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The Entrepreneurial Environment in the Greek Renewable Industry, in the two last Decades: A Review

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Abstract: *The term entrepreneurial environment includes all institutional, legal, financial and public policy aspects that can support any type of business activity. These different layers can affect the growth or the decline of a business sector by the creation of incentives or barriers in the entrepreneur's actions.*

This paper examines the Renewable Energy Sources (RES) business sector in Greece. In this research, we investigate the energy market, by analysing the administrative, financial, political and technological framework that covers the sector's operation, in the last two decades. The paper presents the progress of the renewable sources installation for the last twenty years. It also presents all the available financial support mechanisms that have been used in the promotion of relevant technology, the legal framework and the licensing process for the renewable projects, the taxation and the role of the banking system.

For this long period of time, we investigate the different political and economical situations that the country has faced and more specifically the paper describes the emergency political decisions that have been taken in front of the Greek financial crisis, during the last 5 years.

With respect to research methodology, in this review paper, we compiled all the appropriate data from all institutional organizations as well as we carried out a quantitative research with the participation of more than 80 companies which invested in different technologies in the RES industry.

The empirical results of the survey describe the strengths and the weaknesses of the sector and present the necessary initiatives that have to be taken by the state for the support of entrepreneurship and the facilitation of the creation of new investments in the energy sector in Greece.

Keywords: *Entrepreneurial Environment, Renewable Energy, Greek Financial Crisis.*

1. INTRODUCTION

This review paper aims to investigate the entrepreneurial environment in the field of renewable energy, in Greece during the last twenty years. The research tries to describe the development of this energy sector, the implementation of several renewable technologies in small and bigger projects, the institutional and legal framework that cover this field and all the possible ways and mechanisms of financing and supporting such business activities. The research also evaluated the effectiveness as well as the barriers of this environment and identifies the appropriate changes for the further growth and success of this entrepreneurial sector.

The significance of this paper is based on the fact that this is the result of a primary research carried out into the industry and developed in all the technologies of renewable energy sources and in all sizes of businesses from very small businesses to multinational enterprises.

The growth of renewable industry is connected with the United Nations agreement concerning the climate change in December 1997 known as the "Kyoto Protocol". After this agreement many international and European policies were established in order to create a framework for the operation of this industry. In this direction the European Union published the Directive 2001/77/EC in 2001 on the promotion of electricity production from renewable sources that contained individual targets for each EU Member State. The target for Greece was that 18% of its domestic energy consumption in 2020 would be derived from RES. This was the startup of the RES sector in Greece.

In the literature, many studies have been carried out concerning the sources of funding. Evans & Jovanovich (1989) highlight the importance of the entrepreneurs' ability to reach the necessary start-up capital for their business and Fonseca (2007) notes "the interaction between the start-up costs and liquidity constraints affect the decision to become a businessman". The internal sources include personal funds of the entrepreneur or those he can draw from his environment, as Deakins & Freel note (2007). The external sources may include short-term bank loans, venture capitals, formal or informal investors, leasing or even subsidies and grants. The bank lending is the most common and by far the most important form of external financing for Enterprises (ESRC,2002). On the other hand, there is a mismatch in the demand for funds from businesses and the availability of respective funds in the financial institutions. These gaps, recognized by Macmillan and identified as "financial gap" (McMillan, 2002). On the other hand, the most commonly used Public Support Mechanisms in the renewable energy industry include:

- The mechanism of ***Feed in Tariff*** (FIT) that is an energy supply policy focused on supporting the development of new renewable energy projects by offering long-term purchase agreements for the sale of RE electricity. These purchase agreements are typically offered within contracts ranging from 10-25 years and are extended for every kilowatt-hour of electricity produced. The payment levels offered for each kilowatt-hour can be differentiated by technology type, project size, resource quality, and project location to better reflect actual project costs. Policy designers can also adjust the payment levels to decline for installations in subsequent years, which will both track and encourage technological change.
- The mechanism of ***Quota Systems*** or Quota obligations which is based on Tradable Green Certificates (TGCs) are generation-based, quantity-driven instruments. The government defines targets for RES-E deployment and obliges a particular party of the electricity supply-chain (e. g. generator, wholesaler or consumer) with their fulfilment.
- The ***Tax mechanisms*** that are generally favorable for electricity produced from RES.
- The ***Tendering*** systems that use government-supervised competitive processes to meet planned targets by making long-term power purchase agreements with renewable energy generators. Tendering policies are similar in some respects to feed-in laws and renewable portfolio standards; in that both the price and targets are set, but here the price and the RE projects eligible for government support at the specified price are chosen through a competitive bidding process, in which bidders submit project proposals with the price they are able to offer (Wiser, 2002).
- ***Net metering*** programs serve as an important incentive for consumer investment in on-site renewable energy generation. Net metering enables customers to use their own generation from on-site renewable energy systems to offset their consumption over a billing period by allowing their electric meters to turn backwards when they generate electricity in excess of their demand, enabling customers to receive retail prices for the excess electricity they generate. Without net metering, a second meter is usually installed to measure the electricity that flows back to the provider, with the provider purchasing the power at a rate much lower than the retail rate (Carley, 2009)
- ***Self-Consumption.*** The possibility for any kind of electricity consumer to connect a photovoltaic system, with a capacity corresponding to his/her consumption, to his/her own system or to the grid, for his/her own or for on-site consumption, while receiving value for the non-consumed electricity which is fed into to the grid (EPIA, 2012).

Table 1 presents the support mechanisms that have been implemented in several European countries.

Many researchers have also analyzed the role of the public policy in the development of an entrepreneurial spirit. Characteristically, Lundstrom and Stevenson (2001) note that these policies aim at the invigoration of the entrepreneurial activity in a country, supporting the creation of new startups.

Regulations, such as the cost of entry, have also a significant effect on the level of entrepreneurial activity. Fonseca (2007) shows that indeed, in OECD countries, fewer individuals become entrepreneurs where start-up costs are higher. Klapper (2004) finds that bureaucratic regulations inhibit entry in a sample of European countries.

Table1. *Support Mechanisms in European Countries*

	Feed-in tariff	Feed-in premium	Quota system	Tenders	Tax mechanisms	Net metering	Self-consumption
Austria	✓						
Belgium	✓		✓		✓	✓	
Czech Republic	✓ Untill 2010	✓ Untill 2010					
France	✓			✓	✓		
Deutch	✓	✓					✓
Greece	✓					✓	
Italy	✓	✓			✓	✓	✓
Netherlands		✓			✓	✓	✓
Portugal	✓			✓	✓		
Spain	✓ Untill 2011						✓
U.K.	✓		✓		✓		✓

On the other hand, the taxes can work as an obstacle in the entrepreneurship. A large number of studies have proved that taxes have a negative effect on the starting up, growth, survival, and generally speaking in the viability of an enterprise (Poutziouris et al. 2000, Rees et al. 1994).

Moreover, a very important field in the literature also refers to the obstacles that any investor can face in his entrepreneurial activity. There are many studies concerning the administrative burdens, the governmental restrictions and the regulations. Characteristically, Krauss and Stahlecker (2001) demonstrated that the bureaucratic regulations and the administrative burdens have a significant effect on the level of entrepreneurial activity.

The rest of the paper is structured as below. The next section refers to the description of the data from the Greek renewable sector. Section III outlines the institutional and financial framework in Greece. Section IV presents the strategic teams of "Entrepreneurs" in this industry. Finally, paper concludes by Section V which refers to study's implications.

2. THE GREEK MARKET OF RES

The National Law N 2773/1999 describes the production of electricity from renewable energy sources, including production from wind/solar power, biomass or biogas, geothermal and small hydroelectric plants. The production of electricity from renewable energy sources has increased in recent years in Greece by a significant percentage, which has been primarily the result of wind, small hydropower, biomass and photovoltaic projects.

The international trend in developed countries is the increasing of participation of renewables in the energy mix. European policy for renewable energy is based in this logic, which has resulted in explicit direction to all member states of the European Union with the 20-20-20 targets discussed above. Similarly, Greece's national policy in the field of renewable energy is designed with the lofty goal of installing approximately 13.000 MW RES by 2020.

The National Action Plan for Renewable Energy prepared to be consistent with European energy policy aimed at the further penetration of renewable energy into the energy mix. Thus, through the Law 3851/2010, the Greek government increased the national target for the proportion of RES in final energy consumption up to 20%. Table 2 presents the desired ratio of installed capacity per RES technology for the period 2014 to 2020, according to the Ministry of Energy.

Table2. *Greek targets for installed capacity (MW) per RES technology*

	2014	***2020***
Hydroelectric projects	3700	4650
Small (0-15MW)	300	350
Large (>15MW)	3400	4300
Photovoltaic	1500	2200
Heliothermic	120	250
Wind (including ocean)	4000	7500
Biomass	200	350

During the past 15 years the implementation of RES projects in Greece has seen an important increase. The development of renewable energy, during this period, was almost exclusively initiated by independent producers. They successfully exploited the system of guaranteed prices and the subsidies capital framework that established by the State, as financial incentives for the development of the country. On the other hand, the complicated licensing procedures, both situation and the development of the electricity transmission grids and the lack of any spatial plan were significant inhibitory factors in developing the RES.

Table 3 presents the available data from the Ministry of Energy until the end of 2013, which shows an increase in the installed capacity of renewable energy projects over the last decade in Greece.

Table3. *The progress of installed capacity of RES (2000-2014)*

Installed Capacity of RES (MW)															
Technology of RES	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014 June
Hydroelectric	42	45	45	50	59	64	77	95	158	180	195	205	213	220	220
Photovoltaic	0	1	1	1	1	1	5	9	12	37	198	624	1536	2580	2586
Wind	226	270	287	371	472	491	749	846	1022	1140	1239	1613	1749	1810	1847
Biomass	1	22	22	22	24	24	24	39	40	41	42	43	45	47	47
Total	269	338	355	444	556	581	855	989	1232	1398	1674	2485	3543	4657	4700

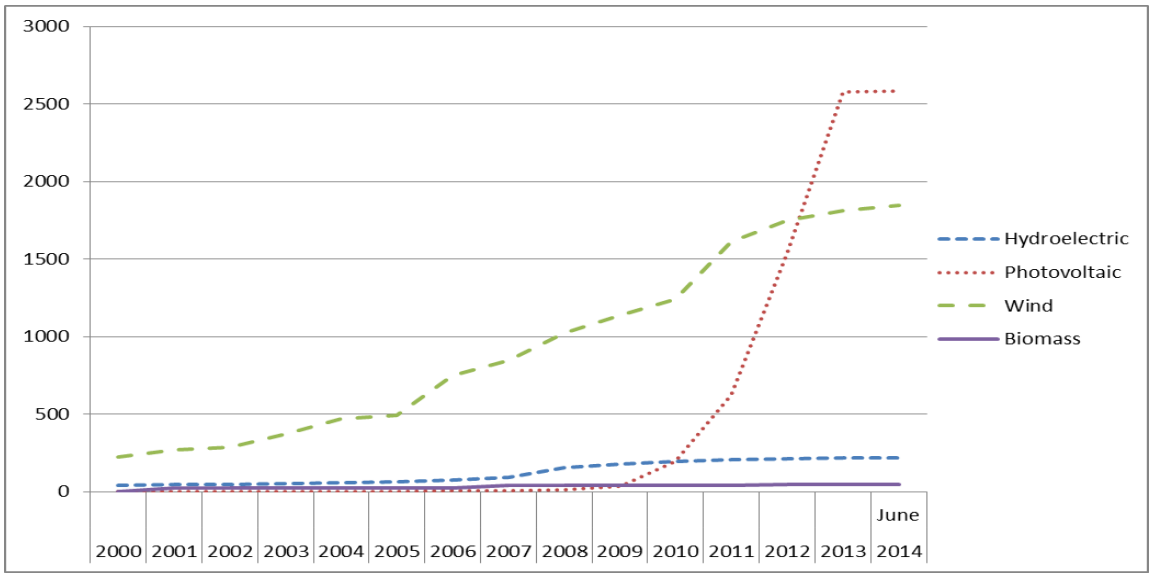

Figure1. *The progress of installed capacity of RES (MW)*

The rate of installed RES power plants (wind and small hydro) has remained approximately 20% on average. Photovoltaic projects (PV) have acquired a significantly increased installed capacity and the largest growth rate in the last two years (200%), when the EU average is only 17.5% per year.

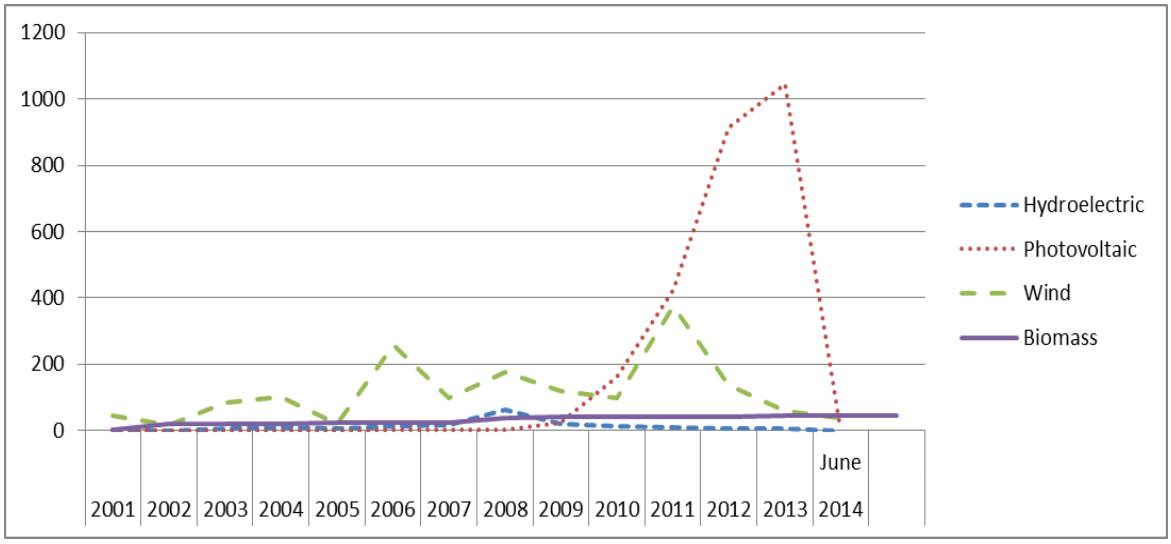

Figure2. *The rate of installation (MW/year)*

Based on HWEA (2013), all of the established wind power in late 2013 that was either in commercial or in trial use was 1.865 MW. This power is divided, in 1.558 MW in the Interconnected System and 307 MW in Non Interconnected Islands.

The new wind capacity installed in 2013 was 116,2 MW. This means that the growth rate of the wind energy market in 2013 was 7.05%, increased compared with 6.8% at the end of 2012. This rate is clearly reduced compared to 23.5% achieved in 2011, which was the best annual growth of wind energy in Greece.

At a regional level, Mainland Greece remains at the top of the wind plant with 573,8 MW (30.8%), followed by Peloponesse with 347,55 MW (18,6%) and Eastern Macedonia - Thrace with 240,8 MW (13,9%).

Regarding the business groups that invest in wind energy, these own the following shares:

- EDF with 322.8 MW (17.3%)
- TERNA Energy with 277.4 MW (14.9%)
- IBERDOLA - ROKAS with 250,7 MW (13,4%)
- ENEL Green Power with 200,5 MW (10,8%)
- ELLAKTOR with 162,9 MW (8,7%) and
- PROTERGIA group - Mitilineos with 36 MW.

On the other hand, the manufacturers' of wind turbines shares is as follows:

- Vestas has supplied 48.6% of the total wind power is established in Greece,
- Enercon has supplied 23.6% and follow
- Siemens with 10.5%,
- Gamesa with 9.6% and
- Nordex with 5,2% of the total wind power.

According to the country's commitments towards the European Union, the established power in 2020 should be 7.500 MW. For the last year the wind installation rate is almost zero. Therefore, to achieve the 2020 target should be installed 950 MW per year for the next six years.

Concerning Photovoltaic Energy, initially, the PV electricity was one of the most expensive renewable energy technologies. However, PV finally evolved as an economically attractive energy source. Another important argument in support of PV is the decentralized character of production, especially in remote areas. In this manner minimizes the marginal cost of production

and therefore the role will be evaluated based on the cost avoidance of operation and maintenance stations with small load factor.

The National Action Plan for RES provided total output of 2.200 MW of photovoltaic by 2020. From almost zero installed PV capacity in 2006, we reached in 2014 2.586 MW, surpassing six years earlier the target set for 2020. For 2012, Greece ranked fourth in Europe and seventh worldwide in terms of new installed PV capacity. Specifically, 912 megawatt (MW) of photovoltaic were installed during 2012 or respectively 88% of all the new renewable power that was added in the past year. Greece ranked 8th in the world rankings for the installation of new solar farms, in 2013, between countries like China, the U.S., Japan, India, Australia, Germany, Italy, the United Kingdom and Romania.

The planning of PV stations took place in 2006, with the data of an annual growth in electricity demand about 4%. This rate was not revised, resulting in a recessionary market to have a rapid expansion of new projects of all the technologies. The investment bubble in PV stations firstly manifested in 2007 and completed in 2013, when the institutional authority (RAE) had licensing applications for more than 3.500 MW. The tariffs (FIT), which were ensured by Law 3468/2006, were the higher among EU. These tariffs moved the investment interest in the sun - which until then had focused on air and wind - creating expectations in small and large investors for easy and sure profits.

It is doubtful whether in the investment frenzy of 2007-2009, those who were responsible had made accurate calculations of how the consumers and public revenues would be charged by the rapid development of photovoltaic. This is because the tariff given as an incentive to investors was ensured by increasing the RES fee, a fee which was paid by all consumers through electricity bills.

Additionally, the strategic planning didn't monitor the reduction of the investment cost of PV. Thus, in 2007, with installation cost six million €/MW, the tariffs was 550 €/MWh. Similarly, in January 2012 we had tariff 392 €/MWh and installation costs 1.7 million €/MW. Today the cost of installation runs between 1-1.5 million €/MW.

The photovoltaics were used as a mechanism of savings on good terms for citizens who had nothing to do with business, but had unacceptable distributional impact in society. This fact led investors to be paid with delay 6-7 months since there was no money, due to the fact that the deficit of the special account for the investors payments reached in December 2013 to 550 million €, with forecast that without a haircut would amount to 740 million € at the end of 2014.

Another subject of high importance is that photovoltaics were used as a part of the rural policy. Governments used in previous years the photovoltaic energy as a mechanism of supporting the farmers, by giving to them the message: "I cannot support you to produce agricultural products, so go to the PV panels". In 2010, the expectations for guaranteed income attracted the attention of thousands of farmers. The Greek countryside, from Crete to Thrace and from the Peloponnese to Macedonia, appeared ready to transform the plains into planting solar panels everywhere. Therefore, it began a thoughtless development of photovoltaic projects with high prices of every green megawatt.

About 2.500 farmers throughout Greece invested in this sector in a total of approximately 6.000 businesses that produce energy from the sun and 15.000 photovoltaic installations. It is also interesting for this policy that some banks gave loans for the construction of photovoltaic parks with zero equity and interest rate of 11%. In this way we got to the phenomenon of farmers-electricity generators, who instead of working in their fields, become entrepreneurs in the energy sector. Today the entire lending in the industry reaches three billion €, while the amount of the investment capitals are estimated at about five billion euros.

Photovoltaic continued to generate outperformance, in the middle of the economic crisis, ensuring rapid payback times and giving the impression that this is more than an attractive investment, resulting in an increased number of people wishing to enter the sector.

The state did not follow the evolution of the installation cost of PV, thus there are parks with yields of 35% and 40%. It was common for someone who had "locked" the tariff up to the first

seven months of 2012, to sell the produced power for 49.5 €/MWh (yield 42%) when the price for buying electricity was 12 €/MWh.

At this time the tariffs are trimmed by 50% and the price that someone receives is reduced to 25 €/MWh. However, the investment performance remains high, at 16%. Especially, if we compare similar investments in countries such as Germany (with 40% less sunshine) where the rate is about 18 €/MWh and the yield is 8%, it is clear that the installation of photovoltaic still remains attractive.

3. THE INSTITUTIONAL AND FINANCIAL FRAMEWORK IN GREECE

3.1. The Institutional and Licensing Framework

The first law on the inclusion of RES in Greece was enacted in 1985 (Law 1559/1985), which gave the National Electricity Company (PPC) the right to build 24 MW of RES-based productions in small wind farms and photovoltaic projects. Until 1994, the private sector was left out of the field of renewable energy.

Law 2244/1994 was the basis for the effective deployment of renewable energy. This law specified fixed prices for the sale of electricity produced from RES and required the PPC to buy such energy at this price. Many laws followed this in the organisation and regulation of the RES market in Greece.

From October 1994 when the first law passed (N.2244/1994) for RES, to date we have 39 key pieces of legislation, all 11 of these in last two years (2011-2013).

Table4. *The legislation for RES from 1994 up today*

N. 1559/1985	N. 3734/2009
N. 2244/1994	N. 3851/2010
N. 2773/1999	N. 3937/2011
N. 2742/1999	N. 3983/2011
N. 2941/2001	N. 4001/2011
N. 3010/2002	N. 4014/2011
N. 3175/2003	N. 4030/2011
N. 3199/2003	N. 4062/2012
N. 3423/2005	N. 4093/2012
N. 3426/2005	N. 4152/2013
N. 3468/2006	N. 4203/2013
Apart from these, there are more than 50 Minister Decisions and Interpretative Circulars that are the whole of the legislation that covers the operation of the RES market in Greece.	

Concerning the licensing process, the production of electricity from each energy source requires a production licence that is granted by the Ministry of Energy. However according to specific laws, certain projects (geothermal energy up to 0,5 MW, biomass-biofuels up to 100 kW, and photovoltaic up to 100 kW) are exempted from the licensing process. It is clear that the legislative framework creates two different licensing routes for renewable technologies.

Kinias (2013), notes that "political priorities within a particular licensing framework are encouraging a rapid expansion of photovoltaic technology. Nevertheless, our research indicates that this policy creates specific and manipulated entrepreneurial fields of action either by complicating or helping entrepreneurial groups with either easier or more difficult licensing procedures. This framework recommends the *"Manipulated Entrepreneurship"* model with two separate axes. The first axis consists of medium- to large-sized established firms that are activated mainly in wind and hydroelectric energy projects which face difficult licensing processes. The entrepreneurial activity of these companies resembles a parallel internal entrepreneurship that is theoretically defined as "intrapreneurship". In the second axis, we meet new start-up companies that mainly apply photovoltaic technology and face an easier licensing process."

Unfortunately, this sequence of laws resulted in a lengthy and highly bureaucratic licensing process that involved many intermediaries. The final result of this process has been delay in, and suspension of, the implementation of investments into RES.

3.2. Public Support mechanisms and Tax framework

This section presents the financial framework for the RES project implementation, in Greece. This framework is based on two main pillars. The first tool is the financial subsidize of the investment cost, either by national or European resources. The second mechanism is the guaranteed selling price of the produced electricity by RES, well known as Feed-in tariff.

Concerning the tool of ***subsidies***, specific European financial tools support a part of the investment cost of many projects. In this way, many RES projects with total budget of 1.061 billion € were performed by resources of European financial frameworks, till the end of 2004. These programs data are briefly presented in the Table 5.

Another European supporting mechanism, starting from 2004, through the national law 3299/2004, divided the Greek Territory into three zones and granted the 20%, 30% and 40% respectively of the total project cost including the cost of connection to the electricity grid.

Table5. *RES Projects Supported byEuropean Financial Frameworks 2000-2004*

	Wind power	Small Hydro-Electric	Photovoltaic	Biomass	Total
Number of projects	50	31	69	5	155
Total Budget (m. €)	494	118	28	58	698
Total Public Subsidy (m. €)	164	48	14	25	251
Total Electric Power (MW)	501	86	3	39	629
Annual Energy Production (GWh)	1.247	324	4	295	1.870

On the other hand, the ***Feed-in tariff (FIT),*** is the most common tool in the European policy for renewable energy sources. The basic idea of this system is based on the mandatory purchase of the produced electricity. Ragwitz M., (2007) notes that "Feed-in tariff is a price driven incentive". Thus, the stability provided by a specific price, especially if it is high enough, can lead to continuous and strong growth of the market of renewable energy. In Greece, the selling prices of the energy are fixed by laws and the sale contracts apply for a specific period of 20-25 years.

It becomes clear that because the total amount of investment continuously rises, which is directly connected with the technology applied, consequently much more necessary and important become the contribution of governmental funding for the implementation of projects.

An important factor for the viability of such projects is the stability of these measures for a considerable period of time, as well as the existence of distinct procedures for their implementation. The need for these ways of funding decreases as the technologies applied are maturing and the applied technologies become more familiar and usual in the business field.

It is now clear, concerning the financial framework for the RES project implementation, that there is a very attractive business environment. This framework covers both an important part of the initial capital and also provides the guaranteed sale of all the generated electricity at a guaranteed price and for guaranteed period also.

However, nowadays in Greece this theoretical framework is replaced by a problematic implementation, resulting in a financial gap in many business plans. So we conclude that a very important measure, which could be a growth indicator, create a dysfunction in the sector of renewable technologies.

The Table 6 presents the guaranteed selling prices by each technology, during the period of our research.

Especially for the PV projects, the state set by Law 3468 a price for the energy sale from 0.40-0.45 €/kWh depending on the installed capacity of each PV station. Then, in January 2009, a new Law (3734) set a scale reduction of the energy price in every six month period. The target of this law was the reduction of the energy price from 0.40-0.45 €/kWh to 0.26-0.29 €/ kWh in 2013 and that is a reduction of 35% in just five years. Finally, in August 2012, a new law (4093) reduces the feed in tariff from 0.18-0.25 €/kWh to 0.15-0.18 €/ kWh in August 2014 leading to a

reduction of about 75% in just six years. Additionally, the PV stations were completely excluded from any form of subsidy.

On the other hand, the taxation framework covering this entrepreneurial sector provided tax rates from 25% to 30% for the corporate profits, till the end of 2011. The law 4093 in 2012 imposes an extraordinary special solidarity levy on producers of electricity from PV stations, from 25% for PV stations into operation until 31/12/2011 to 30% for PV stations into operation after 1/1/2012. A new law in February 2013 (4152/2013) redefined the special solidarity levy, from 34%-37% for PV stations into operation during the period 1/1/2013-30/6/2013 to 40%-42% for PV stations into operation after 1/7/2013. Moreover, this final law suspended till the end of 2013 all the sale contracts for energy production through photovoltaic technology.

Table6. *Feed-in Tariffs in Greece*

Electrical Production from	Price of Electricity (Euro/MWh)
Wind power, Hydropower exploited in small hydropower stations with installed capacity up to fifteen (15) MW, Geothermal and Biomass units.	87,84
Wind power from offshore wind parks	104,84
Solar energy utilized in photovoltaic units with installed capacity less than or equal to one hundred (100) kW, which are installed on property ownership	454,73
Solar energy utilized in photovoltaic units with installed capacity more than one hundred (100) kW	404,20
Solar energy exploited in units with a different technology than photovoltaic with an installed capacity of up to five (5) MW	264,84
Solar energy exploited in units with a different technology than photovoltaic with an installed capacity more than five (5) MW	244,84
Other RES (Geothermal and Biomass units)	87,84

Undoubtedly, all these settings have retroactivity in PV stations that already operate, so these data should not be taken into account in the business plans of these projects.

The Ministry of Energy, in order to save the market (late payment of electricity to producers up to eight months), under the strong pressure of "Troika" and European Commission, set recently a second "haircut" in the guaranteed prices (FIT), through the famous New Deal. The law already applies and all hope that the deficit will reset by the end of the year, reducing payment delays to 60 days. After the New Deal, yields have fallen close to 13% for all photovoltaic parks.

The haircut in the Feed-in tariffs in the photovoltaic projects is:

- Up to 49.5% in household photovoltaic (average 27%)
- Up to 43% photovoltaics to 100KW (average 27.7%)
- Up to 52% in photovoltaics from 100KW to 500KW (average 26.5%)
- Up to 53% in photovoltaics from 500KW to 1MW (average 31.3%)
- Up to 55% of the photovoltaic 1MW to 5MW (average 31.5%)
- Over 55% photovoltaics over 5MW

The New Deal affected also the market of wind parks, for reasons of fairness. The law reduces by 20% the prices of the wind energy in the islands and by 10% those in the interconnected areas. Additionally reduces the value of existing contracts with 10% haircut. Therefore, the tariffs for wind energy sources range between 82 and 86 €/MWh.

3.3. The Role of Banking System

It is important that the larger the problems and the delays are in the disbursement of subsidies, the greater becomes the need of support from the bank lending.

Undoubtedly, bank lending is the most common and by far the most important form of external financing for enterprises. Especially in the Greek business scene, it is confirmed that there is a close relationship between Greek businesses and the banking sector in order to raise capital.

Especially in the field of renewable energy, the banking sector applies a special policy, supporting investments with guaranteed loans, which in many cases have reduced lending rates relative to the rest of the business market, as well as new targeted products related to Green Banking.

Nevertheless, according to research by the European Commission, nearly 90 % of Greek entrepreneurs identify the inadequacy of funding as the most important factor that prevents the creation of a business.

In any case, the main outcome is that the dysfunction in the institutional forms of financing leads to a tight embrace of the business environment in the banking system. This can lead to a strong interaction form that can even reach the limits of reliance.

Especially today, the difficult times facing the international and the Greek economy, spearheaded the banking industry, every possible restriction of liquidity due to the crisis can undoubtedly lead to a reduction or reversal in the growth of the renewable industry.

4. THE ENTREPRENEURS

Kinias (2013) analyses that "the circumstances and needs of the market that are not creating the business opportunity in this industry; instead, opportunity is created by the implementation of international, European and national policies. This new framework for entrepreneurial activity is "imposed" by exogenous factors. These binding national targets led to the creation of an institutional framework for the new industry and to the establishment of financial mechanisms to support investment. The two forms of pressure (*institutional frame - objectives and financial incentives)* are the main reason for the growth of this business sector. Consequently, a new business sector was born as the result of pressure caused by international decisions and both European and national priorities and objectives. This new business behaviour and process is defined as ***"Manipulated Entrepreneurship".***

This new form of entrepreneurship is developed in two parallel axes, mainly because of different licensing requirements. Therefore, we have a new entrepreneurial environment with two speeds.

- **The entrepreneurship of "small investors" and**
- **The entrepreneurship of "large investors".**

For these two axes, two types of entrepreneurship are observed with different operating characteristics. In the first pillar of "small investors", the creation of new companies (start-ups) is achieved through a simpler licensing process for projects with smaller installed capacities (mainly photovoltaic). In the second axis of "large investors", we find existing companies (established) pursuing more demanding authorisation to implement greater installed capacities with the use of more complex technologies such as wind and hydropower.

The majority of companies are anonymous corporations (SA) or general partnerships and limited partnership companies (GP-LP). The remainder operate as holding companies; limited liability companies (LTD) or as self-employment companies. The variation in types of companies is interesting among small and large investors. It is important that holding companies have a significant share in this sector. It is interesting that nine well-known groups of companies operate in this market through their subsidiaries. It is also important that several of these groups are controlled by foreign enterprises. On the contrary, in the group of small investors, in which general partnerships and limited partnership companies (GP-LP) constitute the majority, there are companies with smaller sizes and capacities.

The companies of the group of large investors have been in operation for more than 10 years, and they have been active in other business sectors before the birth of renewables and entered the

industry during the last decade. Accordingly, in the business groups of small investors the most firms are between 1-5 years old. Therefore, we conclude that new entrepreneurships have been developed in the group of young investors with many start-ups created in the last decade.

The main aim of investors was a guaranteed return on their investment, with a small or medium cost. There is not any sense of risk in their business logic and culture. It is important that for the majority of investors, their investment paid off profit over 15 % and this confirms their decisions to extend their activity in this sector by investing in new projects. It is also important that the main incentives, for motivation in the business field of RES, were the guaranteed unit price (feed-in tariff) and the grants for project implementation.

The majority of companies found significant delays in the disbursement of subsidies. The result was the shift of investors in alternative funding sources, such as the extra bank debt as well as the use of equity.

Kinias notes that the most important role in project implementation played by the bank lending and followed by equity and subsidies. So, it is clear a strong association of the RES market with the financial institutions, concerning the completion of the investments. Therefore, it becomes clear that the malfunctioning of institutional financing mechanisms can foreclose businesses that do not have high availability and additional equity and also that a dependent market from the banking system could collapse in a possible malfunction of the banking system. Finally it is important that the majority of companies would consider the closure of the business if the feed-in tariff would be reduced. This fact demonstrates clearly that the entrepreneurs are not satisfied with the value of their investment, but treat it as an investment product with significantly high efficiency. Besides, in the group of large investors, the entrepreneurs are convinced of the value of their choice and the deal with the RES is a strategic choice for them. Finally, it is clear that small investors have not acquired a wealth business culture. It is obvious that finally that the investors have not understood the uniqueness of the natural resource of solar energy. Greece is a privileged country in respect to sunshine annually, compared to all the other countries of Europe. Therefore, the photovoltaic technology should be the flagship of a strategy shift to clean energy, creating a different culture to the people.

At any case, the larger and more established companies are able to disburse additional equity in order to address any funding gap created either by governmental dysfunction or potential inability of the banking system. It is therefore confirmed the well-established theory which notes that the probability of a firm to proceed with the implementation of a business plan, increases as its financial "health".

There are also large domestic business groups trying to expand themselves into the photovoltaic technology, through the enlargement of their market share, as well as the reduction of the risk in their investment portfolio. At the same time, international business groups have a corresponding investment activity in order to claim strategic advantage in the Greek RES market through the expansion of the geographical dispersion of their portfolio.

5. CONCLUSIONS

The entrepreneurial environment in RES was developed as a sequence of national objectives, political decisions and financial tools and creates a fictitious business opportunity that may be exploited by the entrepreneur. This business opportunity had nothing to do with the production of energy and the country's energy needs. This business opportunity was linked with a bloated business profit resulting from high subsidies on the prices of electricity produced from RES. Therefore, the need for installed renewable energy sources and the accompanying political decisions primed the specific business activity. The entrepreneurs were pushed through specific financial incentives to invest and operate with unusually large profit.

The institutional framework of the RES market includes a plethora of laws and many stakeholders in the licensing process that has caused the delay and/or cancelation of major investments. Moreover, this institutional framework includes specific rules concerning the authorisation of power and has created a licensing process with two separate levels and, therefore, a two-speed entrepreneurship.

Regarding the sources of funding firstly should be mentioned the great importance of the tool of subsidies, especially for "small" businesses. Unfortunately, the implementation framework included non-functional or problematic processes, resulting in systematic delays in the subsidies´ disbursement. This lead to the creation of a financial gap. The important gap that created the dysfunction of institutional forms of funding is the reason for the significant role that the bank lending played. The result was a very strong connection of the entrepreneurship in the sector with the banking system. This powerful form of interaction, especially in difficult times facing the global economy and the banking industry, lead to a reduction or reversal in the growth of the industry.

The international economic and political conditions affected, also, the whole Greek economy and therefore the RES sector, in the last years. This fact affected both the final decision on establishing new businesses and risk-taking. Additionally, these conditions also lead to the increasing difficulty in finding financial support for new business activities resulting in the freezing of many integrated operational plans. Moreover, the emergency legislation that was made in order to enhance the liquidity of the Greek state during the economic crisis differentiated the data on which the projects were designed. This public policy has much greater impact on the overall entrepreneurship in the renewable energy sources, and affected the entire national industry that has been developed around renewables including their production instalment operation and support. It is therefore expected to be directly affected by the thousands of jobs that have been created around this productive chain.

Especially for the PV projects' development, there is a controversial success. For the last six years, where Greece is in recession and so seeks a new productive model to support the recovery of the economy, reduce unemployment and improve the living standards of its citizens. This success is controversial due to the absence of any plan in the country's energy mix which is necessary for an ensured and competitively priced electric energy. The massive entry of PV projects - especially during the last three years – put in danger the economy of the entire Greek energy system. Thus, while the consumption of electricity was reduced by 20%, in the period of economic crisis, the entrance of the expensive solar energy created deficit in the RES payback accounts of around 500 million euro in early 2014, leading to another Greek 'bubble'.

It becomes therefore clear that such an applied public policy does not fit in a country which wishes to respect the private initiative and to support entrepreneurship. Especially today that Greece is trying to move from the model of the huge State-entrepreneur to the investments by individuals. This can be the only one model that can lead the country in the growth phase. Therefore, policies that will not surprise the business community and will not destroy mature entrepreneurial plans are necessary.

Finally, concerning the wind energy, Greece needs investment and the only area, from which investments may come, in the coming years, is the wind farms. The good climate and stability are necessary in the renewable entrepreneurial environment and the feed-in tariffs "haircuts" is a bad precedent. Especially, the foreign companies operating in Greece watch carefully and wait to see if their risk can be reduced in order to proceed in their plans. Additionally, the climate change is not enough for the sector development. All stakeholders believe that the creation of small wind farms in mainland Greece is past. Now, what is being discussed refers to large parks in the North Aegean, Crete and other islands. Therefore, for the beginning of these investments the electric power interconnection among island and the mainland is a necessity, and so the market can operate as a mass.

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