pfaffenberger et al., 2006; Zamfir et al, 2008; DB Climate Change Advisors, 2010), they do not take into account the positive effects on the quality of life arising from the implementation of such policies.

The quality of life is defined in the Oxford Dictionary of Sociology (2009) as a concept which, although rooted in sociology, far exceeded its borders due to the multitude of economic indicators used to measure it. Moreover, Farquhar (1995) states that the main advantage of this concept is its multidisciplinary nature.

This concept has attracted the attention of specialists at the macroeconomic level since the 50s (Constantinescu, 2011). The studies focused on the level of happiness of individuals and the welfare of society (EEA Report, 2009; Băltățescu, 2010). It acquired theoretical meanings in the 70s in the Scandinavian countries and in the United States (Wallace and Abbott, 2007), currently being included in scientific articles debating the attention that society and individual should pay in order to improve the quality of life.

The quality of life is becoming increasingly important due to the environmental movement (Constantinescu, 2011) which imposes its valences both at societal and at the individual level (by promoting a socially responsible behavior). The individuals start to be concerned about their welfare as well as about the society where they live in. Alarm signals are drawn regarding the limited resources of the planet and the imminent hazards that excessive industrialization could bring to the environment.

However, there are no studies addressing the quality of life through the impact of renewable energy on the consumer and on the improvement of its quality of life. Most researches are focused on the level of happiness of individuals and on the welfare of society. Although the quality of life from the perspective of environmental degradation is widely studied in the literature, the papers are especially focused on the

concept of sustainable development (Defra, 2000; Roznowska, 2011; Grunberger and Omann, 2011; Enăchescu et al, 2012; Dalli, 2012) initially considered a solution to the ecological crisis caused by the intense industrial exploitation of resources and by the continuing deterioration of the environment. Moreover, there are no studies investigating and measuring the impact of renewable energy policies and technologies on the quality of life in a given geographical area.

3. THE CHALLENGES FACING RENEWABLE ENERGY

At Community level, three main objectives on climate change and energy, with major impact on health and quality of life should be achieved by 2020. These objectives were agreed by the Heads of States or Governments in the Europe 2020 strategy for smart, sustainable and inclusive growth: increasing the share of renewable energy in the energy mix to 20%, reducing greenhouse gases emissions by 20% and achieving a 20% increase in energy efficiency.

However, the transition to secure, competitive, low carbon dioxide energy requires large investments in equipment, power networks, transport technologies and transmission lines, interconnections, storage in order to ensure security of supply, resources diversification, clean energy and competitive prices in an integrated energy market.

Some Member States are still on an "energy island" because of insufficient connection to the EU grid systems. In addition, gas import dependency still prevails in Northern and Eastern Europe. In some parts of Europe, considerable amounts of energy from renewable sources cannot be delivered to consumers due to underdeveloped infrastructure. Moreover, a high share of renewable energy in the electricity mix raises the issue of generation adequacy and network connection. Greater difficulties arise because of the intermittent nature of solar and wind energy, requiring the support of other sources like fossil fuels. This approach is likely to be economically inefficient, leading to perpetuate the fragmentation of the internal energy market and increasing dependence on fossil fuels.

In addition, although national support schemes play an essential role in stimulating economic growth in renewable energy field, the sudden changes of support programs, in some cases even retroactive, creates uncertainty among investors.

Therefore, Europe - net energy importer, has a lot of work in order to strengthen its energy security and to ensure energy supply. The orientation towards a competitive, safe and sustainable energy system should take into account an approach based on efficiency, the creation of a competitive market based on smart infrastructures, the use of biofuels and diversification of supply routes, the innovation and exploitation of alternative energy sources.

CONCLUSIONS

The reason for choosing this research theme is based on the fact that the impact of renewable energy on quality of life is a new and tempted field which is insufficiently investigated and addressed in the literature. As regards the concept of quality of life, there are multiple variants of definitions in the literature. These render general definitions or focused definitions oriented on the areas of application. However, there is not a clear definition given by specialists in the field of renewable energy that highlights the relationship between the satisfaction of renewable energy consumer and quality of life. Most projects and studies in the field argue that access to renewable energy will reduce poverty and improve quality of life. This means that the efficiency of renewable energy could be evaluated from the perspective of quality of life, taking into account that one of the objectives of renewable energy specialist is to provide value to consumers so as to maintain or even improve his level of welfare. However, quality of life is not an easy concept to measure, although the positive effects of access to renewable energy such as the development of disadvantaged areas and employment opportunities, contribute to the improvement of the living conditions.

Furthermore, other studies are required in order to investigate the potential consumers' desire of using this type of energy as well as the extent to which they understand its role in improving quality of life and well-being of society.

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