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THE INTEGRATION AND DEVELOPMENT OF ENERGY MARKETING IN THE CONTEXT OF THE EXPLOITATION OF RENEWABLE ENERGY SOURCES

Dumitrescu Dănuţ, Hora Cristina
University of Oradea, dumitrescudan70@yahoo.com, chora@uoradea.ro

Keywords: Renewable energy sources, Environmental impact, Renewable energy promotion, Power energy performance, Marketing policies, Criteria, Operational instruments.

Abstract - The exploitation and utilization of renewable energy sources is certainly one of the most concerning research topics targeting not only the partial substitution of conventional energy sources, cu precadere a hidrocarburilor, and default to improve the exerted influences on the environment, but equally from the outlook of the economic integration of this new energy market. The current energy system displays a major vulnerability regarding the connectability of multiple RES units (renewable energy sources), with low productive capacity, to the large providing current distribution networks, although the renewable energy obviously can not penetrate the market without them. The energy marketing may provide in this context a way to boost and higher valorization of RES under development of an effective product mix that takes into account both quality of products or services and their production costs. Hence this allows the implementation of marketing policies that essentially take into account the consumption needs and the market dynamics, harmonizing the solvency parameters with the economic performance of RES units.

INTRODUCTION

The issue of ensuring a stable energy offer in relation to the growing needs of sustainable development increasingly focuses upon the important role of renewable sources. Thus, in the current stage of technological and market circumstances is imperative to implement certain appropriate policies to their specificity, able to determin their most favorable positioning and to strengthen the role in the energy future. The necessity of stability and consistency of political support is obvious if we consider that the future of this market directly depends on feasible investment efforts in terms of effective public-private partnerships and cooperation as well the maturising of competition.

The approaching of this very complex issues must start from the main drivers of production and energy exploitation of energy renewable energy sources, respectively the operational instruments of marketing policy and trend analysis of their implementation.

The defining and implementing of this policy includes various influencing factors among which are particularly important the legislation, the procedural means and the considered awareness actions as drivers regarding the successful marketing policy instruments .

The operational assessment of their potential involves the employment of a criteria set including certain aspects of economic efficiency, the opportunity and involved costs level, but equally the safe operation goals provided for the renewable power industry. Besides these should be considered as well the derived aspects from the current operation and impact of marketing policy instruments used in the European market for renewable energy.

A particular importance is facing the highlighting of the new developments in this market including the use of marketing strategies aiming to promote the green electricity, the implications of moving from centralized to distributed generation, the energy market liberalization effects, and the left unsolved issues in connection with green electricity certificates systems and carbon emissions trading. Achieving sustainable economic growth involves also the renewable energy sector, among the key success factors itemise not only the effective applied marketing policy, but also the safety of investment, essential

for the development of this sector and related energy market. The consistency of regulatory and policy-making at different levels requires active involvement of concerned parties in this market. Moreover, the increasing role of carried out trade in the renewable energy sector requires a foregroung approach in the implementation of transnational policies aimed at harmonizing the energy markets.

ELEMENTS OF THE RENEWABLE ENERGY MARKETING POLICY

The arguments for investment and support of renewable energy sector are multiple and have evolved over time and space due to the energy crisis. Active support manifestation for the exploitation of renewable sources vary by country and type of available resources but with a common denominator: energy crisis and serious environmental damage.

Therefore, the raising awareness of these issues and concerns about the relative consumption sustainability of conventional energy sources formed the main spring to promote renewable energy. Currently, the incentives of accelerated renewable sources recovery is mainly occurred by environmental priorities of climate change and, secondly, the need for energy supply security. On the other hand, there are obviously other reasons outside covering not only economic and environmental arguments, but also the social impulses.

Regarding the impact of enlargement efforts of renewable energy sources recovery at local, national, regional or global is overwhelmingly positive, according to pursuing of primary strategic objectives at these levels.

Therefore, a pertinent analysis of the marketing policy elements specific to these sources that aims those above mentioned can not be substantiated without taking into account three groups of factors: *economic, environmental and social.*

Thus, among the considered economic factors, should be included:

a.***the optimization of energy supply*** have a major reason for appealing to renewable sources, particularly to provide the difficult access areas with low power needs through *off-grid* systems, renewable energy often being cheaper than connecting to a power network . Such a system is, for example, NAPSI BigPack able to produce 230 V power supply by converting sunlight, similar to a traditional network, and, by integrating a backup generator might provide the needed energy in wintertime. Moreover, many forms of renewable energy can be used for decentralized supply, which might reduce the need for network capacity expansion and thus lead to significant capital savings.

b. ***supply security*** is a sine qua non qua condition for energy quality in any reference system. Due to relatively high energy consumption and the need to call the current fossil fuel reserves, the addiction to them is still substantial. Renewable energy currently available in Europe reduce this dependence and, therefore, increase energy security. This fact is of major importance for the costs both regarding the energy supplier and not least the consumer, especially the industrial one whose productivity directly depends on the quality of provision.

c. ***the fossil fuel price*** changes assailable the consumer increasing the socio-economic instability. The Importance attached to supply security has recently increased due to the need of energy-raw materials supply, namely oil and coal from politically unstable areas. So, the opportunity of applying encouraging policies for European companies, in order to increase their market share due to business opportunities arrogated to the renewable energy sector, is obvious. An essential component of the sectoral marketing policy regards the improving of environmental factors, namely the poluting emissions reducing, knowing that the renewable energy (excluding biomass) has no direct emissions from energy conversion.

Among the environmental impact factors to be considered when developing a performant power marketing policy, there are marked out:

a. ***level and aria reduction of climate changes***: emissions from biomass and biowaste are likely to alleviate the environmental pressure due to short carbon cycle of toxic emissions at least comparable to those produced by fossil fuels if we take into account that new technologies significantly reduce CO2 emissions and other greenhouse gases.

b. ***maintaining the biotope homogeneity*** while the renewable sources exploitation does not essentially modify the environment , increasing the chances of such forwarding to the future generations. However, it is noted that, for example, if occurs an uncontrolled exploitation of geothermal resources, the gradual decrease in temperature or chemical composition modifying of water can lead to the extinction of plants and animals which can not adapt to these changes from one generation to another.

c. ***the recovery of the power potential of the environment*** without changing its main characteristics, safe on long-term and without irreversible consequences. Altogether, the renewable sources are virtually endless but a lack of regular evaluation of environmental impact can lead to serious consequences caused by the accumulation of observable and highlighted effects on the long term. These may affect the landscape, climate and biotope in an important extent and difficult to control.

Regarding the social impact of renewable sources exploitation distinguish several key factors in developing their marketing policy, namely:

a. ***increasing the labor employment*** by creating direct and indirect jobs with attendantly accession of renewable energy share. This applies not only to manufacturing facilities and necessary equipment, respectively their assembly, but also to the maintenance and supply of various materials.

b. ***reducing the net gain*** of employment in the conventional power sources industry. The assessment of accelerated development policy impact of the renewable energy industry is relatively difficult, but most experts believe that the overall effect on the European labor market will be positive.

c. ***public support for renewable energy consumption*** manifested by a significant number of people regarding the development of alternative energy sources as part of a sustainable way of life. The social dimension of consumption has a decisive importance in the success of the promotion marketing policy of these sources.

d. ***socio-economic cohesion*** produced by the renewable energy sector that has the potential to be extended in geographical areas that other sectors can not be present. Along with the expansion of economic activities and business involvement in renewable energy production, the opportunities to develop less attractive areas are increasing. Such developments help to establish new commercial relationships and increase pan-European economic cohesion.

e. ***impact of changing the energy market priorities*** since the environmental benefits of renewable energy is currently one of the main supporting factors of the sector. The concept of "medium" is increasingly interpreted in the context of future climate trends as the evolutions are felt mainly in this direction (floods, landslides, drought, etc.).

The main challenge for this sector is that the recovery of renewable energy technologies have to be competitive in terms of applying the energy efficiency measures. Therefore, for further support of policy renewable marketing policy objectives is necessary to create an *international system of tradable green certificates* in order to have an efficient distribution of technological implementation costs. It is noted that the national benefits of this sector are still insufficient and it doesn't directly stimulate the local development, actuating the decision policy factors and potential investors to target other sectors.

MARKETING POLICY INSTRUMENTS OF RENEWABLE ENERGY

Recovery options analysis of the opportunities offered by renewable sources involves the classification in terms of their instrumental value. This classification is somewhat theoretical because in reality ther marketing policy instruments are implemented as part of an interdependent policies system regarding energy product, price, promotion and distribution. Thus, if we take into account the instrumental means positioning that can be used, these may be direct or indirect.

Direct approaches immediatly aim the renewable energy sector while the indirect instruments are primarily designed to eliminate the "external" barriers of this sector and the improvement of the renewable energy marketing environment.

In terms of the direct influencing instruments of this sector and the related market can be distinguished financial and non-financial measures. ***The financial measures*** mainly consist of financial incentives granted to the operating agents in this market in order to increase their role in the renewable energy sector. On the other hand, the ***non-financial measures*** are designed to influence the relevant market through agreements between key stakeholders or through obligations as financial instruments. A no less important role in the implementation of such agreements or obligations might be played by the associated noncompliance penalties, essentially dependent on governmental support allowed to the renewable energy market. The instrumental approach in terms of *operational value* distinguishes a set of clear categories of policy instruments for energy marketing:

a. ***support of investment efforts*** by fixed subventions, respectively subsidies and fiscal measures.

The investment subventions based on competitive bids aim both rates and coverage premiums for higher energy price fluctuations.

b. ***financial support of production*** is based on cost recovery allowances directed to production including in most cases government subsidies from structural funds.

c. ***procedural support*** for bidding award through an attractive and nonbureaucratic system to support the investments, namely production. These systems are usually based on regulatory measures aimed at supporting the costs in both directions.

d. ***boosting the renewable energy*** use through price incentives applied to the standard product portfolio consisting of lower prices for energy consumers, as direct policy instrument, respectively by increasing the relative price of non-renewable energy as a form of indirect stimulation .

In addition to these direct instruments aimed at supporting renewable energy in the current regulatory and political context, should be considered as well the iindirect measures, essential for implementing renewable energy technologies.

Thus, knowing that the market is defined by supply and demand, their quantification and balance is made still in investment phase and subsequently in production of a renewable energy project. Energy demand from renewable sources, on the one hand, respectively the offer, on the other hand, are controlled by consumption potentiation instruments. From this point of view is essential the correlation to be made between price and quantity, having in view that a group of drivers mainly affects the price of renewable energy and thus facilitating the access to this market.

Another instrument package focuses on regulatory measures which prescribe a minimum amount of renewable energy to be produced or consumed.

Therefore, the possible ways to stimulate the market can be grouped as follows:

a. ***stimulation of supply*** by mechanisms of cost price management.

b. ***stimulation of demand*** through consume price subsidies.

c. ***stimulation of supply*** by measures related to the produced amount and quality indexes.
d. ***stimulation of demand*** through measures related to the consumed amount and its weight.

From European practice may identify the following operational tools in products demand, respectively in the offer of green energy products:
- *consume price subsidies and demand support*
- *conditioned granting of subsidies for compulsory consumption quota*
- *tariff subsidies to renewable energy supply*
- *supporting the competitiveness of green power products portfolio*
- *establishment of obligations and support conditionalities for bidders*

A significant factor in the improvement and integration of renewable energy policy marketing is direct support for research and development of demonstration actions widely used to stimulate the market growth of these energy sources.

Technological development has an indirect impact upon the energy market considering the reducing of production costs through investments. Therefore the demonstrative projects are usually financially sustained in acomplishing the default investments but combined with the fulfiling of certain monitoring requirements, the market impact of such tools being similar to an investment support.

CONCLUSIONS

1. Ensuring a stable energy offer accordingly to the needs of sustainable development implies the increasingly adapting of renewable sources integrated management sistems through efficient marketing policies in accordance with technological and market situation.
2. The future of this market depends directly on feasible investment efforts in terms of effective public-private partnerships and cooperation, as well its competitive maturation relatively to the non-renewable resources market.
3. The foundation of renewable sources marketing policy must start from the main drivers of their production and exploitation, respectively from its operational instruments of economic, environmental and social condition.
4. The operational potential assessment of renewable energy marketing policy involves the application of criteria that include not only the instrumental aspects of economic efficiency and the involved costs opportunity, but also of the safe operating goals set for this industry

References:

1. James Momoh, Lamine Mili, Economic Market Design and Planning for Electric PowerSystems, IEEE Press, New Jersey, USA, 2010
2. Xiao-Ping Zhang, Restructured Electric Power Systems: Analysis of Electricity Markets with Equilibrium Models (IEEE Press Series on Power Engineering), IEEE Press, New Jersey, USA,2010
3. Adrian V. Gheorghe, M. Masera, M.P.C. Weijnen, L.J. De Vries, Critical Infrastructures at Risk – Securing the European Electric Power System, Springer Publishers, The Netherlands, 2010
4. International Energy Agency, World Energy Outlook 2010, "What does The Global EnergyOutlook to 2035 look like ?" , 2010
5. www.iea.org, World Energy Outlook 2011, November 2011
6. www.energies-renouvelables.org, The State of Renewable Energy in Europe, 11th EurObserv'ER Report, 2011
7. EWEA (European Wind Energy Association), Large scale integration of wind energy intothe European power supply: analysis, issues and recommendations, December 2005
8. EWEA (European Wind Energy Association), Wind Energy Scenarios up to 2030, March 2008