"Dimitrie Cantemir" Christian University
Knowledge Horizons - Economics
Volume 10, No. 4, pp. 92 - 97
P-ISSN: 2069-0932, E-ISSN: 2066-1061
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www.orizonturi.ucdc.ro

MARKETING OF REGENERABLE SOURCES OF ENERGY

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Abstract *Against the background of a modern understanding of marketing, which stresses value orientation and the interactive web, the attributes of renewable energy (commodity, low-involvement product, credence good, partially public good, product that needs explanation in two dimensions, and prosumer good), as well as the aims of the consumers of renewable energy, a marketing mix for green energy is developed. Policies on the product, pricing, distribution, and communication are analyzed in detail and presented with a particular focus on the specifics of regenerative energy.*

Key words:
marketing, renewable energy, photovoltaic panels, solar panels
JEL Codes:
M3
M31
O13
P28

1. INTRODUCTION

Knowledge of the market is done by researching and capturing their behavior through both direct actions (surveys, tests, experiments) as well as by conjunctural, prospective and market studies. Knowing the requirements of the market, marketing policies can be designed (product, price, distribution, promotion). Marketing activity can be organized after knowing the characteristics of the market regarding qualitatively and quantitatively demanded products, price level and degree of competition. This organization influences production orientation, sales promotion, contract execution and performance taking into account existing stocks, available means of transport and earnings.

Global primary energy consumption grew by only 0.9% in 2014, a significant drop from 2013 (+ 20%) and much under the past 10 years by 2.1%. Growth in 2014 slowed down for each type of fuel, except for nuclear energy, which was the only type of energy to have risen above average. The increases have been significantly lower than the average for the past 10 years In the Asia Pacific region, Europe and Eurasia and South and Central America. Oil remained the world's top fuel, accounting for 32.5% of global energy consumption but lost market share for the 15th consecutive year.

Renewable energy sources (wind energy, solar energy, hydroelectric power, ocean energy, geothermal energy, biomass and biofuels) are alternatives to fossil fuels that contribute to reducing greenhouse gas emissions, diversifying

energy supply, and reducing dependence on volatile and unreliable fossil fuels, especially oil and gas. EU legislation on the promotion of renewable sources has evolved significantly in recent years.
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Renewable energy sources - in electricity production, as well as its transportation have continued to grow in 2014, reaching a record 3.0% of global energy consumption, from 0.9% a decade ago.

Renewable energy allows the State to require each supplier of electricity in England and Wales to contract for the supply of a certain amount of electricity from non-fossil fuel sources. The aim is ultimately to achieve a declared net capacity of 1,500 MW of renewable energy. The obligation arising from such an order is called the non-fossil fuel obligation (NFFO) (Fouquet, 1998). The difference between the market price and the premium price is reimbursed by the BER to the Fossil Fuels Act, an electricity tax paid by licensed electricity suppliers and transferred to consumers (Mitchell, 1996). Similar agreements also apply in Scotland and Northern Ireland. The way it works is that the parties bid competitively on the price of electricity in the technological sector. The government then decides the amount of capacity to be purchased in each sector (Mitchell, 1996). Not all projects to which contracts have been awarded have passed. The reasons include lack of planning and other consents, difficulty in obtaining fuel equipment and problems in applying new technologies. A detailed analysis of NFFO commands is given by OFFERTA (1998).

Renewable energy used in electricity generation increased by 12.0%. Despite the fact that this growth was below the average of the last 10 years, the significance is that it was responsible for the use of renewable sources in electricity generation for the fifth consecutive year, the increase in the last year (+ 15.1%) representing a thirds of the average of the last years. Globally, wind energy (+ 10.2%, +14.8 million tons equivalent mitoe) has increased by less than half of the average of the past 10 years, with growth below average in all regions except Africa and South America and Central (which cumulatively accounted for less than 4% of global production). Solar energy production increased by 38.2% (+11.6 mtoe). Bio fuel production increased by 7.4% (+4.9 mtoe), below average, generated by increases in US (+ 5.6%), Brazil (+ 5.5%), Indonesia (+ 40.4%) and Argentina (+ 30.9%).Renewable energy used in electricity generation increased by 12.0%. Despite the fact that this growth was below the average of the last 10 years, the significance is that it was responsible for the use of renewable sources in electricity generation for the fifth consecutive year,

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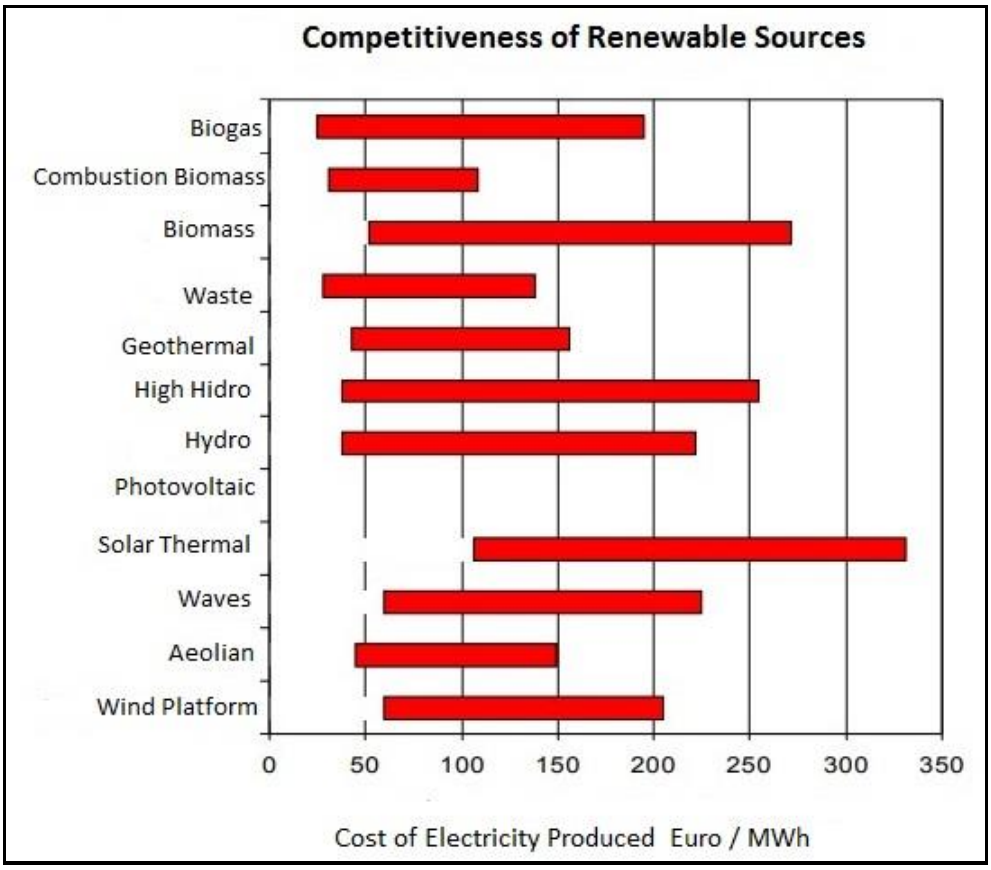

2. SOLAR PHOTOVOLTAIC PANELS

A new solar cell created by scientists can convert solar light into electricity with an efficiency of 44.5%. Current technology allows conversion into electricity with only 25% efficiency in the happiest of cases.

The new cell works by adding more layers of material to a single cell, each absorbing a certain portion of the spectrum of sunlight.

The new technology differs from standard technology in two ways. In the first instance, scientists could assemble the parts of the cell more accurately using a technique called transfer printing. The second way was to use materials derived from gallium antimonide (GaSb) substrates, which are typically used for infrared lasers and photodetectors, to fully absorb direct sunlight.

3. HYBRIDE PHOTOVOLTAIC SOLAR PANELS

A hybrid system uses solar energy when heating water and methanol, stored in a roofed labyrinth maze. After catalytic reactions, the system can produce hydrogen without impurities in a much more efficient way, which can be stored in fuel cells and used as needed.

At the theoretical level and in terms of energy performance, the system, compared to three other technologies, has an efficiency of 28.5% in summer and 18.5% in winter, conventional systems gaining only 5-15% in summer and 2.5-5% in winter.

At the moment, the three tested systems are:

- the standard photovoltaic cell system that converts direct sunlight into electricity, and then, by electrolysis, divides water into hydrogen and oxygen;
- a photocatalytic system, but more simplistic and less developed;
- a system, also based on cells photovoltaic, which converts solar energy into electricity and then stores it in various types of batteries (preferably lithium-ion batteries being the most efficient).

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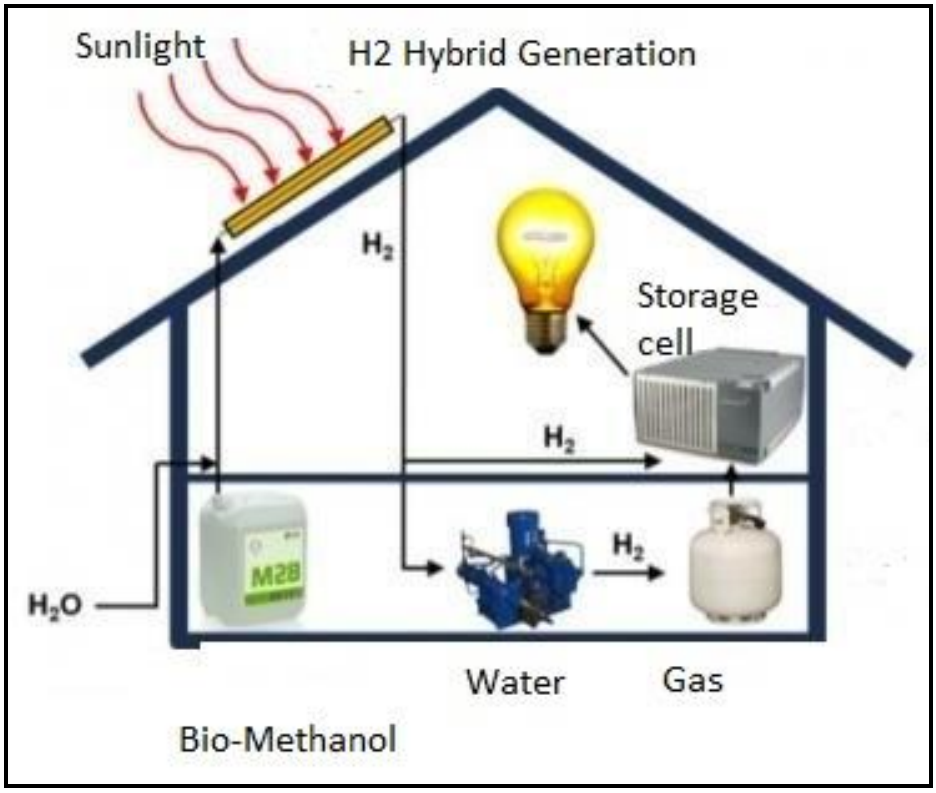
Like any other solar-based system, the hybrid system collects sunlight. But here are the similarities in operating mode. Although apparently it looks like a conventional panel, it is actually made of copper tubes, wrapped in aluminum and aluminum oxide, and partially filled with catalytic nanoparticles. The vacuum tubes are circulated with a mixture of water and methanol. "This structure allows the absorption of up to 95% of solar energy, thus reaching temperatures in the tubes above 200 degrees Celsius" (Hotz, 2016).

Once these high temperatures have been reached, evaporated liquids are mixed with small amounts of catalyst, resulting in hydrogen. It can be redirected immediately to storage cells to produce electricity instantly or stored for later.



5. CONCLUSIONS

Instead of paying new subsidies for fossil energy sources, the electricity market should be restructured. Only a better understanding of the market will lead to insufficient prices on the electricity market for the improvement of the situation again. If the oldest and most inefficient coal-fired power plants were to disappear from the market, they could pay a double dividend: the market would be transformed, the electricity prices on the energy market and the profitability of other power plants would increase new, and climate targets could be met.

Renewable energies are the central element of a sustainable energy supply: they are environmentally friendly, ensure security of supply as an internal energy producer, and can also increase competitiveness as an incentive for growth and jobs. Renewable energy sources are of interest to all energy sectors: for electricity, heat and alternative fuels in the transport sector. The renewable energy industry promotes expansion and innovation and has become a growth industry like no other sector in recent years (Blazejczak et al., 2013, OECD 2010). Most employees work in the fields of wind energy and biomass, followed by solar and geothermal industries. During the political process of phasing out nuclear energy and reducing high CO 2 emissions from coal-fired power plants, renewable energy sources can also help combat climate change and improve security of supply by reducing dependence on imports . Since renewable energies are commonly used for decentralized energy supply through wind turbines, biomass facilities, and heat and power combinations, the use of renewable energy sources increases security of supply. There are many opportunities for expanding

renewable resources. Depending on how global demand for renewable energy is growing, the export potential can be greatly increased.

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