

# REGENERABLE ENERGY, A KEY TO INTEGRATING COMPETITIVE POLICIES WITH ADVANCED ENVIRONMENT PROTECTION STRATEGIES

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*Development of competitive policies and improvement of environment protection strategies are two basic trends of the development of the European Unique Market. Energy, also known as „industry bread”, is basic product and strategic resource, where energy industry plays an obvious role in the economic and social development of any community. Traditional energy production is marred by three major drawbacks: it generates negative externalities by polluting; it is totally in the hands of the producers; hence, prices rise at their will, of fossil fuels such as oil and gas.*

*Present study focuses on electric energy industry, yet bearing over the whole length of the chain producer-to-end-consumer, thus revealed as particularly complex. The question is do alternative energy sources meet the prerequisite of market being competitive meanwhile environment protection being highly observed. We identify limits in point, of the energy market; effects of market liberalization; entry barriers; interchangeability level of energy sources; active forces on the energy market.*

*Competitive rivalry has been expressed as per market micro-economic analysis, based on Michael Porter's 5-forces model.*

*It will thus be noticed that, morphologically, competition evolution depends firstly on the market type. For the time being, the consumer on the energy market stays captive, for various reasons such as: legislation; limits of energy transfer infrastructure; scarcity of resources; resources availability imbalance; no integrative strategy available, of renewable energy resources usage. Energy availability is vital for human society to function.*

*Comparative advantages of renewable energy resources are twofold, as manifested: in terms of economics, i.e. improving competition by substitute products entered at the same time as new producers enter market; and in terms of ecology, by reducing CO<sub>2</sub> emissions. As to energy production technology and transfer, the complementary nature will be noticed, of renewable energy resources, such nature manifesting itself as a 6th force, „the force of complementary products” apt to stimulate low competition on the energy market.*

*Key words: competition, environment protection, renewable energy, strategy*

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## **1.General**

The action of competition operates primarily when the prices are free, which can make any buyer to freely search and pick the seller with the lowest prices, encouraging also the producer in his action of searching for new clients. In the energetic market, its limits are clearly visible. Taking into account that the action of the competition on the market is an expression of the market development degree, the economic liberalization degree, this theme represents some constant interest. Competition challenge and environmental protection is able to stimulate the creativity of the economical agent in his action in effective exercise of economic activity.

In Romania, as well as in other countries, markets have undergone drastic changes, of services industries based on infrastructure nets, such as electricity, water, gas, railway and telecommunication. Such changes are manifested as privatization; subsidiarizing; and retechnologization. Besides these three, common to various industries, dereglementation works now on the energy markets, i.e. markets traditionally serviced by public enterprises, become open to competition.

Owing to the scarcity of market agents and to the rising efficiency figures of developing electricity networks, energy transfer and distribution comes close to the natural monopoly model by the book.

Energy peculiarity is its non-stocking nature, balancing being needed at each production/consumption moment, in its basic meaning market mechanism not manifesting itself

prone to self-balancing: the large production-transfer integrated enterprises have taken over such balancing function, i.e. technically managing energy flux in real time.

Dereglementation severed such function from the competitive activities dependent of the market power such enterprises could own.

Juridical type and attributes of the flux administrators vary from country to country. In practice, two energy types can be defined, function of how production relates to environment and type of resource used: conventional energy, based on fossil fuel consumption; and renewable energy: solar, aeolian, a.s.o.

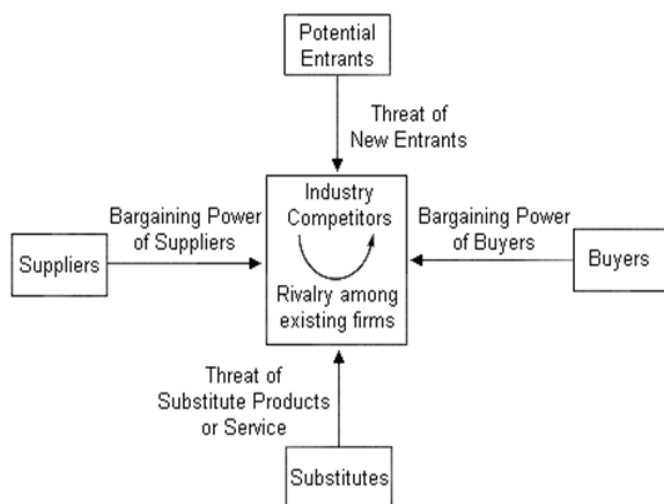
## 2.Prior Research and Approaches

Our topic is finding the key to social and economic development based on balanced natural capitals; as such, the topic falls under *sustainable development* header. Such concept, as approaching man-environment relation, implies integration of 3 factors: economy; society; and ecology. At its debut, the concept seemed a key to the ecology crisis generated by industrial exhaustion of resources. Later on, it expanded to cover aspects such as: justice,equity; life quality, social and economic life factors.

Practically, to economy basic principle – i.e. minimal effort deployed – one more, complementary, is added, i.e. meeting ecology natural requirements, asking man to prove his creativity and adaptability to such prerequisites.

Strategy means vision, vision is generated by past and also present state diagnosis, such states causing both strategy and vision. Scarcity of resources, competition, market limits, natural unbalance, all asked for ways out, not only from strategy or engineering researchers but also from famous SF writers, such as Frank Herbert in *Dune*, the first major SF ecology novel before the oil crisis of the'70s.

Michael Porter develops his 5 forces model (Fig.1.), meaning to cover actual market competition aspects.Three of Porter's five forces refer to competition from external sources. The remainders are internal threats. Porter referred to these forces as the micro environment. They consist of those forces close to a company that affect its ability to serve its customers and make a profit. A change in any of the forces normally, requires a business unit to re-assess the marketplace given the overall change in industry information.



(Fig.1) The Five Forces model of M.Porter, Source M.Porter, Strategie concurențială:București:Teora, 2001

The overall industry attractiveness does not imply that every firm in the industry will return the same profitability. Firms are able to apply their core competencies, business model or network to achieve a profit above the industry average

Writings focused on economic and strategic valence of renewable energy depended on prior research and development of technology.

A network industry is an activity organized around an infrastructure that assumes quite high fix costs related to variable costs.

Analyzing the competition on the energetic market and its specificity is important the concept of transactional costs introduced for the first time by Ronald Coase in his 1937 paper entitled "The Nature of the Firm. Afterwards Williamson in the neoinstitutionalist current shows that firms have interest when to internalize certain activities when to externalize them.

Alexandrina Duță, in her Advanced Macro-economics, approaches market limits as related to public goods and externalities: „As a rule, public goods are not totally subjected to specific market transactions. As such, market field is limited, while access to public goods is, at least in theory, limited. Game theory explains the rationale of market limits determining the specific market logic”. (1)

The network activities are generally assigned to some public services, however, unlike the pure public services their consumption is divisible. It can be observed a certain weakness of the market so that it can allow access to everyone at the network, is necessary the intervention of the national public or regional power. The existence of public service missions requires the presence of a regulator. This regulator watches over the respect of rights and liabilities of the concessionaire and makes sure that has an equal treatment towards certain users.

„The regulator's role is triple:

1.to protect the investor against a destructive competition, this is done through the adjustment of some exclusive rights to the concessionaire of the public service.

2.Protection of the user against the abuse of dominant position of the concessionaire(whatever monopol having a "natural" tendency of abusing the dominant position).

3.The saving of the collective interest, which requires taking under consideration of preoccupations regarding the national independence, the territory improvement, redistribution of income.”(10)

### **3. Research Methodology**

The topic needs both static approach and dynamic analysis of competition. Present study stage covers the former of the two, implying an analytical approach of, firstly, the basics of *industry* and of *market structure*; and, secondly, of competition pressure, evidenced by Michael Porter's 5 forces model; power of each such 5 forces and interaction thereof if working together by morph the specific economic activity field as to competition intensity, which, ultimately, determines the field efficiency. The typical market of economic activity is the imperfect competition market.

The market's structure study implies the analysis of the following elements: degree of atomicity, of transparency, of product homogeneity, of freedom to freely enter and exit the market and also of the production factors mobility.

Through a qualitative approach of competitive intensity it shows that products substitutability is manifested as the consumer finds the opportunity of a similar usage. “Highly subjective by nature, the establishment of a characteristics list of the products and their performances helps thou to clarify if the products are substitutable or not, in particular examining if those performance characteristics are equivalent or comparable.”(7)

#### 4. Research results

In the energy production field, although traditional energy and solar energy are generated by widely differing technology (i.e. based on fossil fuels the former, on photovoltaic effect the latter), the two are substitutable by filling the same need, i.e. consumption of energy.

Given that technological processes are run in various business fields, substitutable products industry is a type of competition more and more often encountered. The trend becomes more and more tempting of enterprises turning to such type expanding and diversifying. (6).

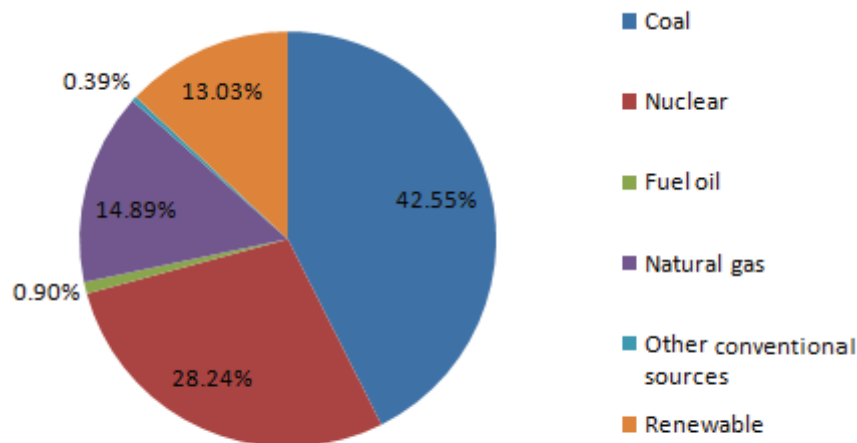
The future of, say, photovoltaic energy, depends on the innovating capacity of enterprises coming from silicon industry, i.e. different from fossil fuels. As, yet, expensive, scale economies can be a key-factor for the success of such enterprises.

The entry barriers in the energy sector are first of technical nature, this being the main factor in influencing the competitive game. Virtually choosing a substitute product in the energetic market is conditioned by the network's capacity to take care of the energy in its various points.

Apparently industries upstream of the energy industry get to have a higher negotiation power, due to the unbalance of ratio demand/supply. This relationship between demand schedules leads economists to classify goods as either substitutes or complements.

Practically three types of interlocking are manifest in Europe: physical, economic, and political.

"The numbers speak for themselves: almost 50% of the energy consumed in Europe is imported, and it is estimated that 20-30 years from now, Europe will be 90% depended regarding the oil, 70% regarding natural gas, and 100% regarding coal"(9). The physical dependence determines an economic dependence due to the dynamic of the traditionally resources prices which can create tensions and affect the world economy. The purchasing security develops a new dimension of the dependency, the political one generated by the resources asymmetric growth. The main electric energy supplier from Romania supplies in a low amount renewable energy (Graphic1), and this is mostly (99%) a hydro-energy.



Graphic1: Electric energy supplies by SC ENEL ENERGIE SA

Source: ENEL ENERGIE SA

The opportunity of a similar usage of a renewable energy with traditional energy conditions the substitutability degree. In fact the usage of renewable energy must be approached in two plans: a spatial plan founded on natural fluxes which are not present abundantly on the whole planet (the solar potential differs from one region to another), and a temporal plan which emphasizes the intermittent character of production and consumption of renewable energy. For example in the

case of solar energy the intermittence is generated by the lack of light during the night, Practically the two energies do not substitute one another completely but they coexist and their intercalary way of usage generate a complementarily degree of their own. In my opinion in the electric energy market manifests a sixth force "the force of complementary products".

## 5. Conclusions

Stimulation of the renewable energy industry develops like an integrative factor of competition policies with the environment protection strategies. Macroeconomic arguments pro are robust: on the one hand, the beneficial effect is manifest, of the energy resources' renewable nature; and on the other, as determined by competitiveness increasing through more and more inter/intra-industries competitiveness due to energy production being substitutable, therefore causing more and more economic agents to enter the energy market.

Beneficial effects manifest at both energy market and environment levels are multiple, a lavish research topic for both technology experts and for economists, who target common goals, such as: freeing captive consumers; increasing competition on the energy market; cutting on negative externalities of production by lowered CO<sub>2</sub> emission.

Substitutable producer goods would include: petroleum and natural gas (used for heating or electricity). A substitute good, in contrast to a complementary good, is a good with a positive cross elasticity of demand. The degree to which a good has a perfect substitute depends on how specifically the good is defined. The fact that one good is substitutable for another has immediate economic consequences: insofar as one good can be substituted for another, the demand for the two kinds of good will be bound together by the fact that customers can trade off one good for the other if it becomes advantageous to do so.

In particular the advantages of solar electric energy are multiple:

- The resource is available everywhere even if it is less in North than South
- The energy is renewable and clean: 1 m<sup>2</sup> of pickup avoids the annual emission of approximately 100 kg of CO<sub>2</sub>
- The local production is decentralized: it is produced in the proximity of the consumption place, thus, avoiding network losses
- Absence of noise
- Not one part is in motion and the collectors resist at unfavorable climate conditions.

The renewable energy development may determine local economic development because in most of the cases renewable energy is based on proximity resources, a feature that justifies the use of the expression "decentralized energy. Use of the proximity resources involved in stripping some areas without access to electricity grid: for example islands in the Danube Delta, inaccessible mountain areas, outermost regions, etc.

Using renewable energy systems to store energy accumulated, can be an alternative to connecting the national network which makes the strategic point of view to consider substitute services). Basically, in this case the beneficiary has a dual role of energy within a closed network: a role of producer and consumer.

The high cost of connecting to a conventional network when the customer is away from mains power makes an investment in a single autonomous system to be viable in financial terms. It is found that renewable resources cannot substitute in any moment the traditional energy practically to serve constantly, the two sources must coexist. The introduction of the new renewable energies sources can be translated through the appearance of a sixth force which is exercised in the energetic market that emphasizes the complementary character of products and services.

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