KM3NeT –INFRADEV – H2020 –739560

Report on legal issues	
KM3NeT –INFRADEV GA DELIVERABLE: D10.02	
Document identifier	KM3NeT-INFRADEV-WP10-D10.02
Date:	24/07/2018
Work package:	WP10
Lead partner:	NCSR-D
Document status:	Final
Dissemination level:	Public
Document link:	

Abstract

The document reports on the legal issues related to the activities in the three countries hosting KM3NeT sites, in order to make KM3NeT a Zero Carbon footprint research infrastructure. We present the relevant issues for each country. We conclude that according to the legal framework in each case, no real adverse issues exist.

I. COPYRIGHT NOTICE

II. DELIVERY SLIP

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Reviewed by	A. Capone	INFN	23/07/2018
Approved by	PMB, IB		30/07/2018

III. DOCUMENT LOG

Issue	Date	Comment	Author/Partner
1	28/06/2018	Draft circulated to reviewer, coordinator	NCSR-D
2	24/07/2018	Document after reviewer's comments	NCSR-D
3	06/08/2018	Final document after PMB comments	NCSR-D

IV. APPLICATON AREA

This document is a formal deliverable for the GA of the project, applicable to all members of the KM3NeT– INFRADEV project, beneficiaries and third parties, as well as its collaborating projects.

V. TERMINOLOGY

A project glossary is providedbelow:

AoEC	Approval of Environmental Conditions
C.C.	Civil Code
CMD	Common Ministerial Decision
CNRS	Centre National de la Recherche Scientifique
CoS	Council of State
DL	Legislative Decree
D.Lgs	Decreto *Legislativo*
D[nr.]	Deliverable
EC (CE)	European Comission
EMO	Electricity Market Operator
EnvIS	Environmental Impact Study
EU	European Union
G.G.	Government Gazette
GRD	Greek drachmas
GSoET	Greek System of Electricity Transmission
HECH&P	High Efficiency Combined Heat and Power
HEDN	Hellenic Electricity Distribution Network
HEDNO	Hellenic Electricity Distribution Network Operator
INFN	Instituto Nationale di Fysica Nucleare
IPTO SA	Independent Power Transmission Operator Societe Anonyme
KM3NeT	Cubic Kilometer neutrino telescope
kW	kilo Watt
kWp	kilo Watt power
LEoPL	Legal Entity of Public Law
MD	Ministerial Decision
MW	mega watt
MWe	Mega watt equivalent
MWp	Mega watt power
N.	Law
NCSRD	National Center for Scientific Research “Demokritos”
PD	Presidential Decree
POR	Programmi Operativi Regionali
PPC S.A.	Public Power Corporation SocieteAnonyme
PPP	Private public partnership
PV	Photovoltaic
RAE	Regulatory Authority for Energy
REI	Renewable Energy Infrastructure
RES	Renewable Energy Sources
RnE	Renewable Energy
WP[nr.]	Work Package

VI. LIST OF FIGURES

VII. PROJECT SUMMARY

KM3NeT is a large Research Infrastructure that will consist of a network of deep-sea neutrino telescopes in the Mediterranean Sea with user ports for Earth and Sea sciences. Following the appearance of KM3NeT 2.0 on the ESFRI roadmap 2016 and in line with the recommendations of the Assessment Expert Group in 2013, the KM3NeT-INFRADEV project addresses the Coordination and Support Actions (CSA) to prepare a legal entity and appropriate services for KM3NeT, thereby providing a sustainable solution for the operation of the research infrastructure during ten (or more) years. The KM3NeT-INFRADEV is funded by the European Commission's Horizon 2020 framework and its objectives comprise, amongst others, activities on the preparation for establishing KM3NeT as a Zero Carbon Footprint research infrastructure (work package 10).

VIII. EXECUTIVE SUMMARY

The main goal of WP10 of the KM3NeT-INFRADEV project is to prepare for the establishment of KM3NeT as a Zero Carbon Footprint research infrastructure. The current second deliverable of WP10, examines the legal framework under which the establishment of a renewable energy infrastructure can be accomplished in each country. Even under different implementation schemes, no significant legal bottlenecks are identified.

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1. Introduction

KM3NeT, the large Research Infrastructure (RI) that willhost the latest generation of deep-seaneutrino detectors in the Mediterranean Sea,will open a new window on our Universe, but also advance the research into the properties of neutrinos. KM3NeT will be a distributed infrastructure with deep-sea instrumentation east of the Sicilian Coast (Italy), south of Toulon (France) and off the South-West coast of Peloponnese (Greece) (Figure 1). The main science objectives, a description of the technology and a summary of the costs are presented in the KM3NeT 2.0 Letter of Intent.

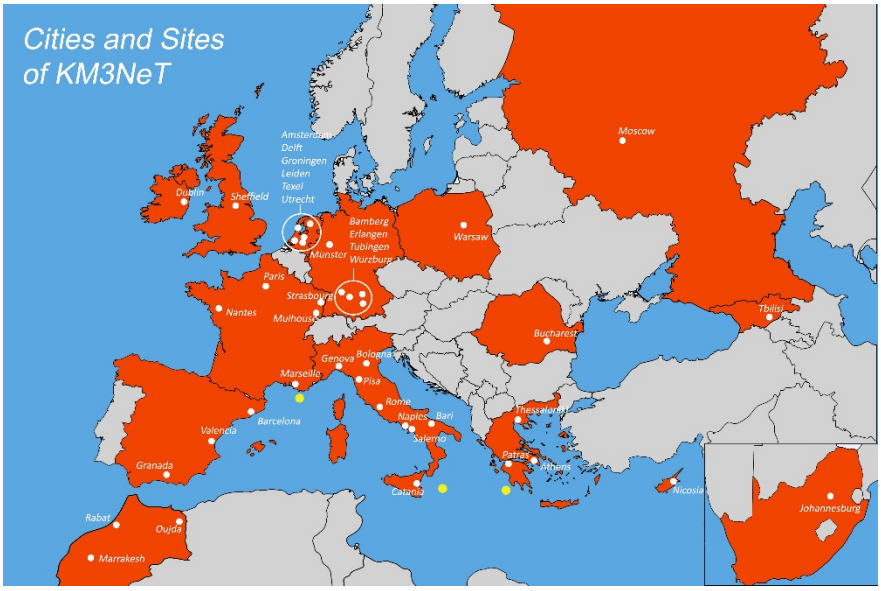

Figure 1: The three KM3NeT sites (yellow dots) in France, Italy and Greece

Although scientific and research efforts usually require medium to large quantities of electrical power, the funding agencies and/or management teams have been quite slow in realising the need to incorporate environmental friendly use of energy sources. It is only in the last few years that the realisation that the extended use of renewable energy sources and efficient use of the available energy can contribute in a positive direction on the effect of these infrastructures to the environment, but also, to result in a less costly mode of operation, even after accounting for the initial significant material investment.

KM3NeT has been quite proactive in realising that by adopting strategies based on renewable energy sources, a significant window of opportunity exists towards reduced costs of operation, an environmentally friendly and sustainable way of satisfying the energy needs of the research infrastructure, while it is, at the same time, contributing to the general public awareness as well as supplying part of the energy needs of local communities.

Within the context of the KM3NeT-INFRADEV project, WP10 investigates the possibility to establish KM3NeT as a zero carbon footprint infrastructure. In deliverable KM3NeT-INFRADEV-WP10-D10.01, submitted at the end of 2017, we presented the estimated energy needs of KM3NeT during the

operation phase, the current status of REI technology, the RE market maturity in each of the three countries and the results of the preliminary contacts with possible partners and collaborators in each case. The above report concluded that due to differences in the scope of the hosting institutions as well as market conditions and synergy opportunities, different solutions will have to be adopted in each country: In France, the only viable solution is to acquire the needed energy from a certified "green" energy provider, rather than establish a REI "de-novo". In the case of Italy and Greece, synergies with the local authorities can result in joint ventures, with the local communities benefiting also from the RE generation. Evidently, these synergies require careful planning and in this spirit, the investigation of possible legal issues is a necessity. The present document presents the findings of such an investigation. As the implementations will be different for each country, the legal issues are reported separately in each case.

2. Methodology and legal issues for establishing the Renewable Energy infrastructure in France

France has had a voluntary renewable energy development policy for several years. At the end of 2015, their share in final energy consumption was 14.9% and the target for 2020 is 23%. Even if some delays are to be deplored, many projects have seen the day in recent years. In onshore wind, 1,345 megawatts (MW) of new capacity were installed in 2016. During the same period, 545 MW of photovoltaic energy were installed.

France is therefore acquiring infrastructure enabling it to significantly increase the share of renewable energies in the energy mix. In 2030 the production of green energy electricity should reach 40%. Infrastructures are already in place and it is already possible to choose the source of its energy. Companies have specialized in the green energy resale niche (Direte - énergie for example). Infrastructure and supply exist. They should only increase in the future.
Under these conditions, it does not seem appropriate to us to develop an infrastructure specific to KM3NeT in France. A purchase contract is possible and will allow us to meet our ambitions.

From the above it is obvious that no special legal issues are relevant in the case of the French site, as the RnE will be acquired through a direct purchase from an appropriate supplier.

3. Methodology and legal issues for establishing the Renewable Energy infrastructure in Italy

In the deliverable KM3NeT-INFRADEV-WP10-D10.01, the strategy and methodology for establishing aRnE infrastructure in Italy was detailed as follows:

> *A first opportunity could be to purchase electricity generated from renewable energy sources, by using approved distributor. As seen before, several RnE plants, especially big wind farms, are available in the Region.*
> *Other opportunity could be the current ERDF Sicily program (2014-2020) where some funds could be available in order to improve the energy efficiency of the building and infrastructure.*
> *Local authority of Porto Palo di Capo Passero, where the on-shore infrastructure of the KM3NeT telescope is located, has demonstrated a high interest to cooperate with KM3NeT community in order to develop carbon zero facilities.*
> *The construction of a new farm could be a viable solution. The social and political context are favorable from this point of view and it could be possible to obtain funds and permission within the framework of the realization of the underwater telescope.*

Having in mind the above, the methodology and related legal issues are summarized below:

In Italy a public entity like INFN could realize a plant for renewable energy.

There are 2 different possibilities

1. INFN can realize the plant by itself using INFN or European funds,
2. INFN can use a PPP “partenariato pubblico privato” or “private public partnership” to realize the plant. The art. 180 of the D. Lgs 50/2016 defines all the constrains and rules about the use of PPP.

There are several laws which definethe constrains for the realization of renewable energy plant by public entities.

The main ones are:

- “determina AVCP n.6 26 October 2011 “Linee guida per l’affidamento della realizzazione di impianti fotovoltaici e deolici” or “guidelines for the realization of solar and wind plants”;
- D.Lgs n. 387 del 29 december 2003;
- CE directive 2001/77;
- CE directive 2009/28;
- D.Lgs 50/2016 for the management and regulation of pubic tenders

In POR Sicilia 2014-2020 is planned a defined “funding line” (4.1.1) for the improvement of energy characteristic of the public buildings that foresees also the realization of solar plants if they will be used for the internal energy requirements of the buildings themselves.

Typically, this funding opportunity is present in each FP (Frame Programme) and is dedicated to the improvement of energy characteristic of public buildings.

In any case, the realization of a renewable energy plant foresees the obtaining of all the necessary authorization by the local authorities (municipality, cultural heritage authority, regional government, etc) and should be done within the boundaries of the relevant legislature. The relevant guidance will be provided by the legal support departments of INFN which have the necessary expertise to supervise the authorization steps. We foresee no significant bottlenecks on the part of the specific legal framework.

4. Methodology and legal issues for establishing the Renewable Energy infrastructure in Greece

In Greece, a dedicated renewable energy infrastructure is the most favourable option. As was reported in deliverable KM3NeT-INFRADEV-WP10-D10.01, a synergy between NCSR Demokritos and the municipality of Kalamata could result in the establishment of a REI covering the needs of KM3NeT and at the same time benefitting the local community. The strategy for Greece was detailed as follows:

> *"We have approached the Municipality of Kalamata, the main town in South-West Peloponnese. Kalamata is a medium sized town with a population of around 65,000 inhabitants. It hosts an Annex of NCSR Demokritos, and is the base of operations concerning the Greek KM3NeT site. The Municipality of Kalamata owns a significant amount of land in and around the city. Our proposal was to collaborate with them in establishing this REI. The basic idea is to split the REI into two main parts: one will be the main energy producing facility, to be established in the country around Kalamata at a suitable piece of land, while a second part will be installed inside the city, around the harbor, and/or in public areas like parks and on the river banks. The second smaller part will consist of a combination of vertical axis wind turbines, suitable for the urban environment, and solar panels designed to add in an aesthetically pleasing way to the cityscape. In addition to the added value in the urban landscape, the surplus energy not used by KM3NeT can be used in public sector buildings (schools, hospital, etc.). "*

The establishment of such a "de-novo" REI means that the scope and way of implementation should be in accordance with National and European legislature. In this case, an in depth study of the relevant legal framework was performed under the assumptions that:

- NCSR Demokritos will establish the REI in Greece on behalf of KM3NeT
- NCSR Demokritos will co-operate with the Municipality of Kalamata with relevant agreements concerning the real estate necessary for the establishment of REI and the use of the produced energy.
- ownership and exploitation of the REI should be agreed between NCSR Demokritos and the Municipality of Kalamata after the lifetime of KM3NeT.

The study was carried out by Manolis Perakis, Assistant Professor in the Law School of the University of Athens, Greece. His legal opinion is presented below. Although the investigation concerns the specific case of NCSR Demokritos and the establishment of an REI in Greece, it should be noted that the general framework and the relevance of the European legal framework is the same for Italy as well.

5. Legal Opinion for establishing the Renewable Energy infrastructure in Greece

The Legal Opinion covers:

- **Review of the provisions regarding the existing and currently in force legal status in Greece (national law and EU law) for the creation of infrastructure for renewable energy to meet the energy needs of the "KM3NeT" experiment.**
- **Review of the status underlying the co-operative implementation and installation of the infrastructure, as well as the legal status with regard to the operation of said infrastructure.**
- **Review of the status underlying matters of the infrastructure ownership after the end of the "KM3NeT" experiment.**

5.1 Legal Framework

5.1.1. NCSR Demokritos

The «National Center for Scientific Research "Demokritos"» (hereafter **NCSRD**) constitutes a LEoPL, which has autonomous and self-governing status after Law.1514/1985 and is under the Oversight of the General Secretariat for Research and Technology of the Ministry of Education, Research and Religious Affairs. Today it operates in accordance with the provisions of Law 3653/2008 and PD 71/1987 as in force.

5.1.1.1. Subjection of the activities to be investigated under the purposes of the NCSRD

Based on the principle of specialization of the LEoPLs, which derives from the principle of legality, LEoPLs can only develop those activities which their purposes allow, as defined by legal rules.

Further specifying this principle, Article 40 of DL 496/1974 states that:

"Contracts, through which obligations burdening the LEoPL are created, may not be entered into if not provisioned by general or specific provisions pertaining to it".

Consequently, the question arises whether the creation of infrastructure for renewable energy sources falls under the lawful purposes of the NCSRD, unilaterally or in a collaborative relationship with third parties in order to meet the energy needs of a particular experiment such as «KM3NeT».

Regarding the legitimate purposes of the NCSRD, Article 28(1) of Law 1514/1985 provides that:

«The NCSR "Demokritos" develops research in the fields of physics, chemistry, the biological sciences, materials science, electronic technology, nuclear technology and information technology».

Furthermore, according to Article 3 of the Statutes of the NCSRD (PD 71/1987):

"Purpose of the NCSR "D" is the development of scientific and technological research in the fields of physics, chemistry, the biological sciences, materials science, electronic technology, nuclear technology and information technology. Also, the providing of technological services and the production of special technological products in the framework of the aforementioned activities".

As can be seen from the above, the unilateral or cooperative creation of infrastructure for RES plants by the NCSRD and the subsequent sale, donation or other commercial exploitation of the generated energy do not explicitly fall within the scope of its purposes, as defined by the applicable legislation, with the nullity of the relevant contracts as a possible consequence.

However, besides the strict and restrictive literal interpretation of the provisions, it should be noted that the creation of infrastructure for RES plants and the exploitation of the energy produced is not an end in itself but a means of powering an experiment, i.e. the "KM3NeT", the conduct and organization of which falls entirely within the scope of the NCSRD.

Indeed, the approach of the "transactional government", i.e. state activity taking place within the scope of private economy, with forms and means of private law, is more appropriate. This activity is subject to the law of supply and demand, and its institutions negotiate and enter into contracts like private entities. In the conduct of transactional government, its institutions do not intervene directly in the economy intending to regulating it, but participate in economic life at the same level and with legal relationships of parity, such as private entities.

Moreover, it is reminded that the NCSRD has, as a LEoPL, administrative autonomy, with the consequence that its bodies have the power to regulate the matters relating to its activities by their decisions. Furthermore, despite the increased oversight, NCSRD also has (though it is not economically autonomous)[1] asset autonomy with its own revenue sources, the origin of which is defined by its Organization (PD 71/1987). Included among those sources are its property, plant, instruments, materials and other equipment transferred to the NCSRD by the former “Greek Atomic Energy Commission”[2], as well as revenue from the execution of research projects and the marketing of its products and its confections.

[1]Because it receives government subsidies from the regular budget of the Ministry to cover its operating expenses (Article 15(1)(a) of PD 71/1987).
[2] Article 28(2) of Law 1514/1985.

Furthermore, as confirmed by Article 2 of PD 71/1987, the Minister exercises oversight of the NCSRD in the sense of managerial control, and - above all – control as to its legitimacy. On the contrary, this monitoring does not extend to the control of reasoning of purpose and of judgment, as in this case, for example, whether it is necessary and functional to establish RES infrastructure by the NCSRD in order to minimize the cost of powering the "KM3NeT" experiment.

Thus, the form of control to be exercised on the NCSRD as to its decisions on the form of securing the energy and the establishment of RES plants in order to carry out the experiment is limited to the Minister's budgetary oversight and to the financial, preventive and restraining control of the Court of Auditors, as to whether there is a legally allocated credit for the expenditure concerned. The same form and extent of control will also be exercised with regard to the decisions to be taken to exploit for profit the energy produced, on the basis of whether the provisions of the Public Accounting Code[3] and of the LEoPL accounting legislation were abided with[4].

However, it should not be overlooked that transactional government is also 'public administration' since it is a state activity and is intended to serve the public interest and is therefore also subject to the fundamental obligations of public law such as respect for individual rights and the principle of transparency. Furthermore, although the use of NCSRD's services and products is provisioned as a means of securing resources, the increase in assets as an end in itself goes beyond its statutory objectives. For this reason, any exploitation of the electricity produced from RES plants being established should be related to excess electricity, i.e. that which will be surplus after adequate coverage of the needs of the «KM3NeT» experiment.

In conclusion, on the basis of the above, it must be accepted that the installation of RES plants by the NCSRD and the subsequent exploitation for profit of the electricity generated by offsetting it with that consumed falls within its scope as a step of carrying out the "KM3NeT" experiment, provided that the relevant decisions are decided by the LEoPL Administration and the legal formalities are complied with. The proposed form of the above activity, in order to meet the conditions, is that of the "self-producer»[5].

[3] Law 4270/2014 (G.G. A΄ 143/2014).
[4] Law Decree 496/1974.
[5] See below.

5.1.1.2.Legal representative for the conclusion of contracts

Pursuant to Article 42 of DL 496/1974 "On the accounting of Legal Entities of Public Law":

"Legal representative of the legal entity for the purpose of concluding contracts, unless otherwise provided by the relevant provisions, it shall be the chairman of the collective body that governs it."

Furthermore, on the grounds of Article 5 of the NCSRD Statutes (PD 71/1987), the Board of Directors, among others, carries out its expenditures under its approved budget and carries out the costing and pricing of services provided by NCSRD and for its products.

Finally, Article 6 of the NCSRD Statutes (PD 71/1987) defines its Director as its legal representative before the courts and in its extrajudicial relations.

As is apparent from the above, especially if the surplus electricity generated by the RES infrastructure is regarded as a 'product' of the NCSRD within the meaning of Article 5 of the Statutes[6], **any contract that will need to be concluded between the NCSRD and third parties or entities relating to either the construction of RES infrastructure or the exploitation for profit of electricity by selling or donating it must be signed by its Manager following a relevant decision by its Board of Directors.**

5.1.1.3. Form of contracts

According to Article 41 of DL 496/1974 "Regarding the accounting of Legal Entities of Public Law", any contract on account of a LEoPL which addresses more than 10,000 drachmas must be concluded in the form of a private document.

By virtue of decision No. 2054839/452/0026/3-9.7.1992 of the Minister of Finance (G.G. B'447), the above amount of money was increased to GRD 150,000, while with MD fin. 2/42053/0094 (G.G. B 1033/7-8-2002) was readjusted to two thousand five hundred (2,500) euro.

As can be seen from the above legal provisions, **any NCSRD contract addressing a value of over EUR 2,500 should be subject to the form of a private but not a notarial document, otherwise the contract will be, in accordance with Articles 158 and 159(1) C.C., invalid and consequently under Article 180 C.C. as inexistent,** though in case of execution of the contract the invalidity will be lifted only if the contract is preceded by a separate written proposal without being followed by an acceptance in writing too, but not when the type of document form has not been complied with for the proposal and acceptance (see, for example, Supreme Court (in plenary session) Decision No 862/1984, Supreme Court Decision No 1626/1995, Supreme Court Decision No 181/2004, Supreme Court Decision No 1161/2009, Supreme Court Decision No 1135/2010, Supreme Court Decision No 1372/2012, Supreme Court Decision No 1378/2011, Supreme Court Decision No 1057/2011, Supreme Court Decision No 322/2010, Athens Court of Appeals Decision No 6273/2011).

[6] See also relevant analysis below.

5.1.2. The electricity market

5.1.2.1. The legal and institutional framework

Electricity, along with natural gas, is the sector that has undergone significant changes in recent years, both at EU level and at national level. This sector is now fully deregulated by Directive 2009/72 / EC, while Regulation (EU) 714/2009 is also applicable. At national level, the basic legislation remains, although with significant modifications and updates, Law 4001/2011 (Government Gazette Issue A' 179/2011), which transposed almost literally the wording of the above Directive.

Thus, the Greek market is based on four key activities: Production, Transmission, Distribution and (end) Supply of Electricity. Its structure is divided into three axes: the central axis, which includes the activities of the networks, namely the construction, management and exploitation for profit of the transmission and distribution structures, and the flanking axes, which include the production activity on one hand and the supply (end user providing) of electricity on the other. In our country (Greece), only the last two activities have been fully opened up to competition, while the transmission and distribution network infrastructures are still "natural" monopolies governed by strict legal regulations.

To quote some historical data, it is noted that Law 2773/1999 abolished PPC (ΔΕΗ - Public Power Corporation S.A.) exclusive right to electricity generation and supply. Furthermore, the most important steps of liberalization of the electricity market took place under Law 4001/2011.

In particular, under the above law, the division of the general directorate of transmission was spun off and its contribution was assigned to the so-called "Independent Power Transmission System Operator SA" (IPTO SA), which thus has the ownership of the System and operates as early as from 01.02.2012. IPTO SA has the obligations and exercises the responsibilities laid down by the law, while the management of GSoETis executed in accordance with the provisions of the "Greek Electricity Transmission System Code", which is prepared by the Operator and submitted to the RAE, which has the regulatory authority to define the final text or its amendments.

Furthermore, the former Hellenic Transmission System Operator (HTSO SA) was renamed as "Electricity Market Operator" (EMO SA). To this company there is exclusively assigned the organization and day-to-day operation of the deregulated electricity market while it operates the Register of Participants in the electricity market, conducts the Daily Energy Planning (DAS), i.e. it plans the daily injections and absorptions of electricity, as specifically provisioned for in the "Electricity Transactions Code", and clears the transactions within the DAS framework. The Electricity Market Operator (EMO) has the obligation to avoid any discrimination among Participants.

As far as the Distribution Network is concerned, it remains the exclusive property of PPC S.A., but its management was entrusted to the "Hellenic Electricity Distribution Network Operator" (HEDNO SA), a public limited company established by secession (spin-off) of the respective branch of PPC SA and operating as a subsidiary while being a separate company. The Management of the Distribution Network is carried out on the basis of the "HEDN Management Code", prepared by HEDNO SA and

submitted to the RAE, which has the regulatory authority to approve and amend it. HEDNO SA also manages the distribution networks in the Non-Interconnected Islands, the management of which is carried out under the "Management Code of Electricity Systems for Non-Interconnected Islands".

5.1.2.2. Network and System

Under Greek law there is a distinction between the Network and the Transmission activity, the latter being incorporated into the concept of 'System'. The GSoET is the high voltage lines, the terrestrial or marine interconnections installed on the Greek territory and all the facilities and equipment required for the transmission of electricity from the power plants to the substations and the individual interconnections. Therefore, the Transmission System does not include generation power plants.

In addition, the Distribution Network consists of the "Greek Electricity Distribution Network" (HEDN), which, as said, belongs to PPC, is managed by HEDNO SA, and includes the low and medium voltage lines and electricity distribution facilities, as well as high voltage lines that have been integrated into it.

5.1.3. Production and sale of electricity from RES

5.1.3.1. The legal framework of RES in general

The basic legislative framework for the production of electricity from RES or HECH & P plants is based on Law 3488/2006 (G.G. A 129/2006), which transposed into our national legal order the Directive 2001/77/EC of the European Parliament and of the Council, dated 27 September 2001, on the promotion of electricity produced from renewable energy sources in the internal electricity market (OJ L 283), and thereafter Law 4062/2012. It should be noted that Directive 2001/77/EC was subsequently replaced by Directive 2009/28/EC[7], for the transposition of which, into our national legal order, amendments were made to the aforementioned legislation and in addition Law 3851/2010 (G.G. A 85/2010) was promulgated.

The above fundamental Law 3486/2006 forms a grid of more specific, essential provisions for the RES, which concern the production and exploitation for profit of the electricity that originates from them, ultimately detaching this category of generated energy from the more general system which is established by Law 2773/1999 as currently in force. Law 3486/2006 has also been amended by Law 3749/2009, mainly with regard to issues of cogeneration of geothermal and electrical energy,

[7] Amended by Directive 2015/1513/EU.

as well as by Law 4062/2012, Law 4152/2013, Law 4203/2013, Law 4254/2014, Law 4296/2014, Law 4414/2016 and Law 4513/2018.

In addition to the above basic legislative "backbone", and at the EU legislative level, the following Directives are of the essence with superior power and interpretative strength: Directive 2010/31/EU on the energy performance of buildings[8], Directive 2003/96/EC on electricity taxation[9], Directive 2003/87/EC on pollutants trading[10], and Directive 2012/27/EU on energy efficiency[11]. As far as the national framework is concerned, there is an extensive body of legal provisions and regulations of Ministerial Decisions and Decisions from RAE, which mainly shape the terms and prices of selling electricity, the typology of the relevant contracts, and at each time the production and end user supply limit.

Furthermore, it is noted that, according to Article 2 of Law 3468/2006, "energy produced by RES" means the energy from renewable non-fossil sources, namely wind, geothermal, solar, aerothermal, hydrothermal and marine, hydroelectric, as well as energy generated from biomass, from landfill released gas, gasses produced in sewage treatment plants and biogas.

Furthermore, more specific legislation governs certain forms of electricity produced by RES.

Thus, relevant to **hydroelectric** power is Article 2 of Law 4223/2012, Law 3199/2003 on water resources that establishes a prior authorization regime, and PD 51/2007 on the protection and management of water resources. It is noted that the installation of a hydroelectric power plant is considered as a "use of water resources" within the meaning of the law, as a result of which it is subject to the special conditions and the procedure of MD Δ6/Φ1/οικ.13310 (G.G. B 1153/2007) which are applied in addition to those established by the more general Law 3468/2006 on the RES.

The contemporary legislative framework for electricity produced from **geothermal energy** as a RES is the focus of Law 3175/2003. Although the State holds the exclusive right to seek, research and manage the geothermal fields, such right may be leased out following a relevant tender. The terms and procedure for the lease are reflected in particular in MD Δ9ΒΔ/Φ166/οικ.25158/ΓΔΦΠ4398 (G.G. B 2647/2011).

Moreover, with respect to **biomass** and **biogas** as RES, after the entry into force of Law 4254/1414, all the respective power plants are subject to a procedure for the promulgation of an ETA Decision, while specifically for power plants below 1 MW no issuing of a generation authorization is required. Furthermore, more specific arrangements for the location of biomass and biogas power plants are contained in the Special Framework for Spatial Planning for RES (Article 8 of CMD 49828/12.11.2002, G.G.B΄ 2464).

Concluding with the **biofuels**, Law 3403/2005 introduced the respective regulations into the Greek legal framework, which were completed with Law 4062/2012, which transposed the relevant provisions of Directives 2009/28/EC, 2009/30/EC and 98/70/EC. Furthermore, MD Φ.1643/820/23-12-2005 (G.G. B 4/2006) is related, laying down the terms and conditions for the production and

[8] Transposed by Law 4122/2013.
[9] It was transposed by Law 3356/2005.
[10] It was transposed by CMD 54409/2632/17-12-2004 (G.G. B 1931).
[11] It was transposed by Law 4342/2015.

distribution of 'biodiesel', as well as MD Φ.1731/978/1-12-2006 (G.G. B 1757/2006) and MD Φ.810/415/9-6-2006, as currently in force.

5.1.3.2. More specifically solar power (photovoltaic, solar thermal systems)

An important part of our national legislation on RES concerns solar energy due to the particularities of Greek territory, with Law 3468/2006 being the central legislative axis and a plethora of complementary and specialized MDs. Thus, under the current legislative framework, for photovoltaic plants installed on buildings (PV), as well as in historic city sections or areas of particular natural beauty, the following apply[12]:

- For the installation of PV ≤100kW on buildings, no building permit is required, nor an approval of small-scale construction works, but a written notification of works and preparation of the installation plans of the PV to the building's electricity supplier.

- For higher power PV plants, the approval of small-scale construction work and a civil engineer's declaration to certify the static-strength adequacy of the corresponding building.

- For the installation of ≥ 10 kW PV on buildings in non-urban areas, the co-filing of a topographic diagram and a copy of the building permit is also required.

- For the installation of PV on the open areas of plots within city-plan areas or within built settlements, approval of small-scale construction works is required.

- It should be noted that by definition it is not allowed by law to place PV on unbuilt plots (lots within a city-plan that don't have a building on them).

- For the installation of PVs on land outside of a city-plan, it is stipulated by the legislation that they are not required to be par-sized and buildable, unless building construction is sought, beyond what is strictly necessary (Article 2(1) of MD 40158 / 25-8-2010 as currently in force).

As regards to solar thermal systems (for example solar water heaters), the provisions of MD 36720/25-8-2010 with its amendments apply in this case too.

5.1.3.3. More specifically wind turbine generators

Wind energy is the most widespread RES in Greece thanks to the country's rich wind potential. It is generaly appreciated that the reduced footprint of wind plants may be preferable in some cases, although this has to be evaluated on a case by case basis. For the exploitation of wind energy, to

[12] See also MD οικ.55174/4-10-2013 (G.G.B 2605/2013) and MD 36720/25-8-2010.

start with, the general law on RES Law 3468/2006, as in force, is applied, as well as the respective authorized regulatory acts, and the legislation for environmental permitting of RES.

As regards some more specific issues, Article 3(4)(c) of Law 2244/1994 on the installation of wind turbines is relevant, according to which, for the installation of wind turbines a building permit is not required, but the approval of small-scale construction work according to the procedure defined by MD 55174/4-10-2013 (G.G. B 2605). According to the same provision, building construction, such as the foundations of wind turbine towers as well as the buildings housing control equipment and transformers, are not exempted from the obligation to be issued building permits.

Furthermore, the issue of noise nuisance from the operation of wind turbines is regulated by CMD οικ.3137/191/Φ15 (G.G. B 1048/2012), which distinguishes between installations with a power of more than 700 kW, which are classified as medium disturbance activities, and those with a power between 20 kW and 700 kW, which are considered of low disturbance. On the contrary, installations of less than 20 kW power are classed into activities that cause no noise nuisance.

With regard to the installation of wind power plants, this is governed by the provisions for industrial plants of Article 4 of the P.D. dated 24.5.1985 (G.G. D 270) on out-of-city-plan construction, as well as by the Special Framework for Spatial Planning and Sustainable Development for RES promulgated by CMD 49828/12-11-2008 (G.G. B 2464), and in Article 7 it contains specific criteria for the sitting of wind power plants in the mainland.

Finally, it is noted that the installation of small wind turbines for plants with a total capacity of up to 60 kW[13], which are connected to the Network, is made exclusively within the framework of the Special Development Program for small wind turbines, drawn up by decision of the Minister of Environment, Energy and Climate under Article 4 of Law 4203/2013, and not following an individual initiative. This Program, which is still pending due to a delay in the issuance of the relevant MD[14], concerns the installation of small wind turbines for plants with a total capacity of up to 60 kW on open land, plots and on buildings, which inject energy into the distribution network. When should this MD be issued, it will determine the authorization-issuing process, i.e. the manner of submitting the relevant applications, and the pricing of the generated electricity.

[13] The power for designation as a "small wind turbine" has changed from 50 kW to 60 kW with Law 4513/2018 (G.G. A 9/2018).
[14] It had to be issued by 30.06.2014.

5.2. Thelegal capacity of NCSRD functioning in the RES-generated electricity market

5.2.1. Options of NCSRD and the procedure of electricity generation from RES

5.2.1.1. The NCSRD as seller or «self-producer» of electricity

Under the current legislative framework, two different electricity production and utilization paths from RES are being opened up to the NCSRD.

The first one consists of the generation and sale of electricity to the Network Operator, based on set prices, set by existing provisions, which are readjusted at regular intervals. Revenue from the sale of RES electricity can then be disposed of for any purpose of the NCSRD, including the supply of electricity from a Supplier of its choice.

Although under certain circumstances this solution may be advantageous to the NCSRD from a purely economic point of view, serious legal questions arise as to whether simple, unencumbered profitability and the increase of its resources through a non-manifest purpose such as the establishment of RES plants and the production and sale of electricity are in line with its legislative framework and are connected with sufficient directness with the "KM3NeT" experiment. Besides, there are also technical difficulties that make such an option non advantageous, given for example that EMO S.A., which is in charge of the "purchase" of the electricity produced, often delays enough to pay the consideration. Moreover, this price-consideration is received first by PPC S.A.,which, due to deficits, it already has difficulties to pay it to EMO S.A.

On the contrary, closer to the purpose and legal nature of the NCSRD as a LEoPL seems to be the path of "self-production" with energy netting (offsetting).

A "self-producer" within the meaning of Article 2 of Law 3488/2006 is the producer who produces electricity from RES or HECH & P plants mainly for his own use and channels any surplus of this energy to the System or to the Network for later use. In particular, by issuing of each clearing account at the end of the clearing period, the RES generated energy and the power (energy) that was required for the producer's needs are calculated. If the energy needed was greater, the producer buys the extra energy from the Supplier (from PPC or other). If it were smaller, the surplus energy produced is "stored" in the Network to meet the needs of the next clearing period. At regular time intervals (based on the current legislative framework, every three years), the balance of energy produced and consumed is “cleared” and for that excess energy produced there is no right for compensation to the producer.

The legal nature of the NCSRD as a LEoPL pursuing objectives in the public interest does not deprive it, but, on the contrary, it strengthens its right to become a 'self-producer' in that sense. Indeed, a

multitude of legislation introduces more specific regulations, providing incentives for the Administration to meet its electricity needs through RES, even saving the surplus, "net" energy to the Network for consumption later.

For example, based on MD RES.EL /Α/Φ1/οικ.175067 (G.G. Β 1547/2017):

'In particular for legal entities of public or private law, that pursue public or other public interest purposes, whether general or local scope, the maximum power of each photovoltaic plant may be up to 100% of the agreed power consumption'.

The above framework of "self-production" is complemented by the provision of "energy" or "virtual energy" set-off netting. In particular, according to Article 14A of Law 3468/2006 titled "Installation of photovoltaic plants and small wind turbines by self-producers»:

«*1. It is permissible to install RES and HECH & P systems for self-producers to meet their own needs by applying energy netting. In particular, self-producers that are public or private legal entities pursuing public or other public interest purposes of general or local scope are permitted to install RES and HECH & P plants to meet their own needs and to apply virtual energy netting*».

It should be noted that the definitions given by this law (Article 2(12-13) of Law 3468/2006) to the terms "energy netting" and "virtual energy netting" are the following:

«*Energy netting: offsetting the electricity produced from a RES or HECH & P self-producer plant with electricity consumed in a self-producer's installations located in the same or adjacent space as the RES or HECH & P plant. The RES or HECH & P plant is connected to the Network through the supply connection for the consumption installation*».

«*Virtual energy netting: the offsetting of electricity produced by self-producer RES or HECH & P plants with total electricity consumed in an self-producer's installations, at least one of which is either not in the same or adjacent space to the RES or HECH & P plant, or if it is, it is powered from a different supply.*»

Thus, the above provisions form the overall solution of an "self-producer with energy offset netting", especially if it is decided to produce electricity from photovoltaic plants or small wind turbines, while specifically for LEoPLs pursuing public interest purposes, such as the NCSRD, the added possibility of "virtual energy netting" is allowed, i.e. the right to use the generated electricity to compensate for the required energy for operation of installations remote in relation to the producing plants.

It is noted that, especially for the installation of photovoltaic plants by self-producers using energy netting or virtual energy netting, the MD RES.EL/Α/Φ1/οικ. 175067 (G.G. Β 1547/2017) applies as well.

In conclusion, although it is not the only option for the NCSRD, the path of the "self-producer" with energy netting is the most appropriate legally and institutionally for a LEoPL seeking energy supply for a particular project, such as the "KM3NeT" experiment. In particular, the form of "self-production" with energy netting is consistent with both the not-for-profit nature of the NCSRD and the characterization of electricity generation not as a goal *per se*, but as simple means of achieving its statutory purpose.

5.2.1.2. The authorization for generation and when it is not required

The authorization for RES and HECH & P electricity generation is granted by decision of the RAE and lasts up to 25 years with the possibility of renewal for up to 25 additional years. The procedure and conditions for applying for and issuing this authorization are set out in MD Δ6/Φ1/οικ.5707 (G.G. B448 / 2007), while the case law of our courts has clarified that with the generation authorization the precise position of the installation is not required[15], but only the general location where the generation activity takes place (see, for example, CoS 3650/2005 and CoS 3652/2005).

Especially in the case of the NCSRD, it is noteworthy that it could be recognized as non-obliged to apply for an electricity generation authorization because it is a public research body pursuing research and experimental purposes, provided that the electricity generated comes from power plants up to 5 MWe (Article 4(1)(f) of Law 3468/2006).

Furthermore, exemption from the obligation of being issued a generationauthorization is provided for in the following forms of electricity generation from RES:

(a) geothermal power plants with an installed power of less than or equal to half MW,

(b) biomass, biogas and biofuel plants with an installed capacity of less than or equal to one MW,

(c) photovoltaic or solar thermal plants with an installed power of less than or equal to one MWp,

(d) wind farms with an installed power of less than or equal to 60 kW,

(e) HECH & P plants with an installed power of less than or equal to one MWe,

(f) autonomous plants from RES or HECH & P, which are not connected to the System or the Network, with an installed power of less than or equal to five (5) MWe, with no possibility of modifying their autonomous operation. The persons responsible for the operation of the plants in this case are obliged, before installing the plants, to inform the competent Administrator about the location, power and technology of these plants.

(g) Small Hydroelectric Plants with installed electrical power of less than or equal to half a MW, which are installed in water supply or irrigation or drainage/sewage networks.

[15] However, this is determined by the subsequent "installation permit".

Of particularly importance for the NCSRD is the fact that as of 02.01.2018 (Law 4513/2018) and on the basis of the amended Article 4(1) of Law 3468/2006, no application for issuance of a generation license is required for those included in the case of Article 14A of Law 3468/2006, i.e. the RES plants (photovoltaics and wind turbines) installed by self-producers under the system of (virtual or not) "energy netting", a category in which - as has been said - the NCSRD could too be included as a LEoPL pursuing public interest purposes.

Finally, it should be noted that in every case of RES electricity generation, pursuant to Article 3(4) of Law 3468/2006, the generation licensee is obliged to take all the necessary actions for the issuance of the installation permit without delay, and in any case within a period not exceeding thirty (30) months from the issuance of the generation authorization, while he must also act for the implementation of the project, otherwise the authorization is subject to revocation by the RAE. Although in the case of the NCSRD the application for authorization will most probably not be mandatory on the basis of what has been said above, it is important to secure installation and operation permits of the RES plants as soon as possible[16].

5.2.1.3. The installation and operation permits and when they are not required

Pursuant to Article 7 of Law 3468/2006, the RES or HECH & P power plants, as well as any project related to their construction and operation, including roadwork, access and connection works with the System or the Network, may be installed:

(a) In land lot or in an area, on which the applicant has the right to lawful use.

(b) In forests or wooded areas, provided it has been authorized to carry out works on them, in accordance with Articles 45 and 58 of Law 998/1979 (G.G. 289 A) as in force or Article 13 of Law 1734/1987 (G.G. 189 A), as in force.

(c) At a seashore, beach, sea or sea-bottom, provided that the right to use them has been granted according to Article 14 of Law 2971/2001 (G.G. 285 A), as in force.

For the above installation, an "Installation Permit" is required, for which a specific procedure is followed[17] and which lasts for 2 years and can be extended up to 2 times.

In the first instance, an application for a Connection Offer is submitted. For the Interconnected System and the mainland Network, requests for granting a Connection Offer for RES and HECH & P plants of up to 8 MW capacity are submitted by the interested parties to the Network Operator (HEDNO SA), while requests for power plants above 8 MW shall be submitted to the System Operator (IPTO SA).

[16] See also immediately next subchapter.
[17] See also and MD Δ5/ΗΛ/ Γ/Φ6/οικ.31186 (G G B 2682/2008).

Then, after the competent Administrator has decided to issue a Connection Offer[18], which in the case of the NCSRD will be final if it needed to initiate the procedure of obtaining an Installation Permit (Article 8(4) of Law 3468/2006), an application is submitted for such a Permit. That shall be filed with the Secretary General of the Region within the boundaries of which the RES plant is installed, unless for its issuance an environmental permit is required. In the latter case, it is filed with the person responsible for such an authorization, that is to say either the Secretary General of the Region or the competent Minister. The Installation Permit shall be issued within 15 days of completion of the verification of the required supporting documents, which shall take place no later than 30 days after their filing.

The Issuance of an Installation Permit is followed by the application for an Operating Authorization, as required mandatorily by Article 8(11) of Law 3468/2006. This Authorization is granted by the same body that issued the Installation Permit, in principle by the Secretary General of the Region and sometimes by the Minister of Environment, Energy and Climate within an exclusive time limit of 20 days from the completion of the inspections at the Generation Plants. The Operating Authorization is valid for at least 20 years and can be renewed for an equal number of years, while especially for solar thermal power plants its minimum validity is set at 25 years.

It should be noted that if the NCSRD is exempted from the Generation Authorization requirement, it is also exempted from the requirement to apply for a Permit of Installation and Operation, since Article 13 of Law 3468/2006 stipulates that:

“RES or HECH & P power plants exempted of the Generation Authorization obligation in accordance with Article 4 shall also be exempted from the obligation to obtain an installation and operating authorization”

However, according to the same provision, the NCSRD will continue to be obliged to comply with the environmental permit procedure as foreseen in Article 4 of Law 1650/1986. Based on this Article, for the issuing of an ECA decision for RES or HECH & P projects, a full dossier and an EnvISis submitted to the competent environmental permitting authority.

It is worth noting that the producer is also exempt from the obligation to apply for an ECA Decision in the following cases[19]:

- Photovoltaic plants and wind turbines installed on buildings or other structures too or within organized industrial parks. It is deduced that the NCSRD will fall in this case if it chooses the path of self-production with energy netting.

- Power plants generating electricity from RES, installed on land lots, provided that their installed electrical power does not exceed the following limits per technology:

- 0.5 MW for geothermal power plants,

[18] See also below under (iii).
[19] Annex X of HS 1958/2012 (G.G. B 2012) is also relevant.

- 0.5 MW for photovoltaic or solar thermal power plants,

- 20 kW for wind farms.

For the above cases, an exemption certificate is required within an exclusive time limit of 20 days by the competent environmental authority of the Region concerned, after the uneventful expiry of which such is deemed to have been granted.

5.2.2. The Electricity Connection and Sale Contracts

5.2.2.1. The Connection with the System or the Network Contract

In order to technically connect the RES power plant to the System or to the Network and after the Generation Authorization is issued where such is required (possibly not in the case of the NCSRD), a following "Connection Contract" is concluded with the relevant Operator, i.e. with the IPTO for the System or with HEDNO for the Network.

The Contract is concluded at the request of the producer to the competent Operator for the issuing of a "Connection Offer". For the Interconnected System and the mainland network, requests for issuing a Connection Offer for RES and HECH & P plants of up to 8 MW capacity are submitted by interested parties to HEDNO SA. Requests for power plants over 8 MW are submitted to the IPTO.

The Connection Agreement is then concluded. For those RES or HECH & P power plants that are exempt from the obligation to receive a generation authorization, as noted that it might be the case of the NCSRD, the above Contract must be concluded within 3 months of the submission of the relevant request as a complete dossier (Article 11 of Law 3486/2006).

In addition, it is noted that in the Connection Contracts concluded by the Competent Operator with those RES generators who are exempted from the obligation to receive a generation authorization, there is a time-deadline for connection to the System or Network that is exclusive, and there is a warranty or penalty clause which is forfeited if the entity does not implement the connection within the specified deadline. However, RES plants installed in buildings, regardless of their power, are exempt from the obligation to provide guarantees (Article 8(15) of Law 3486/2006).

5.2.2.2. The case of electricity sale by the NCSRD

In order to integrate power plants from RES or HECH & P to the System or the Network for the purpose of selling electricity, the producer is obliged to conclude an Electricity Sale Contract with EMO S.A. This contract is valid for 20 years, while especially the contract for the sale of electricity produced by solar thermal power plants is valid for 25 years (Article 13 of Law 3468/2006).

Special arrangements for Photovoltaic Plants are contained in Article 27A(6) of Law 3734/2009 (G.G. A 8/2009).

A model contract for the sale of electricity to the System and the Interconnected Network to be concluded between the producer and the IPTO SA is regulated by Article 1 of MD Α.Υ/Φ1/οικ.17149 (G.G. B 1497/2010).

It is reminded that the sales contract does not cover cases where the producer has chosen the path of "self-production" by "energy netting", but cases where the producer does not himself use the RES energy that he produces.

5.2.2.3. Specifically the Contract of Energy Netting (Offsetting)

As already said, in addition to the choice of selling of electricity produced by RES, and in the event that the NCSRD opts for the production of electricity from Photovoltaic Plants or Wind Turbines installed in the grounds of the "KM3NeT" (energy netting) experiment, or in other of its buildings remote from the Experiment (virtual energy netting), it gains the possibility of "self-production" governed by MD RES.EL /Α/Φ1/οικ.175067 (G.G. B1547/2017) and Article 14A of Law 3468/2006[20].

In particular, the MD's provisions concern photovoltaic plants on fixed foundation systems, installed on the ground, on buildings or other structures (including those in the primary sector) as well as photovoltaic plants with solar tracking systems installed on the ground. In the case of energy netting, the power of each photovoltaic plant can be up to 20 kWp or (for the category the NCSRD belongs to) up to 100% of the agreed power consumption. In the case of virtual energy netting, the power of each photovoltaic plant can be up to 20 kWp or up to 100% (for the category the NCSRD belongs to) of the sum of the agreed power of the aggregate of all the netted consumptions. In any case, the power of a photovoltaic plant to be installed within the described framework on the Interconnected Network cannot exceed the maximum limit of 500 kWp.

It should be noted that LEoPLs, which either own the site in which the photovoltaic plant is installed or have lawful use of it (e.g. through lease, free concession, etc.) and have secured the written consent of the site's owner, have the right to join into the system of energy netting. Moreover, in the case of virtual energy netting, LEoPLs pursuing public interest purposes of general or local scope, which either own the site in which the photovoltaic plant is installed or have lawful use of it

[20] See also as above under (i).

(e.g. through lease, free concession, etc.) and have secured the written consent of the site owner, have the right to join into the system of energy netting too.

As in the case of electricity sales from RES, thus so in the case of (virtual or not) Energy Netting, a corresponding Contract is concluded between the Self-producer and the Supplier, with whom the Self-producer has contracted for the Supply of electricity consumed in its facilities, for a 25-year duration. For the conclusion of the Contract, a Connection Contract for the photovoltaic plant with the Network Operator must have preceded, as well as full payment of the electricity bills due to the respective supplier or entry into a payments-due-settlement regime with the respective supplier. A prerequisite for the activation of the photovoltaic plant is the existence of an active power-consumption connection in the location where the system is installed, in the name of the self-producer. It is noted that the supplier may be any provider, not just PPC.

5.3. Specific questions regarding the powering of the KM3NeT experiment

5.3.1. The legal capacity of NCSRD to produce and operate electricity from RES

The complexity of the legal nature of electricity raises questions that need to be answered before making clear the NCSRD's capacity to exploit the electricity it will produce, whether be it sale or netting, or the ownership transfer of its production facilities.

As regards first the nature of electricity as a legal good, it is worth noting that Article 947 (2) C.C. deals with the legal artifact of equating electricity and similar physical forces with tangible things, with all its peculiarities (for example, it cannot be a pawned pledge). In addition, the liberalization of competition in the generation and supply of electricity has made it a "commodity". Finally, electricity is a "valuable good" under modern Greek law, as well as "marketable" under the relevant market regulations, but it does not cease to be a "legal good" as well, since its cruciality for the survival and prosperity of society as a whole requires the State to impose strict regulation and delineation of the market and the transactions concerned.

Furthermore, in relation to the actual act of selling electricity from NCSRD to third parties, the legal question arises if it lies within the scope of its purpose and the means assigned to it by its founding law. Despite the absence of a provision in the statutes on the purposes of the NCSRD in Law 1514/85, it appears that Article 15(1) of the NCSRD Statutes (PD 71/1987) allows a broad interpretation of such an act. In particular, the provision provides that the resources of the NCSRD come, inter alia, from:

«[...]

c. Proceeds from the exploitation of the assets of NCSR D, including the proceeds from publications, as well as the letting of use of equipment.

d. Revenues from the execution of research projects on account of the State, Local Governments, LEoPL, LEoPrivLaw and private individuals, the marketing of technological products, the provision of specialized services as well as any participation in enterprises under Article 3 paragraph 5 of Law 1514/1985.

[...]»

The next paragraph of the same provision states that:

«*2. In order to exploit and sell its products and concoctions in general, NCSR D may conclude contracts of any kind and keep special current accounts and other accounts with the cooperating public bodies, LEoPL, LEoPrivLaw and other companies, by* ***way of derogation*** *from the accounting provisions ofLEoPL.*»

Accordingly, the grammatical and teleological interpretation of those provisions must be construed as follows:

- The assets belonging to the NCSRD include any electricity produced by the RES plants.

- Either the electricity produced by the RES facilities in its entirety, or that generated in excess of that required to operate and achieve the objectives of the NCSRD, namely the powering of the KM3NeT experiment, is property of the NCSRD and a «product» within the meaning of Article 15(1) of the NCSRD Statutes (PD 71/1987), with the result that it can exploit it by selling it in order to raise funds, or by keeping it and off-setting it, as well as by way of the derogation accounting provisions of the LEoPL.

- The asset-like means belonging to the NCSRD, which include any electricity produced by the RES plants it will have installed, are to be managed by its governing bodies, which must take the relevant decision to exploit it for the benefit of the LEoPL. This transaction also serves the financial principle, that is to say, the least possible use of assets in the exercise of LEoPL activity.

In conclusion, it is clear from the existing legislation and the Statutes of theNCSRD that this LEoPL is entitled to install electricity generation infrastructure from RES and then conclude Network connection contracts, as well as contracts for either the sale of electricity or (virtual or not) energy netting with the surplus electricity.

5.3.2. The legal capacity of the NCSRD to transact with Local Governments concerning the exploitation of electricity from RES

5.3.2.1. The peculiarity of the mandatory intermediation of the Network Operator

As was already mentioned, electricity is an economic asset, since its "acquisition" for direct consumption always takes place for a financial price. Although it is neither materially tangible nor discriminatory to quality, the amount of electricity produced or consumed can be measured and can therefore be financially valued. Thus, the structure of the liberalized electricity market is similar to the commodities market, but it has some significant particularities due to the technical characteristics of the traded financial commodity, electricity.

Furthermore, the transmission of electricity is associated with complex technical problems, such as maintaining the balance of the transmission and distribution system. Thus, the transmission and distribution systems for electricity do not consist of a simple network of wire conductors. This is all the more precondition for a chain of voltage transformation stations and installations for continuous control of the "flow" of electricity so that at all times the necessary balance of the system and ultimately the continuous supply to consumers is ensured. It is therefore doubtful whether there would be a “market” of competing enterprises in relation to the transmission of electricity.

On the contrary, the transmission and distribution of electricity are characterized as “non-competitive activities” because they have monopoly characteristics. These concern the Transmission and Distribution Networks and the necessary facilities associated with them, which are technically necessary for the transmission of electricity from the producer to the final consumer, and consequently the legislative and supervisory intervention of the State is necessary to regulate this framework.

As can be seen from the above, the first reason why it is not legally feasible to sell or donate electricity directly from the NCSRD to a Local Government (e.g. a Municipality) is that under the law any transmission of electricity requires a contract with the Operator of the System or the Network. Indeed, in the Greek electricity market, the possibility is not foreseen for the final consumer to contract directly with an electricity Producer to meet his needs.

5.3.2.2. The prerequisites for supply and trading of electricity

The second reason that the above act would not be legally permissible is the non-legal ability of the NCSRD to become a "Supplier" or “Trader" of electricity. In particular, pursuant to Law 4001/2011, any transmission of electricity to a "customer" (supply) or its import/export (trading), whether due to sale or donation, can only take place from a supplier/trader who holds an authorization granted

by the RAE for it. The conditions that must be met for such an authorization by the Supplier or Merchant candidate are:

(a) To have the form of an S.A. public company or limited liability company with a capital of at least EUR 600,000 (for supply) or EUR 60,000 (for trading).

(b) To have an organizational and administrative structure appropriate to ensure the reliable, prudent and good exercise of the supply activity, as defined in the Authorization Regulation, and

(c) To have the necessary financial soundness and solvency, which is evidenced by the details of the application, in accordance with the Authorization Regulation.

As can be seen, the NCSRD as LEoPL does not meet the above conditions and cannot be an electricity Supplier or Merchant, so that it can provide, with or without payment - consideration, electricity that it produces by itself.

In conclusion, although the NCSRD is entitled to set up RES infrastructure and produce electricity, it cannot in general sell or provide this energy but only to the bodies stated by Law, that is to say the authorized Suppliers. In addition, the NCSRD itself is not entitled to apply for a Supplier or Trader authorization, so that it could then transmit electricity with or without consideration or under an agreement with a Local Government (e.g. a Municipality).

5.3.2.3. The possible solution of the "Closed Network"

Article 131(5-8) of Law 4001/2011 regulates the possibility of forming "closed networks" between Producer and Customer / Consumer.

In particular, on the basis of those provisions, RAE may, by its decision, classify a network which distributes electricity to a geographically limited industrial or commercial or communal area, and which does not supply domestic consumers as a "Closed Distribution Network", if :

(a) the infrastructure and facilities of that network are not part of the HEDN,

(b) for specific technical or safety reasons, the activities or productive processes of the Users of this network are consolidated, or

(c) said network distributes electricity primarily to the owner or the operator of the network or to the related enterprises.

In addition, the RAE decision also determines as well the person who manages the Closed Distribution Network (Closed Distribution Network Operator), his competencies, rights and obligations, as well as the terms, conditions and any other necessary detail for regulating the management of the Closed Distribution Network, analogous to the management activity of the HEDN, and taking into account the particular characteristics of it and the Users it serves. This said

decision may concern concurrently the classification of more than one network as Closed Distribution Networks.

It is worth noting that the Closed Distribution Network Operator may, by RAE's decision following a petition of his, be exempted from the obligation for RAE's approval of the tariffs for access to its network and the methodologies used to calculate them, before their entry into force. The granting of an exemption shall be determined having regard, in particular, to the nature of the relationship between the users of the network on one hand, and the owner and operator on the other hand, and any interdependence of their activities.

On the basis of the above arrangements and the absence of a "Supplier" provision within a "Closed Network", it is open to the NCSRD and certain entities, including a Local Government (e.g. a Municipality), to set up a "Closed Network" that will allow them direct transmission of electricity under terms to be agreed. However, the approval of such a system is at the discretion of the RAE, which will take into account, *inter alia*, the difficulties involved in such an initiative and the existence of a number of legal complications (for example, the legal difficulty of a Local Government to choose to join such a system, or the specific regime governing the RES which is not necessarily in step with the above possibility).

5.3.3. The legal capacity of the NCSRD to draw up contracts with Local Governments with the aim of facilitating the powering of the Experiment

Our legal order does not generally provide for the donation or provision without any consideration by any form of the State, whether by the Administration or by a Local Government or by LEoPL, when the grantee or recipient of the benefit is also a person governed by public law. The only case where Greek law recognizes the lawful provision of goods or of a service free of charge from a public entity to a public-law entity is where the provision in that exact form falls within the stemming from law, statutory purposes of the donor.

Therefore, an agreement between the NCSRD and a Local Government (e.g. a Municipality) cannot in principle be considered as lawful, under which the donation of goods or services will be provisioned, as this does not fall within the purposes of the NCSRD. However, such an agreement would be possible under two conditions: (a) if the goods or services offered are of a technological nature (Article 3 of the NCSRD Statutes, PD 71/1987), as RES infrastructure could be considered; and (b) if it were accepted that the term “supply” in the relevant provisions does not necessarily imply a consideration, a view thatmust be regarded as the legally more correct, in light of the grammatical and teleological interpretation of the abovementioned Article.

Furthermore, it is appropriate to take advantage of the capacity of both the NCSRD and the Municipality of becoming under the law[21] RES «self-producers» by the "virtual energy netting" system, in order to electrify facilities that are not necessarily near the RES generation plants, at a minimum or at no cost.

In the context of the above, the following scenarios of cooperation between the NCSRD and the Municipality of Kalamata are formulated in order to facilitate the implementation of the Experiment:

(a) The Municipality conveys (concession) to the NCSRD the use of an area of land plots owned by it, in order for the NCSRD to install the RES-based power generation infrastructure so as to power the Experiment under the system of sale or energy netting. Upon completion of this, the concession agreement expires and ownership of the RES infrastructure is transferred to the Municipality of Kalamata, in order to use it as a self-producer. The law allows for appropriate changes in the identity-data of the licensees of generation, installation and operation of RES infrastructure, as well as the renewal of the respective contracts.

(b) The Municipality grants to the NCSRD permission for the use of public areas within its boundaries, in order for the latter to install RES power generation infrastructure on them so as to power the Experiment under the system of sale or energy netting. Upon completion of this, the concession agreement expires and ownership of the RES infrastructure is transferred to the Municipality of Kalamata, in order to use it as a self-producer. The law allows for appropriate changes in the identity-data of the licensees of generation, installation and operation of RES infrastructure, as well as the renewal of the respective contracts.

Scenarios (a) and (b) meet the above requirements, they are based on the already explored possibilities of the relevant legislation[22], and they can be considered as complementary.

[21] Article 14A of Law 3468/2006.
[22] Combination of provisions of Articles 7 and 14A of Law 3468/2006 and 27A(6) of Law 3734/2009.

6. Conclusions

KM3NeT could become an experimental infrastructure with Zero Carbon Footprint in the near future. Being a distributed infrastructure in three countries means that different constraints, market conditions, legal frameworks and limitations, funding schemes and synergies have to be taken into account.

At present, the indications are that at least in Italy and Greece, collaboration with the local authorities may be a viable solution.In France, the proposed strategy is to purchase the electricity necessary for the KM3NeT local infrastructure froman approved provider of renewable energy sources.

This report deals with the legal issues relevant in each case. As is evident, although the details in each country are different, the implementations do not suffer from any major legal bottlenecks or problems. All proposed solutions are compliant with the legal structure both at the National and the European levels.

The next step is a follow up with a techno-economic feasibility study to establish the viability and relevance of the proposed solutions.

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