

MODERN SERVICES FOR DEVELOPING RENEWABLE ENERGY IN THE EUROPEAN UNION

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Abstract

The topics of renewable energy and modern services for its development are very relevant nowadays in the context of the “fight” for clients and their resources. Therefore, the aim of this study is to reveal recent research focused on the issues of modern services for developing renewable energy in the European Union. Firstly, some principles of developing a smart renewable energy policy are revealed, and secondly, several issues regarding modern services for developing renewable energy in the European Union are disclosed. The findings of this study reveal that the emerging green era is based on distributed and collaborative relations and services which request new ways of providing services and a new culture of services. Therefore, the methods and techniques of designing and managing modern services have to be changed in order to respond to the actual needs of the clients. The results of this study may be helpful for upcoming research in the area of managing modern renewable energy services.

Keywords: Energy services, renewable energy, smart policy, smart principles.

1. INTRODUCTION

The topics of renewable energy and modern services for its development are very relevant nowadays in the context of the “fight” for clients and their (financial or other) resources. We are living in a world of services, in which we act as clients or consumers of services, as well as providers of services, depending on our interests on different markets. Furthermore, the emerging green era is based on distributed and collaborative relations and services which request new ways of providing services and a new culture of services. The methods and techniques of designing and managing services therefore have to be changed in order to respond to the actual needs of the clients.

In this context, the present study investigates the issues of modern services for developing renewable energy in the European Union, with an eye to reveal the need for a new philosophy of designing and managing them. Therefore, some principles of developing a smart renewable energy policy are revealed firstly, and several issues regarding modern services for developing renewable energy in the European Union are disclosed secondly.

The research was conducted using a large variety of sources, such as books, research reports and articles. The research question was answered by analyzing and evaluating published sources, and by interpreting and reorganizing concepts. Answering the research question was difficult, due to the variety of approaches, concepts and definitions found in the literature.

2. PRINCIPLES OF DEVELOPING A SMART RENEWABLE ENERGY POLICY

A smart renewable energy policy may be defined as the set of rules, regulations, and government actions that lead to an increased share of renewable energy sources in total electricity consumption corresponding to the development objectives of a country (Weischer et al., 2011: 11).

The development of regional renewable energy projects depends on the regional public policies, the infrastructure, specialized human resources and management of the plans and programs of urban development, in addition to other tools, such as methodologies and procedures that help their application. Furthermore, regulation and rules play an important role in the use and advantageous exploitation of renewable energy, as well as the way to apply public policies in the region does (Hernandez Moreno, 2009: 138).

The development of regional renewable energy projects may be based on the natural advantage concept, which is a process that integrates innovation and sustainability policies and actions at a regional scale. The natural advantage manifests in three overlapping areas: (1) policies and initiatives for ecological modernization and cleaner production in industry, government, and civil society; (2) conservation and restoration of natural systems and maintenance of ecosystem services; and (3) innovation, knowledge transfer and partnerships between public, private and community based organisations (Potts, 2010: 714).

The road towards a smart renewable energy policy is based on some key principles identified by Weischer et al. (2011: 11-13): (1) a complete package; (2) clearly defined objectives; (3) private investment; (4) efficiency (a cost-effective policy); (5) innovation; (6) design through transparent, accountable, and participatory processes (figure 1).

The smart renewable energy policy has to be a complete package, which means to take into account the broader context renewable energy operates in, so as to create an enabling environment. Hence it has to include power sector regulations, investment and financing conditions, suitable electric grid infrastructure, and technical capacity (Weischer et al., 2011: 11).

A large number of companies would act to achieve sustainability and sustainable development if the Governments intervene by supporting costs, granting preferential tax treatments and incentives. However, renewable energy might prove to be nothing else but another way of profiting from large subsidies granted to the development of such types of sources (Momete, 2013: 254-255).

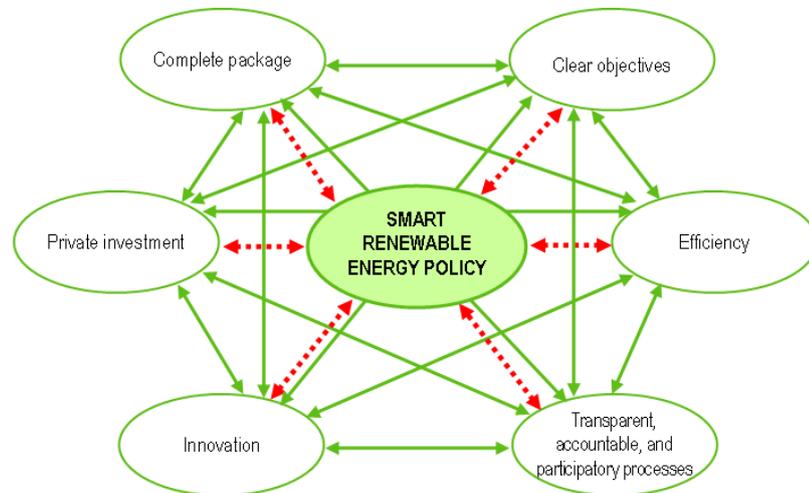


FIGURE 1 – PRINCIPLES OF DEVELOPING A SMART RENEWABLE ENERGY POLICY

Source: Author, based on Weischer et al., 2011

Smart renewable energy policy begins with a clear definition of the objectives, in terms of added power generation, energy access, technology development, or economic development goals. A clear articulation of policy objectives may ensure the contribution of the smart renewable energy policy to the broader development aspirations of a country (Weischer et al., 2011: 11).

Renewable energy can make a major contribution to the interconnected challenges of responding to a growing global demand for energy services and simultaneously reducing negative impacts associated with its production and use. Investments in renewable energy contribute to climate change mitigation, but to maintain an increase below 2°C of the average global temperature, the development of renewable energy have to be clearly accelerated. Renewable energy has other social and environmental benefits, including those to mitigate or avoid many health problems and reduce impacts on ecosystems caused by the extraction, transport, processing and use of fossil fuels (UNEP, 2011: 202).

Renewable energy policy may have a more transformational impact if it encourages private investment by promoting attractive and predictable market conditions which have to be loud, long and legal. (Weischer et al., 2011: 11-12). Loud market conditions mean that incentives need to be sufficient to make a difference to the bottom line and to improve the bankability of projects. Long market conditions mean that the incentives need to be sustained for a time period that reflects the financing horizons of a

project. Legal market conditions mean establishing a legally regulatory framework, based around binding targets or implementation mechanisms, to build confidence that the regime is stable, and can provide the basis for long-life capital intensive investments (Weischer et al., 2011: 11-12).

Policies to support renewable energy and energy efficiency need to be adapted to the features of different regions, the circumstances prevailing there and the potential for the development of new energy sources (Applica & Ismeri Europa, 2011: 10). For instance, Păceșilă (2013: 62) concludes in her study that there is a high potential of renewable energy sources in Bulgaria, Romania and Greece, and these sources play an essential role in reducing the dependence on energy imports, creating new jobs and ensuring the environmental protection. Therefore, there is a need of investing in research and development services in the field of renewable energy, taking into account the technological maturity of renewable energy.

Urban management in more prosperous advanced countries is rapidly and seriously transiting from conventional to sustainable energy technologies (Ingwe et al., 2009). Nowadays, a wide variety of technologies provide energy from different renewable sources that have their unique technologies which convert the energy of the resource into a usable form. The elements that differentiate those sources from the conventional ones is their strong spread of the exploitable potential over quite extended areas and the immediate dependence of the season and weather conditions.

Public funds need to be spent in such a way to ensure that investments are efficiently meeting the renewable energy policy objectives. This principle of efficiency calls for careful policy design to avoid over-subsidization and it may not be thought as maximum deployment at minimal cost. This is because the policy objectives could include, for instance, driving long-term price reductions or supporting technologies at different stages of development (Weischer et al., 2011: 12).

Cost-effectiveness of renewable energy technologies has significantly evolved in recent decades. Many renewable energy technologies are rapidly maturing and their costs are becoming competitive compared with fossil fuel alternatives. Consequently, investments in expanding renewable energy production have increased dramatically in the last decade (UNEP, 2011).

The financial support for renewable energy has to be temporary, to be provided as long as the technologies are not yet competitive with fossil fuel options. There is a need for further reductions in cost and improvements in performance, reliability, and safety of renewable energy technologies in order to replace more emissions-intensive alternatives. Consequently, there is a need of investments along the entire innovation chain so as to create favourable conditions for the emergence and diffusion of new

ideas and practices for zero-carbon power generation: in research and development, demonstration, deployment, and diffusion (Weischer et al., 2011: 12).

Public support is needed to reach the Community's objectives with regard to the expansion of electricity produced from renewable energy sources, in particular for as long as electricity prices in the internal market do not reflect the full environmental and social costs and benefits of energy sources used. To obtain an energy model that supports renewable energy there is a need to encourage strategic cooperation between Member States, involving, as appropriate, regions and local authorities (The European Parliament and the Council of the European Union, 2009: 19-20).

Regional innovation relies on knowledge-based approaches that involve the willingness and ability of private companies and public institutions to interact and exchange knowledge and skills. Across the economy and across the region, processes of learning and exploring may lead to developing new products, services, and markets, entrepreneurial activity, and encouraging regional diversification and employment (Potts, 2010: 715).

Opportunities for economic growth through innovation and a sustainable and competitive energy policy are recognized by the experts (The European Parliament and the Council of the European Union, 2009: 16). It is often assumed that innovation mainly happens in the research and development phase. However, there is a need for innovation beyond the lab, i.e. throughout the life cycle of the products, across the entire supply chain, and throughout the energy system (Weischer et al., 2011: 12). Therefore, the European Commission and Member States should support national and regional development measures in the field of renewable energy, should encourage the exchange of best practices in the production of renewable energy between local and regional development initiatives and should promote the use of Structural Funds in the field of renewable energy (The European Parliament and the Council of the European Union, 2009: 16).

The smart renewable energy policy should be designed through transparent, accountable, and participatory processes. A lack of open, transparent, and responsible decision-making processes may lead to less effective and less efficient policy implementation. If the basic principles of good electricity sector governance (i.e., transparency, accountability, stakeholder participation, and capacity) are applied, then better decisions may be implemented (Weischer et al., 2011: 13).

In modern societies, the volume of public policies that run through different hierarchical vertical integration formulas (i.e., through contracts, grants, loans, partnerships and regulations) constitutes the vast majority. From a budgetary standpoint, the policies and directly managed services are a minority,

and their managers need more and more to establish relationships with other public and private actors (Longo and Ysa, 2008: 24).

3. MODERN SERVICES FOR DEVELOPING RENEWABLE ENERGY PROJECTS IN THE EUROPEAN UNION

The number of service organizations that offer energy efficient services and solutions has grown and this fact creates considerable potential for energy savings in business and industry. These service organizations provide a range of services from supplying and installing energy efficient equipment to building refurbishment. The development of these organizations may lead to increased energy efficiency through cost-effective projects, and also may lead to reducing the gap between supplier and consumer.

Fouquet and Pearson (2006: 175) have shown in their study the value of trying to develop a richer understanding of the demand for energy services and its evolution over long periods of time and at different stages of economic, societal and technological development. Focussing on developments in energy service provision rather than simply on energy use and prices can reveal the “true” declines in costs, enhanced levels of consumption and welfare gains that have been achieved (Fouquet and Pearson, 2006: 139).

The goals of achieving a 20% share of renewable energy in the final energy consumption and a 10% share of energy from renewable sources in transport by 2020 are headline targets of the European 2020 strategy for growth, since they contribute to Europe’s industrial innovation and technological leadership as well as reducing emissions, improving the security of energy supply and reducing energy import dependence (European Commission, 2013: 2). Figure 2 reveals the sectoral and overall growth of renewable energy in the European Union.

The 2010 renewable energy shares of 20 Member States and the European Union as a whole were at the level of or above 2010 commitments set out in their national plans and above the first interim target for 2011/2012 (European Commission, 2013: 3). The increasing share of renewable energy is accompanied by the development of modern energy services provided by specialized companies.

The sustainability has been part of the statements of many companies, but this was not accompanied by the declaration of their energy consumption, waste generation and effects on environment of the whole supply-chain (Momete, 2013: 254).

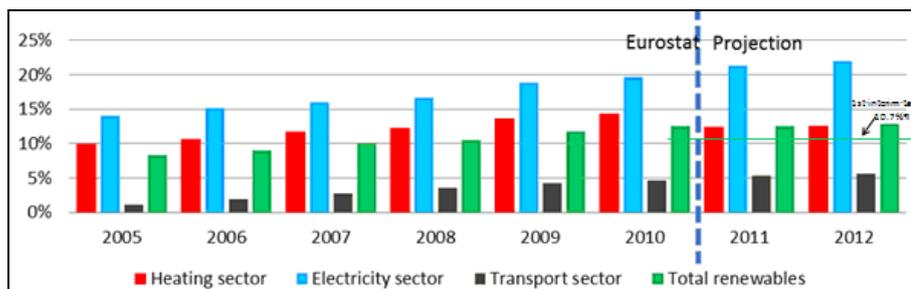


FIGURE 2 – TREND IN RENEWABLE ENERGY IN THE EUROPEAN UNION

Source: European Commission, 2013: 3

Socially oriented energy enterprises or organizations (which include private enterprises - such as SMEs, community cooperatives, and nongovernmental organizations) promote the social, economic, and environmental benefits of delivering renewable energy services to low-income individuals and communities that are not well served by traditional providers. They focus on clean, affordable, accessible, and scalable energy solutions that match the economic, social, and geographic characteristics of low-income consumers (Ballesteros et al., 2013: 2).

The main types of activities that form the electricity sector are: (1) the production of electricity in power plants, including cogeneration power plants (production); the production of electricity includes the operation of generation facilities that produce electric energy; including thermal, nuclear, hydroelectric, gas turbine, diesel and renewable; (2) the transport of electricity through high voltage lines from energy production capacities to supply installations or to installations of the clients connected directly to transport electricity grid (transport); this includes the operation of transport systems that convey the electricity from the generation facility to the distribution system; (3) the transport of electricity through medium and low voltage lines to final consumers (distribution); this includes the operation of distribution systems (i.e., consisting of lines, poles, meters, and wiring) that convey electric power received from the generation facility or the transport system to the final consumer (4) the sale and purchase of electricity on wholesale markets (trading); this include the activities of electric power brokers or agents that arrange the sale of electricity via power distribution systems operated by others and the operation of electricity and transmission capacity exchanges for electric power and (5) sales of electricity to final consumers of users (supply) (Consiliul Concurenței, 2012: 13; Rubinian, 2013).

Accordingly, the main relevant markets in the electricity sector can be considered as follows: electricity production and sale market; electricity supply market; electricity transport market; and electricity distribution market (Consiliul Concurenței, 2012: 14).

The energy market may be governed by distributed and collaborative relations between the operating companies that will enlarge their activity by developing renewable energy. Nevertheless, the competition on the energy market may be hindered by the vertically integrated companies which operate on this market and have access to the distribution network. A company that controls the distribution network, and is also a player on the electricity market could be interested and could have the ability to impose terms and conditions relating to the access to that network in order to reduce the competition on the competitive energy market (Corboş, 2011: 72).

Nowadays the same information and communication technologies that led to the Internet can be used to reconfigure the energy networks in the world, allowing millions of people to take stock and produce their own renewable energy from their homes, offices, shops, factories and technology parks and share it through intelligent networks, just as they are producing and sharing their information in the cyberspace (Rifkin, 2009: 11).

The companies should transform nowadays their business models toward selling services as an alternative to selling products. However, this transformation will not be easy, because production requires a solid set of skills, but services require a solid and effective set of skills and a typical mentality of superior services (Kaufman, 2013: 256). There are four core strategies common to the business models of the socially oriented energy services organizations: (1) understanding consumer needs, preferences, and capacity to pay; (2) demonstrating the value of a new technology or energy service delivery model; (3) building and maintaining consumer trust in the product and the supply chain; and (4) designing financing and payment schemes that fit within consumer energy budgets (Ballesteros et al., 2013: 2).

A service provider can become better and more valuable if he enhances the experience that he provides in the big picture, which includes the main product, the delivery systems, the mentality of services and the continuous relationship (Kaufman, 2013: 284).

In this context, the principles of sustainable development may be thought as rights of the present and future generations instead of needs and prerequisites for global welfare. The pillars of the sustainable development (economic, social and environmental) should be approached by every country in an ethical, moral and equity based manner by safely and responsibly tackling the real desires and rights of all people, and not just a few wealthy ones. Consequently, sustainable development principles should be safely, responsibly and morally tackled by politicians and legislators, in order to transform the business world into a more responsible and a really sustainable one, for the welfare of the people (Momete, 2013: 256).

The role of the state and the services it provides in ensuring energy security, as well as in establishing energy policy will continue to be important, and will be intensified in some areas of action, such as: (1) regulating the energy market; (2) exercising the function of arbitrator of the energy market by monitoring the deviations from the rules and imposing correction measures; (3) establishing the development strategy for the energy sector; (4) establishing the conditions for import and export of energy resources, including electricity; (5) ensuring transparency of business processes in the energy sector; (6) protecting consumer interests and supporting community interests in relation to electricity producers, distributors and suppliers; (7) supporting the research and development in the energy sector (Zamfir, 2013).

Nowadays people need to have universal access to modern energy services, and also there is a need to provide business development services to environmentally focused SMEs or other service organizations.

The humankind is now in front of the Third Industrial Revolution, which will have a significant impact into the XXI century, by fundamentally changing all aspects of working and living. The Third Industrial Revolution means the transition to a green, renewable energy industrial era, with distributed and collaborative relations between the actors in all fields (social, political, economic, technical field, etc.). The conventional top-down organization of society that characterized much of the social, economic and political life of the previous industrial revolutions based on fossil fuels is rapidly giving way to the distributed and collaborative relations of the emerging green industrial age (Rifkin, 2011).

The instruments used to support the development of renewable energy may manifest at the local, regional or national scale and can take the form of new regulations or policies such as energy efficiency measures, market based instruments (such as subsidies or emissions trading schemes), and educational tools, strategies or networks that increase knowledge transfer. It is critical to encourage the development of sustainable products and services using a "whole of society approach" with contributions from civil society, business, government, and educational institutions (Potts, 2010: 716).

There are five pillars of the Third Industrial Revolution, as follows: (1) the transition from fossil fuels to renewable energy, (2) the transformation of the building stock of every continent in electrical micro power plants that produce and use renewable energy, (3) the deployment of hydrogen technology and other energy storage systems in all buildings, and across the network infrastructure, in order to accumulate renewable energies, which are of intermittent flow, (4) the use of Internet technology to transform the electricity network of every continent in a "interred" of shared power that works just like Internet (millions of buildings may generate locally - in situ - small amounts of energy and can sell the surplus to re-enter the network, sharing that electricity with their continental neighbours), and (5) the

transition from the current fleet of transport vehicles to electric motor power supply vehicles able to buy and sell electricity within an interactive and intelligent continental electrical grid (Rifkin, 2011: 60).

The only reliable way for an organization to achieve and maintain a competitive edge is to build a self-sustaining service culture that empowers every employee to surprise and delight customers and colleagues every day with truly uplifting service (Kaufman, 2013). In the design of a superior service culture there is a clear architecture, which stands on the education in the field of services, and has on top the leadership in services. These two extremes are connected through 12 fundamental pillars of service culture: (1) common language of services; (2) compelling vision of the services; (3) recruitment in services; (4) guidance in services; (5) communication related to services; (6) recognition and reward of services; (7) voice of the customer; (8) measurement and assessment of services; (9) improvement of services; (10) recovery and guarantee of services; (11) standard of services; and (12) models to be followed in services (Kaufman, 2013: 117-121). Interconnecting these 12 pillars of superior service culture can lead to strong synergies to induce a significant increase in performance of the organization (Kaufman, 2013: 122). However, designing and upgrading a superior service culture cannot be achieved without changing the methods and techniques of managing modern services.

4. CONCLUSIONS

This study has revealed the need for a new philosophy of designing and managing modern services for developing renewable energy in the European Union. There is a need of a smart renewable energy policy, based on some key principles which were described and interpreted in this study. Moreover, in this context, the role of the state and the services it provides in ensuring energy security, as well as in establishing energy policy will continue to be important, and will be intensified in some areas of action.

In addition, this study has disclosed several issues regarding modern services for developing renewable energy in the European Union. Today's world is a world of services, in which people act as clients or consumers of services, as well as providers of services, depending on their interests on different markets. Nowadays people need to have universal access to modern energy services, and also there is a need to provide business development services to environmentally focused SMEs or other service organizations.

The number of service organizations that offer energy efficient services and solutions has grown and this fact creates considerable potential for energy savings in business and industry. These service organizations provide a range of services from supplying and installing energy efficient equipment to building refurbishment. The development of these organizations may lead to increased energy efficiency through cost-effective projects, and also may lead to reducing the gap between supplier and consumer.

Furthermore, the emerging green era is based on distributed and collaborative relations and services which request new ways of providing services and a new culture of services. The methods and techniques of designing and managing modern services therefore have to be changed in order to respond to the actual needs of the clients.

The results of this study may be helpful for upcoming research in the area of managing modern renewable energy services.

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