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NAME: THEOPISTI MELISANIDOU

SUPERVISOR: NIKOLAOS FARANTOURIS

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NAME: THEOPISTI MELISANIDOU

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INTRODUCTION

Energy is considered as a consumer good that incorporates all the characteristics of a commercial commodity, while at the same time it is regarded as a good that is necessary for the fulfillment of peoples' vital needs, which is developed in an ecologically balanced environment¹. Even though these two components (meaning commercial commodity and a vital good developed in an ecologically balanced environment) seem to be *prima facie* as independent and incongruous, at a deeper level they are rather interdependent, as it is the case with goods, energy and the environment². Therefore, inevitably energy issues are being intersected with environmental issues. This is particularly obvious if one takes into consideration the fact that energy related matters have been so far legally regulated in a context where it has been obligatory to take into consideration the protection of the environment. As a result of this, energy matters are integrated in the wider context of balancing on the one hand economic development and on the other hand the protection of the environment³.

Nowadays, the need to maintain a balance between the aforementioned two parameters has become more indispensable than ever, taking into account one of the main challenges that our planet currently faces; the phenomenon of climate change that is caused by the greenhouse effect. Its confrontation has become one of the main priorities in both EU and international levels. The most recent endeavor that was made towards this direction was the 2015 Conference of the World Community, which was held in Paris, in the context of which 195 nations and EU signed the 2015 Paris Agreement; a legally binding document with the aim to curb the average global temperature rise to less than 2 Celsius compared to industrial levels⁴.

In the context of tackling successfully climate change, it has been regarded as imperative the structural change of the energy systems of all countries, the known as "*energy transition*", by virtue of which the use of conventional fuels would be

¹ D. Nikas, "*Third Party Access and internal electricity market*"(1999), Review of Hellenic Justice, p. 1488-1510

² X. Sinodinos "*Environment and Law*" (2001), Chapter "*Energy and Environment*", p. 347-365

³ E. Aithra, Ath. Maria "*Environmental impacts of RES projects and legal preventive measures*"(2005)

⁴ The content of the agenda of the Paris Conference in 2015 is available at: <http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>, accessed on 12.11.2020

eliminated, as they will be gradually replaced by more environmentally friendly forms of energy. In this context, the need to promote the use and exploitation of Renewable Energy Sources has become one of the main objectives of the EU energy policy. The latter signal a differentiated approach of producing energy and they are integrated in a place where the policy of the protection of the environment and energy policy are coexistent, while the objective of their existence is to serve the general strategy of sustainable development, the fulfillment of which is sought in both EU and national levels⁵.

In order to formulate a complete view as to how the necessity of using this form of energy was emerged in the first place and as to how and why it ended up in being an EU priority, Chapter 1 of the present Dissertation will be dedicated upon an analytical presentation of all the EU legislative initiatives that have been made from 1972 until the present in this respect, as well as on all the EU Regulations and Directives that have been enacted ever since.

Upon acknowledgment of the significance of renewables and the critical role they retain in the energy sector, the issue upon determination in the present Dissertation will be whether Greece is in the right path towards reaching the much anticipated and needed energy transition. To that end, Chapter 2 will entail an analytical outline of all the national Laws that have been enacted from 1984 until the present and which concern the promotion of the use and development of Renewables. In this context, emphasis will also be laid upon the national Regulatory Authority of Energy and its determinative role in facilitating over the years the development of renewables.

Thereafter, Chapter 3 will include an evaluation of the actual development of Renewables within Greece. Such an evaluation will be conducted under the prism of the preventive action that the State has been employing in its effort to preserve the environment, aiming at incorporating the dimension of its protection within all developmental activities. The aforementioned axis of the said evaluation have been chosen on the basis of the very first reason that has led in the first place to the generation of renewables and which constitutes the main objective of their existence;

⁵ P.Patronos, V.Karageorgiou, A.Papapetropoulos, «*International and European commitments of Greece for the promotion of Renewable Energy Sources*»(2004), p. 1-17

the maintenance of a balance between economic development and the protection of the environment.

Chapter 4 will follow by presenting the phenomenon of social opposition towards renewables. The reason why the said issue will be touched upon is due to the fact that the analytically discussed in Chapter 3 preventive measures that are employed by the Greek State in the context of exercising its preventive action, are partially responsible for the emergence of such phenomenon. Therefore, by virtue of the said Chapter, acknowledgment will be reached as to their interconnection, while it will be explained and proved that indeed the lack of social acceptance of renewables, does not only exist in Greece, but it dominates, contributing to a great extent in the impediment of their development.

Finally, Chapter 5 will be dedicated upon the future prospects of using renewables in Greece, with the aim to expand knowledge as to the potential of their future development. In this way, a better view could be formulated as to the ability of Greece in eventually achieving the anticipated energy transition, by covering the majority of its energy needs with this alternative form of energy, while contributing at the same time to the confrontation of climate change.

CHAPTER 1: EU LEGISLATION ON RENEWABLE ENERGY SOURCES

A. THE LEGISLATIVE FRAMEWORK THAT UNDERPINS THE NOTION OF THE ENVIRONMENT AND THE EMERGENCE OF THE NEED TO PROMOTE RES

The notion of the protection of the environment appeared for the first time at the 1972 UN conference that took place in Paris. As a result of the institutional discussion that was developed among the heads of the States participating in the aforementioned conference, the first European Environmental Policy was initiated in 1973⁶. The latter, did not contain binding environmental principles and targets, nor did it provide the right of EU institutional bodies to implement in an independent manner measures regarding the protection of the environment, nevertheless it did spread optimism that the EU would be able in the future to implement a coherent energy and climate change strategy⁷.

In 1983 the European Council stressed the need to accelerate the action against the pollution of the environment, in a National, European and International level. Given that, the first legislative provision regarding the protection of the environment was incorporated in the Single European Act, which came into force in 1986⁸. The aforementioned act, in addition to laying down the foundation for the creation of a single market and the free movement of persons, goods and capital, it amended the EEC Treaty⁹, by introducing to the latter "*Title VII*" regarding the environment, which was composed of articles 130 R, 130 S and 130 T¹⁰. Those articles, which constituted the first primary European Environmental Law, stipulated for the first time some of the most fundamental principles of both International Public Environmental Law and EU Environmental Policy¹¹: (a) the principle of integration, according to which the EU Community shall formulate its policy for each area of its competence, taking always into account the need to protect the environment¹², (b) the precautionary principle,

⁶ Special Report No 3/92 for the Environment, Official Journal C 245, (23.09.1992), pages 1-30, D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, "*The evolution of renewable energy resources in the electricity sector of Greece*"(2016), International Journal of Hydrogen Energy, 1-13

⁷ D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, "*The evolution of renewable energy resources in the electricity sector of Greece*"(2016), International Journal of Hydrogen Energy, 1-13

⁸ Official Journal of the European Communities, NL 169, (29.06.1987), also available at <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:11986U/TXT&from=GA>, accessed on 04.11.2020

⁹ Treaty of Rome 1957 established the European Economic Community, European Document 11957E/TXT

¹⁰ The amendment of articles 130R, 130S, 130 T of EEC Treaty was made with article 25 of Single European Act 1987

¹¹ E.Orlando, "*The evolution of EU policy and Law in the environmental field: achievements and current challenges*"(April, 2013), *Transworld*, Working Paper 21

¹² Article 130 R par. 2 of EEC Treaty, as amended with article 25 of European Single Act of 1986

which requires the adoption of appropriate measures in cases that entail environmental risk so as to prevent or control adverse effects on the environment¹³ and (c) the preventive principle, which requires the implementation of precautionary measures, if it is proven on the basis of scientific data that a particular activity is harmful for the environment¹⁴.

It should be underlined that the acknowledgment of the urgent need to protect the environment, was generated as a result of the observable environmental degradation, the climate change¹⁵, the finite natural sources and the external costs caused by their uncontrolled usage¹⁶. Consequently, the need to redefine the economic development was emerged and that was when the latter was correlated with the protection of the environment. Their correlation and interdependency, led to the introduction of the notion of “*sustainable development*”. A lot of attempts have been made to provide an interpretation to this notion, yet a widely accepted one is still not existent. Nevertheless, the most comprehensive interpretation was given by the Prime Minister of Norway and President of the World Commission on Environment and Development, who conducted the report under the title “*Our Common Future*”, known also as “*Brundtland Report*” at the General Assembly of the United Nations in 1987¹⁷. According to this report, sustainable development can be defined as “*the development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs*”¹⁸. The context of the aforementioned notion was later enriched by a plan of action, known as “*Agenda 21*”, which was composed of around 40 chapters, aiming at defining in a meticulous way what needs to be accomplished so as to reach sustainable development¹⁹.

¹³G. Kremliis, “*European Policy and Environmental law. The Community Acquis*” (28.11.2002), Law and Environment Review, also available at https://nomosphysis.org.gr/7025/i-europax%EF%BF%BDki-politiki-kai-to-dikaio-periballontos-to-koinotiko-kektimeno-oktobrios-1998/#_ftnref6, accessed on 05.11.2020

¹⁴ Ibid.

¹⁵“*Climate Change 2014: Synthesis Report*” (2014), Intergovernmental Panel on Climate Change (IPCC), Geneva, Switzerland, 2014, also available at: http://www.ipcc.ch/pdf/assessment-report/ar5/syr/SYR_AR5_FINAL_full.pdf, accessed on 07.09.2020

¹⁶ T. Jackson, “*Prosperity without Growth*” (2009), Earthscan/Routledge editions, London, p. 47 and onwards

¹⁷ Report of the World Commission on Environment and Development, “*Our Common Future*” (1987), London, Oxford University Press.

¹⁸ Ibid.

¹⁹ United Nations Conference on Environment & Development, “*Agenda 21*”(1992), Rio de Janeiro Brazil, also available at: <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>, accessed on 05.11.2020

Later on, by virtue of the Treaty of Maastricht, which was signed in 1992 and was entered into force in 1993²⁰, environmental protection was for the first time explicitly included in the EU's primary objectives as a necessary policy to achieve economic growth²¹. Furthermore, for the first time the notion of sustainable development was explicitly mentioned in the context of European primary law, with article 6 of the aforementioned Treaty providing that *"the requirements of environmental protection must be integrated in the definition and implementation of Community policies and actions referred in art. 3, in particular to promote sustainable development"*²². In addition, the Treaty of Amsterdam, which was signed in 1997 and was entered into force in 1999²³, amended certain provisions of the Treaty of Maastricht²⁴, in the context of which environment emerged as an independent goal of the EU in relation to the economic development, while the Treaty of Nice, which was signed in 2001 and was entered into force in 2003, was enacted with the primary aim to strengthen the existing cooperation between EU member states in the field of the environment²⁵.

Taking into consideration all of the above, it is crystal clear that the protection of the environment started gradually to run through every action of the EU, emerging in this way as a political factor. In addition to this, the referral of the notion of *"sustainable development"* in EU primary law, signals the fact that its importance was widely recognizable and such importance lies on the fact that the said notion reflects an attempt to incorporate the environmental dimension into the development policies, as well as an attempt to minimize the existing contrasts between economic growth and the preservation of the quality of the environment.

It should be highlighted that it was the significance attributed to the aforementioned notion and the generation of the need to adopt it widely, that led to the emergence of the necessity to promote the use of Renewable Energy Sources (hereinafter "RES"). That happened as a result of the observance that the only manner

²⁰ Also known as the Treaty of the European Union since it established the latter. Official Journal of the European Communities, C 191 , 29/07/1992

²¹ Article 2 and 3 of Treaty of Maastricht, Official Journal C 191, 29/07/1992. Also available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A11992M%2FTXT&gid=1616520121629> , accessed on 05.11.2020

²² Official Journal C 191, 29/07/1992.

²³ Official Journal C 340, 10.11.1997. Also available at https://europa.eu/european-union/sites/europaeu/files/docs/body/treaty_of_amsterdam_en.pdf , accessed on 05.11.2020

²⁴ Indicatively the Treaty of Amsterdam amended article 2 of the Treaty of Maastricht

²⁵ Official Journal C 80, 10.3.2001. Also available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12001C/TXT> , accessed on 05.11.2020

with which economic development could be guaranteed, was the access and usage of energy services, nevertheless that condition implied an increase in the greenhouse gas emissions and in order to avoid this inevitable consequence, it was regarded as absolutely imperative to discover new forms of energy that would be primarily friendly to the environment.

B. DEVELOPMENT OF LEGISLATIVE FRAMEWORK THAT UNDERPINS THE PROMOTION OF RENEWABLE ENERGY SOURCES BETWEEN 1995 - 2019

I. FIRST LEGISLATIVE INITIATIVES ON RES PROMOTION

European Policy regarding Renewable Energy Sources, began with the publication of the Green Paper in 1995, under the title “*For a European Union Energy Policy*”²⁶ and in 1996 under the title “*Energy for the Future: Renewable Sources of Energy*”²⁷. This paper constituted the first important step towards the promotion of RES, since the EU Commission urged member states to make greater use of renewable energy sources and it laid down the policy objectives for RES access into the energy market, one of the most important ones being the need to double the rate of their use up to 12% until 2010²⁸. It further pointed out that the increase of energy efficiency is the key in tackling successfully climate change and it can be achieved through the implementation of policies aiming at minimizing the interdependence between economic growth and the increase of energy consumption²⁹.

In 1997 the European Commission proceeded with the publication of the White Paper on “*Energy for the Future: Renewable Sources of Energy*”³⁰, which emphasized the need to formulate a new EU strategy regarding RES, which should aim at achieving increased competitiveness, security of supply and environmental protection³¹. With this strategy, an action plan was introduced in order to achieve the goal of doubling the contribution of RES to the EU’s gross inland energy consumption, by establishing an indicative target of 12% by 2010³². Shortly after, in June of 1998, the EU Council adopted a Resolution on RES, embracing the White Paper objectives as a basis for actions at both European and national levels³³. This plan further established the conditions for facilitating the incorporation of RES into the electricity market and

²⁶ European Commission, COM 94 (659), February 1995

²⁷ European Commission, COM 96 (576), November 1996, also available at <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:1996:0576:FIN:EN:PDF>, accessed on 06.11.2020

²⁸ Ibid.

²⁹ Ibid.

³⁰ European Commission, COM (1997) 599 final, 26.11.1997, also available at https://europa.eu/documents/comm/white_papers/pdf/com97_599_en.pdf, accessed on 06.11.2020

³¹ M.Giacamarra, F.Bono, “*EU commitments towards RES market penetration: from the first legislative acts to the publication of recent guidelines on state aid 2014/2020*” (2015), *Renewable and Sustainable Energy Reviews* 47, 218-232

³² M.Giacamarra, F.Bono, “*EU commitments towards RES market penetration: from the first legislative acts to the publication of recent guidelines on state aid 2014/2020*” (2015), *Renewable and Sustainable Energy Reviews* 47, 218-232

³³ Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions on the implementation of the Community Strategy and Action Plan on Renewable Energy Sources (1998–2000). COM (2001) 69 final. Brussels, 16.02.2001.

determined as well the tax and financial incentives for businesses and individuals, with the aim of promoting the use of energy produced by renewables³⁴.

II. RES DEVELOPMENT THROUGH THE LEGISLATIVE FRAMEWORK THAT UNDERPINS THE LIBERALIZATION OF THE EU ENERGY MARKET

It is noteworthy the fact that despite the abundant availability of RES throughout the EU, they were insufficiently exploited³⁵, recording a disproportionately small contribution of less than 6% to the region's overall gross inland energy consumption³⁶. At the end of the 1980s, different and even partially contradictory trends with different environmental policy approaches were being promoted simultaneously³⁷ and against this background the EU liberalization of energy market started with the adoption of a number of legislative packages. In the context of those legislative packages, the promotion of RES was recognized as a priority measure, given the fact that their exploitation could contribute to the achievement of the EU energy policy objectives, such as the security of supply and the protection of the environment, while at the same time such an exploitation had the potential to create new job positions and further have a positive impact on social cohesion³⁸. Given the above, it was deemed necessary to exploit renewables in the context of creating an EU internal electricity market. It should not be left unnoted that it was not only RES that contributed towards the achievement of the liberalization of the EU energy market, but it was the opposite too, meaning that the latter had a truly significant direct impact on the promotion of exploitation of RES, a fact that indicates their strong interconnection. More specifically, the said market was characterized by numerous deficiencies, certain of the most important ones being the domination of vertically integrated utilities which were creating distortions and preventing competition within the energy market or the restricted access of third parties to the network, as well as

³⁴ Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions on the implementation of the Community Strategy and Action Plan on Renewable Energy Sources (1998–2000). COM (2001) 69 final. Brussels, 16.02.2001.

³⁵ Capello R. Fratesi, U. Resmini L., "Globalization and regional growth in Europe: past trends and future scenarios"(2011), Springer, Berlin

³⁶ D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, "The evolution of renewable energy resources in the electricity sector of Greece"(2016), International Journal of Hydrogen Energy, 1-13

³⁷D. Liefferin, M. Skou-Andersen, "Strategies of the green Member States in EU environmental policy making"(1998), Journal of European Public Policy; 5(2), p. 254-270

³⁸ Communication from the Commission to the European Parliament, the EU Council, the European economic and social committee and the committee of the regions, "Renewable Energy: a major player in the European energy market"(2012), COM/2012/0271/Final

the inadequate regulation of the network access³⁹. According to the legislative packages enacted in this context, the aforementioned deficiencies would be eliminated through the unbundling of the respective networks, while the reorganized structure of the network would enable access of third parties to it, including obviously RES producers, and the establishment of regulatory authorities responsible for the monitoring of the network, would lead to the integration of RES into the energy market and the enhancement of their exploitation⁴⁰. It was exactly the elimination of these deficiencies that could determine the success of the integration of RES into the electricity markets and hence the extent of their use and exploitation within the said market.

The liberalization of the EU electricity market started with EU Directive 1996/92/EC⁴¹. Its objective was to set common rules for the internal market of electricity and to that end it endorsed general guidelines regarding the reformation of the electricity sector, allowing member states to choose between several implementation modes with regard to the main reform provisions such as the new generation capacity, third party network access, the market regulator, the unbundling degree and the speed of market opening⁴². The liberalization of the electricity market continued with Directive 2001/77/EC "on the promotion of electricity from RES in the internal electricity market"⁴³, which incorporated the suggestions contained in the White Paper of 1997. In accordance to it, EU member states were required to adopt indicative national targets so as to materialize the EU's target of 12% of gross inland energy consumption from renewables by 2010, of which electricity would have to represent 22%⁴⁴. It also encouraged the use of national support schemes⁴⁵, the elimination of administrative barriers⁴⁶, while it stipulated the need to guarantee the

³⁹ A. Lindt, "Renewable Energy and liberalization of Energy Markets: the European Experience with Third Party Access to the grid" (2013), Goldsmiths, University of London

⁴⁰ Ibid.

⁴¹ Official Journal L 27, 30.1.1997, p. 20–29, also available at : <https://eur-lex.europa.eu/eli/dir/1996/92/oj> , accessed on 09.11.2020

⁴² A. Lindt, "Renewable Energy and liberalization of Energy Markets: the European Experience with Third Party Access to the grid" (2013), Goldsmiths, University of London

⁴³ Official Journal L 283, 27.10.2001, p. 33–40, also available at : <https://eur-lex.europa.eu/eli/dir/2001/77/oj>, accessed on 09.11.2020

⁴⁴ Article 3 para 4 of Directive 2001/77/EC., M.Giacamarra, F.Bono, "EU commitments towards RES market penetration: from the first legislative acts to the publication of recent guidelines on state aid 2014/2020" (2015), Renewable and Sustainable Energy Reviews 47, 218-232

⁴⁵ Article 4 of Directive 2001/77/EC

⁴⁶ Article 6 of Directive 2001/77/EC

priority access of electricity produced by RES into the grid system⁴⁷. Furthermore, it provided for the obligation of RES producers to issue guarantees of origin upon request⁴⁸. Finally, it constituted an essential part of the measures adopted by the EU, aiming at complying with the EU commitments taken under the Kyoto Protocol, which was signed in 1997 and was entered into force in 2005⁴⁹. In this context, it did become the first legally binding text, which endorsed mechanisms aiming at tackling the environmental problem of the greenhouse gas emissions.

The liberalization of the EU electricity market continued with the enactment of the second legislative package in 2003. In this context, EU Directive 2003/54/EC⁵⁰, concerning common rules for the internal market in electricity, repealed the aforementioned EU Directive 1996/92/EC and it highlighted that the use of energy sources other than the conventional ones, as well as the protection of the environment, were absolutely necessary for the consolidation of the internal electricity market⁵¹. In this context, it stressed the need to prioritize the use of RES, by prompting member states to impose an obligation to the system operator, in accordance to which priority shall be given to installations generating RES⁵², while the same obligation was also born by the distribution system operator⁵³.

Moreover, the European biofuel market received great support with the enactment of Directives 2003/30/EC “on the promotion of biofuels and other renewable fuels”⁵⁴ and 2003/96/EC “on restructuring the community framework for the taxation of energy products and electricity”⁵⁵. More specifically, the first EU Directive required member states to support the consumption of biofuels, by presenting the latter as a means in order to achieve EU policy objectives such as climate change commitments, security of supply and promotion of renewables⁵⁶. Also, it set national indicative

⁴⁷ Article 7 of Directive 2001/77/EC

⁴⁸ Article 5 of Directive 2001/77/EC, D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, “*The evolution of renewable energy resources in the electricity sector of Greece*”(2016), International Journal of Hydrogen Energy, 1-13, Official Journal L 283, 27.10.2001, p. 33–40, also available at <https://eur-lex.europa.eu/eli/dir/2001/77/oj>, accessed on 09.11.2020

⁴⁹ United Nations, “*Kyoto Protocol to the United Nations framework convention on climate change*”(1997), available at <https://unfccc.int/sites/default/files/resource/docs/cop3/107a01.pdf>, accessed on 10.11.2020

⁵⁰ Official Journal L 176, 15.7.2003, p. 37–56, also available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32003L0054>, accessed on 10.11.2020

⁵¹ Ibid.

⁵² Article 11 para 3 of Directive 2003/54/EC

⁵³ Article 14 para 4 of Directive 2003/54/EC

⁵⁴ Official Journal L 123, 17.5.2003, p. 42–46, also available at <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32003L0030>, accessed on 10.11.2020

⁵⁵ Official Journal L 283, 31.10.2003, p. 51–70, also available at <https://eur-lex.europa.eu/legal-content/EL/ALL/?uri=CELEX:32003L0096>, accessed on 10.11.2020

⁵⁶ Article 1 of Directive 2003/30/EC

targets for the market share of biofuels in the sector of transportation, being 2 % until the end of 2005 and 5.75 % by the end of 2010⁵⁷. The second EU Directive required the implementation of public policy measures in order to promote the consumption of biofuels such as the imposition of tax incentives⁵⁸. All countries, with the exception of Finland, introduced tax incentives of various types to promote the use of biofuels, while 18 member states also introduced blending mandates in order to increase the consumption of biofuels in the sector of transportation⁵⁹.

Taking into account all of the above, it is undeniable that extensive efforts had been made up until the year of 2003 so as to promote the use of RES and facilitate their integration into the national energy systems of EU member states, as a means to protect the environment and progress was indeed evident, however not to the extent of fully achieving the goals that had been set until then. Given those circumstances, in March of 2006 the European Council called for EU leadership on renewable energies and asked the EU Commission to produce an analysis on how to further promote renewables in the long term⁶⁰. As a result, the EU Commission proceeded in 2007 with the issuance of the *"Renewable Energy Sources Roadmap"*, in which it proposed the establishment of a mandatory (legally binding) target of 20% for renewable energy's share of energy consumption in the EU by 2020, it explained why such a target was absolutely necessary and it laid down a pathway for incorporating renewables into EU energy policies and markets⁶¹. It further proposed a new legislative framework, which would entail measures to improve the internal market and remove barriers, providing in this manner businesses with a long term stability that is much needed so as to make rational investment decisions in the renewable energy sector and hence contribute to the development of the said form of energy, while enhancing at the same time their penetration in the national electricity markets⁶².

In 2009, the legislative package on *"Energy and Climate Change"* was enacted, setting three key targets; 20% cut in greenhouse gas emissions that caused the

⁵⁷ Article 3 of Directive 2003/30/EC

⁵⁸ Article 16 of Directive 2003/96/EC, Official Journal L 283, 31.10.2003, p. 51–70

⁵⁹ J.M.Cansino, M. Del. P. Pablo – Romero, R. Roman, R.Yniguez, *"Promotion of biofuel consumption in the transportation sector: an EU-27 perspective"*(2012), *Renewable and Sustainable Energy Reviews* 16, 6013/6021

⁶⁰ Council of the European Union Document 7775/1/06 REV1, Brussels, 18 May 2006

⁶¹ Communication from the Commission to the Council and the European Parliament, *"Renewable energy road map - Renewable energies in the 21st century: building a more sustainable future"*, COM (2006) 848

⁶² S. Thiakos, *"Renewable Energy Resources"*(2009) European State, p. 699

phenomenon of the greenhouse effect (in comparison to the level of emissions observed in 1990), 20% rise of the total consumption within EU of energy produced from renewables and 20% cut in energy consumption, with the aim of enhancing energy efficiency⁶³. The aforementioned legislative package was composed of (a) EU Regulation 443/2009 concerning the reduction of carbon dioxide emissions emanating from passenger vehicles⁶⁴ (b) EU Directive 2009/28/EC on Renewables⁶⁵, (c) EU Directive 2009/29/EC on setting emission performance standards for new passenger vehicles⁶⁶ and (d) EU Directive 2009/30/EC on the specification of fuels and the mechanism of monitoring and reducing greenhouse gas emissions⁶⁷. Hereby, attention will be exclusively drawn upon EU Directive 2009/28/EC concerning the promotion of the use of energy produced by RES.

The said EU Directive abolished both EU Directives 2001/77/EC⁶⁸ and 2003/30/EC⁶⁹, while it determined a new legally binding target of 20% of participation of RES in EU's final consumption of energy by the year of 2020, including 10% of participation of biofuels in the sector of transportation⁷⁰. In order to address this target, each EU member state needed to increase the production and use of RES primarily in the electricity sector, but also further in the sectors of heating, cooling and transportation⁷¹. That was the first time that EU primary law dictated for the exploitation of RES in all sectors that appertain to the energy market. Additionally, the aforementioned EU Directive required for the simplification of administrative regimes that concern RES⁷², while it also required the execution of improvements in the grid of electricity so that the access of RES to the grid could be improved⁷³. In addition, according to it, member states were required to compile national action plans, which

⁶³ Th. Fortsakis, "Energy Law" (2009), Sakkoulas Publications, p. 149 and onwards

⁶⁴ Official Journal L 140, 5.6.2009, p. 1–15, available at <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009R0443>, accessed on 11.11.2020

⁶⁵ Official Journal J L 140, 5.6.2009, p. 16–62, Available at <https://eur-lex.europa.eu/eli/dir/2009/28/oj>, accessed on 11.11.2020

⁶⁶ Official Journal L 140, 5.6.2009, p. 63–87, Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32009L0029>, accessed on 11.11.2020

⁶⁷ Official Journal L 140, 5.6.2009, p. 88–113, Available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32009L0030>, accessed on 11.11.2020

⁶⁸ Official Journal L 283, 27.10.2001, p. 33–40, also available at : <https://eur-lex.europa.eu/eli/dir/2001/77/oj>, accessed on 09.11.2020

⁶⁹ Official Journal L 123, 17.5.2003, p. 42–46, also available at <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32003L0030>, accessed on 10.11.2020

⁷⁰ Article 3 of Directive 2009/28/EC

⁷¹ D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, "The evolution of renewable energy resources in the electricity sector of Greece" (2016), International Journal of Hydrogen Energy, 1-13

⁷² Article 13 of Directive 2009/28/EC

⁷³ Article 16 of Directive 2009/28/EC

would entail all the national goals and all the appropriate measures that need to be taken in order to ensure the achievement of the targets set by the said Directive⁷⁴. It further introduced “*cooperation mechanisms*” in order to promote the intra Europe trade, which is a significant source of growth and development within Europe and that was no less the case with regard to renewables⁷⁵. Even though such a trade was promoted in the context of Directive 2001/77/EC, it never occurred since member states were exclusively keen in developing their own renewables and hence in reducing their own gas emissions. However, given that cheap renewable potentials were exploited and that costs started to rise, the need to seek for cheaper renewables in other member states started to rise⁷⁶. Taking also into consideration the analysis made by EU Commission, according to which intra Europe trade could save member states billions of euros per year, cooperation mechanisms were created so as to encourage cross financing between states⁷⁷. Indicatively to mention that such mechanisms were the joint projects on RES between EU member states⁷⁸, the joint projects between EU member states and third countries⁷⁹, as well as the joint support schemes⁸⁰.

III. EMERGENCE OF RES AS A FUNDAMENTAL EU ENERGY POLICY OBJECTIVE THROUGH THE ADOPTION OF ARTICLE 194 TFEU

The first time that energy is upgraded *expressis verbis* into an EU policy is with article 194 TFEU (Treaty of Lisbon), which was signed in 2007 and was entered into force in December of 2009⁸¹. This article refers to the establishment and the operation of an EU internal energy market, in the context of which it restates and enriches the main objectives of EU energy policy; namely (a) the insurance of the functioning of the internal energy market, (b) the guarantee of energy supply, (c) the promotion of energy efficiency and energy saving, (d) the development of new and renewable

⁷⁴ Article 4 para 1 of Directive 2009/28/EC

⁷⁵ T. Howes, “*The EU’s new renewable energy directive*” in Book S. Oberthur, M. Pallemarts, C.R.Kelly, “*The new climate change policies of the EU: internal legislation and climate diplomacy*”(2010), VUB Press, Brussels University Press

⁷⁶ Ibid.

⁷⁷ Commission Staff Working Document, accompanying the “*Package of Implementation measures for the EU’s objectives on climate change and renewable energy for 2020*”, SEC (2008) 85, 23.1.2008, Available at <https://ec.europa.eu/transparency/regdoc/rep/2/2008/EN/2-2008-85-EN-1-0.Pdf>, accessed on 11.11.2020

⁷⁸ Article 7 of Directive 2009/28/EC

⁷⁹ Article 9 of Directive 2009/28/EC

⁸⁰ Article 11 of Directive 2009/28/EC

⁸¹ Vial C., “*La politique de l’ energie apres la traite de Liasbonne*”(2008), Annuaire de droit europeenee, p. 215, Official Journal C 306, 17.12.2007

energy sources and (e) the promotion of the interconnection of energy networks⁸². With this article, the Treaty of Lisbon introduced for the first time a special chapter on energy and such a legislative initiative is of great political importance because it emphasizes the EU's commitment in implementing a coherent energy policy, while it also has important legal implications, as it constitutes the first specific and independent legal basis of energy, in the context of which EU takes determinative action in this field⁸³.

Under the provisions of TFEU and more specifically by virtue of article 191, attention is laid upon EU environmental policy, addressing in this context the goals that need be achieved for its successful implementation⁸⁴. Among those goals was also the preservation, protection and improvement of the quality of the environment, the protection of human health, the rational use of natural sources and the promotion of measures at an international level aiming at addressing regional or global environmental problems and in particular the one of climate change⁸⁵.

Taking into account the above, it is particularly obvious that environmental policy and energy policy become strongly interlinked and that is accomplished through the provisions of article 194 TFEU. For instance, according to the first subparagraph of the latter, energy policy shall be formulated in the light of the need to protect and improve the environment and shall be implemented in a spirit of solidarity between the member states⁸⁶. Thus, it becomes clear that the demand for the preservation and improvement of the environment, actively participates in the shaping of the internal energy market and it emerges as a key component of the EU energy policy⁸⁷. These objectives derive from the requirement of Article 11 (former article 6 of the EU Treaty), which imposes the inclusion of environmental protection in the policies and actions of the EU, in order to promote sustainable development⁸⁸.

The significance of the aforementioned interconnection between environmental and energy policy lies on the fact that, as a result of it, the development of renewable

⁸² Official Journal C 306, 17.12.2007, article 194 of Treaty of Lisbon

⁸³ N.E. Farantouris, "La nouvelle base juridique de la politique énergétique de l'EU" (2011), *Revue de l'énergie*, n.599, p. 18 and onwards

⁸⁴ Official Journal C 306, 17.12.2007, article 191 of Treaty of Lisbon

⁸⁵ Ibid.

⁸⁶ Official Journal C 306, 17.12.2007, article 194 of Treaty of Lisbon

⁸⁷ N.E. Farantouris, "Energy policy, hydrocarbons and European Acquis" in N.E. Farantouris, Th. Kosmidis "Law of hydrocarbons" (2015), Law Library editions, p.48-49

⁸⁸ Ibid.

energy sources is presented as one of the main objectives of energy policy, whose accomplishment is absolutely indispensable, taking into consideration that it would guarantee the establishment of an internal energy market⁸⁹, which would operate effectively, always on the basis of ensuring, among others, the protection of the environment.

⁸⁹ Official Journal C 306, 17.12.2007, Article 194

C. EU ENERGY ROADMAPS TOWARDS 2030 AND 2050

In 2013 the European Council approved the recommendation of the European Commission concerning the Roadmap towards 2050, which determines the requirements that need to be fulfilled by member states so as to achieve the transition to an energy sector with low greenhouse gases⁹⁰. More specifically, it is a practical guide to a low carbon Europe with two primary objectives: a) to investigate the technical and economic feasibility of achieving at least an 80% reduction in greenhouse gas (GHG) emissions below 1990 levels by 2050, while maintaining or if feasible, improving, among others, the existing at that moment levels of electricity supply reliability and economic growth⁹¹ and b) to derive the implications for the European energy system over the next 5 to 10 years⁹². In the context of achieving the targets in had set, it emphasized that policy action was urgently needed in order to steer the global energy system towards a sustainable path and to that end, it identified six focus areas where policy makers needed to act: (a) prioritization of the combination between energy efficiency and use of renewables⁹³, (b) requirement of a fundamental shift in the way energy systems are operated⁹⁴, (c) increase of use of electricity in the transportation, building and industry sectors⁹⁵, (d) fostering of system wide innovation⁹⁶, (e) alignment of socio-economic structures and investment with energy transition⁹⁷ and (f) guarantee that costs and benefits were fairly distributed⁹⁸.

Taking into consideration that the aforementioned Energy Roadmap towards 2050 emphasized, among others, the fact that an establishment of a political framework towards the year of 2030 was essential due to the need of both states and investors to have milestones⁹⁹, on January 2014 the European Commission announced the *"Climate and energy policy framework from 2020-2030"*¹⁰⁰. To that end, this

⁹⁰ European Commission, "Energy Roadmap 2050" (2012), Publication office of the EU, also available at https://ec.europa.eu/energy/sites/ener/files/documents/2012_energy_roadmap_2050_en_0.pdf, accessed on 12.11.2020

⁹¹ "Roadmap 2050", available at <https://www.roadmap2050.eu/project/roadmap-2050>, accessed on 13.11.2020

⁹² Ibid.

⁹³ IRENA, "Global Energy Transformation: Roadmap to 2050" (2018), International Renewable Energy Agency, Abu Dhabi, also available at https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2018/Apr/IRENA_Report_GET_2018.pdf, accessed on 17.11.2020

⁹⁴ Ibid.

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

⁹⁸ Ibid.

⁹⁹ Ibid.

¹⁰⁰ European Commission, "A policy framework for climate and energy in the period from 2020 to 2030", COM (2014) 15, also available at <https://data.consilium.europa.eu/doc/document/ST%205644%202014%20REV%201/EN/pdf>, accessed on 17.11.2020

framework entailed indicatively the following propositions: (a) to maintain the commitment to reduce greenhouse emissions by setting in this context a target of 40% by 2030 comparing to the 1990 levels¹⁰¹, (b) to set a renewable energy target of at least 27% of energy consumption¹⁰², (c) to improve energy efficiency through potential amendments to the existing energy efficiency Directive¹⁰³, (d) to reform the EU emissions trading scheme so as to enhance the stability of energy prices¹⁰⁴, (e) to emphasize the need of enhancement of interconnections between EU member states¹⁰⁵, (f) to stress the importance of supply diversification, to take steps towards a more competitive energy markets¹⁰⁶, (g) to establish a new governance framework, which would be based on national plans, all of which will be coordinated and assessed in the EU level¹⁰⁷.

¹⁰¹ "The 2030 climate and energy framework" at site of the European Council and Council of the EU: <https://www.consilium.europa.eu/en/policies/climate-change/2030-climate-and-energy-framework/>, accessed on 17.11.2020

¹⁰² Ibid.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

D. CURRENT LEGISLATIVE FRAMEWORK ON THE PROMOTION OF THE DEVELOPMENT AND USE OF RENEWABLES

In November of 2016 the European Commission presented a legislative package that captures the way the energy sector should be transformed from 2020 until 2030, which finally came into force in 2019. The known as “*Clean Energy Package*”, is an extensive legislative package, composed of around 4,500 pages and it is consisted of six legislative pillars: (a) it sets new rules for the efficient operation of the wholesale and retail electricity markets with EU Directive 2019/44/EC¹⁰⁸, (b) it strengthens the promotion and use of RES through the enactment of EU Directive 2018/2001/EC¹⁰⁹, (c) it safeguards the promotion of energy efficiency with EU Directive 2018/2002/EC¹¹⁰, (d) it strengthens the role of ACER through the adoption of the EU Regulation 2019/942¹¹¹, (e) it sets a new energy union governance with EU Regulation 2018/1999¹¹² and (f) it enhances risk preparedness and the confrontation of crises emerging as a result of the lack of supply, with EU Regulation 2019/941¹¹³. Hereby, analysis will be conducted upon EU Directive 2018/2001/EC on the strengthening of the promotion and use of renewable energy sources, which is in force until the present, constituting part of the main EU primary legislation that underpins a lot of matters associated with the use of the said form of energy.

More specifically, EU Directive 2018/2001/EC determines a new target for the participation of RES in the final consumption of energy, which amounts to a rate of 32%¹¹⁴. Such a target is legally binding on a European level, but not on a national level, since each member state has the flexibility to employ any national policy so as to meet the targets set by this Directive¹¹⁵. It also provides for the reconsideration of the

¹⁰⁸Official Journal L 136, 22.5.2019, p. 28–50, available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.136.01.0028.01.ENG&toc=OJ:L:2019:136:TOC, accessed on 13.11.2020

¹⁰⁹Official Journal L 328, 21.12.2018, p. 82–209 available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L2001>, accessed on 13.11.2020

¹¹⁰Official Journal L 328, 21.12.2018, p. 210–230, available at https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ%3AL%3A2018%3A328%3ATOC&uri=uriserv%3A0J.L_.2018.328.01.0210.01.ENG, accessed on 13.11.2020

¹¹¹ Official Journal L 158, 14.6.2019, p. 22–53, available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019R0942>, accessed on 13.11.2020

¹¹²Official Journal L 328, 21.12.2018, p. 1–77, available at https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ:L:2018:328:TOC&uri=uriserv:OJ.L_.2018.328.01.0001.01.ENG, accessed on 13.11.2020

¹¹³Official Journal L 158, 14.6.2019, p. 1–21, available at https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.158.01.0001.01.ENG, accessed on 13.11.2020

¹¹⁴ Article 3 para 1 of Directive 2018/2001/EC

¹¹⁵ «*Final recast renewable energy directive for 2021-2030 in the European Union*»(2018), International Council of Clean Transportation (ICCT) Policy Update, ICCT Policy Update, available at https://theicct.org/sites/default/files/publications/EU_Fuels_Policy_Update_20180719.pdf, accessed on 14.11.2020

aforementioned target, which is subject to review so as to reach a higher percentage until 2023¹¹⁶.

Secondly, the said EU Directive also seeks to ameliorate the design and the stability of support schemes, with the purpose of maximizing the integration of electricity produced by renewables into the market and of restricting at the same time the existing distortions within the market¹¹⁷. More specifically, it introduces the support of RES through the system of Feed-in-Premium (instead of the existing up until then Feed-in-Tariffs) as well as through tendering procedures¹¹⁸, while stipulating that the level of support could only be adapted on the basis of objective criteria that have been already contained in its original design¹¹⁹. In this context, it provides that modifications to the Law shall not have a retroactive effect, since that would have a negative effect on the already established rights, as well as on the financial viability of the projects¹²⁰. The said Directive also imposes obligations to member states, by requiring them to publish national plans with which they would present their targets, eligible technologies, available budget and indicative auction schedules¹²¹, as well as to submit evaluation reports with which they would assess the effectiveness of the applied support schemes, at least every five years¹²².

Thirdly, reference is being made to cross-border participation in the national RES affairs¹²³, which is non-binding and which is determined indicatively at a rate of 5% at least for the period between 2023 and 2026, while from that year and onwards it is set at least at a rate of 10%¹²⁴. In this respect, it provides that if the aforementioned approach does not succeed, then in 2023 the European Commission will consider the introduction of binding obligations¹²⁵.

Fourthly, it simplifies and accelerates the licensing procedure of RES projects by enforcing the obligation of member states to set up contact points, which would

¹¹⁶ «Final recast renewable energy directive for 2021-2030 in the European Union”(2018), International Council of Clean Transportation (ICCT) Policy Update, ICCT Policy Update, available at https://theicct.org/sites/default/files/publications/EU_Fuels_Policy_Update_20180719.pdf, accessed on 14.11.2020

¹¹⁷ “Clean Energy for all Europeans – new EU rules for renewable energy and energy efficiency”(2019), Clifford Chance publications

¹¹⁸ Article 4 para 3,4 of Directive 2018/2001/EC

¹¹⁹ Article 6 para 2 of Directive 2018/2001/EC

¹²⁰ Article 6 para 1 of Directive 2018/2001/EC

¹²¹ Article 6 para 3 of Directive 2018/2001/EC

¹²² Article 6 para 4 of Directive 2018/2001/EC

¹²³ Articles 5 and 7-14 of Directive 2018/2001/EC

¹²⁴ Article 5 para 1 of Directive 2018/2001/EC

¹²⁵ Article 5 para 5 of Directive 2018/2001/EC

facilitate the entire administrative permit application and granting process¹²⁶. This would mean that potential investors shall communicate exclusively with one contact point and shall submit all necessary documents in digital form¹²⁷. A truly important change is the one according to which the permit granting process for power plants shall not exceed two years, for installations with electric capacity of less than 150 kW, the aforementioned process shall not exceed one year¹²⁸, while for small RES projects, with power less than 10.8 kW, the application of a simple notification to the Network Administrator is enough for their connection to the network¹²⁹.

Fifthly, Directive 2018/2001/EC introduces the concept of self-consumers of energy produced by renewables. In this context, self-consumers of RES shall either individually or through aggregators: (a) produce energy for their consumption and sell the surplus through renewable power purchase agreements, electricity suppliers and peer-to-peer trading arrangements, without being subject to network charges and fees, unless it is required under certain circumstances such as for installations whose power exceeds 30 KW¹³⁰, (b) install and operate electricity storage systems in combination with installations generating renewable electricity for self-consumption, without being subject to double charges, including network charges, for the stored energy that remains in their premises¹³¹, (c) maintain their rights and obligations as final consumers¹³² and (d) receive remuneration, where applicable, through support schemes, for the self-generated energy that they feed into the grid, with market terms¹³³.

Sixthly, the Directive upon discussion introduces changes as regards to the guarantees of origin. Indicatively to mention that it provides a timeframe for their validity, being the latest 18 months from the production of the energy unit¹³⁴, while it gives the flexibility to member states to choose whether to grant guarantees of origin

¹²⁶ Article 16 para 1 of Directive 2018/2001/EC

¹²⁷ Ibid.

¹²⁸ Article 16 para 4, 5 of Directive 2018/2001/EC

¹²⁹ Article 16 para 8 of Directive 2018/2001/EC

¹³⁰ Article 21 para 2 of Directive 2018/2001/EC

¹³¹ Ibid.

¹³² Ibid.

¹³³ Ibid.

¹³⁴ Article 19 of Directive 2018/2001/EC

to producers who have already received financial support through a support scheme¹³⁵.

Seventhly, in order to promote the use of renewables in the heating and cooling sector, since both of them account for 50% of energy consumption in the EU, it provides the increase of their share by setting a target of 1.3% per year and of 1.1% for countries that don't use waste heat and cold¹³⁶.

Eighthly, it sets goals regarding the participation of RES in the sector of transportation. Taking into consideration that the operation of the aforementioned sector is based excessively on petroleum products, it boosts RES contribution by introducing a binding target of at least 14% across Europe¹³⁷.

Finally, it ameliorates the sustainability in the use of bioenergy. The new Directive contains detailed provisions that specify and improve the criteria of sustainability and savings of greenhouse gas emissions that are applied in biofuels, bio-liquids and biomass¹³⁸.

Taking into consideration all of the above, it is obvious that the said EU Directive is a critical legislative development, which, despite the intense controversies that prevailed during the two years of its consultation, signals the serious commitment of the EU to promote renewables in any possible manner and for once, not to treat them as the exception, but rather to fully integrate them into the EU energy market.

¹³⁵ Article 19 of Directive 2018/2001/EC

¹³⁶ Article 23 of Directive 2018/2001/EC

¹³⁷ Articles 26 and 28 of Directive 2018/2001/EC

¹³⁸ Article 26 and onwards of Directive 2018/2001/EC

E. CONCLUSIVE REMARKS

To sum up, it has been made clear that from 1972 and onwards, the notion of the environment started to run through every action of the EU, while the obligation to preserve it is born by all member states, as it is explicitly provided under the analytically above presented provisions of EU primary legislation. The importance attributed to the protection of the environment, in the context of tackling climate change, led to the need of redefining the notion of economic development and that was when the latter became strongly interconnected with the preservation of the quality of the environment. This is of particular importance because as a result the aforementioned correlation of these two parameters, the notion of sustainable development was emerged and if it was not for the latter, then the need to promote renewable energy resources, would not have been emerged.

It was in 1995, with the publication of Green Paper, when the first legislative initiative was made with respect to promoting this environmentally friendly form of energy. Ever since, the EU legislative framework on renewables is being constantly expanding, while as it has been indicated above, the three legislative packages enacted with the aim to liberalize the European energy market, played a highly significant role in the evolution of renewables across Europe. In this context, the adoption of article 194 TFEU in 2007 is a landmark piece of primary EU legislation, taking into consideration that it signaled EU's determination in adopting a coherent energy policy, by introducing for the first time a special chapter dealing exclusively with energy, while presenting at the same time the promotion of renewables as a fundamental EU energy policy objective in the context of ensuring the proper functioning of an internal energy market.

With the analytical presentation of EU Directive 2018/2001/EC, which is part of the Clean Energy Package, it has been demonstrated that the current legislation underpinning the use and development of renewables, entails the regulation of a variety of issues associated with the said form of energy, a fact that indicates a strong and solid commitment of the EU to fully integrate it into the energy markets of all member states and to prioritize its use in the EU agenda, while that commitment is further enhanced from the adoption of EU energy roadmaps towards 2030 and 2050

respectively, which set specific targets so as to guarantee the maximum possible penetration of renewables within the EU energy market.

CHAPTER 2: GREEK LEGISLATION ON RES

A. EVOLUTION OF THE LEGISLATIVE FRAMEWORK THAT UNDERPINS THE USE OF RENEWABLES IN GREECE

The first time that referral was made upon Renewable Energy Sources in Greek legislation was with **Law 1475/1984** on "*Exploitation of Geothermal Potential*"¹³⁹. This Law endorsed provisions relating to issues of research, lease and exploitation of geothermal sources, in an attempt to initiate gradually the exploitation of RES within Greece¹⁴⁰. A more organized endeavor to promote the use of renewables took place with the enactment of **Law 1559/1985** on "*Regulation of issues of alternative forms of energy and specific issues of power production from conventional fuels and other provisions*"¹⁴¹. This Law signaled for the first time the initiation of electricity production from renewables, by incorporating provisions according to which both individual producers and local government organizations were given the right to produce electricity as independent self-consumers, however, only under the condition that they would use renewables during the production process, consume partially the output of energy produced and sell the excess of energy to Public Power Corporation (hereinafter "PPC")¹⁴². The contribution of this Law towards RES development was not as high as expected due to the fact that PPC, which was purchasing electricity at a low price, ended up in installing the majority of RES projects; mainly small wind farms and photovoltaics of low power, with a total power of 24 MW, whereas local governmental organizations contributed only to a level of 3 MW¹⁴³. This strongly indicated that the said Law had failed in promoting investments whose purpose was to produce renewable energy for commercial purposes, hence impeding to a large extent the involvement of the private sector into this field.

One decade later, the enactment of **Law 2244/1994** on "*Regulation of issues pertinent to the generation of electricity by renewable energy sources, fossil fuels and other provisions*"¹⁴⁴, became a landmark piece of legislation for the evolution of RES

¹³⁹ Official Journal of the Hellenic Republic, Issue A' 131/1984

¹⁴⁰ Ibid.

¹⁴¹ Official Journal of the Hellenic Republic, Issue B' 135/1985

¹⁴² D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, "*The evolution of renewable energy resources in the electricity sector of Greece*"(2016), International Journal of Hydrogen Energy, p. 1-13

¹⁴³ N. Frantzeskaki, E. Michalena, V. Angeon, Els van Daalen, "*The on-going Greek energy transition to sustainability*"(2008), ResearchGate, available online at: https://www.researchgate.net/publication/229021430_The_on-going_Greek_energy_transition_to_sustainability/link/59cf41e5a6fdcc181ac50694/download, accessed on 21.11.2020

¹⁴⁴ Official Journal of the Hellenic Republic, Issue A' 168/1994

in Greece, by repealing Law 1559/1985 and addressing all of the inadequacies and inefficiencies of the latter, with the purpose to increase RES participation into the Greek energy system. To that end, it endorsed provisions in accordance to which individuals were permitted to produce electricity from renewables, under the condition that they would later sell it either to the system or the grid¹⁴⁵. In addition to this, it determined the RES licensing framework, by introducing the acquirement of a production and installation license as a fundamental prerequisite for the establishment and operation of RES projects¹⁴⁶. It further introduced the support scheme of the fixed feed-in-tariffs for the purchase of energy produced by renewables, which were beneficial for all (for the interconnected energy system 0.07287/Euro per kWh and for the non-interconnected system 0.8458 Euro per kWh¹⁴⁷) and it provided for the possibility of signing long-term contracts (10 years contracts) with PPC¹⁴⁸, guaranteeing in this way the financial viability of RES projects. This Law also established strong financial incentives, in the forms of grants and subsidies, hence creating a favorable investment environment, leading to the augmentation of energy related investments and particularly those relating to the installation of private wind farms, which first came in operation in 1998¹⁴⁹. It is noteworthy though, that regardless of the positive impact this Law had on the development of RES within Greece as a whole, the limitless realization of private investments was still being impeded in this sector as a result of the extremely complicated licensing procedure that existed.

In this point it is worth noting that **Law 2364/1995** on the “*Establishment of energy control and design body, importation, transportation, marketing and distribution of gas and other provisions*”¹⁵⁰ endorsed the first attempt to integrate RES technologies into the households, by providing for a 75% tax deduction of the total expenditure on

¹⁴⁵ Th, Fortsakis, “*The general regulatory framework of Renewable Energy Sources*” in Th. Fortsakis, “*Law of Energy*”(2009), A.N.Sakkoula editions, p. 155, Official Journal of the Hellenic Republic, Issue A’ 168/1994 article 2

¹⁴⁶ Article 3 of Law 2244/1994

¹⁴⁷ N. Frantzeskaki, E. Michalena, V. Angeon, Els van Daalen, “*The on-going Greek energy transition to sustainability*”(2008), ResearchGate, available online at: https://www.researchgate.net/publication/229021430_The_on-going_Greek_energy_transition_to_sustainability/link/59cf41e5a6fdcc181ac50694/download, accessed on 21.11.2020

¹⁴⁸ D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, “*The evolution of renewable energy resources in the electricity sector of Greece*”(2016), International Journal of Hydrogen Energy, p. 1-13

¹⁴⁹ Regulatory Authority of Energy, “*Report of activities for the period between July 2000 and December 2002*”(2004), Gabriiliidi editions, p. 149

¹⁵⁰Official Journal of the Hellenic Republic, Issue A’ 313/1995

the purchase and installation of residential RES appliances¹⁵¹. Unfortunately, the deduction was suspended in 2002 with Law 3091/2002¹⁵².

One of the most important Laws that signaled the transition from a monopoly regime towards a competitive regime in the electricity market and which was regarded as a landmark in the promotion of RES into the said market, was **Law 2773/1999** on "*Liberalization of electricity market – regulation of issues pertinent to electricity policy and other provisions*"¹⁵³. The latter aligned Greek legislation with EU Directive 96/92/EC that concerned the establishment of an internal energy market and it incorporated the majority of the provisions entailed in Law 2244/1994, such as but not limited to the fixed feed-in-tariffs for electricity produced by renewables and the obligation of RES electricity producers to acquire both a production and installation license¹⁵⁴. One of the most important contributions of the said Law to the evolution of RES in Greece was the fact that it laid emphasis upon the prioritization of RES access into the electrical grid¹⁵⁵. Another of its key elements was the introduction of a new licensing system for RES, in the context of which the Regulatory Authority of Energy (hereinafter "RAE"), which was introduced into the Greek energy market as a key entity, played henceforth an extremely important role in the RES licensing procedure¹⁵⁶. More specifically, the issuance of the production license that was referred in Law 2244/1994 as a fundamental prerequisite for the legal operation of RES stations, fell within the responsibilities of RAE, since the latter was obliged to make either a positive or a negative recommendation to the Ministry of Development on the applications submitted to it and thereafter, the Ministry would in its own turn issue the production license¹⁵⁷. All RES electricity producers were obliged to follow the aforementioned procedure, except those who owned RES stations with installation capacity between 20 and 500 KW, who were explicitly exempted from the mandatory requirement of acquiring a production license¹⁵⁸.

¹⁵¹ Article 7 para 17 of Law 2364/1995

¹⁵² Official Journal of the Hellenic Republic, Issue A' 330/2002

¹⁵³ Official Journal of the Hellenic Republic, Issue A' 286/1999

¹⁵⁴ Indicatively to mention article 9 and onwards of Law 2773/1999

¹⁵⁵ D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, "*The evolution of renewable energy resources in the electricity sector of Greece*"(2016), International Journal of Hydrogen Energy, p. 1-13

¹⁵⁶ Article 4 of Law 2773/1999

¹⁵⁷ D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, "*The evolution of renewable energy resources in the electricity sector of Greece*"(2016), International Journal of Hydrogen Energy, p. 1-13

¹⁵⁸ Article 10 of Law 2773/1999

Apart from the introduction of RAE into the Greek energy system, another new key entity was introduced; the Hellenic Transmission System Operator (hereinafter "HTSO")¹⁵⁹. Once the production license was issued, RES electricity producers had the obligation to sign a 10 year contract (with a possibility of a renewal) either with HTSO or with the operator of network, which was back then PPC, under which they were required to sell the generated by RES electricity exclusively to one of the two aforementioned entities, receiving a fixed feed-in-tariff¹⁶⁰, hence retaining the RES favorable pricing regime which was introduced with Law 2273/1999. In this context, the notion of a "*Special Account for RES and CHP*" was being introduced, from which either HTSO or PPC were recovering the money already paid to the RES electricity producers¹⁶¹. However, this account turned out to have a huge deficit, which is responsible for the delayed payments made to RES producers, causing a ripple effect throughout the energy sector that was further amplified with the economic crisis.

Later on, **Law 2941/2001** on "*Simplification of start-up company procedures, renewable energy licensing, regulation of issues of the company "HELLENIC SHIPBUILDINGS" and other provisions*"¹⁶², incorporated certain provisions with the aim to facilitate the establishment of RES projects. More particularly, efforts were made to simplify their licensing procedure and in this context, the issuance of a building permit was no longer a prerequisite for the installation of solar stations and wind generators but instead, an approval granted from the competent urban planning service, was deemed sufficient¹⁶³. Even for the rest of RES projects, which were still subject to the issuance of a building permit, it was no longer required of them to have the approval of the competent committee of urban planning and architectural control, except for rare cases such as those involving the establishment of RES projects in traditional housing developments or in environmentally protected areas¹⁶⁴. In addition, in the context of RES licensing, an endeavor was made to implement the known as "*one-stop procedure*"¹⁶⁵, which would prevent the involvement of various public entities in different stages of such licensing, hence minimizing the existing

¹⁵⁹ Article 14 of Law 2773/1999

¹⁶⁰ Article 37 of Law 2773/1999

¹⁶¹ Article 40 of Law 2773/1999

¹⁶² Official Journal of the Hellenic Republic, Issue A' 201/2001

¹⁶³ Article 2 para 7 of Law 2941/2001

¹⁶⁴ Ibid.

¹⁶⁵ Article 2 of Law 2941/2001

bureaucratic delays. According to it, the issuance of both installation and operation licenses, was henceforth part of the responsibilities of the department of design and development, located within the competent administrative districts¹⁶⁶. Furthermore, by virtue of Law 2941/2001, RES projects were characterized as projects of public benefit, regardless of whether the executor of the project was a private or a public institution¹⁶⁷. That characterization was truly important because it could facilitate their realization and motivate the potential investors to engage in this sector. Indeed, the said Law provided for the possibility of expropriation in order for RES stations to be installed¹⁶⁸.

A final important contribution of this Law towards the evolution of RES within Greece was that for the first time RES projects could be established, under special conditions though, in forests and scrublands, after receiving the required approval by the Minister of Agriculture¹⁶⁹. In this context, the said Law provided for the creation of a "*Specific framework of spatial planning and sustainable development for RES*"¹⁷⁰, by amending a lot of provisions incorporated in Law 998/1979¹⁷¹.

The enactment of **Law 3175/2003** was followed, which, apart from introducing crucial amendments with the aim of enhancing competition in the Greek electricity market, it implemented the provisions of EU Directive 2003/54/EC relating to the promotion of biofuels in the said market and it set the framework for geothermal energy matters and hybrid RES installations¹⁷². The aforementioned Law stressed the need to create requirements for the rational use of geothermal potential of the country and by "*rational use*" it was referring to the rational research, exploitation and use of geothermal energy¹⁷³. To that end, it incorporated provisions regulating the way by which the right of research and use of geothermal energy is attributed to the state¹⁷⁴ or how the right of such a use could be leased to a third party¹⁷⁵, laying

¹⁶⁶ Article 2 of Law 2941/2001

¹⁶⁷ Article 2 para 9 of Law 2773/1999

¹⁶⁸ Ibid.

¹⁶⁹ Article 2 paras 1,3,6 of Law 2773/1999

¹⁷⁰ Article 2 para 10 of Law 2773/1999

¹⁷¹ Official Journal of the Hellenic Republic, Issue A' 289/1979

¹⁷² Official Journal of the Hellenic Republic, Issue A' 207/2003, N. Frantzeskaki, E. Michalena, V. Angeon, Els van Daalen, "*The on-going Greek energy transition to sustainability*"(2008), ResearchGate, available online at: <https://www.researchgate.net/publication/229021430> The on-going Greek energy transition to sustainability/link/59cf41e5a6fdcc181ac50694/download , accessed on 21.11.2020

¹⁷³ Article 1 of Law 3175/2003

¹⁷⁴ Article 4 of Law 3175/2003

¹⁷⁵ Article 5 of Law 3175/2003

also down in this context all of the lessee's' rights. Finally, it amended article 2 of Law 2773/1999, by adding that RES electricity production could also be accomplished through hybrid installations, which use mainly renewables and secondarily conventional fuels¹⁷⁶, thus removing the existing ambiguities as to whether those stations could produce electricity by using renewables.

Additionally, in accordance with the provisions of **Law 3299/2004** on "*Private Investment Incentives for Economic Development and Regional Convergence*", RES stations were included in the businesses that were subject to aid schemes such as but not limited to grants, leasing subsidies and tax allowances, so that incentives could be given to the potential RES investors¹⁷⁷. However, the said Law contained certain institutional dysfunctions. Indicatively to mention that it presented an institutional framework that was characterized by a high degree of complexity, it established regulations regarding the types of businesses that were entitled to aid schemes, determining as well the extent of such an entitlement, albeit those regulations were too extensive, hence they generated a lot of ambiguities¹⁷⁸. Also, it did not contain a clear annual timetable and a budget for such aid schemes, while the evaluation of cases appertaining in the category of aid schemes was realized with high delays, hence delaying their funding and on top of that the scoring system was so complex that an extremely high percentage of around 98 % of the submitted projects ended up in being approved¹⁷⁹.

A few years later, **Law 3468/2006** on "*Generation of electricity from renewable energy sources and high efficiency cogeneration of heat power (hereinafter "HE CHP") and other provisions*" was enacted, with the purpose to incorporate into the Greek legislation all the provisions of EU Directive 2001/77/EC and to strengthen the ways that would guarantee the prioritization of the promotion of electricity generated by both RES and CHP¹⁸⁰. Emphasis shall be laid upon the fact that the said Law recognized the significance of protecting the climate, by stating explicitly that it constitutes both

¹⁷⁶ Article 23 para 6 of Law 3175/2003

¹⁷⁷ Official Journal of the Hellenic Republic, Issue A' 261/2004

¹⁷⁸ Ministry of Development and Investment, "*Weaknesses of Law 3229/2004*", available at <http://www.opengov.gr/ypoian/?p=841b>, accessed on 24.11.2020

¹⁷⁹ *ibid.*

¹⁸⁰ Official Journal of the Hellenic Republic, Issue A' 129/2006

an environmental and energy priority of the country, which could be achieved through the promotion of electricity produced by RES and CHP¹⁸¹.

In the context of implementing EU Directive 2001/77/EC, this Law imposed for the first time a national legally binding target as regards to the participation of electricity produced by RES into the Greek energy system. In particular, it provided for a rise in the percentage of electricity produced by renewables, which should reach the level of 20, 1% by the end of 2010 and the level of 29% by the end of 2020¹⁸².

In order to achieve the aforementioned target, it endorsed certain aid measures. For instance, in the context of underlining the need to prioritize the infusion of energy generated by RES into the system, it introduced the system of the issuance of guarantees of origin. The latter confirm the energy produced in a particular period of time, the net amount of thermal or cooling energy produced in that period of time, the type of source of use, the location of each RES power plant, as well as its installed capacity¹⁸³. The competent bodies for issuing those guarantees are (a) the Hellenic Electricity Market Operator, when it comes to the electricity that is supplied by the energy system either directly or via connection with the mainland grid, (b) the Operator of non-interconnected islands, when it comes to electricity supplied by the grid of non-interconnected islands and (c) the Center of Renewable Energy Sources (hereinafter "CRES") when it comes to the electricity generated by independent RES stations that is not supplied by the grid nor is connected to the system¹⁸⁴. Each one of the above competent bodies may have access to RES stations and any kind of information relating to them so as to confirm that all the requirements for the issuance of those guarantees are met¹⁸⁵. It is noteworthy that according to the preamble of Law 3468/2006, it is explicitly mentioned (as with regards to article 15 of it) that the issuance of those guarantees contribute to the perpetual operation of electricity trade within the context of the internal energy market and that final energy consumers are given the opportunity to choose the type of energy they wish to

¹⁸¹ Article 2 of Law 3468/2006

¹⁸² Article 27 para 9 of Law 3468/2006

¹⁸³ Articles 15 para 1 and 17 of Law 3468/2006

¹⁸⁴ Article 16 of Law 3468/2006

¹⁸⁵ Article 18 of Law 3468/2006

consume, namely energy produced either from renewables or conventional sources¹⁸⁶.

The Law upon discussion endeavored to amplify the highly bureaucratic nature of RES licensing and despite the fact that the modifications it introduced were not that radical (hence maintaining the previous existing legislative framework on that matter), it was later amended considerably by the subsequent Laws 3851/2010¹⁸⁷ and 4001/2011¹⁸⁸, as a result of which, after its modification, it is considered as the main Law that underpins RES licensing procedure, which appertains of different stages. In particular, RES producers need first to obtain an electricity production license by the Minister of Development, who issues it after a positive recommendation made to him by RAE¹⁸⁹. The latter formulates a positive view after evaluating various criteria such as but not limited to the national safety, preservation of public health and safety as well as the credibility of the applicant to complete the process based on its economic, scientific and technical thoroughness¹⁹⁰. Once a generation license is granted to RES producers, they then need to proceed with the acquirement of an installation license. In order for such a license to be granted, the applicant needs first to obtain a grid connection by the competent grid operator, an approval of Environmental Terms and Conditions, as well as a forest intervention permit¹⁹¹. In parallel to the requirement of obtaining an installation license, RES producers shall enter into a connection agreement with the competent utility, as well as into a power purchase contract with either the Hellenic Electricity System Operator for the continental energy system or the Hellenic Electricity Distribution Network Operator for the non-interconnected islands¹⁹². Finally, applicants need to obtain an operation license, which is issued after the completion of a trial period regarding the operation of each RES station, in the context of which competent authorities have the obligation to undertake control tests in order to make sure that all technical conditions for the installation are safeguarded

¹⁸⁶ Available at : <https://www.hellenicparliament.gr/UserFiles/2f026f42-950c-4efc-b950-340c4fb76a24/P-HLENERG-eis.pdf> , accessed on 26.11.2020

¹⁸⁷ Official Journal of the Hellenic Republic, Issue A' 85/2010

¹⁸⁸ Official Journal of the Hellenic Republic, Issue A' 179/2011

¹⁸⁹ Article 3 of Law 3468/2006

¹⁹⁰ Ibid.

¹⁹¹ Article 8 of Law 3468/2006

¹⁹² Ibid.

and to further ensure that all necessary operational and technical characteristics of its equipment are being met¹⁹³.

In addition to the above, Law 3468/2006 regulated the pricing of electricity produced by RES power plants, which would be determined on a monthly basis¹⁹⁴ and would be formulated based on a guaranteed reference price (Euros per MW), remaining stable for the whole duration of the power purchase contracts; meaning for a period of 20 years¹⁹⁵. Also, new feed-in tariffs were introduced by modifying the previous aid scheme set by Law 2244/1994, implementing different tariffs for different technologies and offering a significant increase in tariffs for solar power and offshore wind systems¹⁹⁶. As a result, the growth of the photovoltaic systems was significant during the period from 2006 to 2009 and that was also due to decrease of their cost, resulting from its technological development and since June 2010 the photovoltaic feed in tariff was reduced¹⁹⁷.

Finally, by virtue of the said Law, institutions were being established with the aim to coordinate and promote RES investments. One of them was the Committee for the promotion of large-scale investment plans (with installed capacity of at least 30MW) in the sectors of RES and CHP, which is based within the Ministry of Development and it operates as a mediator with the aim to resolve issues that arise between investors and the competent licensing authorities¹⁹⁸. Another institution was formulated within the General Secretariat for Energy and Climate Change at the Ministry of Energy and Environment, whose tasks were expanded so as to provide a vast variety of services to investors and so as to ensure that their plans were being evolving in the fastest possible way¹⁹⁹.

Having mentioned the pricing of electricity produced by RES power plants, **Law 3734/2009**²⁰⁰ should also be taken into consideration, since it established a different way of determining the price of electricity produced exclusively by photovoltaic stations, as opposed to the one provided by Law 3468/2006 that concerned the rest

¹⁹³ Article 8 of Law 3468/2006

¹⁹⁴ Article 13 of Law 3468/2006

¹⁹⁵ Article 12 of Law 3468/2006

¹⁹⁶ J. D. Mondol, N. Koumpetsos, "Overview of challenges, prospects, environmental impacts and policies for renewable energy and sustainable development in Greece" (2013), *Renewable and Sustainable Energy Review* Issue 23, p. 431-442

¹⁹⁷ Ibid.

¹⁹⁸ Articles 19, 20 of Law 3468/2006

¹⁹⁹ Ibid.

²⁰⁰ Official Journal of the Hellenic Republic, Issue A' 8/2009

of RES stations. More specifically, according to its provisions, pricing would not be taking place on a monthly basis but rather every February and August of each year, commencing from February of 2009 and onwards²⁰¹.

Law 3851/2010 on *“Acceleration of the evolution of renewables for the confrontation of climate change and other provisions relating to issues subject to the jurisdiction of the Ministry of Environment, Energy and Climate Change”*²⁰² signaled the commencement of high investment activity within Greece as regards to RES sector, by introducing various changes to the existing legislative framework, all of which were directed exclusively in the development of renewables. More particularly, through the incorporation of the provisions entailed in EU Directive 2009/28/EC into the Greek legislation, it amended Law 3468/2006 as to the target that had been set regarding the level of RES participation within the Hellenic energy system. In this context, it explicitly referred to the fact that by the end of 2020, energy produced by RES should participate in the gross final energy consumption at a rate of 20%, electricity produced by RES should participate in the gross final electricity consumption at a rate of at least 40%, energy produced by RES should participate in the gross final consumption of energy for heat and cooling purposes at a rate of 20%, while energy produced by renewables should participate in the sector of transportation at a rate of 10%²⁰³.

Moreover, it amended article 13 of Law 3468/2006 by raising the pricing of the energy produced by RES, which would henceforth be determined on a monthly basis, based on the price (Euro/MWh) at which electricity is being absorbed either by the energy system or the grid²⁰⁴. This legislative provision exempted photovoltaic stations, whose pricing method was regulated by Law 3734/2009, as stated above. In addition to this, it introduced article “6A” to Law 3468/2006, which permits the establishment of offshore wind stations for the production of electricity by renewables within the national maritime space of Greece, regulating in detail all issues pertaining to their establishment (such as their exact location, the marine area they occupy and their maximum installed capacity, which is determined by special plans, subject to a process

²⁰¹ Article 27A of Law 3734/2009

²⁰² Official Journal of the Hellenic Republic, Issue A' 85/2010

²⁰³ Article 1 of Law 3851/2010

²⁰⁴ Article 5 of Law 3851/2010

of strategic environmental evaluation)²⁰⁵. Furthermore, it stated that all new buildings should cover their needs completely by renewable energy technologies and CHP by the end of 2019²⁰⁶. It further attempted to enhance its support and aid towards RES investors, hence facilitating their investment decisions, by establishing an independent RES agency, under the Ministry of Environment, Energy and Climate Change, with the purpose of advising RES investors in various issues²⁰⁷. This Law also addressed the issue of social and local opposition that existed with regards to RES projects, by redirecting a significant percentage of the renewables special levy retained by HTSO from the gross revenues from electricity sales of RES facilities (with the exception of photovoltaic stations), namely a 3% tax before VAT that would be attributed to the local authorities for development purposes²⁰⁸.

Finally, as was mentioned earlier, the said Law modified various provisions of Law 3468/2006 as regards to RES licensing procedure, with the aim to amplify it. In this context, it set mandatory deadlines for the intermediate stages of the RES projects licensing procedure, facilitating in this way investments and complying simultaneously with the provisions of EU Directive 2009/28/EC²⁰⁹. Indicatively to mention that one of them was the introduction of a special licensing process named as “*Fast Track Licensing*”, applicable for large-scale RES projects, meaning investments greater than 200 million euros or greater than 75 million euros, if they would result in creating at least 200 new jobs²¹⁰. This special licensing procedure was to be undertaken by the newly established agency “*Invest in Greece*” and according to the provisions of this Law, its duration would last between four to six months²¹¹.

Undoubtedly, **Law 4001/2011** on “*Operation of Energy Markets of Electricity and Natural Gas*”²¹² is regarded as another landmark in the Greek energy system since, through the incorporation of the Third Legislative Package on the liberalization of the

²⁰⁵ Article 6 of Law 3851/2010

²⁰⁶ Article 10 of Law 3851/2010, “*Handbook of renewable energy potential users*”(2006), Center of Renewable Energy Sources and Savings, Athens, Greece

²⁰⁷ D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, “*The evolution of renewable energy resources in the electricity sector of Greece*”(2016), International Journal of Hydrogen Energy, p. 1-13, Article 11 of Law 3851/2010

²⁰⁸ E. Michalena, N. Frantzeskaki, “*Moving forwards or slowing down? Exploring what impedes the Hellenic energy transition to a sustainable future*”(2013), Technological Forecasting and Social Change Review Issue 80, p. 977-991

²⁰⁹ JK Kaldellis, “*Investigation of Greek wind energy market time-evolution*”(2004) Energy Policy Review Issue 32, p. 865-879

²¹⁰ E. Michalena, N. Frantzeskaki, “*Moving forwards or slowing down? Exploring what impedes the Hellenic energy transition to a sustainable future*”(2013), Technological Forecasting and Social Change Review Issue 80, p. 977-991

²¹¹ Ibid.

²¹² Official Journal of the Hellenic Republic, Issue A' 179/2011

energy market into the Greek legislation, it updated the regulatory framework that underpinned up until that moment the Hellenic energy market. As regards to its contribution towards the development of renewables, one of its main characteristics is the fact that it considerably improved the procedure of photovoltaic licensing²¹³. In spite of the fact that the cost of electricity produced by photovoltaics was higher than that of electricity produced by conventional fuels and despite that photovoltaics normally require additional facilities in order to integrate and transfer the power to the grid, it was only after the enactment of this Law that Greece had a highly encouraging plan for the said industry, by setting a target to overpass at a rate of 4% the electricity demand with photovoltaics by 2020²¹⁴. In addition, it is worth noting that from the introduction of this Law and onwards, the special account of RES that was established by virtue of Law 2244/1999²¹⁵, was henceforth subject to the responsibilities of the Hellenic Electricity System Operator, who was exercising from that moment and onwards all the duties and responsibilities of the Hellenic Electricity Transmission System Operator²¹⁶, apart from those that were transferred instead to the Independent Electricity Transmission Operator²¹⁷. In accordance with the provisions of this Law, the guaranteed prices of electricity produced by photovoltaics were to be reduced so that the deficit of this special account for the payment of RES projects that had already been created, could be finally restrained²¹⁸.

A few years later, **Law 4414/2016** on “*New support regime for Renewable Energy Power Plants and High-Efficiency Electricity and Heat Cogeneration - Provisions for the legal and operational separation of supply sectors*” was enacted with the aim to align Greek legislation with the “*State aid guidelines for energy and environment 2014-2020*”²¹⁹ published by the EU Commission, introducing to that end a new support regime for renewables so as to enhance their development and achieve the targets that had been set within EU in the context of confronting climate change²²⁰. The

²¹³ Article 132 and onwards of Law 4001/2011

²¹⁴ D. Manopoulos, K. Kitsopoulos, J.K.Kladellis, A. Bitzenis, “*The evolution of renewable energy resources in the electricity sector of Greece*”(2016), International Journal of Hydrogen Energy, p. 1-13

²¹⁵ Article 40 of Law 2244/1999

²¹⁶ Article 143 of Law 4001/2011

²¹⁷ Article 99 of Law 4001/2001 provides in detail all responsibilities born by the Independent Electricity Transmission Operator

²¹⁸ E.Giannini, A.Moropoulou, Z.B.Maroulis, «*Penetration of photovoltaics in Greece*”(2015), Energies Journal, Issue 8, p. 6497-6508

²¹⁹ Official Journal C 200, 28.06.2014, P. 1-55

²²⁰ Official Journal of the Hellenic Republic, Issue A' 149/2016

transition though to the new support regime was smooth, since the said Law provided for certain exemptions to be applied for smaller RES installations, which would be still eligible for receiving the previous aid scheme of feed in tariffs²²¹. As to the new aid scheme, known as “*feed-in-premium system*”, both RES and CHP power plants are eligible to be awarded with an operating aid that would be based on a differential compensation price (differential increase), for the electricity produced by these plants and which is eventually absorbed by the interconnected system and interconnected network²²². This operating aid would be calculated on the basis of a premium that is offered above the market price of electricity²²³. Once this operational aid is granted to RES and CHP power plants, their developers would be concluding power purchase agreements on operational aid with a premium (FiP) with either Hellenic Electricity Market Operator and/or the Hellenic Distribution Network Operator²²⁴. After concluding the aforementioned contracts, they must participate in the day ahead market of electricity either directly or through an aggregated representative or through the aggregated representative of last resort²²⁵, which is DAPEEP until the end of 2022, after its appointment by the ministerial decision 25512/883/2019²²⁶. In addition, from January of 2017, RES producer’s participation in the electricity market would take place through the newly established competitive procedures of tenders (auctions), organized by RAE and this particular operational aid (feed in premium), would be granted to them through these auctions²²⁷. The latter constitute an innovative, transparent and amplified competitive procedure, in the context of which RES producers bid their offers for their RES power plants and whoever is selected in the end, concludes the contracts mentioned above. In this point it is worth to acknowledge that two pilot RES auctions were organized in 2016 and 2017, while regular auctions in compliance with the Law upon discussion and with ministerial decision 828/2019²²⁸, begun in 2018. Since then, there have been certain auctions organized for wind and photovoltaic stations, however, despite the interest that exists

²²¹ Article 4 par. 1b of Law 4414/2016

²²² Article 3 para 1 of Law 4414/2016, “*Legal Sources on Renewable Energy*”, available at “<http://www.res-legal.eu/search-by-country/greece/single/s/res-e/t/promotion/aid/premium-tariff-feed-in-premium/lastp/139/>”, accessed on 08.12.2020

²²³ Ibid.

²²⁴ Articles 9, 10 of Law 4414/2016

²²⁵ Article 5 of Law 4414/2016

²²⁶ Official Journal of the Hellenic Republic, Issue B’ 1020/2019

²²⁷ Article 7 of Law 4414/2016

²²⁸ Official Journal of the Hellenic Republic, Issue B’ 3578/2019

as to those auctions, the participation in them has not yet reached its full potential due to the delayed licensing procedure and the fact that various energy communities have secured priority over private photovoltaic projects regarding connectivity and installation²²⁹.

As it has been already acknowledged, one of the fundamental objectives of EU energy policy was the creation of an internal energy market in the context of which all energy markets of EU member states would be unified. In order to achieve this, it was deemed absolutely necessary to alter the way each electricity market within Europe was operating and to that end Greece proceeded with the enactment of **Law 4425/2016** on “*Urgent arrangements of the Ministries of Finance, Environment and Energy, Infrastructure, Transport and Networks and Labor, Social Security and Social Solidarity for the implementation of the fiscal target agreement*”²³⁰, which laid down the foundation for the gradual reorganization of its electricity system. The said Law, in the context of complying with EU energy legislation in that respect and more particularly with EU Regulations 714/2009 (access conditions to the network in the context of cross-border energy exchanges)²³¹ and 2015/1222 (determination of guidelines as to the allocation of capacity and management congestion)²³² respectively, it implemented the “*Target Model*”, which aims exactly at the completion of an EU internal energy market. In this respect, it introduced four new wholesale energy markets; forward market, day ahead market, intraday market and balancing market²³³, whose operation was determined and regulated to a great extent by RAE. Those markets had similar functions to those of stock markets, as they were subject to rules of trading, transparency, clearance, supervision, compliance rules, as they were explicitly referred in the relevant EU energy legislation, hence opening up the way for the operation of an organized energy stock exchange in Greece²³⁴. Once they were introduced, both the wholesale market of mandatory pool and the “*day-*

²²⁹M.T. Simeonides, M.Ioannou, “*RES sector reform – regulatory update*”(2019), available at https://www.rokas.com/uploads/RES_sector_reform_-_regulatory_update.pdf, accessed on 09.12.2020

²³⁰ Official Journal of the Hellenic Republic, Issue A' 187/2016

²³¹ Official Journal L 211, 14.08.2009, p.15-35, also available at <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32009R0714>, accessed on 10.12.2020

²³² Official Journal L 197, 25.07.2015, p. 24-72, also available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015R1222>, accessed on 10.12.2020

²³³“*The important recent legislative interventions for the reorganization of the domestic electricity market: From the mandatory pool to the Energy Exchange*”(2017), available at: <https://energyexpress.gr/news/oi-simantikes-prosfates-nomothetikes-paremvaseis-gia-tin-anadiorganosi-tis-eghorias-agoras>, accessed on 08.12.2020

²³⁴ Ibid.

ahead schedule” were abolished. The significance of the implementation of the *“Target Model”* and as a whole the aim of restructuring the Hellenic Electricity System, lies in the fact that it constituted a crucial vehicle towards the reduction of carbon dioxide emissions and the maximization of RES penetration into the said market²³⁵, which would be facilitated through the possibility of importing to and exporting from Greece electricity produced by renewables. Hence it was imperative for EU electricity systems (and hence the Hellenic one) to be reorganized so that it could operate on the basis of a new foundation of rules, in order for all of the above positive developments regarding renewables, to be actually fulfilled with success.

The reorganization of the Hellenic Electricity Market was completed with **Law 4512/2018** on *“Arrangements for the implementation of the structural reforms of the Economic Adjustment Program and other provisions”*, which introduced the Hellenic Energy Stock Exchange, regulating issues pertaining both to its establishment and operation²³⁶. In this context, the Hellenic Electricity Market Operator transferred all of its responsibilities relating to the operation of the said market to the company under the name *“Hellenic Energy Exchange SA”*²³⁷ and it was further renamed as *“Administrator of Renewable Energy Sources and Guarantees of Origin”* (DAPEEP), being responsible, among others, for the conclusion of operational aid agreements with RES producers²³⁸. It should also be acknowledged that by virtue of the joint ministerial decision 22512/883/20.03.2019, the Administrator of Renewable Energy Sources and Guarantees of Origin was also designated as *“aggregated representative of last resort”* up until the end of year 2022, having as a responsibility to represent RES and CHP stations that do not have the ability to represent themselves in the day ahead electricity market²³⁹.

Another recent Law that entailed crucial provisions as to the promotion of the energy produced by renewables was **Law 4643/2019** on *“The liberalization of the*

²³⁵ *“The important recent legislative interventions for the reorganization of the domestic electricity market: From the mandatory pool to the Energy Exchange”*(2017), available at: <https://energypress.gr/news/oi-simantikes-prosfates-nomothetikes-paremvaseis-gia-tin-anadiorganosi-tis-eghorias-agoras> , accessed on 08.12.2020

²³⁶ Official Journal of the Hellenic Republic Issue A' 5/2018

²³⁷ *“Important legislative provisions for the present and the future of the Hellenic Energy Market with Law 4512/2018”*(2018), available at <https://energypress.gr/news/simantikes-nomothetikes-tomes-gia-paron-kai-mellon-tis-ellinikis-energeiakis-agoras-me-ton>, accessed on 10.12.2020

²³⁸ Ibid.

²³⁹ Joint Ministerial Decision 25512/883/20.03.2019 of Home Secretary and the Minister of Environment and Energy, Official Journal of the Hellenic Republic, Issue B' 3617/2020

*Greek energy market, the modernization of the Public Power Corporation (PPC), the privatization of the Public Natural Gas Company (DEPA) and the support of the renewable energy sector (RES)*²⁴⁰. For instance, one positive provision of the said Law for owners of RES and CHP stations was the one according to which, all those who had concluded contracts on operational aid with a premium (FiP) before the participation of the aggregated representative of last resort within the Hellenic electricity market, can be remunerated for the electricity produced by their stations and absorbed by the Interconnected Network and/or the Interconnected System and such a remuneration shall take place retroactively, meaning from the date of the activation of their connection up until 31.10.2019²⁴¹. In addition, owners of RES and CHP stations who have already concluded contracts on operational aid with a premium (FiP) in accordance with the provisions of Law 4414/2016 or who have concluded power purchase contracts by virtue of article 12 of Law 3468/2006, and yet have not received an investment aid, are given the opportunity to participate in the electricity market and more specifically in the wholesale markets introduced with Law 4425/2016, given that less than four years have passed since the start of trial operation of the said stations²⁴². Moreover, the said Law regulates the conditions under which RES stations could be granted individual aid and more specifically, those whose installation capacity exceeds 250 MWh or conglomerates of RES stations with a combined installation capacity that exceeds 250 MWh, can be exempted from the competitive procedures of article 7 of Law 4414/2016 (auctions) according to the provisions of “*State aid guidelines for energy and environment 2014-2020*” published by EU Commission²⁴³. In this respect, explicit reference is made to the fact that the Minister of Environment and Energy is entitled to proceed to the enactment of his decision, which would determine all projects eligible for this individual aid, the supporting documents and the minimum required elements that should be submitted along with the relevant application and which would entail all the criteria for evaluating the candidate projects²⁴⁴.

²⁴⁰ Official Journal of the Hellenic Republic, Issue A' 193/2019

²⁴¹ Article 19 of Law 4643/2019

²⁴² Article 20 of Law 4643/2019

²⁴³ Article 21 of Law 4643/2019

²⁴⁴ Ibid.

Furthermore, the said Law entitled hybrid power plants to be subject to a support regime, by receiving operational aid and in this context, the Ministry of Energy and Environment is authorized to decide upon the conditions and procedures according to which hybrid power plants can be awarded operational aid or how the respective agreements can be concluded and any other related matter in that respect²⁴⁵.

In addition, it determined issues relating to the positioning of RES stations, by providing for instance that photovoltaic plants with installation capacity that equals with or is less than 1 MWh, are entitled to be installed on lands of high agricultural productivity, under the condition that the area in which they will be installed, does not exceed 1% of the total cultivated area per regional unit²⁴⁶.

Finally, it is worth noting that if the Law upon discussion could entail one negative implication for the owners of RES stations, it is the fact that from 1st of January 2020, those who own RES plants with installation capacity or with maximum capacity of production that equals with or exceeds 400 kWh, and who have already concluded operational aid agreements, with their stations operating since the 4th of July 2019, they become responsible for the deviations caused (balancing responsibility)²⁴⁷. This means that they are charged with balancing costs through the implementation of retroactive legislation, even though they may not bear themselves responsibility for the delay of the commencement of the operation of their plants, taking into consideration that such delay is normally a consequence of the long period of time that it takes for their plants to be connected with a system, a responsibility that is born exclusively by the Hellenic Electricity Distribution Network Operator²⁴⁸.

The same year, **Law 4602/2019** on "*Research, exploitation and management of the geothermal potential of the country, establishment of the Hellenic Authority for Geological and Mining Research, ownership separation of gas distribution networks and other provisions*"²⁴⁹ followed with the introduction of amendments to the RES support regime and more particularly to the one being enforced as regards to small photovoltaic plants. In particular, owners of photovoltaic stations with installation

²⁴⁵ Article 22 of Law 4643/2019

²⁴⁶ Ibid.

²⁴⁷ Article 26 para 3 of Law 4643/2019

²⁴⁸ Hellenic Electricity Distribution Network Code, as approved by RAE decision 395/2016, Official Journal of the Hellenic Republic Issue B' 78/2017

²⁴⁹ Official Journal of the Hellenic Republic, Issue A' 45/2019

capacity equal to or less than 500 KhW, may receive feed-in-tariffs, unless their installation capacity exceeds 500 KhW, where in that case they have no other option than to participate in competitive procedures introduced with Law 4414/2016 (auctions) so that they could be awarded an operational aid²⁵⁰. In this context, it changed the way with which feed-in-tariffs were calculated, by stipulating that they will no longer be calculated on the basis of the average system marginal price that exists on the day ahead electricity market, but instead from January of 2020 their price will be equal to the average price of the three consecutive competitive procedures for the same technology, which had been held previous to the one for which the respective application has been submitted, increased by 5%²⁵¹. The same is applicable as to photovoltaics of the same installation capacity, which are operated by registered farmers, with the difference that feed-in-tariffs are calculated based on the average price of the three previous consecutive competitive procedures, increased by 10%²⁵². Finally, by virtue of Law 4602/2019, any individual or legal person is not entitled to conclude agreements on receiving operational aid without participating in competitive procedures for more than two plants of the same technology (in other words when the respective competitive procedures are organized for the same technology), upon certain exceptions that are provided in this respect²⁵³.

In the spirit of promoting and maximizing the use of electricity produced by renewables up until the year of 2030, an objective that derives from the legal commitments that Greece has undertaken under Paris Agreement in 2015 and in the light of implementing in this respect EU Directive 2018/2001/EC that was part of the Clean Energy Package, Greece proceeded with the enactment of **Law 4685/2020** on *“Modernization of environmental legislation, incorporation into Greek legislation of Directives 2018/844 and 2019/692 of the European Parliament and of the Council and other provisions”*²⁵⁴, which brought a lot of significant changes in this sector of energy. One of the most important contributions of this Law to the development of renewables lies in the radical simplification of RES licensing procedure. More

²⁵⁰ Article 72 of Law 4602/2019

²⁵¹ Article 72 para 3 of Law 4602/2019

²⁵² Ibid.

²⁵³ Article 72 para 7 of Law 4602/2019

²⁵⁴ Official Journal of the Hellenic Republic, Issue A' 92/2020

specifically, the production license that is issued by RAE, is henceforth replaced by a certificate issued upon the submission of an application file²⁵⁵. In this respect, an electronic register is being established, in which applicants will be logging in and applying for the issuing of the aforementioned certificate during the first 10 days of either February, June or October of each year, under the condition though that they meet certain criteria, indicatively one of them being the compatibility of the respective RES plant with the spatial plan for the sustainable development of RES²⁵⁶. Therefore, in opposition to the practice that had been followed decades now by RAE, meaning the meticulous and extensive evaluation of a number of criteria such as but not limited to the viability of each project, this Law introduces a quicker way of permitting the owners of the respective stations to generate electricity, taking into consideration that the said certificate is issued electronically within a short predetermined deadline and is valid for 25 years (with a possibility of a 25 year extension)²⁵⁷.

RES licensing procedure is further expedited by the fact that henceforth, the approval of Environmental Terms and Conditions is valid for a period of 15 years²⁵⁸, as opposed to previous legislative provisions in this respect, according to which the period of validity was 10 years. However such a reduction was feasible only under the condition that the circumstances based on which the Environmental Terms and Conditions were issued, remained completely unchanged²⁵⁹. Also, the deadlines for the completion of the environmental licensing are reduced to a high extent, namely within 3 months if the respective application folder is complete or within 4,5 months in case objections are submitted and a public consultation needs to take place so as to reach a final decision²⁶⁰. Finally, it should be underlined that in accordance with the provisions of the Law upon discussion, all RES plants with an installation capacity of 1 MWh, could be discharged of the obligation to receive approval of Environmental Terms and Conditions, as opposed to the already existing threshold of 0.5 MWh²⁶¹.

Law 4685/2020 also introduced crucial provisions as to the positioning of RES stations. Indicatively to be mentioned that it proceeded with the abolishment of the

²⁵⁵ Article 11 of Law 4685/2020

²⁵⁶ Article 11 para 2 of Law 4685/2020

²⁵⁷ Ibid.

²⁵⁸ Article 1 of Law 4685/2020

²⁵⁹ Ibid.

²⁶⁰ Article 2 of Law 4685/2020

²⁶¹ Article 126 of Law 4685/2020, article 61 of Law 4710/2020 upon which explicit referral is being made in Law 4685/2020

provision according to which photovoltaic stations could be exceptionally constructed on land of high agricultural productivity, if those lands face national, provincial and municipal roads or if they are located within a distance of 200 meters from the axis of national, provincial roads and 150 meters from the axis of municipal roads²⁶².

It is noteworthy that by virtue of the same Law, a centralized governance model is introduced as regards to the management of the protected areas of Greece (such as Natura 2000 areas etc), in an effort to resolve the problems that the competent decentralized bodies were facing, namely the shortage of administrative resources and the subsequent lack of scientific data on the biodiversity or the protected habitats²⁶³. In this respect, reference is being made to the criteria that need to be met so as to characterize an area as an environmentally protected one, as well as to the special environmental studies that need to be conducted in order for installations to be placed in those areas²⁶⁴. According to the said Law, photovoltaic stations can be constructed in two of the four areas characterized as protected ones under this Law²⁶⁵. Finally, the Law includes provisions regarding the mapping of Greece's forests, regulating among other issues, the adaptation of the legal framework to the case law adopted by Greek Council of State regarding the illegality of the exclusion of irregularly constructed housing facilities within forested areas²⁶⁶.

²⁶² Article 128 of Law 4685/2020

²⁶³ Article 26, 27 of Law 4685/2020

²⁶⁴ Articles 44-47 of Law 4685/2020

²⁶⁵ Article 44 of Law 4685/2020

²⁶⁶ Articles 47 and onwards of Law 4685/2020

B. DETERMINATIVE ROLE OF RAE IN THE FORMULATION OF A LIBERALIZED ENERGY MARKET AND IN THE DEVELOPMENT OF RES WITHIN GREECE

From the aforementioned analytical presentation of all national Laws that have been enacted over the past decades regarding the promotion of renewables within Greece, it is worth noting that from 1999 until the present RAE has been regarded as a determinative factor in the exercising of renewable energy activities, as well as in the formulation of a liberalized energy market.

As it has been stated above, it was introduced by virtue of Law 2773/1999, with the aim of fulfilling the targets of the European energy policy, in the context of which it had as a general responsibility to supervise all the sectors by which the Hellenic energy market was constituted, ensuring its fair and competitive operation, while its duties were mostly of an advisory nature²⁶⁷. At the same time, it was introduced in the energy market as a key entity in the sector of renewables, by retaining henceforth an important role in their licensing procedure²⁶⁸. Almost a decade later, with the provisions of Law 3851/2010, it took over a more determinative role in the issuance of production licenses to RES producers, while it had the responsibility, among others, to monitor the access to energy interconnections, as well as to ensure the security of the energy supply of the country²⁶⁹. In accordance with Law 4001/2011, the upgrade of its role was highly noticeable, since it gained its administrative and financial independence, while a lot of duties of a regulatory nature were assigned to it, so that it could be able to exercise in the best possible way its institutional role, in compliance with the legally binding provisions of the Third Regulatory Package of 2009 enacted by the EU with the aim to liberalize the energy market²⁷⁰.

Its responsibilities further extended to the organization of the competitive procedures of auctions that were introduced by virtue of Law 4414/2016, in the context of which RES producers are being granted the operational aid of feed-in-premium²⁷¹. It is worth recalling that some auctions have already been completed with success, as it happened characteristically in April of 2020 with regards to the

²⁶⁷ Article 4 of Law 2773/1999

²⁶⁸ Ibid.

²⁶⁹ Article 2 of Law 3851/2010

²⁷⁰ Articles 5-10, 32-34 of Law 4001/2011

²⁷¹ Article 7 of Law 4414/2016

establishment of solar and photovoltaic stations, while the next one has been planned to take place in May of 2021²⁷².

RAE further played a fundamental role in the implementation of the Target Model that was introduced by virtue of Law 4425/2016 with the aim to reorganize the structure of the Hellenic energy market, which was later completed with Law 4512/2018. In this context, RAE contributed dramatically to the completion of the secondary legislative framework underpinning the operation of the four wholesale energy markets that were introduced, by enacting over 60 decisions in that respect²⁷³.

In addition, by virtue of Law 4685/2020 it designed and implemented an innovative RES information electronic system, in which all applications are being submitted by RES producers for the acquirement of their production licenses²⁷⁴. In particular, RAE in collaboration with company under the name "*Geospatial Enabling Technologies*" developed an electronic system of spatial controls of applications for the issuance of RES production licenses, with the aim of expediting the procedure of managing and completing the respective applications and with a view of providing an equal treatment to all applicants²⁷⁵. The spatial controls play a key role in the aforementioned process since they determine the spatial adequacy, as well as the impact of each RES installation on the geographical area upon question, hence ensuring that those installations are not placed in prohibited zones²⁷⁶. This is of high essence, taking into consideration the lack of spatial planning in Greece as regards to the establishment of RES facilities, an issue that will be analytically presented in Chapter 3 herein.

Taking into consideration all the above, it has been strongly indicated that RAE has been corresponding with success to its institutional role, which, throughout the passage of the years, has been constantly enhanced and in that context, RAE has been acting in the benefit of the Greek energy market, managing in this respect to facilitate with various ways the development of renewables within the country. In fact, only in

²⁷² "Proceedings of the Regulatory Authority of Energy during the year of 2020", available at the electronic site of RAE: <https://www.rae.gr/2021/04/20/%CF%80%CE%B5%CF%80%CF%81%CE%B1%CE%B3%CE%BC%CE%AD%CE%BD%CE%B1-%CF%84%CE%B7%CF%82-%CF%81%CF%85%CE%B8%CE%BC%CE%B9%CF%83%CF%84%CE%B9%CE%BA%CE%AE%CF%82-%CE%B1%CF%81%CF%87%CE%AE%CF%82-%CE%B5%CE%BD%CE%AD/>, accessed on 15.03.2021

²⁷³ Ibid.

²⁷⁴ Article 11 of Law 4685/2020

²⁷⁵ "Development of applications for RAE" at the site of the company "*Geospatial Enabling Technologies*", available at <https://www.getmap.eu/project/rae-applications/>, accessed on 15.03.2021

²⁷⁶ Ibid.

the year of 2020, it managed to issue at least 1.575 decisions, 231 of which were of a regulatory nature, while around 775 were related to the licensing procedure of RES and 16 of which had a consultative character, as they were directed to the Minister of Energy and the Environment²⁷⁷. Finally, it should be highlighted that RAE retains an important role as regards to the issue of storing electricity generated by renewables, having already submitted its proposals to the Ministry of Energy and Environment in order for the latter to decide upon the final legislative framework that will underpin the operation and licensing procedure of storage facilities²⁷⁸. The contribution of RAE in this respect is noteworthy since the potential of future storage will certainly facilitate the realization of RES investments, an issue that will be analytically presented in Chapter 5 herein.

²⁷⁷ "Proceedings of the Regulatory Authority of Energy during the year of 2020", available at the electronic site of RAE: <https://www.rae.gr/2021/04/20/%CF%80%CE%B5%CF%80%CF%81%CE%B1%CE%B3%CE%BC%CE%AD%CE%BD%CE%B1-%CF%84%CE%B7%CF%82-%CF%81%CF%85%CE%B8%CE%BC%CE%B9%CF%83%CF%84%CE%B9%CE%BA%CE%AE%CF%82-%CF%B1%CF%81%CF%87%CE%AE%CF%82-%CE%B5%CE%BD%CE%AD/>, accessed on 15.03.2021

²⁷⁸ "Energy storage framework, support system in progress"(February, 2021), available at <https://energypress.eu/committee-working-on-energy-storage-legal-framework-support-system/>, accessed on 15.03.2021

C. CONCLUSIVE REMARKS

Taking into consideration the analytically presented evolution of the legislation that underpins the use of renewables in Greece, it is crystal clear that many continuous and consecutive endeavors have taken place over the last 35 years, so that this form of energy could be promoted to the maximum possible extent, implementing in this context into the national law, all the relative EU Directives along with the legally binding targets that have been set over the years so as to reach the desired level renewables' penetration into the Greek energy balance. In this context, over the last few decades, efforts were constantly being made to regulate every single aspect relating to this alternative form of energy such as but not limited to its licensing procedure, the determination of its price or the financial aid, as well as the incentives given to RES producers in order motivate them engage in this sector and thus, to facilitate the realization of the respective investments. Also, the laws that were enacted in order to liberalize the Hellenic electricity market, by reorganizing to a large extent its structure, especially after the implementation the "*Target Model*", certainly contributed in the facilitation of the development of renewables.

Nevertheless, despite the aforementioned efforts, which constitute without doubt positive steps towards the integration of renewables into the Hellenic electricity market, it has been particularly evident that the said legislative framework entails a lot of deficiencies, which have been regarded as one of the main causations of the impediment of renewables' development within the country. A characteristic example is the extremely long and bureaucratic procedure of their licensing procedure, hence the numerous modifications made to it until the present so as to amplify it. In addition, it is far from obvious that a lot of national Laws whose aim was, among others, to adopt EU Directives, were enacted with a time delay of 2 or 3 years, as it has been the case with Law 2773/1999 or Law 4001/2011. Subject to a lot of modifications were also the legislative provisions relating to the support schemes, as a result of which, uncertainty dominated within the energy investment environment, instead of facilitating the actualization of RES projects. Finally, it has been highly observable the lack of a legislative framework underpinning the correct positioning of RES stations into the Greek territory, including the forest environment that covers a large extent

of the latter, an issue that will be analytically presented and assessed in the following Chapter.

The aforementioned deficiencies have been widely recognizable by the Greek government and it has been particularly positive and aspiring the fact that the respective legislation is being modified constantly until the present, with the aim to eliminate its inherent weaknesses. After all, one should consider that it has not even been half of a century since the need to use and exploit renewables was emerged, hence the inadequacies of the legislative framework under discussion, are to a certain extent justifiable.

CHAPTER 3: EVALUATION OF THE IMPACT OF THE PREVENTIVE TOOLS EMPLOYED BY THE GREEK STATE ON THE DEVELOPMENT OF RES

Renewable Energy Sources, even though they do constitute a mild and environmentally friendly form of energy, they nevertheless intervene in the environment, hence generating harmful consequences to it. This problematic issue is dealt by the Greek State through the deployment of certain measures that are known as "*preventive measures*". Those measures aim to integrate the environmental dimension into the relevant RES developmental activities and the reason that dictates the necessity of their existence is found on two of the most fundamental principles of International Environmental Law and EU Environmental Policy; the principle of prevention and precaution respectively, both addressed in articles 191-193 of TFEU²⁷⁹. In particular, certain of the preventive measures that the Greek State employs in this respect are: (a) the environmental licensing of projects that are associated with renewables, (b) the implementation of a protective legislative regime that underpins the forest environment and (c) the implementation of the special framework of spatial planning and sustainable development as regards to renewables. Ultimately, through the deployment of the aforementioned preventive action, the Greek State retains a highly significant role; the one of counterbalancing the economic development on the one hand and the environmental protection on the other hand.

Admittedly, there is no doubt that the balance between the aforementioned two parameters is extremely delicate. Therefore, the question that arises is to what extent the need to maintain such a balance between them and thus all those preventive measures that the State employs to that end, lead to the impediment of the development of renewables. Having said that, the aim of this Chapter is to evaluate the development and the extent of the renewables' integration into the Greek electricity market and this will be achieved through the conduct of an analysis as to each of the preventive measures that the Greek State implements in this respect.

In order to be able to lay emphasis on each one of those measures, acknowledgment should first be reached as to the principles of prevention and

²⁷⁹ Official Journal C 306, 17.12.2007, articles 191-193 TFEU

precaution respectively, which have signaled in the first place the obligation of all States to adopt such a preventive action.

(A) PRINCIPLES OF PREVENTION AND PRECAUTION

The principle of prevention was introduced in EU with the Single European Act of 1987²⁸⁰. For the first time during the 1980s, the said principle constituted the main subject of the Third Environmental Action Program that took place between 1982 and 1986, aiming among others to shape the direction of EU environmental legislation and policy²⁸¹. From the decade of 1980s until the present, it has been addressed as one of the most significant principles of EU Environmental Law in various EU legislative provisions and legislative initiatives such as but not limited to the Rio Declaration on Environment and Development; a document produced in the 1992 United Nations Conference on Environment and Development that incorporated 27 principles aiming to guide countries in the path of the future sustainable development²⁸², as well as in the 1993 Treaty of Maastricht²⁸³. According to it, preventive measures should be taken if it can be established on the basis of scientific evidence that a particular activity is harmful to the environment²⁸⁴. In this context, the said principle dictates that it is much preferable if an environmental problem is fought at its source, meaning before the occurrence of the negative environmental consequences that it may endorse, especially taking into consideration the difficulty of restoring the environmental balance²⁸⁵.

The principle of precaution appeared for the first time in the Rio Declaration on Environment and Development of 1992, constituting principle 15 of the said

²⁸⁰ Official Journal of the European Communities, NL 169, (29.06.1987)

²⁸¹ Official Journal of European Communities C46, Volume 26, 17.02.20183, available at <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=OJ%3AC%3A1983%3A046%3ATOC>, accessed on 05.01.2021, G. Siouti, "The development of Environmental Protection and Information within the field of EU Environmental Law" (2010), Law and Nature Review, available at <https://nomosphysis.org.gr/12048/i-ekseliksi-sto-europaiko-dikaio-periballontos-stous-tomeis-tis-periballontikis-prostasias-kaitis-periballontikis-pliroforisis-ianouarios-2010/>

²⁸² UNGA, «Report of the UN Conference on environment and development» (12.08.1992), Rio de Janeiro, also available at https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.1_Declaration.pdf, accessed on 06.01.2021

²⁸³ Official Journal of the European Communities, C 191, 29/07/1992

²⁸⁴ G. Kremlis, "EU Policy and Environmental Law. The community acquis" (2002), Law and Nature review, also available at <https://nomosphysis.org.gr/7025/i-europax%EF%BF%BDki-politiki-kai-to-dikaio-periballontos-to-koinotiko-kektimeno-oktobrios-1998/>, accessed on 05.01.2021

²⁸⁵ Karakostas, Siouti, Paulopoulos, Liakouras, Kimioni, "Introduction to European Environmental Law" (1993), Athens, p. 44

Declaration²⁸⁶, it was later introduced within the EU with the 1993 Treaty of Maastricht and a few years later it was elaborated in detail in the announcement made by the European Commission on the 2nd of February 2000, which set guidelines as to its implementation²⁸⁷. In fact, the said principle was emerged in the context of the principle of prevention, having as an aim to increase to the greatest possible extent the preventive protection of the environment. There are a lot misunderstandings as to those concepts and more particular as to their exact interpretation, as they are often being regarded as identical. In the contrary, even though they do reflect the same values and share a mutual objective, there is an difference between them since the principle of precaution dictates that in cases where there are serious indications that a particular activity may be potentially harmful to the environment, appropriate measures should be adopted in order to prevent the adverse effects of such an activity to the environment²⁸⁸. In other words, it takes the principle of prevention a step further by not requiring necessarily the existence of tangible scientific evidence, but it rather regards as sufficient the existence of a serious potential environmental risk that a particular activity may endorse. Indeed, the first explanation given as to the necessity of the existence of this principle in the 1992 Rio Declaration, was that the absence of a clear scientific certainty should not be used as a pretext so as to delay effective action aimed at preventing the deterioration of the environment²⁸⁹.

It is noteworthy that the principle of prevention is addressed in article 24 of the Greek Constitution²⁹⁰, which refers to the protection of the environment. Even though there is no explicit reference to the principle of precaution, it is widely accepted that it is implied within article 24. In accordance to the latter, the Greek legislator does not only provide for the possibility of regulating measures that aim to protect the environment, but he further underlines the obligation of the Greek State that derives

²⁸⁶ UNGA, «Report of the UN Conference on environment and development» (12.08.1992), Rio de Janeiro, also available at https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf, accessed on 06.01.2021

²⁸⁷ Communication from the EU Commission on the precautionary principle, COM (2000), 02.02.2020, also available at <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2000:0001:FIN:EN:PDF>, accessed on 06.01.2021

²⁸⁸ G. Kremliis, «EU Policy and Environmental Law. The community acquis» (2002), Nature and Law Review, also available at <https://nomosphysis.org.gr/7025/i-europax%EF%BF%BDki-politiki-kai-to-dikaio-periballontos-to-koinotiko-kektimeno-oktobrios-1998/>, accessed on 05.01.2021

²⁸⁹ UNGA, «Report of the UN Conference on the environment and development» (12.08.1992), Rio de Janeiro, also available at https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf, accessed on 06.01.2021, L. Antonopoulou, «Implementation of the principle of precaution in the EU health policy» (2003), Review of Community Research, 111-112, p. 69-97

²⁹⁰ The Greek Constitution, as it has been revised, is incorporated in the Official Journal of the Hellenic Republic, Issue A' 211/2019

from these principles, which is no other than to actually take all the required legislative and executive preventive measures so as to avoid potential harmful effects to the environment²⁹¹. Such a preventive action is employed so as to guarantee the implementation of the principle of sustainable development. It should not be left unnoted that Greek case law, by fully respecting what the Constitution dictates in this respect, has faced those principles and in particular the principle of prevention that is explicitly referred in article 24, as a legally binding rule, adopting in this context various decisions that uphold the aforementioned obligation and duty of the State to take positive actions so as to ensure their implementation²⁹².

²⁹¹ Article 24 of the Greek Constitution, as it has been revised, is incorporated in the Official Journal of the Hellenic Republic, Issue A' 211/2019

²⁹² Indicatively to mention the Greek Supreme Administration Court decisions 53/1993, 2760/1994, 3957/1995, 2537/1996

(B) TOOLS OF PREVENTIVE ACTION EMPLOYED BY THE GREEK STATE

1. ENVIRONMENTAL LICENSING PROCEDURE OF RES PROJECTS

Greece regulated at a rather early stage the procedure of RES environmental licensing, establishing a special legislative framework with Law 1650/1986 on “*The protection of the Environment*”²⁹³, as it has later been amended by various Laws²⁹⁴, while Law 4014/2011 is at the present the main one regulating all the issues related to environmental licensing²⁹⁵. The aforementioned Law has been further amended recently by Law 4685/2020²⁹⁶.

Licensing procedure of RES projects is a long lasting procedure, pertaining of various stages that are characterized by a great level of bureaucracy, as it has already been demonstrated herein, in Chapter 2. One of those stages is the environmental licensing of a particular project, the actualization and completion of which is regarded as a prerequisite for the acquirement of an installation license. Being part of a highly complicated procedure, it is itself a rather complex administrative procedure, whose purpose is to establish the environmental terms that a RES producer needs to abide invariably, when the installation of a RES station is at stake. It should be underscored that that RES environmental licensing procedure is widely considered as a practical expression and implementation of the constitutionally guaranteed principles of prevention and precaution, due to the fact that it introduced in the first place the obligation of the ex-ante evaluation of RES projects’ environmental impact²⁹⁷. Therefore, the environmental impact assessment, which is a fundamental and integral part of the said procedure, constitutes a tool of the State’s preventive action, an acknowledgment that is upheld also by various decisions of the Greek Supreme Administrative Court, in accordance to which, environmental impact assessment has been adopted so as to ensure compliance with the aforementioned two principles²⁹⁸.

²⁹³ Official Journal of the Hellenic Republic, Issue A’ 160/1986

²⁹⁴ Law 3010/2002 (Official Journal of the Hellenic Republic, Issue A’ 91/2002), Law 3851/2010 (Official Journal of the Hellenic Republic, Issue A’ 85/2010), Law 4014/2011 (Official Journal of the Hellenic Republic, Issue A’ 209/2011) and Law 4042/2012 (Official Journal of the Hellenic Republic, Issue A’ 24/2012)

²⁹⁵ Official Journal of the Hellenic Republic, Issue A’ 209/2011

²⁹⁶ Official Journal of the Hellenic Republic, Issue A’ 92/2020

²⁹⁷ EU Directive 2011/92, instruction, articles 1, 2, Official Journal of the EU, L 26, 28.01.2012, also available at <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:026:0001:0021:EN:PDF>, accessed on 12.01.2021

²⁹⁸ Indicatively to mention the Greek Supreme Administrative Court’s decisions 2173/2002, 2511/2002

In order to formulate a complete judgment as to the impact of the environmental licensing procedure on the development of renewables within Greece, acknowledgment should first be reached as to how it takes place and the stages by which it is constituted. Attention will be further drawn upon the special licensing procedure to which RES stations are subject, in case of their installation in areas of increased environmental protection such as forests and forested areas, as well as areas subject to the Natura network of 2000. On the basis of the aforementioned analysis, an evaluation could be eventually conducted as to the role that the environmental licensing procedure retains with regards to the development of renewables in Greece.

(I) PROCESS OF RES ENVIRONMENTAL LICENSING AND ITS DIFFERENTIATION DEPENDING ON THE PARTICULAR CHARACTERISTICS OF RES PROJECTS

When it comes to environmental licensing, RES projects are divided in two different categories (A&B) depending on their environmental impacts. Projects pertaining to category “A” are further divided in sub categories “A1” and “A2”, depending on the severity of their negative impact on the environment²⁹⁹. In particular, those subject to sub category “A1” entail highly significant negative consequences to the environment, those being part of sub category “A2” endorse significant negative consequences to the environment, while those integrated in category “B” have either local or not at all significant negative environmental consequences³⁰⁰. This categorization is further elaborated in detail with the relevant regulatory decisions that have been enacted over the years³⁰¹.

RES environmental licensing is not the same in each one of the above categories; it is the characteristics of each project that dictates the necessity of the imposition of different licensing requirements each time, always depending on the severity of a project’s environmental impact. Therefore, RES projects pertaining to category A are optionally subject to the conduct of a Preliminary Environmental Assessment, which

²⁹⁹ Article 1 of Law 4014/2011, Ministerial Decision 1958/2012 (Official Journal of the Hellenic Republic, Issue B’ 21/2012)

³⁰⁰ Articles 3, 4 and 8 of Law 4014/2011

³⁰¹ Ministerial Decision 1958/2012 (Official Journal of the Hellenic Republic, Issue B’ 21/2012) was enacted in accordance with the provision of article 4 para 1 of Law 4014/2011, as was later amended by Ministerial Decision 37674/27.07.2016 (Official Journal of the Hellenic Republic, Issue B’ 2471/2016) and Ministerial Decision 64001/2029/2018 (Official Journal of the Hellenic Republic, Issue B’ 49/2018)

has been renamed as “*preliminary delineation of environmental requirements*”³⁰². More specifically, producers of renewables shall submit a folder so that the aforementioned study could be conducted and once the latter is completed, the said folder is forwarded for public consultation and the provision of advisories³⁰³. Upon a positive advisory, RES producers are obliged to submit a folder so that an Environmental Impact Assessment (hereinafter “EIA”) could be performed³⁰⁴. EIA is a scientific study, the content of which consists of the description of each RES project, the detection of each project’s environmental consequences, as well as of environmental elements that could potentially be deteriorated, the description of preventive measures that could either eliminate or extinguish negative environmental consequences, summary of main alternative solutions, as well as justification for the choice made as to those particular solutions³⁰⁵. In accordance with the case law that has been developed over the years, it has been widely upheld that EIA is not an administrative act, but it rather bears the characteristics of a scientific research, incorporating a reasonable justification of the scientific opinions that it endorses³⁰⁶. Once the conduct of EIA is completed, it is disclosed and such a disclosure is of high essence since it is regarded as a necessary condition for the continuation with the rest of the stages of the environmental licensing procedure³⁰⁷. Afterwards, the competent body forwards EIA to the Prefectural Council along with its positive consultation on the preliminary delineation of environmental requirements³⁰⁸. The Prefectural Council has the obligation to make available the relevant file to the public and its representative bodies so that they could express their opinion and it then provides once more its own consultation³⁰⁹. Thereafter, the decision of the Approval of the Environmental Terms (hereinafter “AET” decision) is issued by the Ministry of Environment, Energy and Climate Change, which is based upon the EIA and it

³⁰² With Law 3851/2010 a lot of RES stations were discharged from the obligation of acquiring a preliminary environmental assessment and with the provisions of Law 4014/2011 it was no longer a compulsory stage of licensing procedure, what was rather regarded henceforth as optional and was renamed as “*preliminary delineation of environmental terms*”

³⁰³ Article 3, 19 of Law 4014/2011

³⁰⁴ Article 3 of Law 4014/2011

³⁰⁵ Article 11 of Law 4014/2011 and Ministerial Decision 170225/2014 (Official Journal of the Hellenic Republic, Issue B’ 135/2014)

³⁰⁶ Indicatively to mention the Greek Supreme Administrative Court’s decisions 1520/1993, 4654/1998

³⁰⁷ D.Vasiliadis, “*Environmental Licensing*” in D. Vasiliadis, X. Divani, M. Kouskouna, A. Papapetropoulos, “*Environment*” (2016), Legal Library Editions, p. 26

³⁰⁸ Article 19 of Law 4014/2011

³⁰⁹ Article 3, 19 of Law 4014/2011

incorporates all the terms, the compliance of which is a necessary condition for the installation of a RES station³¹⁰.

The environmental licensing process of projects integrated in category A2, is the same with the one analytically presented above, except that is differentiated from it in two aspects: (a) the performance of a preliminary delineation of environmental requirements is nonexistent and is not even regarded as optional for RES producers³¹¹ and (b) the issuance of an AET decision is an obligation borne by the competent Secretary General of Decentralized Administration³¹². It should be noted that for projects pertaining to both categories A1 and A2, the AET decision must be posted on a special website and is in force for 10 years³¹³. It is the said decision that constitutes an administrative act with which the environmental licensing procedure is completed and it is an enforceable act, which is subject to potential applications for annulment before the Greek administrative courts³¹⁴.

On the other hand, RES projects pertaining to category B, are not subject to the preliminary delineation of environmental requirements neither to an EIA, while an AET decision is not issued for their installation. Instead, they are subject to a decision known as "*Standard Environmental Terms*", whose aim is similarly the delineation of environmental conditions and the implementation of potential restrictions that are required for the actualization of a RES project³¹⁵. More specifically, each RES producer files an application so as to be subordinated in the issuance of the aforementioned decision, in accordance with the requirements that are being imposed in this regard, which differ dependently on the technologies that each RES project endorses³¹⁶. Once the evaluation is completed, it is then subject to advisories³¹⁷. Upon receipt of a positive advisory, its subordination to standard environmental terms is effectuated by the same authority that is competent for the issuance of an installation and operation license for all RES projects that are subject to the obligatory requirement of obtaining

³¹⁰ Article 3 of Law 4014/2011

³¹¹ Article 4 of Law 4014/2011

³¹² Ibid.

³¹³ Articles 2,3,4,11,19a of Law 4014/2011, Ministerial Decision 167563/2013 (Official Journal of the Hellenic Republic, Issue B' 964/2013)

³¹⁴ Consultation 125/2016 of the Legal Counsel of the Greek State (Department C'), Session of 16th of May 2016.

³¹⁵ Article 8 of Law 4014/2011. All the issues relating to "*standard environmental terms*" are regulated in detail with Ministerial Decision 3791/2013 (Official Journal of the Hellenic Republic, Issue B' 104/2013) that has been enacted in accordance with the provisions of Law 4014/2011

³¹⁶ Article 8 of Law 4014/2011

³¹⁷ Article 8, 19 of Law 4014/2011

them³¹⁸. In cases where the acquirement of the aforementioned licenses is not compulsory, responsibility for the subordination of RES projects to the said decision is borne by the Secretary General of the competent administrative district³¹⁹.

(II) SPECIAL ENVIRONMENTAL LICENSING PROCEDURE FOR RES PROJECTS INSTALLED IN FORESTS AND FORESTED AREAS & AREAS SUBJECT TO NATURA NETWORK OF 2000

The installation of RES stations in areas of increased environmental protection should not be left unnoted, taking into consideration that their realization depends upon the fulfillment of various requirements, much stricter than the ones applicable to the installation of RES stations within any other area. The special environmental licensing procedure that is applied in this respect, reflects the difficulty that RES producers experience when they wish to locate their stations in those areas and implies that the complication of the said procedure is intensified, hence creating obstacles towards the actualization of the said investments.

- PROJECTS INSTALLED IN FORESTS AND FORESTED AREAS

Due to the fact that the protection of forests and forested areas is guaranteed within the Greek Constitution³²⁰, the existence of a special regulatory framework that would underpin the environmental licensing procedure of RES projects installed at those areas, was deemed as absolutely necessary, as it has also been upheld by various decisions of the Greek Supreme Administrative Court³²¹. A characteristic example is the environmental licensing of wind farms within those areas, which has been subject to a special regulation; the Ministerial Decision 1726/2003 and that was considered imperative taking into account: (a) the high potential of actualizing such investments due to Greece's favorable climate and (b) the fact that the forest environment in Greece reaches around 50% of its total surface³²².

More particularly, in order for a differentiated environmental licensing procedure to be imposed for RES projects, it must be first proved that the area in which they are

³¹⁸ Article 8 of Law 4014/2011, articles 2 and 3 of Ministerial Decision 3791/2013

³¹⁹ Ibid.

³²⁰ Article 24 and 117 of the Greek Constitution

³²¹ Indicatively to mention decisions of the Greek Supreme Administrative Court's decisions 1322/2001, 1324/2004

³²² Report of the National Center for Environment and Sustainable Development, "Greece: The situation of the Environment" (2001), Athens, available at <https://ekpa.vpeka.gr/wp-content/uploads/2019/09/EL-SPIN-46-ELLADA-KATASTASH-PERIB-ty-EKPA-PP-32-Y-OCT-2001.pdf>, accessed on 15.01.2021

to be installed is characterized as either a forest or a forested area³²³. Once such a characterization is awarded, special requirements are enforced to the said projects, which are differentiated in accordance to the category under which they fall.

In particular, when it comes to RES projects of category A, the competent forest authority bears the responsibility of providing a consultation, with which it either approves or not the installation of the said projects in those particular areas³²⁴. In addition, in case of utilizing an excavated or an inactive area as a storage chamber, the secretary of the decentralized administration is obliged to evaluate and approve the submitted environmental rehabilitation study, upon the competent forester's relevant recommendation³²⁵. Furthermore, in cases where a preliminary delineation of environmental terms is required (i.e. the former preliminary environmental assessment), it is imperative that the current state of the forest or forested area is assessed, as well as the impact that the installation of each RES project would have on it³²⁶. The same is applicable for RES projects that are compulsorily subject to the conduct of an EIA, in which case the evaluation of the said impact is made in relation to the area of occupation of the RES project and the disturbance in the soil substrate, while at the same time issues related to the integrity of the forest and the ecological services that it offers, are being examined³²⁷. As to those projects, the AET decision must endorse information relating to the environmental sensibility of the area in which the said projects are being installed, while it must also contain terms and restrictions to be enforced so as to eliminate the potential harmful effect of those projects to the environment³²⁸. Those terms and restrictions shall guarantee that the construction of the respective stations will cause the least possible intervention to the forest environment, so that the latter could be ultimately protected³²⁹.

Similarly, for RES projects pertaining to category B, the "*Standard Environmental Requirements*" shall endorse the characterization of the areas in which those projects are installed as either forests or forested areas, it shall be accompanied with a

³²³ Article 14 of Law 998/1979, as it has been amended ever since.

³²⁴ Article 2 para 5 of Law 4014/2011

³²⁵ Article 7 para 4 of Law 4014/2011

³²⁶ Ministerial Decision 170225/2014, (Official Journal of the Hellenic Republic, Issue B' 135/2014), Annex 1, points 6,7

³²⁷ Ibid., Annex 2, points 8,9

³²⁸ Ministerial Decision 48963/2012, (Official Journal of the Hellenic Republic, Issue B' 2703/2012), Annex A, points 5.2,7.2,7.3

³²⁹ Ibid.

consultation provided by the competent forest authority and it shall incorporate additional environmental terms, if this is deemed necessary³³⁰.

- PROJECTS INSTALLED IN AREAS SUBJECT TO THE NATURA NETWORK 2000

When it comes to the installation of RES projects pertaining to both categories A and B in areas subject to the Natura Network 2000, it is deemed necessary that a conduct of an additional study known as “*Special Ecological Assessment*” takes place, by virtue of which the environmental impact of RES projects is being evaluated³³¹. Such an evaluation is being made taking into consideration: (a) the already established aims as to the maintenance of the protection of those areas³³² and (b) the special characteristics and the environmental conditions that prevail in those areas³³³.

As far as RES projects pertaining to category A are concerned, the aforementioned Special Ecological Assessment is endorsed as an annex in the compulsorily conducted EIA³³⁴. In cases where the preliminary delineation of environmental requirements is applicable, the latter should contain an evaluation regarding the current situation of the highly protected area that is at stake, as well as an evaluation of the impact of the said projects on that area³³⁵. The same is applicable when submitting compulsorily an EIA. The latter should incorporate an evaluation that focuses on the integrity of the said area, which should be made in relation to the already established aims as to the maintenance of the protection of that area³³⁶. In addition, AET decisions must endorse information relating to the environmental sensibility of the area in which the said projects are to be installed, while it shall contain terms and restrictions guaranteeing that the construction of the respective stations will entail the least possible intervention to the fauna and flora of those highly protected areas³³⁷. It is not unlikely that special additional terms may be included in the AET decision, if this is deemed necessary³³⁸.

³³⁰ Ministerial Decision 3791/2013, (Official Journal of the Hellenic Republic, Issue B' 104/2013), article 3 para 3, 4

³³¹ Greek Supreme Administrative Court's decision 1358/2018

³³² Article 10 of Law 4014/2011

³³³ Ibid.

³³⁴ Ibid.

³³⁵ Ministerial Decision 170225/2014, (Official Journal of the Hellenic Republic, Issue B' 135/2014), Annex 1, point 7

³³⁶ Ibid., Annex 2, points 8,9, Annexes 3.2.1.-3.2.2

³³⁷ Ministerial Decision 48963/2012, (Official Journal of the Hellenic Republic, Issue B' 2703/2012), Annex A, points 5.2,7.2,7.6, 7.8

³³⁸ Article 10 of Law 4014/2011

In relation to RES projects pertaining to category B, the Special Ecological Assessment is submitted to the competent environmental department of the competent administrative district³³⁹. In this case, the aforementioned assessment should include the elements of the environment that are likely to be affected by the construction of a RES project, taking into consideration the aims that have already been set as to the maintenance of the protection of the said areas, while it also contains an evaluation of such impacts, as well as measures aiming to face the environmental negative consequences³⁴⁰. Finally, similarly as in the case of projects pertaining in category A, it is not unlikely that special additional terms may be included, if this is deemed necessary³⁴¹.

(III) EVALUATION OF THE ENVIRONMENTAL LICENSING PROCEDURE

Taking into consideration the aforementioned analytically demonstrated process of environmental licensing, it has been particularly evident the extremely complex nature of the said procedure and how it is intensified, with the addition of more and stricter requirements, when the installation of RES projects in areas of increased environmental protection is at stake.

Given that, there is no wonder why it has been widely accepted that the legislative framework that has underpinned over the years RES environmental licensing procedure, raises a lot of problematic issues in practice and therefore it has been considered as one of the most essential impediments towards the development of renewables in Greece.

It is for that particular reason that efforts have been made over the years so as to amplify the said procedure, such as for instance the establishment of the discharge of RES stations from obtaining a Preliminary Environmental Assessment, which became optional for those subject to category A1³⁴² or the prolongation of the time during which AET decisions could be in force from 10 to 15 years³⁴³, the abolishment of the obligation to acquire an approval for intervening in forest areas as a separate administrative act, which now constitutes part of the AET decision, in an effort to

³³⁹ Article 10 of Law 4014/2011

³⁴⁰ Article 11 of Law 4014/2011

³⁴¹ Ministerial Decision 3791/2013, (Official Journal of the Hellenic Republic, Issue B' 104/2013), article 3 para 4, 6, article 5 para 5, Ministerial Decision 52983/1952/2013 (Official Journal of the Hellenic Republic, Issue B' 2436/2013) article 6

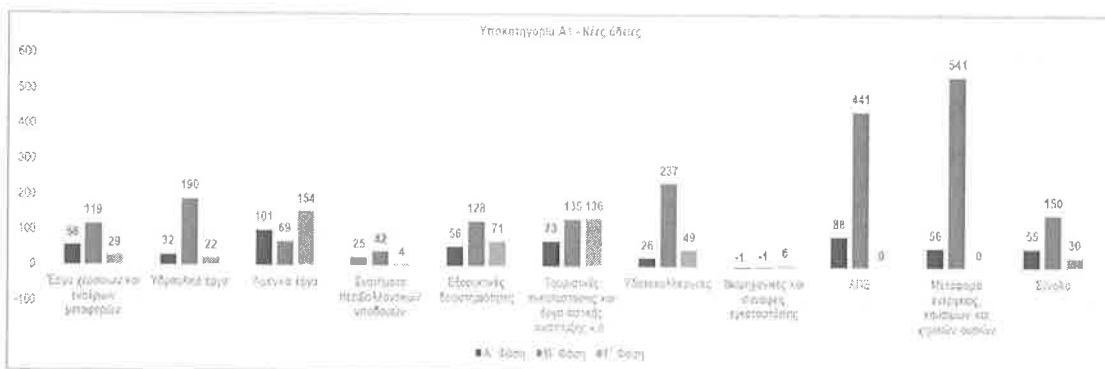
³⁴² Th.P.Fortsakis, N.E.Farantouris, "Energy Law" (2016), Legal Library Editions, p. 157 and onwards

³⁴³ Article 1 of Law 4685/2020

minimize the existing bureaucracy³⁴⁴, the re-division of RES projects into different categories by decreasing them from 4 to 3 and hence removing the existing complications that were owed to the implementation of different procedures and different requirements on different RES projects³⁴⁵. In addition, the abolishment of an EIA for projects pertaining to category B, which minimized the timeframe of the licensing procedure³⁴⁶, as well as the creation of an electronic register of certified assessors of EIAs³⁴⁷, which accomplished the aim of enhancing the quality of such assessments.

Nevertheless, in spite of the positive contributions of the aforementioned provisions in the acceleration of the said procedure, no radical changes have yet occurred, at least to the extent of guaranteeing the ultimate facilitation of the realization of RES investments.

More specifically, in accordance with studies that have been conducted recently, the environmental licensing procedure for the creation of new RES investments, exceeds the institutional timeframe in average by 210-360 days, depending on the category under which RES project falls³⁴⁸. In order to have a more clarified picture as regards to the said issue, the following graphs demonstrate the average deviation time from the institutional timeframe of environmental licensing procedure for a variety of projects, including of course RES projects (3rd case before the end of the graph), with the first graph referring to projects falling under subcategory A1 and the second one referring to projects falling under subcategory A2:



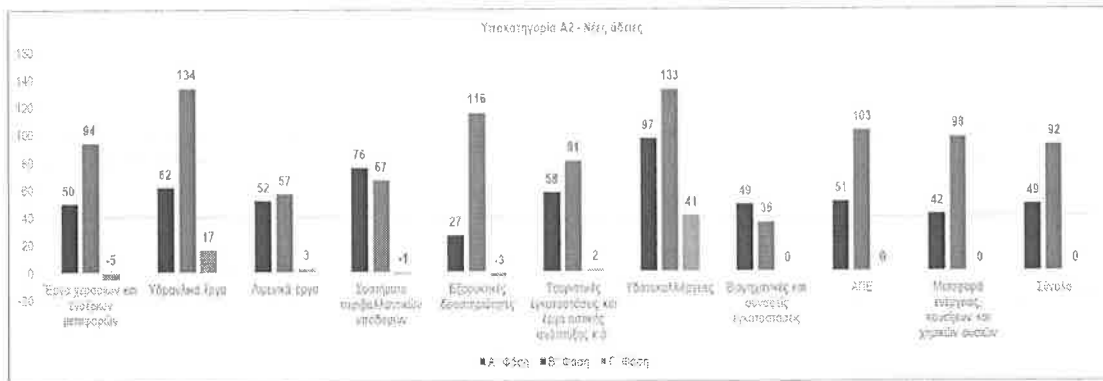
³⁴⁴ Article 12 of Law 4014/2011

³⁴⁵ Law 1650/1986 provided for four categories (A1, A2, B3, B4), which were divided into three with Law 4014/2011

³⁴⁶ Article 8 of Law 4014/2011

³⁴⁷ Article 16 of Law 4014/2011

³⁴⁸ Business and Industry Association, "Special Report on Environmental Licensing" (10th of May 2019), Economy and Business issue 42, also available at https://www.sev.org.gr/Uploads/Documents/52101/SR_Perivallontiki_adeiodotisi_VIAN_final_v3.pdf, accessed on 11.01.2021



Source :https://www.sev.org.gr/Uploads/Documents/52101/SR_Perivallontiki_adeiodotisi_VIAN_final_v3.pdf

The environmental licensing procedure as to the existing RES investments; meaning the issuance of the renewal of the AET decision or a modification of it, similarly exceeds the institutional timeframe by approximately 69 to 322 days, depending on the sub category under which each RES project falls or the manner by which each competent authority acts³⁴⁹.

It should be further acknowledged that around 40% of cases concerning either the renewal or modification of AET decisions, new consultations are being requested so that the said procedure could be completed, hence facing those renewals or modifications as completely new cases, causing significant and unnecessary time delays³⁵⁰. In the context of the said procedure, it should be underlined that the public consultations as well as the provision of the relative advisories, constitute the main cause of delay, which ranges from 20 months to three years, while it should be noted that the respective European time that is needed for their completion is around 10 months³⁵¹. The advisories and the consultations³⁵² constitute around 54% of the total delay of RES environmental licensing³⁵². In addition, the number of AET decisions that are issued, is extremely high, taking into consideration that during 2012-2017, there were issued in total 8.601 of those decisions, among which 6.141 (71,4%) were posted

³⁴⁹ Business and Industry Association, "Special Report on Environmental Licensing"(10th of May 2019), Economy and Business issue 42, also available at https://www.sev.org.gr/Uploads/Documents/52101/SR_Perivallontiki_adeiodotisi_VIAN_final_v3.pdf, accessed on 11.01.2021

³⁵⁰ Ibid., also see <http://aepo.ypeka.gr/%ce%b1%ce%bd%ce%b1%cf%81%cf%84%ce%b7%ce%bc%ce%ad%ce%bd%ce%b5%cf%82-%ce%b1%cf%80%ce%bf%cf%86%ce%ac%cf%83%ce%b5%ce%b9%cf%82/>, accessed on 11.01.2021

³⁵¹ A. Alefanti, "State as a factor of balance between the needs of protecting the environment and the needs of economic development"(2015), Law and Nature Review, also available at: <https://nomosphysis.org.gr/12964/dioikisi-os-paragon-eksisorropisis-metaksy-ton-anagkon-prostasias-toy-perivallontos-kai-tis-oikonomikis-anaptyksis/>, accessed on 09.01.2021

³⁵² Ibid.

from January of 2014 until December of 2017, meaning in the context of the implementation of Law 4014/2011³⁵³.

Despite the above, it should be underlined that with the enactment of Law 4685/2020³⁵⁴, the future of environmental licensing seems promising, taking into account that the said Law introduced significant changes as to the matter upon examination. If the competent public bodies act in accordance with the provisions of the aforementioned Law and without any derogation whatsoever, then the possibilities of accelerating the procedure of environmental licensing, could touch upon certainty, hence removing all the existing obstacles that impede the realization of RES investments. This assertion results, among others, from the newly established institutional timeframe for the completion of environmental licensing, which amounts to 3 months or 4 months and a half in case of projects subject to public consultations³⁵⁵. The effort to cause a substantial change in this regard is further evident from the fact that the validity of AET decisions is extended from 10 to 15 years, while an equally important provision is the one that increases the number of RES projects that are entitled in being discharged from the obligation of receiving AET decisions³⁵⁶.

³⁵³ A. Alefanti, "State as a factor of balance between the needs of protecting the environment and the needs of economic development" (2015), Law and Nature Review, also available at: <https://nomosphysis.org.gr/12964/dioikisi-os-paragon-eksisorropisis-metaksy-ton-anagkon-prostasias-toy-perivallontos-kai-tis-oikonomikis-anaptyksis/>, accessed on 09.01.2021

³⁵⁴ Official Journal of the Hellenic Republic, Issue A' 92/2020

³⁵⁵ Article 2 of Law 4586/2020

³⁵⁶ Article 126 of Law 4685/2020 and explicit referral of the latter to article 61 of Law 4710/2020. In accordance with those provisions, RES plants with installation capacity of 1 MWH can be exempted from receiving Environmental Terms Approval, as opposed to the existing threshold of 0,5 MWH

**(C) PROTECTIVE LEGISLATIVE REGIME THAT UNDERPINS THE FOREST
ENVIRONMENT**

(I) INCREASED PROTECTION OF FORESTS, FORESTED AND REFORESTED AREAS

It can be indisputably stated that one of the main concerns of the Greek legislator is to secure the maximum possible protection of the environment and this is particularly obvious through articles 24 and 117 of the Greek Constitution³⁵⁷. In accordance with paragraph 1 of article 24 “...it is prohibited to change the destination of forests and forested areas, unless it is for the national economy or for the agricultural exploitation of those areas or if public interest imposes that they are used in a different way...”³⁵⁸. Similarly, paragraph 3 of article 117 stipulates that “... public or private forests and forested areas that have been destroyed or are being destroyed by fire or areas that have been or are being otherwise deforested, do not lose the characterization they had before they were destroyed, but they are rather declared as reforested areas that cannot be available for another destination...”³⁵⁹.

With the aforementioned legislative provisions, it is acknowledged that forests, forested and reforested areas constitute a highly sensitive ecosystem, hence their subordination to a strictly protective regime, in the context of which the Greek legislator expresses the ultimate need to safeguard them so that sustainable development could be eventually guaranteed. In this context, human intervention in those areas could be exceptionally permissible under strict conditions³⁶⁰ and this is applicable due to the legislator’s will to weigh on the one hand the need for environmental protection and on the other hand other factors that are traced in the general national and public interest³⁶¹. Therefore, taking into consideration that the installation of RES stations constitutes a form of human intervention, it is clear that the realization of the latter depends upon the fulfillment of the certain conditions, as they will be demonstrated analytically below.

³⁵⁷ Official Journal of the Hellenic Republic, Issue A’ 211/2019 – it incorporates the Greek Constitution as it has been revised.

³⁵⁸ Ibid.

³⁵⁹ Ibid.

³⁶⁰ Greek Supreme Administrative Court’s decisions 951/1996, 2153/2015, 696/2016, 2456/2017, 643/2019

³⁶¹ Greek Supreme Administrative Court’s decisions 1492/2013, 549/2015, 643/2019

It ought to be highlighted that the increased protection of the forest environment is provided in detail within Law 998/1979³⁶², which constitutes the main Law of the Greek Forest Legislation and which is still in force, after all the amendments that have been made to it over the years³⁶³. It was enacted in compliance with article 24 paragraph 1 of the Greek Constitution and it lays down in detail all kinds of forested areas that enjoy increased protection³⁶⁴. In addition, it lists a variety of obligations that the Greek State needs to undertake, which amount to both positive actions and prohibitions, with the aim of protecting, maintaining the quality of those areas and contributing to the amelioration of their status, such as indicatively the creation of forest protection cooperatives³⁶⁵ or taking measures so as to prevent fires or face them successfully³⁶⁶. Finally, it should not be neglected that it incorporates special legislative provisions that deal exclusively with the intervention caused to those areas by RES installations³⁶⁷.

Taking into consideration the strict legislative regime to which forests and forested areas are subject, the issue upon determination herein is to acknowledge the extent to which this highly protective regime implies the impediment of the development of renewables within Greece. To that end, reference will be made to the inadequate legislative framework that underpins the installation of RES stations within those areas, as well as to the emergence of case law, which has formulated all of the conditions mentioned earlier, whose fulfillment is a prerequisite for the realization of RES investments in the areas upon discussion.

(II) INADEQUATE LEGISLATIVE FRAMEWORK UNDERPINNING THE INSTALLATION OF RES STATIONS IN FORESTS AND FORESTED AREAS AND THE IMPORTANT CONTRIBUTION OF CASE LAW IN THIS RESPECT

The legislative framework that underpins the installation of RES stations in forests and forested areas has been characterized by ambiguities and this is particularly obvious if one takes into consideration Law 360/1976 on *“Spatial Planning and*

³⁶² Official Journal of the Hellenic Republic, Issue A' 289/1979

³⁶³ Most of those amendments have been made with Law 4280/2014 (Official Journal of the Hellenic Republic, Issue A' 159/2014)

³⁶⁴ Article 3 of Law 998/1979

³⁶⁵ Articles 11-22 of Law 998/1979

³⁶⁶ Articles 23-36 of Law 998/1979

³⁶⁷ Articles 53 of Law 998/1979

*Environment*³⁶⁸, as well as Law 998/1979³⁶⁹, both of which have covered insufficiently the terms and conditions of installing RES stations within those areas. Indeed various decisions of Greek Courts have demonstrated the absence of an appropriate legal basis applicable to RES installations within the forest environment³⁷⁰.

As a result of the aforementioned vagueness and the existing legislative gaps as to which of those cases could be considered as permissible, case law has emerged in an attempt to interpret the possibility of intervening in those areas. After all, due to the exception established by the Constitution, it was highly necessary to harmonize the protection of the environment with other needs of social life that constituted reasons of public interest and that was actualized through the developed case law over the years, since those reasons constitute subject of annulment before the Greek Administrative Courts³⁷¹. The contribution of case law in this respect is highly significant, taking into consideration that it has addressed successfully the said issue, by providing the clarity that legislation had not done in the first place. In fact, there were a lot of legislative acts that were introduced in the context of complying with the courts' decisions, amongst them a lot of ministerial decisions, as well as Law 2941/2001³⁷², which reflected the first attempt to address the insufficient legislative coverage of the issue upon discussion.

The importance of the aforementioned intervention of case law lies on the fact that it redefined the legal conditions for the development of renewables and if it was not for this determinative interpretive approach of the Greek Courts and the formulation of the respective requirements for the installation of RES stations, then the exploitation of renewables would fail to achieve its aim, meaning the balanced development of the ecological parameter on the one hand and the economic parameter on the other hand. Hence, case law contributed in achieving a fair and balancing treatment between the exploitation of renewables and the protection of the environment.

³⁶⁸ Official Journal of the Hellenic Republic, Issue A' 151/1976

³⁶⁹ Official Journal of the Hellenic Republic, Issue A' 289/1979

³⁷⁰ Indicatively to mention the Greek Supreme Administrative Court's decisions 2528/2000, 174/2003, 2569/2004

³⁷¹ E.A.Maria, "*Forests and forested areas: from their conceptual definition to their protection. The role of case law*" in A. Sakkelaropoulou, I.Koufaki, "*Law of the Environment: practical cases of seminars 2008-2009*"(2011), Volume I, Athens Bar Association, p.55

³⁷² Official Journal of the Hellenic Republic, Issue A' 201/2001

(III) REQUIREMENTS FOR THE INSTALLATION OF RES STATIONS IN FORESTS AND FORESTED AREAS

The production of electricity from renewables has been considered as a form of general public interest, with which the exceptional clause of the relevant constitutional provision (article 24) is met. This is due to the important role that renewables play as to the achievement of sustainable development and in particular due to their role in guaranteeing Greece's energy supply and in tackling climate change, in the context of which the country, as the whole world as well, encounters the problem of environmental degradation caused by conventional fuel power stations³⁷³. Nevertheless, the aforementioned acknowledgment does not imply the automatic installation of RES stations in the forest environment, but, as has been mentioned earlier, it is permissible if and only if certain requirements are being met. More specifically:

- THE ABILITY OF INTERVENTION MUST BE DICTATED BY LEGISLATION

It has been established both in legislation and case law that any intervention made to the forest environment, is permissible under the condition that explicit reference of such a possibility is made within a special provision of Law or by a regulatory act issued under a special legislative authorization³⁷⁴.

The first Law that referred to the possibility of intervening exceptionally to the forest environment, in the form of constructing public and infrastructure works, was Law 998/1979³⁷⁵, as it was later amended by article 13 of Law 1822/1988³⁷⁶. The latter provided explicitly for the exceptional permission of the construction of electricity, transmission and gas distribution networks, however without the slightest reference to renewables³⁷⁷. It was the first time with Law 2941/2001 that a legislative provision appeared in that respect. In particular, such legislative provision was introduced with a retroactive effect from the time Law 2244/1994 came into force and it defined that the exceptionally permissible electricity networks, included among others, the

³⁷³E.A.Maria, "Environment and Law"(2001), Issue 3/2001, Legal Library Publications, Greek Supreme Administrative Court's decisions 2474/2011, 2499/2012

³⁷⁴ Article 45 of Law 998/1979, Indicatively to mention certain Court Decisions: Council of State Decision 1322/2001, 1324/2001, 172/2003

³⁷⁵ Article 58 of Law 998/1979

³⁷⁶ Official Journal of the Hellenic Republic, Issue A' 272/1988

³⁷⁷ Article 58 of Law 998/1979

networks that connect the projects generating power by renewables with the network of article 2 of Law 2773/1999³⁷⁸. Later, Law 3468/2006 was enacted and it provided that CHP and RES stations, as well as any other project connected to their operation, could be established, among others, within forests and forested areas, under the condition though that the execution of those projects is allowable by the provisions of Law 998/1979³⁷⁹. Finally, with Law 4203/2013, the establishment of hydroelectric stations with installation capacity over 15 MW, was amended to the acceptable interventions within these areas³⁸⁰.

It is thus evident that the localization of RES stations within the forest environment is acceptable, a position that has been upheld by both Greek legislation and case law³⁸¹, and which is particularly positive for the evolution the respective investments within Greece. However, as it has been mentioned in various courts' decisions, the respective legislative provisions that permit the positioning of those stations, should be interpreted very narrowly and that is due to the fact that they introduce an exception to the generally applicable rule on the protection of forest ecosystems³⁸².

- APPROVAL FOR FOREST INTERVENTION AND APPLICABILITY OF PRINCIPLE OF PROPORTIONALITY

The second requirement that needs to be fulfilled is the issuance of the approval of an intervention by the competent administrative bodies. Such an approval, which stems from forest legislation³⁸³, is granted once it has been secured that the area in which the installation will take place, has been awarded the characterization of a forested area³⁸⁴. The said approval is further provided under the condition of having first submitted an environmental impact assessment of the RES project under question, which aims at securing, with the provision of scientific evidence in this respect, that the intended intervention would involve the least possible sacrifice of those forested areas and the least possible loss of the forest wealth³⁸⁵. If in accordance

³⁷⁸ Article 2 of Law 2244/1999, Greek Supreme Administrative Court's decisions 2569/2004, 3650/2005, 2724/2017

³⁷⁹ Article 7, 24 of Law 3468/2006

³⁸⁰ Article 2 of Law 4203/2013, Official Journal of the Hellenic Republic, Issue A' 235/2013

³⁸¹ Greek Supreme Administrative Court's decisions 2499/2012, 4891/2013, 3164/2015

³⁸² Greek Supreme Administrative Court's decisions 696/2016, 1973/2017, 1260/2018

³⁸³ Article 45 of Law 998/1979

³⁸⁴ Greek Supreme Administrative Court's decisions 2499/2012, 1973/2013

³⁸⁵ Article 45 of Law 998/1979, Greek Supreme Administrative Court's decisions 3164/2015, 513/2016, 1983/2017

with the findings of the environmental impact assessment, this is not the case, then the intended intervention cannot take place.

In this respect, the principle of proportionality is applicable. In accordance to it, it must be secured that intervention in those areas is to be carried out only if this option is the only appropriate measure for the satisfaction of the public interest served by RES stations³⁸⁶, which must be particularly serious and that the use of such areas is deemed as absolutely necessary³⁸⁷. This means that interventions in the form of installing RES stations are only allowed if no other land areas may be allocated for the satisfaction of the aforementioned purpose of public interest and that their installation shall imply the minimum possible sacrifice of the forest wealth³⁸⁸.

- PROVISION OF MONEY EXCHANGE AND RESTORATION OF FOREST HERBAGE

Finally, for the installation of a RES station within a forested area, the beneficiary of the said intervention has the obligation to pay money in exchange for the permission granted to him in order to use this type of land³⁸⁹. In addition, he is obliged to reforest or afforest an area, which would be equal in size to the one in which the intervention was approved and ideally it shall be located in the same place or at least adjacent to the area in which permission was granted, otherwise in another area that is indicated by the forest authorities³⁹⁰. In the case that it is not feasible to find such an area, then the beneficiary is obliged to execute special forestry works in order to ameliorate and protect the area at stake³⁹¹.

(IV) INSTALLATION OF RES STATIONS IN REFORESTED AREAS

Article 117 para 3 of the Greek Constitution dictates an absolute prohibition as to any kind of intervention within reforested areas. This rule extends to cases that concern the establishment of RES stations within those areas. Indeed, for many years the aforementioned rule was rigid.

³⁸⁶ E. Koutoupa – Regkakou, "Law of the Environment" (2008), Sakkoulas Editions, p. 173

³⁸⁷ K. Menoudakos, "Protection of the environment in Public Greek Law" (1997), Law and Nature Review, available also at <https://nomosphysis.org.gr/7017/prostasia-tou-periballontos-sto-elliniko-dimosio-dikaio-febrouarios-1997/>, accessed on 22.01.2021

³⁸⁸ Ibid.

³⁸⁹ Article 19 of Law 3377/2005 (Official Journal of the Hellenic Republic, Issue A'202/2005)

³⁹⁰ Such obligation was introduced with Law 4280/2014 and is being provided by article 45 of Law 998/1979 after the amendments made to it by the Law 4280/2014

³⁹¹ Such obligation was introduced with Law 4280/2014 and is being provided by article 45 of Law 998/1979 after the amendments made to it by the Law 4280/2014

It was in 2012 when the first court decision deviated from the strict legal framework that underpinned the matter upon discussion, in accordance to which the installation of wind farms within reforested areas was regarded as permissible and that was exclusively due to their mild impact on the environment³⁹². The aforementioned court decision did not imply though a generalized change on this matter and that is particular obvious from the consultation provided by the Legal Counsel of the Greek State on that issue, which, by interpreting the aforementioned court decision, clarified that the latter could not apply proportionally in cases that concern the installation of other RES stations in reforested areas, such as photovoltaics for instance, taking into account that all of them were still subject to the absolute prohibition provided by the Greek Constitution³⁹³.

It was rather in 2014 that a radical change took place with the enactment of Law 4280/2014³⁹⁴, which provided among others, the possibility of intervening in exceptional circumstances in reforested areas³⁹⁵. It is worth noting that the introduction of those exceptions is not in conflict with the constitutional provision of article 117 paragraph 3 due to the fact that the latter amends the legislative provision of article 24 of the Greek Constitution as to the protection of forest ecosystems, hence the provision of article 117 is interpreted in line with the aim endorsed within article 24³⁹⁶.

Likewise with the case of installing stations that generate electricity by renewables within forests and forested areas, certain conditions need to be fulfilled so as for such stations to be exceptionally granted permission of installation within reforested areas. In particular, the requirements that need to be fulfilled in the first case, are also applicable in the matter upon discussion. This means that such a permission needs to be explicitly provided by a particular Law. However, the difference here is that the range of exceptionally permissible interventions is clearly more limited since the said reference should not be endorsed within any Law, but the only interventions that are

³⁹² Plenary session of the Greek Supreme Administrative Court Decision 2499/2012

³⁹³ Consultation of the Legal Counsel of the Greek State 153/2013 (Department E'), provided under the General Assembly that took place on the 16th of April 2013

³⁹⁴ Official Journal of the Hellenic Republic Issue A' 159/2014

³⁹⁵ Law 4280/2014 modified various provisions of Law 998/1979, among which, article 46 concerned the possibility of intervening in reforested areas

³⁹⁶ X. Divani, "Permissible interventions in forests and forested areas" in X. Divani, D. Basiliadis, M. Kouskouna, A. Papapetropoulos, "Environment" (2016), Legal Library Editions, p. 100

allowed, are those explicitly and restrictively listed within Law 998/1978, in which RES installations are also included³⁹⁷. In addition, the principle of proportionality is also applicable, taking into consideration that for the installation of RES stations within reforested areas, it is necessary to exhaust other location alternatives that do not involve the sacrifice of forest herbage and if this cannot be achieved, then to guarantee the least possible loss of the forest wealth³⁹⁸. Moreover, an approval needs to be issued by the competent forest authority, with the difference though that it does not only have to be specifically justifiable as to the characterization that is attributed to the area as a reforested one, but primarily, it needs to contain a justification as to the particular importance of the project and the absolute necessity of its execution in the reforested area, in view of weighting between the need to protect the forest environment and the satisfaction of the public purpose which is realized by the said project³⁹⁹.

³⁹⁷ Greek Supreme Administrative Court's decisions 2499/2012, 513/2016, 3164/2015, 1983/2017

³⁹⁸ Greek Supreme Administrative Court's decisions 3816/2010, 1421/2013, 1973/2017

³⁹⁹ Greek Supreme Administrative Court's decisions 2474/2011, 2499/2012

(D) GREEK SPATIAL PLANNING

The institution of spatial planning constitutes a tool of preventive action that the Greek State employs in its attempt to integrate the environmental dimension into the developmental activities and hence ensure that the protection of the environment does not act as an inhibitor towards economic development and vice versa. In fact, the obligation of the State to create a complete and rational system of spatial planning is underscored in article 24 para 2 of the Greek Constitution, in accordance to which the said institution is regarded as an essential condition for the achievement of sustainable development⁴⁰⁰. This is particularly true since spatial planning regulates the distribution and integration of activities within the environment and provides the appropriate framework for studying efficiently projects' potential adverse effects on the environment and the complexities they may endorse, which may conflict with the aim to maintain the quality of the environment⁴⁰¹. Therefore, it could be indisputably stated that the spatial dimension is inextricably linked with the environmental dimension. Indeed, this has been supported by case law as well, in accordance to which spatial planning is a fundamental prerequisite for the successful maintenance of the protection of the environment⁴⁰².

In reality, the purpose of existence of the Greek spatial planning, meaning the successful coexistence of the aforementioned two parameters and their simultaneous preservation, has not been quite fulfilled. In order to understand this failure, attention will be drawn upon the delayed implementation of the establishment of the Greek spatial planning and how case law contributed in covering the existing problems, hence playing a determinative role in facilitating the realization of RES investments in this respect, while emphasis will be thereafter drawn upon the current Greek spatial planning and on its inherent disadvantages, which ultimately pose an obstacle towards the uneventful penetration of renewables into the Greek energy system.

⁴⁰⁰ Official Journal of the Hellenic Republic, Issue A' 211/2019 – it incorporates the Greek Constitution as it has been revised.

⁴⁰¹ E. Maria, P. Zalimidis *"Preventive control tools of tourist development impact on the environment"*(2003), International Conference on Sustainable tourist development and the environment, Chios, Greece.

⁴⁰² Greek Supreme Administrative Court's decisions 1434/1998, 2425/2000

(I) FAILURE IN THE IMPLEMENTATION OF THE CONSTITUTIONAL REQUIREMENT OF ARTICLE 24 PARAGARPH 2 AND THE CONTRIBUTION OF CASE LAW IN THIS RESPECT

The creation of a complete and organized system of spatial planning in Greece took place rather early, however it turned out to be extremely dysfunctional. In particular the first Law that specialized the requirement of article 24 of the Greek Constitution was Law 360/1976, which was implemented during the period between 1977 and 1981⁴⁰³. The latter introduced three categories of spatial plans and programs (national, sectoral and regional), which were hierarchically structured with each other in a way so that the lower geographically spatial plan or the more specific one could be aligned with the upper geographically spatial plan or the more general one⁴⁰⁴. However, as it has already been explained earlier, the said Law covered insufficiently the terms and conditions for the permissible positioning of activities within the environment. In addition to this, the execution of the spatial planning and its supervision, fell within the competence of different administrative authorities and bodies over the years, a fact that hindered its successful implementation and evolution⁴⁰⁵. In fact, the transfer of the respective responsibilities was accompanied with a gradual retreat and abandonment of the national and regional spatial planning, since for instance, after 1981, the National Council for Spatial Planning and the Environment convened only two meetings⁴⁰⁶.

The next Law on spatial planning was enacted in 1999, almost twenty years after the first legislative initiative made to implement a spatial planning which would bear all the characteristics provided by the Greek Constitution. In the meantime, case law was being developed during almost those twenty years, in the context of which it was realized that the implementation of a spatial planning was absolutely necessary, while concerns were being expressed as to the lack of such an institution, hence leading case law to retain over the years a determinative role in the evolution and

⁴⁰³ G. Giannakourou, "The legal framework of spatial planning in Greece: Theory and Practice" in A.Sakelaropoulou, I.Koufaki, "Law of the Environment: practical cases of seminars 2008-2009" (2011), Issue I, Athens Bar Association

⁴⁰⁴ Ibid.

⁴⁰⁵ Ibid.

⁴⁰⁶ Both two meetings took place in 1985; the subject matter of the first one was the approval of the modernization of the factory which would process kaolin in Milos Island and the subject matter of the second one was the approval of the establishment of BIPE in each county of Greece. Those decisions were published in the Official Journal of the Hellenic Republic Issue B' 327/1985 and Issue B' 316/1985 respectively.

institutionalization of the Greek spatial planning⁴⁰⁷. For instance, as to the positioning of RES installations within the environment, it has been widely accepted that until the completion of the creation of a spatial planning, the licensing procedure of RES stations would be only permissible if the conduction of a study has been proceeded at a district level, which would incorporate the energy needs that the RES stations are about to cover, as well as the impacts of their installation on the environment and which would define the total number of the stations that could be established within a particular area, always in compliance with the limits of the carrying capacity of that particular area⁴⁰⁸. Once the aforementioned study has been conducted, there is no need of a spatial planning that would predefine the areas in which the establishment of RES stations is allowed⁴⁰⁹. It should be highlighted that the element of “*carrying capacity*” is strongly important; it is a term connected with the principle of sustainable development and the problematic issues that arise as a result of the absence of a spatial planning and it refers to the finite capacity and durability of ecosystems, whose predefinition is highly necessary so that their deterioration does not occur⁴¹⁰.

It is highly evident that case law played a significant role in covering the gaps that existed as a consequence of the lack of implementation of the spatial planning that was introduced with Law 360/1976 and the huge time delays that were observable until the introduction of another spatial planning. Indeed, it was the case law of the Greek Supreme Administrative Court, under the influence of European concerns over the lack of spatial planning in Greece⁴¹¹ that encouraged and pushed for the enactment of Law 2742/1999⁴¹², which replaced Law 360/1976 and which constitutes until the present the legislative framework that underpins the spatial planning of Greece.

⁴⁰⁷ A. Papapetropoulos, “*Spatial Planning and sustainable development*” (2009), Legal Library Editions

⁴⁰⁸ A. Fovakis, “*Review of Council of State’s case law as to the special spatial planning framework*” (2017), Law and Nature Review, also available at <https://nomosphysis.org.gr/16230/nomologia-ste-gia-ta-eidika-plaisia-xorotaksikov-sxediasmoy/>, accessed on 30.01.2021

⁴⁰⁹ Ibid.

⁴¹⁰ A. Sakkelaropoulou, “*Attitude of the Council of State and the carrying capacity*” (2016), Law and Nature Review, also available at <https://nomosphysis.org.gr/13341/i-stasi-toy-symvolylioy-tis-epikrateias-kai-i-ferovsa-ikanotita/>, accessed on 30.01.2021

⁴¹¹ The influence of the said European concerns is particularly obvious in the introductory report of Law 2742/1999, which is devoted in the spatial impacts that Greece accepts from EU and its requirement in this respect as to the organization of all the Greek areas.

⁴¹² Official Journal of the Hellenic Republic Issue A’ 207/1999

(II) CURRENT SPATIAL PLANNING OF GREECE

In accordance with Law 2742/1999, spatial planning is carried out in two levels: the national and the regional level respectively⁴¹³. In the national level, it is exercised through the general framework of spatial planning and the special frameworks of spatial planning and sustainable development⁴¹⁴. The purpose of the first one, which was approved by the Greek parliament in 2008⁴¹⁵, is the best possible balance between economic development and the protection of the environment, both of which constitute the fundamental elements that govern the philosophy of spatial planning⁴¹⁶. In the preamble of the general framework of spatial planning, it is acknowledged the necessity to adopt measures, by virtue of which, the energy produced by renewables would be increased, so that Greece could accomplish the international obligations that it has undertaken in the context of reducing greenhouse gases⁴¹⁷. Further, among others, it is explicitly provided the need to increase the penetration rate of renewables within the Greek energy system and that through the development of renewables, energy security is being enhanced⁴¹⁸.

Those general provisions are specified for every region of Greece, through the regional frameworks of spatial planning, which were published in 2003 in the form of decisions made by the Ministry of Environment, Spatial Planning and Public Works, all of which were issued under the exercise of the authority provided by Law 2742/1999⁴¹⁹.

The special frameworks of spatial planning and sustainable development specify or amend the directions endorsed in the general framework of spatial planning, which concern the development and the organization of the national environmental space. One of those frameworks is the special framework of spatial planning and sustainable development that deals exclusively with Renewable Energy Sources⁴²⁰ and which was adopted by the Ministry of Environment, Spatial Planning and Public Works, following both the conduct of a public consultation as well as the provision of an advisory by the

⁴¹³ Articles 6-9 of Law 2742/1999

⁴¹⁴ Articles 6, 7 of Law 2742/1999

⁴¹⁵ Official Journal of the Hellenic Republic, Issue A' 128/2008

⁴¹⁶ A. Papapetropoulos, "Spatial Planning and sustainable development" (2009), Legal Library Editions

⁴¹⁷ Article 2 of the General Framework of Spatial Planning

⁴¹⁸ Article 6 of the General Framework of Spatial Planning

⁴¹⁹ A. Gourgiotis, G. Tsilimigas, "Role of spatial planning in the development of renewables" (2011), Issue 1, Scientific publication of the Technical Chamber of Greece

⁴²⁰ Official Journal of the Hellenic Republic Issue B' 2464/2008

National Council for Spatial Planning and Sustainable Development⁴²¹. The said framework, which is in force up until the present, lays down the fundamental rules for the positioning of RES stations within the whole national area, the aim of which is to ensure the creation of sustainable RES stations and their harmonious coexistence with the natural and man-made environment⁴²². To that end, it identifies the terms and conditions for the positioning of such installations, which are differentiated depending on the category of renewables and on the category of the area in which they are to be located⁴²³. In this context, it provides criteria relating to the identification of suitable areas in terms of their potential, as well as areas in which the installation of those projects is prohibited⁴²⁴. It also contains, among others, more specific provisions as to the positioning of RES stations within areas that enjoy increased environmental protection as a result of their environmental significance, such as forests, forested areas or areas falling under the Natura network of 2000⁴²⁵. With the adoption of this special framework of spatial planning for renewables, it is aimed to provide a more clarified guidance to both licensing authorities and investors, so as to be oriented in suitable from a spatial point of view areas and so as to eliminate the uncertainties that exist as to the suitability of areas for the realization of such a purpose or the land use conflicts that frequently arise in this respect⁴²⁶.

(III) PROBLEMATIC ISSUES IN RELATION TO THE SPECIAL FRAMEWORK OF SPATIAL PLANNING AND SUSTAINABLE DEVELOPMENT AS REGARDS TO RENEWABLES

A. The institutionalization of the special framework of spatial planning and sustainable development as regards to renewables, does not lead to the automatic positioning of RES stations within the natural environment, since, a prerequisite for their installation is the harmonization of the directions endorsed within the subjacent spatial plans and the urban plans (such as the ones relating to the residential control zones, regulatory plans or plans of spatial and residential organization of open cities),

⁴²¹ A. Gourgiotis, G. Tsilimigas, *"Role of spatial planning in the development of renewables"*(2011), Scientific publication of the Technical Chamber of Greece, Issue I

⁴²² Greek Supreme Administrative Court's decisions 399/2015, 1260/2018

⁴²³ Article 3 of Special Framework of Spatial Planning and sustainable development on Renewables

⁴²⁴ Ibid., A. Gourgiotis, G. Tsilimigas, *"Role of spatial planning in the development of renewables"*(2011), Scientific publication of the Technical Chamber of Greece, Issue I

⁴²⁵ Article 3 of Special Framework of Spatial Planning and sustainable development on Renewables

⁴²⁶ A. Gourgiotis, G. Tsilimigas, *"Role of spatial planning in the development of renewables"*(2011), Scientific publication of the Technical Chamber of Greece, Issue I

with those incorporated in the said framework⁴²⁷. The aforementioned harmonization is realized through the modification or renewal of the said subjacent and urban plans⁴²⁸. It ought to be underlined that the existence of such a prerequisite is owed to the fact that the provisions of the said special framework are legally binding for the approval of the said subjacent plans, for the issuance of installation and operation licenses, as well as for the completion of the environmental licensing of RES stations, which ought to be based on those directions⁴²⁹.

However, the existing problem lies on the fact that the legislative framework underpinning currently those subjacent plans, does not provide explicitly for their immediate modification once a new spatial plan is approved and does not set exclusive deadlines in the context of which such modification shall take place⁴³⁰. The lack of those legislative provisions constitute one of the main problematic issues associated with the current system of spatial planning, since it leads to the simultaneous implementation of provisions regarding the positioning of activities within the natural environment, which may be different or even contradictory with each other, hence endangering the applicability of the directions endorsed within the spatial plans and leading in this manner to their potential confutation⁴³¹.

As a result of the above, the provisions of Law 2742/1999 were modified by Law 3851/2010 so that the directions of the subjacent plans with regard to the positioning of RES stations within the natural environment, could be taken into account only under the circumstance that they would have already been harmonized with the directions of the special framework of spatial planning and sustainable development for renewables⁴³². Otherwise, the positioning of the said stations would take place exclusively in accordance with the provisions of the aforementioned special framework, neglecting thus any directions whatsoever endorsed within the existing subjacent spatial plans⁴³³.

⁴²⁷ A. Gourgiotis, G. Tsilimigas, *"Role of spatial planning in the development of renewables"*(2011), Scientific publication of the Technical Chamber of Greece, Issue I

⁴²⁸ Ibid.

⁴²⁹ Greek Supreme Administrative Court's decisions 1421/2013, 1260/2018, 964/2018

⁴³⁰ G.Giannakourou, *"The institutional framework of spatial planning within Greece: current dilemmas and challenges for the future"* in Presentation of Conference on *"Spatial planning in Greece: legislative framework and its implementation in practice"*, organized by Law and Nature Review, 28th of January 2008

⁴³¹ Ibid.

⁴³² Article 9 paragraphs 2 and 3 of Law 3851/2010

⁴³³ A. Gourgiotis, G. Tsilimigas, *"Role of spatial planning in the development of renewables"*(2011), Scientific publication of the Technical Chamber of Greece, Issue I

B. The frameworks of spatial planning are characterized by their inveteracy, as a result of which they become dysfunctional. For instance, as it has already been stated, the first framework on spatial planning was enacted in 1977, implemented only until the year of 1981, while the second framework on spatial planning was introduced almost twenty years later (1999) and it was not until nine years later (2008) when the first special framework on renewables was introduced. It is highly evident that until the year of 2008, there was no explicit reference as to the positioning of RES stations within the natural environment, a fact that created uncertainties as to which areas could be regarded as suitable, hence creating obstacles and huge time delays in the licensing procedure of those activities, while enhancing at the same time the incertitude of investors⁴³⁴. The aforementioned problem is further intensified taking into consideration the fact that the special framework of 2008 has never been subject to renewal since that year, so that it could be modernized and reflect the current needs and circumstances. The failure of such a renewal has inevitably a negative impact on the development of renewables, since the positioning of the respective stations cannot be realized with certainty and accuracy. For instance, the spatial planning framework for renewables of 2008, was created on the basis of the technology that existed at that period of time. As regards to wind farms, their turbines were at that time, around eighty-five meters and it was according to these elements that their positioning took place (meaning the conduct of all plans relating to their positioning, the determination of the required distances etc)⁴³⁵. However, taking into consideration the constant evolution of technology, nowadays, the technology of wind farms has changed radically, since their turbines are around one hundred and seventy meters, hence rendering the special framework of 2008 as completely obsolete⁴³⁶.

The need of revising the existing spatial planning of Greece as regards to renewables, has been widely recognized and in fact, the said procedure was about to commence in 2018, however it coincided chronologically with the extensive

⁴³⁴A. Gourgiotis, G. Tsilimigas, "Role of spatial planning in the development of renewables"(2011), Scientific publication of the Technical Chamber of Greece, Issue I

⁴³⁵ <https://www.economix.gr/2020/04/22/stin-teliki-efthia-to-neo-chorotaxiko-gia-tis-ape-vgeni-o-anadochos/> , accessed on 01.02.2021

⁴³⁶ Ibid.

modification of the Law that underpinned until that point the procedure of creating spatial plans, which was realized with the enactment of the presidential decree 59/2018 on “*Categories and content of land uses*”⁴³⁷. The latter provided new terms and conditions for the installation of activities within the environment, acknowledging and promoting among others the need of positioning RES stations within certain areas⁴³⁸. It is therefore clear that due to the aforementioned change of the respective legislative framework, the revision of the spatial planning as regards to renewables was postponed and as a result, on February of 2019 the Ministry of Energy and Environment declared a tender so that a contractor would be appointed for the conduct of the new special framework of spatial planning for renewables⁴³⁹. All technical proposals were submitted on March of 2019, while their approval was published almost ten months later, on January 2020⁴⁴⁰. Taking into consideration the existing delays, in combination with the fact that the said tender sets a horizon of implementation around one year and a half, it could be realistically stated that the best case scenario for the completion of the said spatial planning, would be the year of 2022.

⁴³⁷ Official Journal of the Hellenic Republic Issue A' 114/2018

⁴³⁸ Ibid.

⁴³⁹ <https://www.economix.gr/2020/01/22/ypen-neo-chorotaxiko-ape-enas-chameno-chronos-pros-to-2022-i-oloklirosi/>, accessed on 02.01.2021

⁴⁴⁰ Ibid.

E. CONCLUSIVE REMARKS

To sum up, it has been clearly demonstrated that the environmental licensing of renewables is an extremely complicated administrative procedure that entails a lot of inherent weaknesses, all of which are strongly associated with its bureaucratic nature. Despite the endeavors that have taken place over the years in order to amplify and accelerate the said procedure, no radical change has taken place up until recently, as it has been proven by the findings of researches that are analytically presented herein, in accordance to which the actual timeframe of environmental licensing supersedes by far the respective institutional timeframe, while the participation of numerous administrative bodies and the subordination of the respective RES projects to public consultations cause inevitably enormous delays, hence suspending the actualization of RES projects. Nevertheless, the recently enacted Law 4685/2020 seems particularly aspiring, by introducing significant changes on the matter upon discussion, which, if implemented in practice, have a strong potential of ameliorating the said procedure, however this could only become a reality under the condition that the competent authorities abide invariably with the respective legislative provisions.

In addition, the strict protective regime to which the forest environment is subject, implies a difficulty in positioning RES installations at forests, forested and reforested areas. As a result of their constitutionally guaranteed protection, the realization of the respective projects constitutes the exception rather than the rule. In particular, as to forests and forested areas, the aforementioned difficulty has been intensified due to the inadequate legislative framework that has regulated the installation of RES projects in those areas, creating uncertainty to investors as to what criteria determine the lawful positioning of their projects in the said areas. The development of case law in this respect, has played an important role in covering the existing legislative gaps and thus in providing the certainty that each investor strives for. Nevertheless, the aforementioned contribution does not lead to the absolute facilitation of the respective investments, taking into consideration the criteria that Greek Courts have developed, whose fulfillment constitutes a prerequisite for the positioning of RES installations in the said areas. The aforementioned difficulty is further escalated when their installation in reforested areas is at stake, given the absolute protection that the latter enjoy by virtue of article 117 of the Greek constitution. However, in comparison

to the past, the prospects of installing RES projects in those areas are more positive, taking into consideration the allowance of intervening in those areas, which derives from the current legislation, a possibility that was first examined by the Greek Courts in 2012, when it was the first time that the ruling of a court decision deviated from the strict legal framework that underpins the reforested areas.

Further, it has been revealed that the implementation of the constitutional requirement to adopt a complete and rational system of spatial planning, has failed, since the first one in 1976 turned out to be completely dysfunctional, while the second one was created with a delay of almost twenty years. The same is evident with the special framework of spatial planning that concerns renewables, which was adopted in 2008 and has not been renewed ever since. Such a failure is of particular importance when it comes to RES investments, taking into account that it creates incertitude to investors as to which areas could be regarded as suitable for the actualization of their projects, while at the same time it leads to the conduct of wrong reports that determine the requirements of RES stations' localization, since they rely upon a legislative framework that fails to take into consideration the existing needs and circumstances, therefore generating risks as to their suspension or even annulment. Once more, case law has played a determinative role in abolishing the existing ambiguities of the respective legislative framework, providing in this way a clear guidance to both investors and competent authorities, with an important contribution in this respect being the adoption of the notion "*carrying capacity*". In addition to the above, the lack to harmonize the provisions of subjacent plans with those of the special framework of spatial planning for renewables, disables the automatic positioning of RES installations into the Greek territory, a problem which can only be replaced with a revision of the current legislative framework of spatial planning.

Taking into consideration the above, it seems that the Greek State employs certain tools of preventive action in the context of achieving a balance between economic development and protection of the environment, while ensuring at the same time that each one of those parameters does not act as an inhibitor towards the other. The existence of the aforementioned tools, as they have been analytically presented and evaluated above, is undeniably necessary, taking into account that the preservation of both parameters is equally important.

However, each one of those tools have proven to entail inherent weaknesses, as a result of which the aforementioned balance seems to lean in favor of the protection of the environment, while it has a negative impact on the evolution of renewables within the country. This is a paradox, taking into consideration the reason that dictated in the first place the necessity of using this alternative form of energy; which is no other than the notion of sustainable development, which represents the need of the equal coexistence of both parameters of economic development and the preservation of the environment. Hence, given the above, as well as the fact that the use of renewables does not only signal economic development, but it is further represents the only form of energy that is capable of tackling climate change and preventing the deterioration of the environment, it is absolutely imperative that the current situation changes.

In order for this to happen, the competent administrative bodies shall abide invariably to the latest modifications that have been made in the legislative framework that regulates RES environmental licensing, so that the timeframes are respected and so that the existing bureaucracy is minimized, while at the same time the legislative regimes underpinning both the protection of the forest environment and the Greek spatial planning, shall be revised so that the actualization of RES investments could eventually be facilitated.

CHAPTER 4: SOCIAL OPPOSITION TOWARDS RENEWABLES

The inherent weaknesses that were detected in the environmental licensing procedure of renewables, in the protective legislative regime of the forest environment, as well as in the Greek spatial planning, play a significant role in the emergence of social opposition towards renewables. The latter derives mainly from local communities and is particularly obvious through the submission of appeals in front of the Greek Supreme Administrative Court, aiming at annulling or at least suspending the installation of RES stations within the Greek territory. The lack of social acceptance of renewables in Greece has been regarded as a catalyst in hindering the evolution of this alternative and environmentally friendly form of energy within the country. Hence, the aim of this chapter is: (a) to identify the factors that lead to the emergence of this phenomenon, (b) to acknowledge how the aforementioned preventive tools, which were extensively discussed in the previous chapter, are interconnected with social opposition and (c) to recognize what has been done so far by the Greek State in its effort to extinguish the factors responsible for the causation of the matter upon discussion and to address in this context what needs to be done so as to eventually tackle successfully the said problematic issue and guarantee that it would no longer constitute an obstacle towards the development of renewables in the country.

(A) ROOTS OF SOCIAL OPPOSITION TOWARDS RENEWABLE ENERGY SOURCES

Social opposition towards renewables is observable across the world and this has triggered a lot of academics to provide an explanation as to the purpose of its existence and as to how it has resulted in impeding universally to a large extent the development of RES. In accordance with studies that have been conducted over the years, it has been found that there are a lot of parameters that enable social opposition against renewables. Certain of them are the lack of acknowledgment and the false information that the public receives as to the existence of renewables, the unawareness of society regarding the exploitation of the said form of energy or the feeling of fear and concern that is associated with its use⁴⁴¹. In this context, it has been

⁴⁴¹ G. Assefa, B. Frostell, "Social Sustainability and Social Acceptance in Technology Assessment: A Case Study of Energy Technologies" (2007), *Technology in Society Review*, 29, pp.63-78, A. Economou, "Renewable energy resources and sustainable development in Mykonos, Greece." (2010), *Energy Review*, 14, pp.1496-1501.

argued that the feeling of fear is intensified in case of lack of adequate information upon the said issue⁴⁴². In accordance with other studies, it has been found that essential parameters of social opposition against renewables are the lack of appreciation as to the economic benefits that renewables endorse, peoples' attitude towards private investments or the concerns that exist regarding the environmental problems and mainly regarding climate change⁴⁴³. It should be highlighted that it is a combination of all these parameters that shape each citizen's attitude towards renewables and this is what makes the issue upon discussion a highly complex one, since it is extremely difficult to deduct safe conclusions with certitude as to what is the attitude of the people of a particular country in relation to renewables. In fact, researches have shown that citizens' attitudes may not vary exclusively between countries, but they may also vary among regional entities of the same country⁴⁴⁴.

As far as Greece is concerned, from the beginning of the exploitation of renewables until the present, social opposition towards this particular form of energy has been indisputably dominant. In particular, a lot of the aforementioned parameters are existent, such as but not limited to environmental concerns, local interests, lack of awareness and lack of general knowledge as to the role of renewables, their advantages, as well as to the imperative need to constitute a fundamental part of the Greek energy system. The aforementioned factors contribute dramatically to the immobilization of RES investments, hence their presentation below:

(I) ENVIRONMENTAL CONCERNS:

A high percentage of the reactions expressed by local communities against renewables are traced in environmental organizations and non-profit organizations, which, in the context of their aim to preserve the quality of the environment, take actions in order to suspend or eventually annul the installation of RES stations in areas of particular environmental importance. Most of those actions take the form of appeals in front of the Supreme Administrative Court of Greece.

⁴⁴² G. Assefa, B. Frostell, "Social Sustainability and Social Acceptance in Technology Assessment: A Case Study of Energy Technologies"(2007), *Technology in Society Review*, 29, pp.63-78, A. Economou, "Renewable energy resources and sustainable development in Mykonos, Greece."(2010), *Energy Review*, 14, pp.1496-1501.

⁴⁴³ Zografakis, N. Sifaki, E. Pagalou, M. Nikitaki, G. Psarakis, V. Tsagarakis, P. K., "Assessment of public acceptance and willingness to pay for renewable energy sources in Crete", *Energy Reviews* 14, pp.1088-1095,

⁴⁴⁴ S.Ntanos, G. Kyriakopoulos, M.Chalikias, G. Arabatzis, M. Skordoulis, "Public perception and willingness to pay for renewable energy: a case study from Greece"(2018), *Sustainability Review*, Volume 10, Issue 3

In this context, the most usual argument that they present is that the localization of RES projects takes place to the detriment of valuable ecosystems. A characteristic example is the intense refusal that was expressed by the ornithological company regarding the installation of wind farms in the island of Andros. In accordance with the said company, those wind farms would circumvent the protection of the eagle, since they would be localized within an area of increased environmental protection and within a short distance from the nests of those eagles, which constitute rare birds nowadays⁴⁴⁵. In fact, this case was addressed before the Supreme Administrative Court, which ruled the temporary suspension of the installation works of the said wind farms, in order to protect the said area that enjoyed increased environmental protection⁴⁴⁶. Another instance is the reaction of environmental organizations as to the installation of wind farms in certain small islets of the Aegean Sea such as but not limited to Kinaros, Lebida, Plakidia, Mesonisi, Kounoupoi and Paxia Nisyros, all of which appertain to the municipality of the islands of Nisiros, Astipalaia, Leros and Anafi⁴⁴⁷. In those islets there is hardly any human intervention and in accordance with both scientific bodies and environmental organizations, those islets constitute a unique biodiversity phenomenon since they are a refuge of wildlife such as rare birds, while other rare and endemic species of flora and fauna are being developing there⁴⁴⁸. As a result, in the context of acquiring environmental licensing and in particular during the phase of public consultation, this plan has been disapproved by the competent bodies of both Cyclades and Dodecanese that manage environmentally protected areas⁴⁴⁹.

Worries have also been expressed as to the destruction of areas that enjoy increased protection such as forests or forested areas, as it happened in the case of installing wind farms in the County of Erytria, in the context of which environmental organizations filed an application of annulment before the Supreme Administrative Court, claiming that wind farms can't be localized within areas subject to the nature

⁴⁴⁵<http://saveandros.com/%CE%B7-%CE%BA%CE%B1%CE%B8%CE%B1%CF%81%CE%AE-%CE%B5%CE%BD%CE%AD%CF%81%CE%B3%CE%B5%CE%B9%CE%B1-%CE%BA%CE%B1%CE%B9-%CF%84%CE%B1-%CE%B1%CE%B9%CE%BF%CE%BB%CE%B9%CE%BA%CE%AC-%CF%80%CE%AC%CF%81%CE%BA%CE%B1/>, accessed on 24.02.2021

⁴⁴⁶ Greek Supreme Administrative Court's decision 2419/2019

⁴⁴⁷ <https://www.kathimerini.gr/society/1059771/ta-14-nisakia-toy-aigaioy-kai-oi-anemogennitries/>, accessed on 13.02.2021

⁴⁴⁸ Ibid.

⁴⁴⁹ <https://energypress.gr/news/ta-14-nisakia-toy-aigaioy-kai-oi-anemogennitries>, accessed on 24.02.2021

network of 2000⁴⁵⁰. However that application was disregarded by the court, with those reactions resulting consequently in the delay of the installation of the said RES project⁴⁵¹. Worries are further related to the potential that RES stations have on destructing lands of high productivity, which is an inevitable consequence of their installation. In fact those concerns have been intensified after the recent public statement of the Greek government, in accordance to which more than 300.000 acres of high productivity land are being destined to welcome photovoltaic stations⁴⁵². Finally, it has been evident that reactions are associated with certain types of renewables and the negative impact that they could have on the environment, despite the fact that they constitute an environmentally form of energy, in comparison with conventional fuels. Those reactions have been expressed particularly with regards to biomass stations, while the argument presented in this respect is that their installation results unavoidably in the pollution of the environment, a position that is part of their wider argument in accordance to which large arable lands are being seized for such purposes at a time when the world's population is being malnourished⁴⁵³.

II. LOCAL INTERESTS:

Social opposition against renewables is further traced on local communities, which may retain local interests of any kind upon the areas in which RES stations are planned to be installed. Those local interests may amount to the economic profits that are attributed to people exploiting those areas. A characteristic example is the protest that took place in the past by businessmen representing the tourist branch of islands such as Mykonos and Paros, in the context of which they were claiming that the installation of wind farms would have negative consequences to the tourism that those islands attract and hence to the economic benefits attributed to them⁴⁵⁴. Another instance to be mentioned in this respect is the negative reaction of the Board of Directors of Milos island, which was against the exploitation of the island's geothermal field and that was partially owed to the economic interests of people who

⁴⁵⁰ Decision of the Greek Supreme Administrative Court 1007/2019

⁴⁵¹ Ibid.

⁴⁵² <https://ecopress.gr/me-dilosi-michanikou-ta-fotovoltaika-sta-chorafia-oi-prothesmies-tou-dedie/>, accessed on 13.02.2021

⁴⁵³ "Production of electricity from biomass: investment opportunities and prospects of development", vision task development consultants, available at <http://www.visiontask.gr/lib/files/resource/8.pdf>, accessed on 13..2.2021

⁴⁵⁴ A. Economou, "Renewable Energy Sources and Sustainable Development in Mykonos (Greece)"(2010), Renewable and Sustainable, Energy Reviews (14), p. 1496-1501

resided there, since they had their properties there and thus they were not in favor of changing the ownership status of those areas, as such change would obviously take place to their detriment⁴⁵⁵.

III. LACK OF AWARENESS AND INFORMATION OR INVALID INFORMATION REGARDING RENEWABLES:

Throughout the years it has been shown that local communities react in a negative way towards the exploitation of renewables, when they have not been adequately informed or when they have received false information regarding renewables, their objective and contribution to both the energy needs of the country as well as to the protection of the environment. For instance, residents of the island of Lesbos seem to be more informed about certain types of renewables such as photovoltaics, as a result of which they approve their usage, while at the same time they seem to be unaware regarding other types of renewables such as geothermal energy, as a consequence of which it, only 9% of them would prefer the installation of geothermal stations in their island⁴⁵⁶. In fact, in accordance with a study that has been conducted in Lesbos, it has been proved that disappointment exists as to the non-participation of people in the decision making process regarding the development of renewables' technologies, which leads inevitably to the existence of unawareness regarding the different types of technologies capable of generating energy⁴⁵⁷.

The lack of general knowledge regarding renewables implies a lack of knowledge as to their individual advantages and positive impacts on the society. One of those advantages is the economic benefits that they endorse, among which is the job positions that they offer both during the phase of their construction, as well as during the phase of their installation and operation⁴⁵⁸. The recognition of those advantages is positively associated with the social acceptance of renewables. Nevertheless, it seems that Greek citizens, especially in the past, have been quite unaware regarding the potential of renewables in contributing to the elimination of the unemployment

⁴⁵⁵ <https://energyexpress.gr/news/katigorimatiko-ohi-sti-geothermia-leei-i-milos> , accessed on 24.02.2021

⁴⁵⁶ A. Kontogianni, C. Tourkolias, M. Skourtos, "Renewables portfolio, individual preferences and social values towards RES technologies"(2013), Energy Policy Journal (55), p. 467-476

⁴⁵⁷ Ibid.

⁴⁵⁸ S.Ntanos, G. Kyriakopoulos, M.Chalikias, G. Arabatzis, M. Skordoulis, "Public perception and willingness to pay for renewable energy: a case study from Greece"(2018), Sustainability Review, Volume 10, Issue 3

that has dominated Greece quite a long period of time now, while they have recognized that this possibility is offered by the stations that generate conventional fuels. This is particularly evident in the case of local peoples' protests that took place in the past in Ptolemaida and Megalopoli, both of which are regarded as the two main lignite areas of Greece⁴⁵⁹. In this context, they demanded the continuation of the exploitation of the relative lignite deposits, because that would guarantee the maintenance of their job positions⁴⁶⁰. Unawareness is further evident in the case of people residing in Evvoia, a place with a long history of social opposition towards renewables. In order for those people to shape a positive attitude towards them, they have demanded to be informed and preferably to have access to available economic data, by virtue of which it could be proved that RES investments can contribute to the financial viability of the said area⁴⁶¹.

⁴⁵⁹ I. Tsigkanou, P. Kinti, "Energy and local communities"(2018), National Centre for Social Research, Institute of Social Research

⁴⁶⁰ Ibid.

⁴⁶¹ D. Boulogiorgou, K. Christopoulos, C. Papapostolou, J. Kaldellis, "Social acceptance of wind parks and photovoltaics in Greece during the period of economic crisis"(2018), available at https://www.researchgate.net/publication/340902468_KOINONIKE_APODOCHE_AIOLIKON_KAI_PHOTOBOLTAIKON_ERGON_S_TEN_ELLADA_TES_OIKONOMIKES_KRISES, accessed on 15.02.2021

(B) INTERCONNECTION BETWEEN THE PREVENTIVE TOOLS EMPLOYED BY THE GREEK STATE AND THE SOCIAL OPPOSITION TOWARDS RENEWABLES

Having acknowledged the factors that are responsible for the causation of social opposition towards renewables in Greece, clarification should be provided upon the reasons responsible for the emergence of those factors in the first place. In this respect, it can be undeniably stated that the Greek spatial planning, the environmental licensing procedure of renewables, as well as the special protective regime underpinning the forest environment, are partially responsible for the emergence of those factors, which lead eventually to the immobilization of RES investments within Greece.

More specifically, the inadequacy that has characterized the Spatial Planning of Greece from its very first beginning in 1976 until the present, in combination with the delays observed in its implementation and revision, leads inevitably to the existence of a great level of uncertainty as to which areas could be regarded without doubt as suitable for the positioning of RES stations. The same is applicable as to the special legislative framework that underpins the forest environment, which endorses a lot of legislative gaps. Even though those gaps have been covered to a great extent by case law, yet again, questions arise (a) as to what criteria need to be fulfilled so as to ensure the permissibility of installing RES projects in areas of increased environmental protection and (b) as to what extent those criteria can be considered as legally binding. It is exactly those uncertainties that have led to the causation of intense reactions from local communities because the latter exploit the lack of detailed regulatory frameworks on those matters, which is unavoidably receptive to many interpretations, by proceeding into unnecessary and unlawful actions of legally challenging the localization of RES projects, hence suspending unreasonably their construction. However, it should be noted that not all cases are like the ones referred above. There are certainly cases where environmental organizations have raised reasonable concerns as to the impact of RES installations on the flora and fauna of environmentally sensible areas, as it has been the case of Andros presented above. Therefore, a solid and unquestionable legislative framework of both spatial planning of renewables and of the environmental licensing procedure is necessitated, because

it would not only guarantee the preservation of the environment through the correct localization of RES projects in all kinds of areas that would be explicitly regarded as permissible by Law, but it would further prevent any groundless actions or consultations on the localization of RES projects, which constitute the main manner for local communities to reveal their social opposition, causing eventually extremely long delays on the realization of the respective investments.

In addition to the above, emphasis should be laid upon another impact of the Greek Spatial planning on the emergence of social opposition. The said institution is characterized by its failure to accomplish one of the most fundamental objectives of its existence as an institution, namely the creation and the maintenance of a balance between "*human desires*" and "*conditions for development*"⁴⁶². Such a failure derives from the fact that local communities do not participate in the creation of spatial planning and as a result they have no say in the said procedure. Inevitably, the lack of their participation leads to the provocation of negative reactions. In this respect, it should be noted that unlike Greece, in other member states of the European Union, local communities play an extremely important role in the creation of a spatial planning, through public consultations⁴⁶³. In this context, they have the competence and the total responsibility for their spatial options and they determine the criteria by virtue of which the localization of RES installations could take place⁴⁶⁴. In this way, inevitably those local communities shape a positive attitude towards the spatial localization of renewable stations and hence, the possibilities of not attempting to immobilize in any possible way the realization of the respective investments, touches upon certainty.

The lack of engagement of local communities, is further apparent, apart from the process of formulating the Greek Spatial planning, in the process of the environmental licensing procedure of RES projects as well. Consequently, similarly as in the above case, it raises the issue of negative reactions as regards to the exploitation of renewables. For instance, the most recent example is the opposition of environmental organizations towards the enactment of the new Law 4685/2020, arguing in this

⁴⁶² A. Gourgiotis, G. Tsilimigas, "*Role of spatial planning in the development of renewables*"(2011), Scientific publication of the Technical Chamber of Greece, Issue I

⁴⁶³ Ibid.

⁴⁶⁴ Ibid.

respect that their opinions were not taken into consideration, especially as to the parts of the Law that concern the environmental licensing⁴⁶⁵. In this context, they are totally opposed to the increase of the number of renewables that are exempted from environmental licensing, as well as to the parts that concern the areas of increased environmental protection and the lack of social participation in the decision making process⁴⁶⁶. It is worth noting that similarly as in the case of spatial planning, in most member states of the EU, as opposed to Greece, either the municipality or the prefecture is the competent authority for the environmental licensing procedure of RES projects, which leads to a great level of acceptance of those projects⁴⁶⁷.

⁴⁶⁵ <https://www.greenpeace.org/greece/issues/perivallon/14562/anakoinosi-perivallontikon-organoseon/>, accessed on 25.02.2021

⁴⁶⁶Ibid.

⁴⁶⁷ A. Gourgiotis, G. Tsilimigas, "Role of spatial planning in the development of renewables"(2011), Scientific publication of the Technical Chamber of Greece, Issue I

**(C) EVALUATION OF GREEK STATE'S ACTIONS IN TACKLING SOCIAL OPPOSITION
TOWARDS RENEWABLES AND REFLECTIONS ON WHAT NEEDS TO BE DONE IN THE
FUTURE**

Given the existence of the aforementioned parameters that enable social opposition, the Greek State has been endeavoring over the years to extinguish them. Indicatively to mention that as regards to the existing lack of knowledge, the Greek state has set as a main objective to raise awareness and increase the level of education, mainly at a local level. In this context, it has been employing different tools so as to enhance knowledge in relation to the job opportunities that arise whilst exploiting renewables. For instance, in the photovoltaic sector a German-Hellenic initiative had been created in the past, known as "Helios", which had promised to offer around 60.000 new jobs⁴⁶⁸. To that end, a lot of campaigns and public promotion programs have been created. For example, around 2008, the National Centre for Renewable Energy Systems (CRES) issued handbooks, whose content consisted of the best practices regarding the installation of different RES projects and it distributed a lot of guidebooks which contained guidelines regarding the installation procedure of such projects, as well as assessments in relation to their environmental impacts⁴⁶⁹.

Indeed, progress has been made and this is particularly obvious if one takes into account the findings of recent researches, in accordance to which the residents of the suburbs of Attica applaud RES projects and they wish to participate in their realization and operation, since they recognize the profitability of the said investments⁴⁷⁰. Yet again, this does not imply that the desirable results have been fully accomplished. This is evident from the fact that up until the present, people are not equally informed about all types of renewables; for instance they seem to have more knowledge about photovoltaics than other types of renewables or those who reside in the provinces seem to have inadequate knowledge about them, in comparison to people who live in the main cities of Greece⁴⁷¹.

⁴⁶⁸ E.Michalena, N.Frantzeskaki, "Moving forward or slowing down? Exploring what impedes the Hellenic Energy transition to a sustainable future"(2013), Technological Forecasting & Social Change Journal, 977-991

⁴⁶⁹ Ibid.

⁴⁷⁰ D. Boulogiorgou, K. Christopoulos, C. Papapostolou, J. Kaldellis, "Social acceptance of wind parks and photovoltaics in Greece during the period of economic crisis"(2018), available at https://www.researchgate.net/publication/340902468_KOINONIKE_APODOCHE_AIOLIKON_KAI_PHOTOBOLTAIKON_ERGON_S_TEN_ELLADA_TES_OIKONOMIKES_KRISES, accessed on 15.02.2021

⁴⁷¹ I. Tsigkanou, P. Kinti, "Energy and local communities"(2018), National Centre for Social Research, Institute of Social Research

In addition, taking into consideration the factors that are partially responsible for the existence of social unrest towards the exploitation of renewables, meaning the preventive tools analyzed in Chapter 3, while acknowledging at the same time that their inherent weaknesses have not been repaired yet, it is crystal clear that the extinguishment of those weaknesses is what would guarantee the elimination of this phenomenon in our country. In this respect, local communities shall at least be involved in the decision making process of the Greek spatial planning and the environmental licensing procedure of renewables, since according to numerous studies that have been conducted in the past, it has been shown that their participation and involvement in those procedures, is positively associated with the acceptance of renewables⁴⁷².

The involvement of local communities shall not be exclusively limited in the process of formulating the Greek spatial planning or during the process of environmental licensing, but it should be further extended to the construction and operation of the RES projects. However, it should be noted that in the case of Greece, the majority of RES stations, as well as all of the relevant technologies, are being constructed abroad⁴⁷³ and this is a particularly problematic issue taking into consideration that the installation of such stations by foreign investors leads inevitably to local communities' non-acceptance, since no benefits are attributed to them. In order to tackle this problematic issue, examinations should be conducted by the competent bodies as to the feasibility of constructing such stations in Greece, especially taking into account that, as it has been shown, the engagement of people in the construction and operation of those stations, implies social acceptance, which in fact, is such that it supersedes any potential aesthetic or of any other nature disturbances that may exist in association with the operation of the said stations⁴⁷⁴. A characteristic example is the case of Denmark, which, in its effort to encourage the participation of citizens and local businessmen in RES projects, it obliges the constructors of wind farms to sell their dividends to local communities⁴⁷⁵.

⁴⁷² A. Tabi, R. Wüstenhagen, "Keep it local and fish-friendly: Social acceptance of hydropower projects in Switzerland" (2017), *Review of Renewable Sustainable Energy* 68, 763–773

⁴⁷³ I. Tsigkanou, P. Kinti, "Energy and local communities" (2018), National Centre for Social Research, Institute of Social Research

⁴⁷⁴ European Economic and Social Committee, "Changing the future of energy: societies as a key factor in energy production by renewable energy resources" (2015), EESC-2014-04780-00-04-TCD-TRA (EN) 98/136

⁴⁷⁵ Ibid.

In addition to the above, the significance of the self-production of renewable energy should be underlined, which has been imposed in Greece, in the context of adopting the EU Directive 2018/2001/EC⁴⁷⁶. The latter should be promoted because among others, it shapes a positive attitude of citizens towards renewables, since they are given the chance to have a say in the new energy policy making, while they contribute in the achievement of the aims that have been set in the context of guaranteeing a successful energy transition⁴⁷⁷. More importantly though, the sources that are available at a local level, are being exploited and utilized to the fullest possible extent, as a result of which they gain a lot of economic profits and in addition to this, large financial resources that were previously spent on importations of fossil fuels, will now be invested in new local jobs, increasing in this way social and economic development⁴⁷⁸.

⁴⁷⁶ Official Journal L 328, 21.12.2018, p. 82–209

⁴⁷⁷ European Economic and Social Committee, *“Changing the future of energy: societies as a key factor in energy production by renewable energy resources”* (2015), EESC-2014-04780-00-04-TCD-TRA (EN) 99/136

⁴⁷⁸ Ibid.

CHAPTER 5: PROSPECTS OF FUTURE UTILIZATION OF RENEWABLES IN GREECE

Despite the existing obstacles as regards to the use of renewables in Greece nowadays, it could be indisputably stated that their future development seems particularly aspiring. As a result of the indispensable need to confront climate change, energy transition constitutes unavoidably a one way solution. This implies the gradual transformation of the energy mix of all countries, including the one of Greece, in the context of which the penetration rate of renewables will be gradually increasing. It has been clearly demonstrated so far, both in Chapters 1 and 2 herein, that a lot of legislative initiatives have been taken in this respect and EU Directives and Regulations have been enacted towards this direction, obliging all EU member states to commit to the implementation of the respective EU legislation in their own domestic legal systems. In this context, it has been underlined that a fundamental condition for a successful energy transition, is the creation of long term energy plans, an obligation that all EU member states bear, as it is explicitly dictated in EU Regulation 2018/1999/EC⁴⁷⁹.

Given the above, in order to formulate a complete view regarding the future of renewables in Greece, attention will be firstly drawn on its own long term energy and climate change plan so as to acknowledge the targets that have been set in this respect, the fulfillment of which the country has the obligation to achieve, thereafter an overview will be made as to the current and future situation of investments in the energy sector, the acknowledgment of which is crucial, taking into consideration that the mobilization of investments constitutes the unique way of guaranteeing the achievement of the aforementioned targets and hence the development of renewables. In this context, emphasis will be laid upon the financial incentives that have been employed so far by the Greek government in the form of state aids, so as to understand the conditions that have enabled or immobilized respectively so far the realization of the respective investments in terms of their financing. Finally, the issue of storing electricity generated by renewables will be touched upon, in an effort to address its determinative role in the future development of renewables within the country.

⁴⁷⁹ Available at <https://eur-lex.europa.eu/eli/reg/2018/1999> , accessed on 01.03.2021

(A) GREEK LONG TERM ENERGY AND CLIMATE CHANGE PLAN OF 2019

In December of 2019, Greece submitted to the European Commission its revised National Plan for Energy and Climate; a strategic plan that presents a detailed road map for the achievement of specific energy and climate objectives for the period between 2021-2030⁴⁸⁰. In particular, by the year of 2030, it sets as a central goal the overall reduction of greenhouse gas emissions at a percentage of over 40% in relation to the year of 1990, while in relation to the year of 2005, the said reduction target is aimed to exceed 50%⁴⁸¹. The main objective regarding renewables is to participate at a rate of at least 35% in the gross final energy consumption, at a rate of at least 60% in the gross final consumption of electricity, at a rate of at least 60% in the sector of heating and cooling, while in the sector of transportation their participation is planned to exceed 14%⁴⁸². Equally important pillars of the said national plan are the achievement of energy savings in final energy consumption, which should reach a rate of at least 30%, as well as the confrontation of energy poverty⁴⁸³. It is highly important to be noted that the said national plan takes into consideration all the existing obstacles regarding the development of renewables and in this respect, it addresses among others, the need to update the current legislative frameworks that underpin both the licensing procedure of renewables, as well as the Greek spatial planning, recognizing in this context that their weaknesses, which are extensively discussed in Chapter 3 herein, constitute fundamental obstacles in the development of this alternative form of energy⁴⁸⁴. Similarly, it underlines the need to develop the special legislative framework for the promotion of energy communities that have already been created and that are considered as an essential tool for the reinforcement of the role that both local communities and consumers play in the energy sector⁴⁸⁵.

With the completion and adoption of the National Energy Plan for Energy and Climate of 2019, the Greek government proceeded with the creation of another long

⁴⁸⁰ It was published in the Official Journal of the Hellenic Republic Issue B 4893/2019

⁴⁸¹ Ministry of Energy and Environment, "National Plan of Energy and Climate", November 2019, available at <http://www.opengov.gr/minenv/wp-content/uploads/downloads/2019/11/%CE%95%CE%B8%CE%BD%CE%B9%CE%BA%CF%8C-%CE%A3%CF%87%CE%AD%CE%B4%CE%B9%CE%BF-%CE%B3%CE%B9%CE%B1-%CF%84%CE%B7%CE%BD-%CE%95%CE%BD%CE%AD%CF%81%CE%B3%CE%B5%CE%B9%CE%B1-%CE%BA%CE%B1%CE%B9-%CF%84%CE%BF-%CE%9A%CE%BB%CE%AF%CE%BC%CE%B1-%CE%95%CE%A3%CE%95%CE%9A.pdf>, accessed on 02.03.2021

⁴⁸² <http://www.opengov.gr/minenv/wp-content/uploads/downloads/2019/11/%CE%95%CE%B8%CE%BD%CE%B9%CE%BA%CF%8C-%CE%A3%CF%87%CE%AD%CE%B4%CE%B9%CE%BF-%CE%B3%CE%B9%CE%B1-%CF%84%CE%B7%CE%BD-%CE%95%CE%BD%CE%AD%CF%81%CE%B3%CE%B5%CE%B9%CE%B1-%CE%BA%CE%B1%CE%B9-%CF%84%CE%BF-%CE%9A%CE%BB%CE%AF%CE%BC%CE%B1-%CE%95%CE%A3%CE%95%CE%9A.pdf>

⁴⁸³ D. Mezartasoglou, K.N. Stampolis, I. Xatzivasiliadis, "The Greek Energy Sector", (2019), IENE Annual Report

⁴⁸⁴ Ibid.

⁴⁸⁵ Ibid.

term strategy plan that concerns the period between 2030-2050 and which presupposes the achievement of the aims set by the year of 2030. This long term strategy was being developed complementarily within the Greek National Plan of 2019 and its aim is to present a range of options available for the development of the energy system from the year of 2030 and onwards, so that energy transition could take place successfully⁴⁸⁶. In this light, it presents different scenarios, providing a flexibility as to the implementation of the measures that could be regarded as the most suitable, depending on the exact energy mix that will have been formulated by that year, as well as on the technical and economic conditions that will prevail by then⁴⁸⁷.

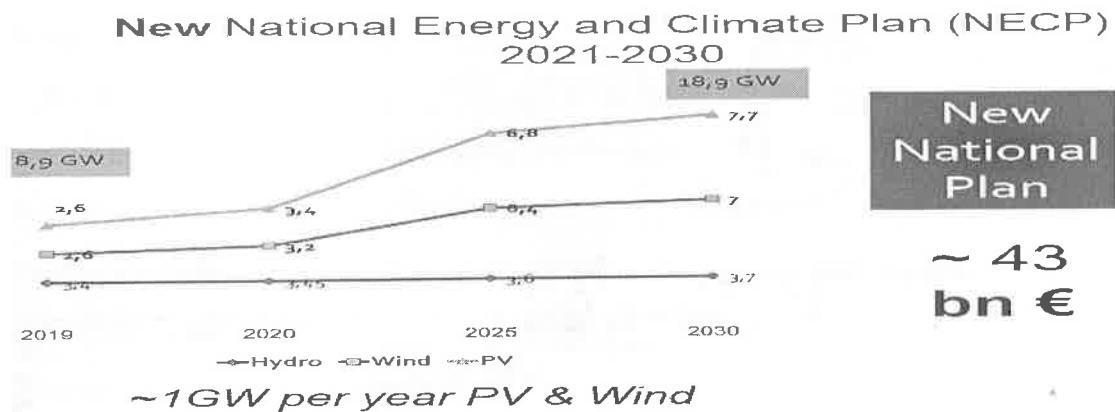
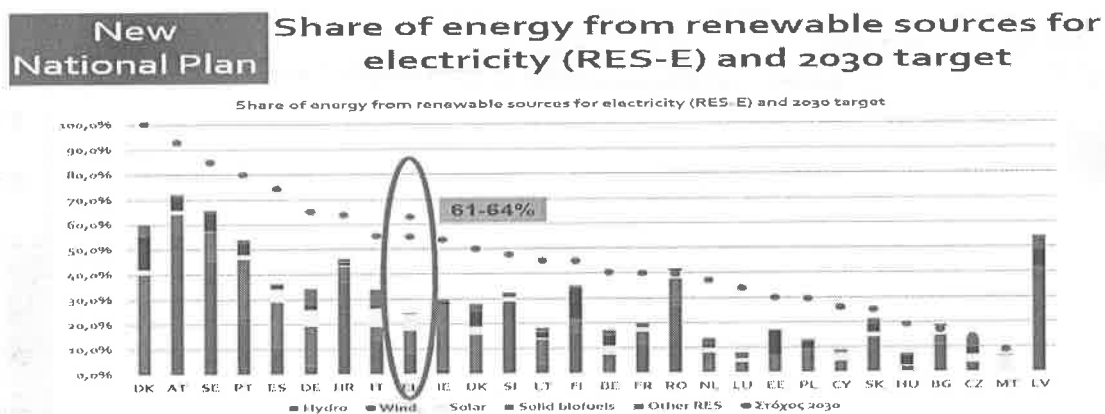
The aforementioned long term energy plans are of particular significance, since they are the main tool for formulating a coherent energy and climate national policy, whose existence is indispensable because without it, the priorities and the developmental opportunities of Greece in the said sector would not have been highlighted and therefore no basis would have been laid down for the realization of the respective investments, by virtue of which, the goals endorsed within those plans will be eventually fulfilled. The 2019 long term energy and climate national plan, may not be perfect, as it has received comments of reflecting exclusively the specifications decided in Brussels by dealing excessively with the reduction of greenhouse gas emissions and the promotion of renewables, hence ignoring the peculiarities of the country and in particular the fact that around 67% of the final energy consumption is covered currently by the use of hydrocarbons⁴⁸⁸. Indeed, its potential review in the future would seem ideal, so as to endorse as well a detailed plan regarding the management of all conventional fuels that dominate currently in the Greek energy mix, because a strategic and organized reduction of their share in the Greek energy balance, would complement the existing management plan and it would make the latter more productive, thus guaranteeing its successful implementation. Nevertheless, despite the above, it shall not be neglected that the 2019 national plan

⁴⁸⁶ <https://ypen.gov.gr/energeia/esek/lts/>, accessed on 02.03.2021

⁴⁸⁷ Ibid.

⁴⁸⁸ Ministry of Energy and Environment, "National Plan of Energy and Climate", November 2019, available at <http://www.opengov.gr/minenv/wp-content/uploads/downloads/2019/11/%CE%95%CE%B8%CE%BD%CE%B9%CE%BA%CF%8C-%CE%A3%CF%87%CE%AD%CE%B4%CE%B9%CE%BF-%CE%B3%CE%B9%CE%B1-%CF%84%CE%B7%CE%BD-%CE%95%CE%BD%CE%AD%CF%81%CE%B3%CE%B5%CE%B9%CE%B1-%CE%BA%CE%B1%CE%B9-%CF%84%CE%BF-%CF%9A%CE%BB%CE%AF%CE%BC%CE%B1-%CE%95%CE%A3%CE%95%CE%9A.pdf>, accessed on 02.03.2021

has been conducted with professionalism and high scientific competence and therefore it is undeniably regarded as a decent starting point for the realization of the endeavor to achieve the aspired energy transition. In fact, if the targets endorsed within it are achieved with success, then the future image of Greece in the energy sector, could reflect a reduction of greenhouse gases by 80%-95% compared to 1990 emission levels and a total penetration of RES at a rate of 60% to 70% in the gross final energy consumption⁴⁸⁹. In fact, in accordance with findings of recent researches that were conducted on the basis of the aforementioned national plan on energy and climate, it is estimated that the total RES capacity will grow by 61-64%, with photovoltaics enjoying the greatest use, as it is shown in the figures below:



Source: <http://www.rae.gr/old/en/>

⁴⁸⁹ "National Energy Planning, road map for 2050" (2012), available at <http://www.opengov.gr/minenv/wp-content/uploads/downloads/2012/04/energeiakos-sxediasmos.pdf>, accessed on 02.03.2021

(B) OVERVIEW OF INVESTMENTS IN THE GREEK ENERGY SECTOR

A successful energy transition, which would entail the maximum possible use of renewables, could only be guaranteed with the mobilization of investments in the said sector of energy. In fact, in accordance with researches conducted in the past, in order for states to fulfill their respective obligations, as they are outlined within their national energy and climate plans and in order to eventually curb the average global temperature rise to less than 2 Celsius, an obligation undertaken by 195 states and Europe in the context of the 2015 Paris Agreement on Climate Change, it would require universally around 25 trillion dollars to be spent in the sector of renewables⁴⁹⁰. The aforementioned investment amounts are expected to derive mainly from the private sector, taking into consideration that during the last years, state funding ranges usually at a percentage of only 12%-15% of the total cost of investments⁴⁹¹. As far as Greece is concerned, it is worth noting that in order to achieve its long-term goals, it requires investments of around 0.8-1.2 billion euros per year for the period between 2021 and 2050⁴⁹².

(I) EVOLUTION OF THE SUPPORT-SCHEMES EMPLOYED BY THE GOVERNMENT FOR THE FACILITATION OF INVESTMENTS IN THE RES SCETOR

Despite the enormous potential of Greece to develop different forms of renewable energy sources, the level of engagement in RES projects has been rather low, especially in the past, due to the requirement of high capitals in order to realize those projects, as well as the existence of various investment risks. For this reason, as it has been analytically demonstrated in Chapter 2 herein, the Greek State enriched from a very early stage its energy policy with various types of incentives in order to provide the needed support and funding, such as but not limited to the support schemes of feed-in-tariffs, feed-in premiums, as well as the competitive procedures (tenders). Nevertheless, as it has been made obvious so far, certain of those supporting schemes, instead of facilitating the financing of new RES investments, they have turned out to undermine the investment environment, by creating distortions in the energy market,

⁴⁹⁰ IRENA & CPI, "Global Landscape of renewable energy finance" (January, 2018)

⁴⁹¹ Ibid.

⁴⁹² Ibid.

as has happened characteristically with the case of the fixed-in-tariffs⁴⁹³. In particular, in accordance to the latter, RES producers upon selling the electricity generated by their stations to either the Hellenic electricity distribution network operator (hereinafter "HEDNO") or to the Hellenic electricity transmission system operator (hereinafter "HETSO"), they were offered in return a guaranteed sale price of the energy produced, which was not dependent upon the market price and which remained stable for a period of around 15-20 years (during which the respective contract would be in force)⁴⁹⁴. An integral part of this support scheme was the creation of a special account for RES, from which, either HEDNO or HETSO was receiving the money payable to RES producers. However, that account resulted in having a huge deficit, known as the "EMO deficit"⁴⁹⁵, which amounted to more than 200 million Euros and which is responsible for the delayed payment to power producers, causing a ripple effect throughout the energy sector that is further amplified by the economic crisis⁴⁹⁶. The weaknesses of the aforementioned support scheme necessitated State's intervention over the years, as it happened indicatively with Law 3468/2006, by virtue of which different tariffs started to be employed for different technologies of RES⁴⁹⁷ or with Law 4001/2011 in the context of which the guaranteed prices for RES producers were reduced in order to restrain the "EMO deficit"⁴⁹⁸.

However, the aforementioned modifications were not adequate and subsequently, after the issuance of EU guidelines on state aid in the sectors of environment and energy (2014-2020)⁴⁹⁹, the said support scheme was replaced in 2016 by the support scheme of feed-in-premium⁵⁰⁰. Such a replacement was deemed as imperative since it aimed to alleviate part of the aforementioned deficit, it would guarantee the fulfilment of the 2020 targets that had been already set in the energy sector and it would ensure a shift towards a liberalized electricity market, in the context of which the completely unnecessary state aids would be henceforth avoided so that the

⁴⁹³ T.D.Couture, C.Kreyick,K.Cory, E.Williams, "A policymaker's guide to feed-in-tariff policy design"(July, 2010), US National Renewable Energy Laboratory (NREL) Technical Report

⁴⁹⁴ Article 37 of Law 2773/1999,

⁴⁹⁵ Article 40 of Law 2773/1999

⁴⁹⁶ «RES special account deficit deepening, producers eyed»(October, 2020), available at <https://energypress.eu/res-special-account-deficit-deepening-emergency-producer-charge-considered/>, accessed on 10.03.2021

⁴⁹⁷ J.D.Mondol, N.Koumpetsos, "Overview of challenges, prospects, environmental impacts and policies for renewable energy and sustainable development in Greece"(2013), Renewable and Sustainable Energy Review 23, 431-442

⁴⁹⁸ E. Giannini, A.Moropoulou, Z.B.Maroulis, «Penetration of photovoltaics in Greece"(2015), Energies Journal, 8, 6497-6508

⁴⁹⁹ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0628%2801%29> , accessed on 9.3.2021

⁵⁰⁰ The support scheme of feed-in-premium was introduced with Law 4414/2016

consumers would not be burdened anymore with high costs, as it was the case with the feed-in-tariffs⁵⁰¹. In accordance with the feed-in-premium, RES producers are able to sell the electricity generated by their stations directly to the energy market, while they acquire support in the form of a premium that is offered above the market price of electricity⁵⁰². As of 1st January of 2017 the feed-in-premium is granted through the competitive procedures of the submission of bids (tenders)⁵⁰³. The latter was introduced so as to facilitate price transparency, to reduce the existing distortions within the energy market and to enhance the competition within it. Indeed, this has been successfully achieved taking into consideration that the Ministry of Environment and Energy through the publication of the yearly amounts of capacity per technology, allows different RES producers to participate in the said market⁵⁰⁴. In addition, one of the most fundamental motivations for the implementation of auctions, which derived from the existing economic crisis, was the reduction of the (support) costs for the deployment of RES and therefore the costs burdened by the consumers; a goal that has been achieved so far with success⁵⁰⁵.

The implementation of different support schemes over the years signals the efforts of the Greek Government to create the most suitable conditions within the energy market in order to enable the realization of the respective investments. Indeed, through the detection of their disadvantages and the deployment of new support schemes over the years, it is clear that positive steps are being made towards that direction. Unavoidably, this has an impact on the number of investments that are being conducted on a yearly basis and it has been observable that with the passage of the years, such number is gradually being increasing. An indicative example is the year of 2017, when around 760 million euros were invested in Greece in the sector of RES, which is equivalent to an increase of 287% compared to the corresponding investments of 2016⁵⁰⁶.

⁵⁰¹ T.D.Couture, C.Kreyick,K.Cory, E.Williams, "A policymaker's guide to feed-in-tariff policy design"(July, 2010), US National Renewable Energy Laboratory (NREL) Technical Report

⁵⁰² Articles 3 and 6 of Law 4414/2016

⁵⁰³ Article 7 of Law 4414/2016

⁵⁰⁴ V.Anatolitis, "Auctions for the support of renewable energy in Greece: Main results and lessons learned"(2019), AURES (European Research project on auction designs for renewable energy support in EU MS), available at http://aures2project.eu/wp-content/uploads/2020/03/AURES_II_case_study_Greece.pdf, accessed on 9.3.2021

⁵⁰⁵ Ibid.

⁵⁰⁶ IRENA & CPI, "Global Landscape of renewable energy finance"(January, 2018)

(II) INDICATIVE PICTURE OF CURRENT AND FUTURE INVESTMENTS

A lot of investments are being conducted at the moment and many more will take place in the future in the field of renewable energy. In this context, a lot of investments are being planned so as to achieve one of the most emblematic goals of the Greek long term national plan on energy and climate; the one of re-lignification. A program is currently being operated, known as the program on the fair transition of lignite plants, whose objective is the gradual reduction of the share of lignite in the electricity generation system so that in the year of 2028 it could reach to its complete disengagement from the system⁵⁰⁷. To that end, indicatively to mention that, among others, there have already been submitted numerous investment plans relating to the installation of RES stations in both Western Macedonia and Megalopolis; the two main lignite areas of Greece⁵⁰⁸. For instance, in Western Macedonia PPC has already under construction photovoltaic parks with installation capacity of 230 MW, investments worth of around 133 million euros and is further interested in engaging in the construction of an additional photovoltaic park of installation capacity of 1.7 GW⁵⁰⁹. Similarly, in Megalopolis, PPC is engaged in the construction of photovoltaic parks of installation capacity of 0.5 GW, which are currently under development⁵¹⁰. In this respect, the Greek Government has stated that the number of job positions to be created, will supersede the number of the job positions that will be lost as a result of the interruption of the lignite power generation by PPC, highlighting that some of those investments are capable of offering jobs to around 8.000 people⁵¹¹.

It should be noted that the government makes endeavors so as to provide numerous incentives to potential investors so that they could engage more easily with the respective investments. In this context, it has filed a proposal to the European Commission in accordance to which, it suggests the percentages of the aid to be

⁵⁰⁷Ministry of Energy and Environment, "National Plan of Energy and Climate", November 2019, available at <http://www.opengov.gr/minenv/wp-content/uploads/downloads/2019/11/%CE%95%CE%B8%CE%BD%CE%B9%CE%BA%CF%8C-%CE%A3%CF%87%CE%AD%CE%B4%CE%B9%CE%BF-%CE%B3%CE%B9%CE%B1-%CF%84%CE%B7%CE%BD-%CE%95%CE%BD%CE%AD%CF%81%CE%B3%CE%B5%CE%B9%CE%B1-%CE%BA%CE%B1%CE%B9-%CF%84%CE%BF-%CE%9A%CE%BB%CE%AF%CE%BC%CE%B1-%CE%95%CE%A3%CE%95%CE%9A.pdf>, accessed on 02.03.2021

⁵⁰⁸ Ministry of Environment and Energy, "Just transition development plan of lignite areas"(2020), available at https://www.sdam.gr/sites/default/files/consultation/Master_Plan_Public_Consultation_ENG.pdf, accessed on 9.3.2021

⁵⁰⁹ *ibid.*

⁵¹⁰ Ministry of Environment and Energy, "Just transition development plan of lignite areas"(2020), available at https://www.sdam.gr/sites/default/files/consultation/Master_Plan_Public_Consultation_ENG.pdf, accessed on 9.3.2021

⁵¹¹ *ibid.*

provided to businesses engaging in the said sector, the exact amount of which would depend upon the area at which the investments will take place, as well as on the size of each business⁵¹². For instance, in the region of Western Macedonia and Megalopolis, the aid would reach to a percentage of 40% for large businesses, 50% for medium businesses and 60% for small businesses⁵¹³.

Investments are also being planned to take place in the future, among others, as regards to the storing of electricity generated by renewables, an issue of critical importance in relation to the future development of RES, hence its presentation below.

⁵¹² Ministry of Environment and Energy, "*Just transition development plan of lignite areas*"(2020), available at https://www.sdam.gr/sites/default/files/consultation/Master_Plan_Public_Consultation_ENG.pdf, accessed on 9.3.2021

⁵¹³ *ibid.*

(C) FUTURE STORAGE OF ELECTRICITY GENERATED BY RENEWABLES

A high rate of penetration of renewables into the Greek energy system could only be achieved upon the insurance of the existence of sufficient capacity for energy storage. This necessity derives from the limited flexibility of the current electricity generation system and the weak interconnections between the mainland area and islands, as a result of which the said system does not have the capacity to absorb high quantities of renewables such as wind and solar power for instance, despite their abundant availability in many areas of the country⁵¹⁴. In fact, in accordance with researches conducted in the past, RES will be inevitably discharged from the network in the future, as those discharges will be increased in proportion to the penetration rate of renewable in the energy system, reaching or even exceeding a percentage of 35% by 2050⁵¹⁵. Therefore in order to assure the expected development of renewables by 2050 without significant percentages of wasted energy, it will be needed storage of capacity of 1GW by the year 2020 and of installation capacity between 2 to 5 GW by the year of 2050⁵¹⁶.

The option of storing electricity in the past seemed particularly difficult and even unfeasible, due to the few technologies that existed, as well as due to their extremely high cost. Nonetheless, positive steps are being made over the years with the constant evolution of technology, which has led to the existence of a variety of different technologies such as but not limited to flywheels, supercapacitors, magnetic field energy storage systems via superconducting coil, pump storage or compressed air energy storage⁵¹⁷. The wide range of technologies available at the moment has resulted in the decrease of their cost, which, in accordance with researches, will continue to be gradually decreasing in the future, reaching a percentage of 70% decrease in the next 15 years⁵¹⁸.

⁵¹⁴ I. Anagnostopoulos, D. Papantonis, "Assessment of future needs of energy storage in the electrical system of Greece" (2013), also available at https://www.store-project.eu/documents/target-country-results/en_GB/energy-storage-needs-in-greece-executive-summary-in-greek, accessed on 06.03.2021

⁵¹⁵ I. Anagnostopoulos, D. Papantonis, "Energy storage to support large RES integration in Greece: Current policy, legislation, and investment prospects", (2012), Renewable Energy / PowerGen Europe, Cologne, Germany.

⁵¹⁶ I. Anagnostopoulos, D. Papantonis, "Assessment of future needs of energy storage in the electrical system of Greece" (2013), also available at https://www.store-project.eu/documents/target-country-results/en_GB/energy-storage-needs-in-greece-executive-summary-in-greek, accessed on 06.03.2021

⁵¹⁷ Ibid.

⁵¹⁸ «Storage of energy generated by renewables: decrease of cost at a percentage of 70% by 2030» (2016), available at <https://solarbay.gr/2016/01/%CE%B1%CF%80%CE%BF%CE%B8%CE%AE%CE%BA%CE%B5%CF%85%CF%83%CE%B7-%CE%B5%CE%BD%CE%AD%CF%81%CE%B3%CE%B5%CE%B9%CE%B1%CF%82-%CE%B1%CF%80%CE%B5-%CE%BC%CE%B5%CE%AF%CF%89%CF%83%CE%B7-70/>

Of all the available technologies that can be applied for storing electricity nowadays, the hydroelectric pumping storage units are currently regarded as the most mature and reliable technology for large-scale energy storage, which is particularly suitable for the topology of Greece and therefore it is considered so far the best techno-economic solution⁵¹⁹. The existing pairs of hydroelectric power stations with reservoirs, operating in different parts of the mainland system, are the most suitable locations for the installation of new pumping storage units, since they require exclusively the construction of the pumping stations and the connecting pipeline of the neighboring reservoirs⁵²⁰. Indeed, in the past the European Commission had identified at least 44 areas with pump storage capacity, found indicatively in the islands of Crete, Rhodes and Lesvos⁵²¹. In fact, until the present, there have been submitted a lot of applications to the national Energy Regulatory Authority for the acquirement of a generation license for pumping storage units.

In addition to the aforementioned technology, it is noteworthy that there is a lot of potential of storing electricity in the future through the use of lithium ion batteries, which can be placed in the household photovoltaic systems, by means of which self-consumers can generate electricity⁵²². Self-consumption of electricity is regarded as a fundamental pillar of the promotion of renewables worldwide, since it was introduced with EU Directive 2018/2001/EC⁵²³, which has been implemented recently in Greece by Law 4685/2020⁵²⁴.

However, despite the potential of Greece with regards to storage opportunities, there is an enormous obstacle in exploiting the said potential, which is no other than the lack of legislative framework underpinning the matter upon discussion. This problem is owed to the fact that the EU itself has not proceeded in the first place in

⁵¹⁹ «Storage of energy generated by renewables: decrease of cost at a percentage of 70% by 2030»(2016), available at <https://solarbay.gr/2016/01/%CE%B1%CF%80%CE%BF%CE%B8%CE%AE%CE%BA%CE%B5%CF%85%CF%83%CE%B7-%CE%B5%CE%BD%CE%AD%CF%81%CE%B3%CE%B5%CE%B9%CE%B1%CF%82-%CE%B1%CF%80%CE%B5-%CE%BC%CE%B5%CE%AF%CF%89%CF%83%CE%B7-70/>

⁵²⁰ Ibid.

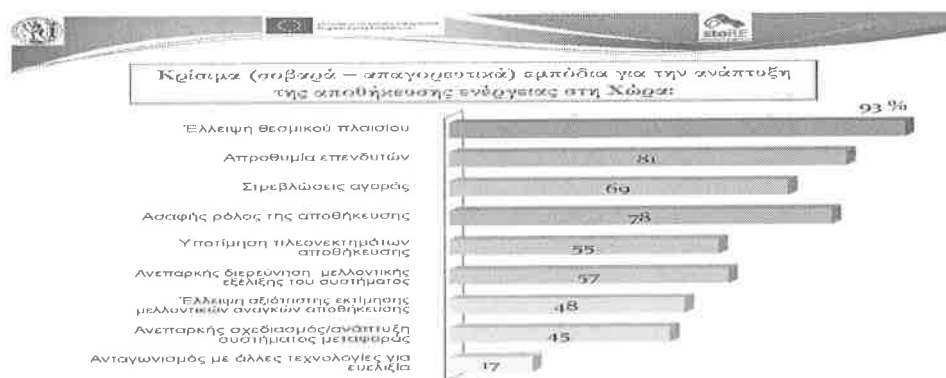
⁵²¹ J. Anagnostopoulos, D.Papantonis, "Overview of electricity system status and its future development scenarios – assessment of the energy storage infrastructure needs"(2013), Report supported by "Intelligent Energy Europe", available at https://www.store-project.eu/documents/target-country-results/en_GB/energy-storage-needs-in-greece, accessed on 10.3.2021

⁵²² I.Anagnostopoulos, D.Papantonis, "Assessment of future needs of energy storage in the electrical system of Greece"(2013), also available at https://www.store-project.eu/documents/target-country-results/en_GB/energy-storage-needs-in-greece-executive-summary-in-greek, accessed on 06.03.2021

⁵²³ Official Journal L 328, 21.12.2018, p. 82–209

⁵²⁴ Official Journal of the Hellenic Republic, Issue A' 92/2020

the enactment of a Regulation or Directive in this respect, which would regulate exclusively all issues pertaining to the storage of energy, so that the EU member states would be obliged in their own turn to implement the respective legislation in their own legal systems. As a consequence of this, a lot of projects relating to the installation of hybrid stations that are to be accompanied with storage facilities, have already acquired generation and installation licenses, under the provisions of Law 3468/2006, which provide for the licensing framework and for the operation of hybrid stations⁵²⁵, nevertheless all of those projects remain trapped as to the operation of their storage facilities. Indicatively to mention that some of those projects are the emblematic investments made by “Terna Energeiaki” for the pump storage projects in Amfilochia with installation capacity of 680 MW; a project of common interest that has been characterized as a Hellenic Strategic Investment and is integrated in the plan of interconnecting electricity between North and South of Europe⁵²⁶, as well as the investments of “Eunice”, for the creation two large scale energy stations in Western Macedonia and Megolopoli, both worth of around 600 millions euros⁵²⁷. The gravity of the problem imposed by the lack of the respective institutional framework is clearly demonstrated in following graph, which shows the findings of recent researches conducted with the aim to detect the main obstacles towards the development of electricity storage in the future, according to which the said issue represents with a percentage of 94% the first impediment in such a development.



Source: “Storage of energy in the Hellenic Electricity System with a view towards 2050: needs, obstacles and required actions”
<https://www.store-project.eu>

⁵²⁵ Indicatively articles 6,8,9 of Law 3468/2006

⁵²⁶ “Hydro pumped storage Amfilochia (PCI 3.24)”, available at http://hps-amfilochia.gr/wp-content/uploads/2015/12/TERNA-ENERGY_HPS_AMF_brochure_v1.pdf, accessed on 11.03.2021

⁵²⁷ “Battery energy storage systems”, available at <https://eunice-group.com/projects/battery-energy-storage-system-bess/>, accessed on 12.03.2021

However, despite the fact that a lot of large scale investments have been immobilized due to the aforementioned reason, the positive part is that the Greek State has acknowledged the existing problem and how the latter interconnects with the impediment of RES' development. As a result of this, RAE has submitted its proposals to the Ministry of Environment and Energy regarding the scheduling of the operation and licensing of storage units, while the latter is currently processing those proposals, aiming at the completion of the respective legislative framework the soonest possible⁵²⁸.

The issue of storing electricity generated by renewables in the future is of particular significance because apart from guaranteeing the exploitation of renewables to the maximum possible extent in the future, it further endorses other advantages as well. One of them is the fact that it provides the much-needed security of supply and interdependence of the country in the energy field. In this context, non-interconnected islands acquire their own independence, as it has been the case with Tilos Island, where the first innovative hybrid system was installed in 2017, which included a wind turbine, photovoltaic and energy storage batteries⁵²⁹. In addition to this, the storage of electricity generated by renewables enables the creation of a balance between demand and supply, as a result of which the cost of energy will be low and hence affordable by the majority of the Greek citizens⁵³⁰. This is of high importance taking into consideration that nowadays, in times when demand exceeds supply, amounts of LNG are imported emergently, leading in this way to the high cost of energy. Therefore, the storage of electricity will contribute extensively to the avoidance of such situations, extinguishing the phenomenon of energy poverty that is dominant within the country.

⁵²⁸ "Energy storage framework, support system in progress"(February, 2021), available at <https://energypress.eu/committee-working-on-energy-storage-legal-framework-support-system/>, accessed on 15.03.2021

⁵²⁹ G. Notton, M-L Nivet, D. Zafirakis, F. Motte, C. Voyant, A. Fouillo, C. Paoli, "Tilos, the first autonomous renewable green island in Mediterranean: A horizon 2020 project" <file:///Users/vera/Downloads/Tilos,%20the%20first%20autonomous%20renewable%20green%20island%20in%20Mediterranean%20A%20Horizon%202020%20project.pdf>

⁵³⁰ M.G.Korpos, L.Zentko, C.Hegyfalvi, G.Detzky, P.Tildy, N.H.Baranyai, G.Pinter,H.Zsiborau, "The role of electricity balancing and storage: developing input parameters for the European calculator for concept modeling"(January, 2020), Sustainability Journal (12), 811

D. CONCLUSIVE REMARKS

To sum up, Greece has for the first time since 2019 its first national long term energy policy, an indispensable tool in order to create an organized plan as to the way with which energy transition could be secured. From 1994 until the present, the government has deployed several support schemes in order to motivate investors in engaging in this field, with the aim of facilitating their investments. Those support schemes have been differentiated over the years and the current ones endorse indeed a lot of advantages by enabling the conduct of investments. The project of re-nification is indicatively presented as one of the main investment plans aiming at achieving the expected targets as regards to the penetration of renewables in the Greek energy balance and a lot of steps have been made so far towards this direction. Finally, the possibility of storing electricity generated by renewables in the future will play a determinative role in achieving the much aspired energy transition and such a possibility can become a reality, taking into consideration that technology no longer constitutes an obstacle towards its realization. At the same time, the creation of a legislative framework upon the said matter, will enable both the licensing and the operation of the respective projects, hence removing the existing barriers.

CONCLUSION

As a result of the highly recognizable significance of the need to preserve the environment and the fact that energy matters have been integrated in a wider context of balancing the strongly interconnected and interdependent parameters of economic development and the protection of the environment, which has led in its own turn to the adoption of the notion of “*sustainable development*”, the promotion of the use of Renewable Energy Sources has been considered as one of the most fundamental pillars of the EU energy policy.

However, in spite of the availability of abundant renewable energy sources in Greece, it has been clearly demonstrated that the path of the country towards a sustainable future, in the context of which its energy mix would be changed to a great extent so as to permit the maximum possible penetration of renewables into it, has been rather difficult. Numerous obstacles exist that impede the much aspired and needed energy transition of the country, so as to tackle climate change and correspond to the international obligations that it has undertaken in this respect. Among those obstacles, are also the preventive tools that the Greek State has been employing in the context of exercising its constitutionally guaranteed obligation, which derives from the international principles of prevention and precaution respectively and which is no other than the one of taking preventive action so as to integrate the parameter of environmental protection into all developmental activities. It is those preventive tools that have been partially responsible for the existence of environmental concerns, as well as the lack of adequate knowledge about renewables, hence contributing partially and indirectly to the generation of social opposition towards the latter; a dominant phenomenon in Greece that has had an impact over the years on hindering the development of this alternative form of energy. The positive though aspect as regards to this phenomenon is that the Greek State has been taking a lot of initiatives in order to eliminate it, making thus considerable progress towards that direction.

Despite the existing difficulties, it shall not be neglected the fact that the last 35 years, the national legislative framework that underpins the promotion of the use of

renewables, has been constantly evolving, by regulating a variety of aspects that are associated with the development of renewables. In spite of the existing deficiencies of the said legislative framework, such as indicatively its bureaucratic nature, it is noteworthy that constant endeavors are being made up until the present through modifications of the respective legislation, with the aim to create the most ideal conditions that could facilitate to the maximum possible extent the actualization of energy investments. This has been particularly true with regards to the licensing procedure of RES projects, part of which is their environmental licensing as well. In this respect, it should be highlighted for once more that the competent administrative authorities shall implement the newly established legislative framework introduced with Law 4685/2020, because in this way this preventive tool will manage to actually facilitate RES investments, while for the first time in a lot of decades now, it will be assured that one of the most fundamental impediment towards RES development will be finally eliminated.

Nevertheless, taking into consideration the weaknesses entailed in the rest of the analytically presented in Chapter 3 tools that the Greek State has been employing the context of exercising its constitutional duty of taking preventive action, it is undeniable that there is still space for further modifications upon the respective legislative frameworks. As it has already been proposed, the revision of both the special legislative regime that underpins the forest environment, as well as of the one that regulates the spatial planning and in particular the framework that relates to the establishment of RES facilities, is deemed as imperative because it will not only facilitate the actualization of RES investments, but it will further lead to the realization of the reason that has necessitated in the first place the employment of such preventive action; meaning the integration of the parameter of the environment's preservation to all developmental activities, without the value of the one parameter superseding the value of the other. In addition to the above, upon such revision, social opposition towards renewables will be considerably eliminated, because the restored clarity will prevent local communities from challenging the lawfulness of the spatial localization of RES projects, since a lot of legal actions have taken place on the basis of uncertainty and ambiguity that exists in this respect.

As to the current rate of renewables' exploitation in Greece, it has been shown that it is undoubtedly higher comparing to the past and this has been enabled by the gradual liberalization of the Greek energy market, in the context of which the EU target model was implemented recently by restructuring the Greek electricity market and providing for better conditions under which renewables can further penetrate into the energy system. In this context, it is worth underscoring the determinative role of RAE in making constant endeavors over the years so as to create a liberalized national energy market, which would be driven by competitiveness and without any market distortions whatsoever. RAE through its supervision of the energy market, its duty of reorganizing the structure of it, its responsibility of organizing the recently established competitive procedures that determine the establishment of RES facilities while providing to RES producers the support aid of feed-in-premium and by virtue of lots more of other actions in the sector of renewables, as they have been analytically presented in Chapter 2 herein, has contributed dramatically to their development.

The future development of renewables within the country seems even more aspiring, taking into consideration all the investments that are currently being realized or those that are already being planned to take place in the future. A characteristic example is the high investment mobility that is observable in the context of achieving by the year of 2028 the complete disengagement of lignite from the Greek energy system. At the same time, the potential of the country to store electricity produced by renewables in the future, which is facilitated with the availability of a variety of technologies, less expensive than those existing in the past, will contribute dramatically to the development of renewables, under the condition though of creating soon the much needed legislative framework on that matter. In addition to the above, the existence of new support schemes that enhance competition in the energy market, which do not entail the deficiencies of the previously provided ones, certainly motivate RES producers to engage in the said sector.

To conclude, it is the combination of all the above parameters that are being presented indicatively, which generates positivity as to the fulfillment of the targets that Greece has set in its 2019 Long Term Plan on energy and climate change, hence strengthening the optimism as regards to a successful pathway towards a sustainable development, in the context of which economic development will coexist with the

preservation of the environment, without the first acting as an inhibitor towards the latter and vice versa.

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