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Legislation framework for RES and desalination in Greece

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ABSTRACT

The paper presents part of the work that has been elaborated within the project entitled "Promotion of Renewable Energy Sources (RES) through Desalination", PRODES, IEE/07/781/SI2.499059, Intelligent Energy EU Programme. Part of the project work is dedicated to the analysis of the energy and water framework in four target countries, that is, Greece, Italy, Portugal and Spain. The present paper is focused on the current situation of the energy and water in Greece as well as on the legislation and administrative framework for RES and Water Desalination. Energy tariffs and water costs from conventional or alternative resources are also presented. The output of this work includes recommendations for policy makers, suggestions on the improvement and acceleration of the procedures, and further progress of RE-Desalination in Greece.

Keywords: Renewable energy technologies; Legislation framework; Administrative procedures; Desalination; Feed-in tariff; Water cost

1. Introduction

Greece is located in the southeastern part of Europe. The country comprises the Greek peninsula as well as the adjacent archipelago with approximately 3000 islands. Greece has an area of 131.944 km^2, with coastlines of more than 15.000 km. The country encompasses many island groups, including the Ionian Islands to the west, Sporades and Cyclades to the east, as well as the larger islands of Crete, Lesvos, Rhodes, Samos, Samothrace, Chios, and Limnos.

The terrain of Greece is mainly mountainous, while the climate is typical northern Mediterranean with most of the precipitation falling during the winter months and increasing from southeast to northwest [9].

Greece has a significant potential of wind, solar, and geothermal energy. With 300 sunny and warm days per year; over 1000 islands with sea wind – having an average wind speed of more than 7.5 m s^{-1} and an important number of geothermal fields; Greece is an ideal country for power production from Renewable Energy Sources (RES).

The mean precipitation in Greece approaches 850 mm y^{-1} (Fig. 1). Precipitation and evapor-transpiration in combination with the natural characteristics of underground aquifers, establish the main climatic variables that determine the quantity of internally produced water resources [11]. In describing the water resources of Greece, the key element seems to be the uneven distribution, both in time and space, of precipitation, activities, and population. Western Greece is by far richer in water, creating a water "crescent" from north to south, compared to the eastern part of the country where the majority of the population is concentrated [9]. Additional constraints may be imposed by the continuing increase of water demand as well as by environmental considerations. Regarding the Greek islands, most of the Aegean islands face water scarcity problems, which

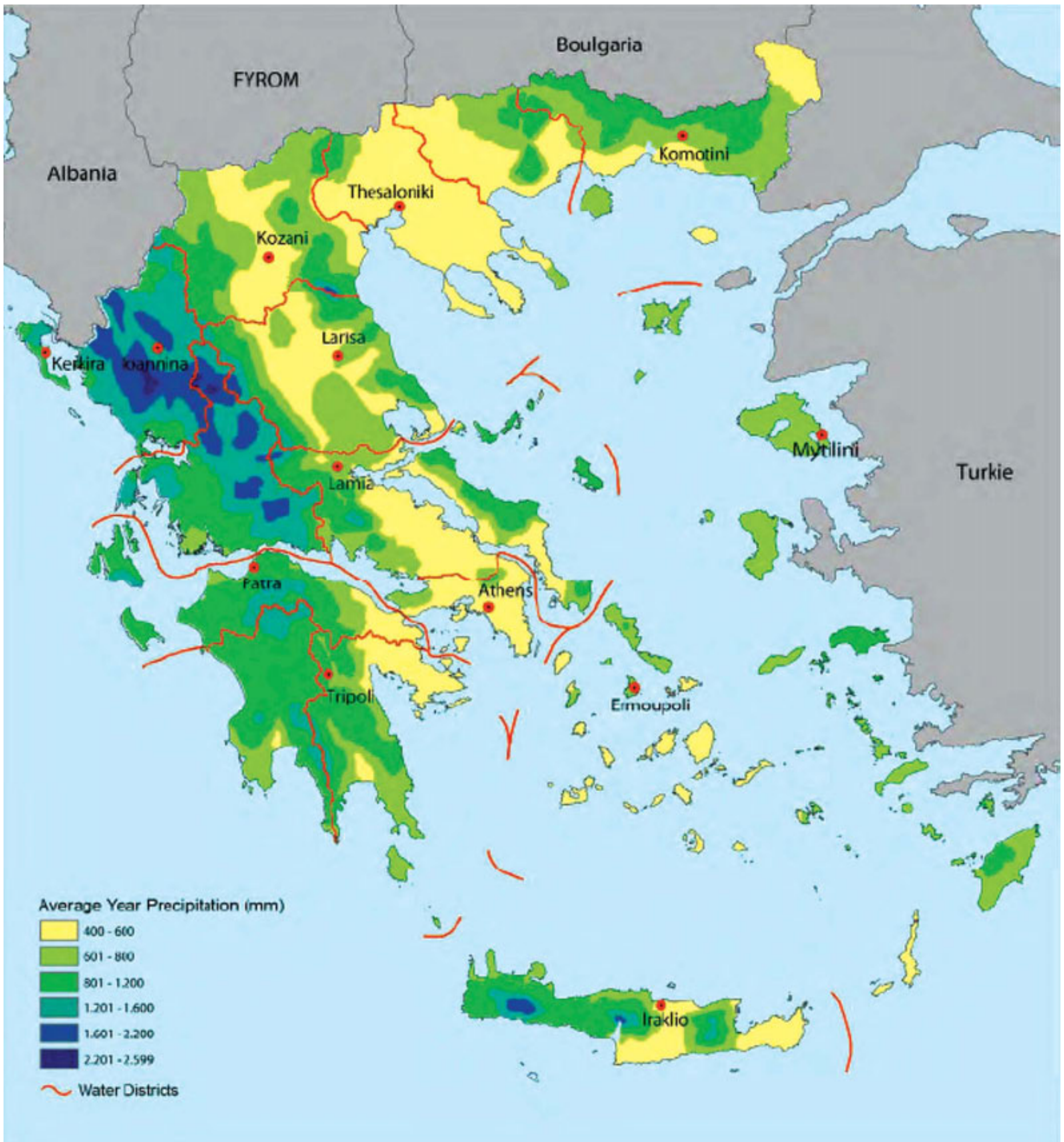

Fig. 1. Average annual precipitation (mm) in Greece [1].

are continuously increased mainly due to the tourism growth and insignificant water sustainable management and saving measures.

2. Current status of energy and water in Greece

During the last decade a continuously increasing interest in renewable energy technologies, was noted in Greece. This was a combined effect of:

(a) the favorable legal and financial measures that were implemented,

(b) the rich potential of RES and

(c) the rising environmental awareness.

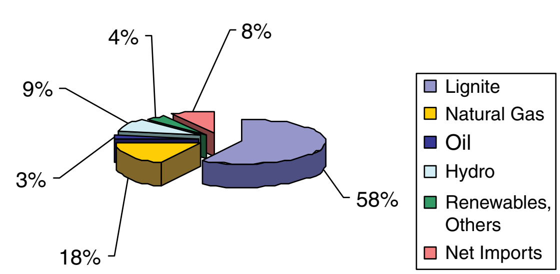

Fig. 2. Annual shares of fuels and net imports [12].

Nevertheless, the most common power source for electricity production in Greece is lignite for the mainland and also diesel for the Greek Islands. Fig. 2 displays the annual market shares across fuel and net imports, (covering the period of 01.01.2009–31.12.2009). More analytically, the electricity demand in the Aegean islands has up to now been covered [8] by thirty two autonomous power stations (APS), based on internal combustion engines and gas turbines, which belong to the former Greek Public Power Corporation (PPC), (*see* Table 1). Approximately 220 thermal power units operate in the Aegean, most of them being in operation for almost 20 y. The result of this situation is that several units present serious problems, being out of service for remarkably long periods, while their real output is almost 15% less than their rated power, especially during summer. According to the available information, all the APS operating in the Aegean area utilize diesel oil and heavy oil (mazut). The APS total installed capacity is approximately equal to 800 MW*, while the corresponding electricity generation during 2005 was almost 2200GWh [8,10]. Table 1 presents the rated power from the existing APS units which range from less than 1 MW in small islands and more than 50 MW in bigger islands, like Rhodes and Samos. In addition, there are cases like in those of Thasos, Samothrace and Sporades (excluding Skiros), where the islands are connected to the nearest available electrical network on the mainland.

Table 1
Aegean islands classification in terms of APS installed capacity [8]

Category (scale)	APS installed capacity (MW)	Islands
Very small	<1	Agathonisi, Agios Efstratios, Anafi, Antikithira, Donousa, Erikousses Megisti, Othoni
Small	>1 and <9	Amorgos, Astipalea, Kithnos, Samothrace, Serifos, Sifnos, Simi, Skiros
Medium small	>9 and <20	Ikaria, Ios, Karpathos, Milos, Patmos
Medium	>20 and <50	Andros, Lemnos, Mykonos, Santorini, Syros Chios, Kos-Kalimnos, Lesvos Paros
Big	>50	Rhodes, Samos

Regarding RES in Greece, wind energy has the largest contribution in the total electricity production from RES. In 2009, the total installed capacity of the wind turbines was of 1109 MW, showing an increase over the previous year of 12%. The energy produced from wind turbines during 2009 was approximately 2550 GWh, which corresponds to 4.4% of the national electric demand [6].

Concerning photovoltaics, their installed capacity, at the first semester of 2010, was around 90 MWp. Most of the installations have a nominal capacity of less than 150 kWp and are grid connected. The prospect for PVs installed capacity at the end of 2010 is estimated to have been around 160 MWp.

On the topic of solar thermal systems, the installed power of solar thermal collectors, including solar flat plate collectors and vacuum collectors, in Greece, is around 2095.0 MWth (2008). The installed power of the solar cooling systems is of 1000 kW, including absorption and adsorption systems.

The total installed capacity of geothermal energy installations, in Greece is of 105,8 MWth (2007). The geothermal applications concern spas, greenhouses, ground source heat pumps – GSHP systems, etc.

Water demand in the Greek islands has increased steadily over the last decade as a result of a building boom for new homes, hotels, and resorts (Table 2). The increase in water demand has resulted in the disruption of past sustainable water management practices. At present, most freshwater needs are met through the use of the limited groundwater, desalinated seawater

Table 2
Average itemized annual uses of water at the Aegean islands [7]

Prefecture	Agricultural area (1000 m^2)	Irrigation demand [hm^3 (y^{-1})]	Stock raising [hm^3 (y^{-1})]	Industrial [hm^3 (y^{-1})]	Domestic [hm^3 (y^{-1})]	Total [hm^3 (y^{-1})]
Lesvos	41,360	23.2	2.6	0.48	7.77	34.05
Chios	12,248	6.9	0.3	0.14	3.84	11.18
Samos	13,068	7.8	0.4	0.09	3.25	11.54
Dodecanese	32,690	20.8	1.2	0.28	15.18	37.46
Cyclades	31,021	21.5	2.3	0.24	7.15	31.19
Total	130,387	80.2	6.8	1.24	37.19	125.43

Adapted from the Hellenic Ministry for the Environment, Physical Planning and Public Works (2008).

*1000 MW is equal to 1 GW.

or brackish water, and water importation [7]. Aegean Islands, Cyclades and the smaller islands of Dodecanese, are facing the most serious problems due to the huge number of visitors every year, while they are the driest part of Greece and isolated, thus making water transportation extremely expensive.

Water importation from the mainland is practised commonly in the Aegean Islands, as it is the only way to fulfill instantly the freshwater needs of the islands. However, the volume of the transported water is inadequate due to the limited capacity of the tankers, which in high seasons may not be able to keep up with the demand. During winter there are also difficulties of the water transportation due to the difficulty of the tanker to reach the ports of the small islands because of high winds. As shown in Table 3, during 2007, the total amount of the transported water reached the 1,744,380.0 m^3, having an average unit cost of 6.2 € m^{-3}. The total cost of the water transportation was of 9,400,000.0 €. In 2010, the unit cost of the transported water increased to almost 12.5 € m^{-3}.

Regarding desalination in Greece, the main target regions are the small and medium islands (according to the population), having significant deficit in fresh water. At the same time, most of these islands are not connected to the electricity transmission system of the mainland; as mentioned above the electric power is achieved by autonomous power supply systems. The development of desalination, as an alternative source of freshwater, would greatly depend on the existence of secure and optimistically, cheap energy supply sources. For the small grids of these areas the load of the desalination unit could be a significant extra charge in the already problematic grid. Most of the desalination units in the Greek islands follow the technology of Reverse Osmosis (RO) for seawater desalination [2,5]. Nowadays, the total product water capacity of the desalination units operating in the islands is estimated at more than 30,000 m^3 d^{-1}.

The operational and maintenance cost of the desalination units in the Greek islands ranges from 0.30–2 € m^{-3}, mainly depending on the characteristics of each unit and the specific site. The majority of the desalination units include energy recovery devices for the reduction of the energy requirements.

Table 3
Amount of water transportation in Greek islands in 2007

Island group	Amount of water transported by tankers [m^3 $(y)^{-1}$]	Unit water cost (€ m^{-3})
Cyclades islands	642,752	7.59
Dodecanese islands	1,101,628	4.88

3. Main actors of energy in Greece

The main actors of the Energy system in Greece are the following:

- *Regulatory authority for energy* (RAE), an independent public authority established by the fourth article of law 2773/1999. The purpose of RAE on the one hand is to facilitate free and healthy competition in the energy market, so that through the development of competition, the services offered to costumers will be improved and on the other hand, to apply a suitable regulatory policy which will allow healthy and maintainable economic viability in the regulated business and will provide assurance for potential investors who want to enter the energy market, that they will have equal access to transmission and distribution grids for the promotion of the products offered.
- *The Hellenic transmission system operator* (HTSO) or the system operator, as provided by Law has as scope the operation, maintenance and development of the electric power transmission system throughout the whole country, as well as of its interconnections with other systems, in order to secure the country's supply with electric power in a sufficient, safe, financially effective and reliable way. HTSO S.A. assumed the commercial management of the renewable energy plants of the interconnected system in October 2002[†].
- *Centre for renewable energy sources & saving* (CRES) as provided by Law, has as scope the promotion of RES, the saving and the rational use of energy, as well as any kind of support for the activities in those fields. Furthermore, CRES operates as the national coordinating centre of all those activities. CRES owns laboratories for certification of RES technologies, carries out studies for the determination of the physical and economical potential of RES and participates effectively in the evaluation and monitoring of the investments implemented in the sector, including the energy saving field.

4. Framework and administrative procedures for RES

The legal framework currently governing RES electricity is Law 2773/1999, which also sets the rules for the liberalization of the electricity market in the country.

[†]According to the provisions of article 21 of Law 2773/1999, PPC S.A., having already been floated by virtue of Presidential Decree 333/2000 "Conversion of the Public Power Corporation (PPC) into a Societe Anonyms and approval of its statutes" (Government Gazette A 278) performs duties of system operator of the island grids which are not connected to the mainland system.

Starting in February 2001, any private investor can produce electricity, subject to the issuing of a generation license by the Regulatory Authority for Energy (RAE). A specific mention to RES-electricity production is included in Law 2773/99, which states that the HTSO is obliged to grant priority access (priority in load dispatching) to RES electricity-producing installations.

One of the main obstacles in the penetration of RE technologies in the electricity generation is the limited capacity of the transmission network to absorb and transmit the RES electricity produced. The problem of absorption is focused in the Greek islands, where the local network is not capable to absorb the electricity produced by RES.

From 1999 until today several Laws and ministerial decisions (MD) have been introduced for the specification of the licensing procedures, their acceleration etc. Among others, a new Law, Law 3851/2010, came into force in 2010. This Law:

(a) Doubles the target for the contribution of RES to gross electricity consumption in Greece by 2020 to 40% from 20% previously.
(b) Reduces the time required for the licensing procedure to 8–10 mo from 3–5 y currently, and thus facilitates the deployment of RES in Greece.
(c) Introduces discounts in the electricity bills of local communities.
(d) Introduces a different tariff regime for the new RES installations according to which a 20% higher tariff will be provided to the investor who will decide not to use state subsidies for the development of the RES station.

Moreover, an important issue of the Law 3851/2010 is the implementation of a Strategic Plan for Islands Interconnections by ceasing the operation of the local conventional plants and minimizing local pollution. With Law 3851/2010, new feed-in-tariffs (FITs) have also been placed. FITs of RES technologies within the purpose of the project (wind, solar, geothermal energy) are presented in Tables 4 and 5.

Law 3851/2010[‡] also provides priorities, regarding the license procedure of RES projects combined with desalination for the production of potable water or (for) other water use.

Table 4
Feed-in-tariffs according to Law 3851/2010

Generation of electricity from:[a]	Price of energy [€ (MWh)$^{-1}$]	
	Interconnected system	Non interconnected islands
(a) Wind energy exploited through land facilities with capacity greater than 50 kW	87.85	99.45
(b) Wind energy exploited through facilities with capacity smaller than or equal to 50 kW	250	
(c) Photovoltaic equipment of up to 10 kWp in the domestic sector and in small businesses (according to the special program for buildings MD 12323/ΓΓ 175/4.6.2009, B'1079)	550	
(d) Solar energy exploited by solar thermal power systems for the generation of electric energy	264.85	
(e) Solar energy exploited by solar thermal systems for the generation of electric energy with a storage system, which secures at least 2 h of operation at the nominal load	284.85	
(f) Geothermal energy of low temperature according to the 1st paragraph of Article 2 of the Law 3175/2003 (A' 207)	150	
(g) Geothermal energy of high temperature according to the 1st paragraph of Article 2 of the Law 3175/2003 (A' 207)	99.45	

[a]The prices in the above chart for Self-Producers of electrical energy are valid only for R.E.S. and C.H.P. stations with installed capacity up to 35 MW and for the surplus of electrical energy made available through the System or the Network, which may rise up to 20% of the total electrical energy produced by these stations on an annual basis.

[‡]Law 3852/2010 has been based on the Law 3468/2006 "Generation of electricity from renewable energy sources and through high-efficient-co-generation of electricity and heat and miscellaneous provisions" (Official Gazette A' 129).

Table 5
New feed-in tariff levels for solar PV [€ (MWh)$^{-1}$]

Year	Month	Mainland grid		Autonomous island grids	
		>100 KWp	≤100 KWp	>100 KWp	≤100 KWp
2009	February	400.00	450.00	450.00	500.00
2009	August	400.00	450.00	450.00	500.00
2010	February	400.00	450.00	450.00	500.00
2010	August	392.04	441.05	441.05	490.05
2011	February	372.83	419.43	419.43	466.03
2011	August	351.01	394.88	394.88	438.76
2012	February	333.81	375.53	375.53	417.26
2012	August	314.27	353.56	353,56	392.84
2013	February	298.38	336.23	336.23	373.59
2013	August	281.38	316.55	316.55	351.72
2014	February	268.94	302.56	302.56	336.18
2014	August	260.97	293.59	293.59	326.22
Year 'n' from 2105 onwards		1.3*SMC_{n-1}	1.4*SMC_{n-1}	1.4*SMC_{n-1}	1.5*SMC_{n-1}

SMC = System marginal cost

As mentioned in article 2 of the Law, *"the applications for the installation of RES plants which are combined with the installation of water desalinization plants, are examined with absolute priority on condition that the installed capacity of RES does not exceed by 25% of the installed capacity of the desalination unit and that contracts for the distribution of the produced water quantities have been signed between the applicant and the General Secretariat for the Aegean and island policy or with the relevant Local Authorities(L.As.).*[§]

Also, as mentioned in the Law, in these cases the duration of the license is determined by the duration of the above mentioned contracts. The judgment concerning the potential inclusion of the RES plants is based on the results of a techno-economic feasibility study which is prepared by the applicant. The electricity produced from the RES plant is recompensed, on an hourly basis, according to the consumption of the desalination plant. The surplus of electricity may be committed to the network up to 20% of the produced power, in accordance to the rules applicable for self-producers. Finally, Law 3468/2006, p. 3, article 5, determines the procedures of authorization or withdrawal of the permission, in case of non implementation of the desalination project.

For the construction and operation of a RES power station, the issue of several licenses and contracts is required. These are granted by the relevant bodies, on request, accompanied by the required documents and studies. In general, according to the Law 3851/2010, the steps that needed to be made are shown in Fig. 3.

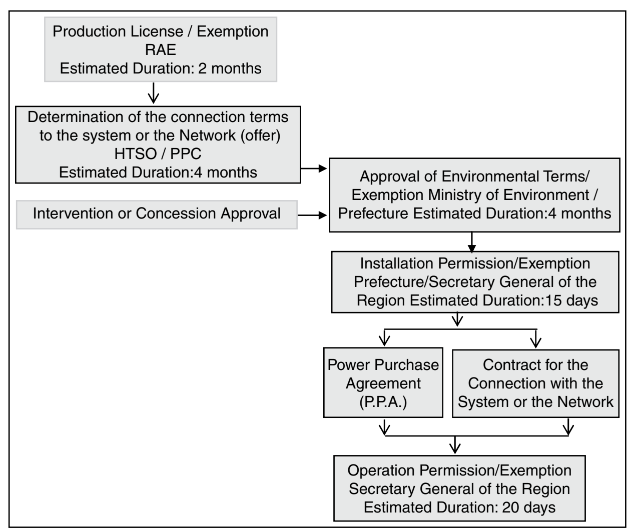

Fig. 3. Licensing procedures for the installation and operation of RES stations.

There are also exemptions from the obligation of obtaining production permission. The exemptions are mainly based on the installation capacity of the RES station. For instance, excluded from the obligation to obtain a license to produce electrical energy or any other certification decision, are physical or legal persons who produce electrical energy from: (a) Geothermal stations with installed capacity smaller than, or equal to 0.5 MW, (b) Solar (Photovoltaic-PV) stations or solar thermal power

[§]Official translation of Law 3852/2010, www.ypeka.gr.

stations with installed electrical capacity smaller than or equal to 1 MW_{peak}, (c) Wind energy facilities with installed electrical capacity smaller than or equal to 100 kW, etc.

RES power stations that are not under the obligation of obtaining a production license, are also excluded from the obligation to be granted an installation and operation license. On the contrary, they are obligated to abide by the process of environmental licensing according to article 4 of law No 1650/1986. Photovoltaic stations and wind turbines installed on buildings or on other similar structures or inside organized receptacles of industrial activities are exempt from the obligation of the Approval of Environmental Conditions (A.E.C.) decision.

Similarly, exempt from the obligation of publication of the A.E.C. decision are the stations producing electrical energy from RES installed in field courts as long as their installed electrical capacity does not exceed the following limits per technology used:

- 0.5 MW for stations producing electricity from geothermal energy;
- 0.5 MW for stations producing electricity from photovoltaic panels or solar thermal power stations;
- 20 kW for wind powered stations producing electricity.

The above cases require the issuing of a certificate of exemption.

5. Main players of water in Greece

The main players of water supply and sewerage issues are the Athens Water Supply and Sewage Company (EYDAP SA) for the capital of Greece and the Municipal Enterprises for Water and Sewage (DEYAs) for the rest of the mainland and for the islands.

The Athens Water Supply and Sewage Company (EYDAP SA) aims to:

- provide water supply and sewage services,
- design, construct, install, operate, manage, maintain, expand and upgrade water supply and sewage systems,
- pump, desalinate, process, transfer, store and distribute all kinds of water as a means of serving EYDAP's object,
- implement projects and processes for collecting, transferring, storing, processing,
- manage and dispose the wastewater treatment products.

EYDAP's area of service is the greater metropolitan area of Athens, as determined by Law 1068/1980, under which the company has been incorporated. Moreover, under Law 2744/1999, EYDAP has the exclusive right to provide water-supply sewage services in the geographical area of its jurisdiction. It should be also noted that under Law 2744/1999 and the Joint Decision of the Ministers of Economy, Finance, Environment, Physical Planning and Public Works, EYDAP may also expand its operations to other areas within or outside the Attica region. To meet its obligation and provide water-supply services in the greater metropolitan area of Athens, EYDAP obtains, under certain agreements, raw water from adequate resources that belong to the Greek State (www.eydap.gr).

In Greece, until the 19th century, local authorities were in charge of water abstraction and supply within their territory. In the onset of the 20th century, a new type of management was introduced. The water services were mainly private companies to which the State or the Municipality had delegated the water supply and sewage responsibilities. Later, the water supply and sewage activities were transferred to the local authorities. Nowadays, in Athens and Thessaloniki there are three public companies responsible for the water supply and sewage. In the rest of the country and especially in cities with more than 10,000 inhabitants there are municipal enterprises. These companies are abbreviated as DEYA and have undertaken the supply of drinking water and the collection and treatment of urban waste water. In small cities the water and sewage service is part of the municipal service. There are also intercommunity associations which manage the water service for their communities (www.edeya.gr).

6. Framework and administrative procedures for desalination

The administrative structure responsible for the water resources management has various levels. According to the Law 3199/2003, several agents are established for the protection and management of water. These are: the National Water Commission which determines the water policy of the country and consists of several Ministries, and the National Water Council. The National Water Council is consists of regional organizations, DEYAS, PPC, Municipalities, etc.

For the installation of a RES Desalination plant, there is no any "unified" administrative procedure. The procedures for RES are as described in paragraph 4. Generally, for desalination, the establishment and operation of a conventional plant follows the Law for the establishment and operation of industrial installations in the context of sustainable development and other provisions (Law 3325/2005). The main permissions required are the siting and the operational permission which are followed by several other approvals, terms¶, etc. Fig. 4

¶The procedure for the Approval of Environmental Terms is provided by (Law 3010/2002) and MD11014/ 703/ ϕ104/ 2003.

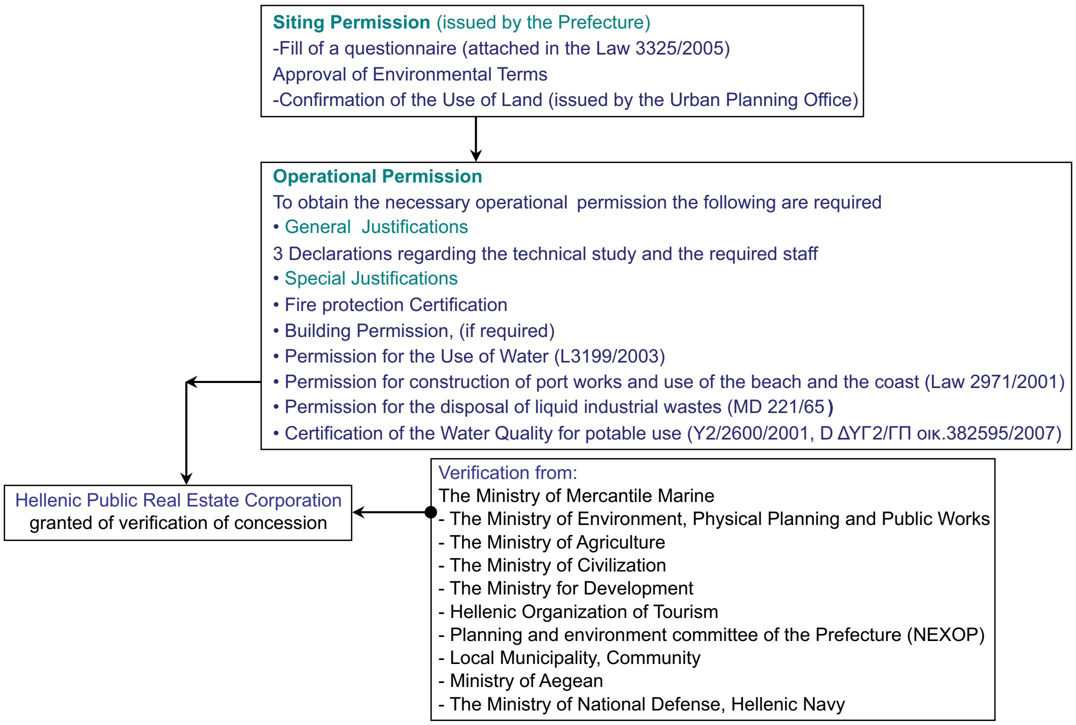

Fig. 4. Licensing procedure for the installation of desalination plants.

presents, in brief, the procedure required for the development and operation of a desalination plant.

Furthermore, it should be mentioned that in case of the construction of plants with public interest (e.g., water supply of municipalities) special procedures can be followed.

According to Joint Ministerial Decision JMD 13727/724/2003 and MD 15393/2332/2002, desalination projects classified as activities with medium or low level of environmental effects, are as follows:

- Desalination units of >100 $m^3 d^{-1}$ characterized by Medium Level of environmental effect, while.
- Desalination units of ≤100 $m^3 d^{-1}$ characterized by Low Level of environmental effect.

The procedures for the environmental permission are considered according to the category of each project.

7. Electricity and water cost

The electricity production costs from APS of the Greek islands, as it is shown in Fig. 5, range from less than 100 € $(MWh)^{-1}$ up to 1200 € $(MWh)^{-1}$. This wide range of costs is based on several parameters such as fuel transportation cost (according to the distance from the mainland), maintenance cost, age of the station, size, etc.

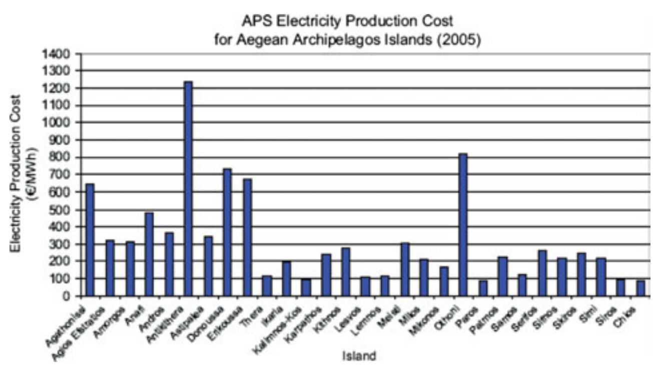

Fig. 5. APS electricity production cost in Aegean islands [8].

The cost of generated wind power could be assumed to be between 0.25 c€ $(kWh)^{-1}$ and 0.5 c€ $(kWh)^{-1}$, depending on the site conditions and project cost. The typical interest rate for financing wind energy projects is 7–8%.

The cost of generated PV power in Greece is around 0.20 c€ $(kWh)^{-1}$, depending on the site conditions and the installed capacity of the plant.

For the pricing of domestic and industrial water, EYDAP S.A. as well as DEYAs, follow a non-uniform pricing policy, in which the price of water ranges with the amount of consumption [3]. According to the MJD 48405/346/2004, the tariff system for the services of EYDAP is separated into eight categories.

The two categories concerned with the present works shows in Table 6.

Furthermore, Table 7 presents an example of the water tariff system in a Greek island. A different tariff system is followed in each Greek island of both the Aegean and the Ionian Sea or in each locality of the mainland.

Finally, the unit water cost from the seawater desalination units in the Greek islands ranges from 1 up to 2 € m^{-3} (except special cases which is more, e.g., in Thira island). As mentioned before the unit water cost from the desalination units depends on site characteristics (e.g., distances from the feed water source) and unit's characteristics (e.g., size of the desalination (unit, feed water conductivity, etc.), use of energy recovery device, use of chemicals, and age of the unit). For instance, one of the highest unit water cost from desalination units in Aegean islands is observed in Oia, Thira (Santorini) where the RO desalination unit has been installed at a height of more than 40m from the sea level. The energy requirements, to transfer the feed water to the RO unit are tremendous, leading to a high energy cost and high unit water cost.

Table 6
Water tariff for the mainland

Monthly water consumption (m^3)	Water price (€ m^{-3})
1st Category – general tariff[a] – domestic use	
5–20	0.61
20–27	1.75
27–35	2.45
>35	3.05
2nd Category – industrial – trade tariff	
≤1000	0.79
>1000	0.93

The above prices are charged at a fixed rate.
[a]There are special prices for families with more than three children.

Table 7
Water tariff in Mykonos island – Cyclades group of islands, Aegean Sea

Water consumption (m^3)	Price (€ m^{-3})
0–30	0.73
31–50	1.06
51–100	1.39
101–150	1.63
151–200	2.12
201 and more	2.44

The above prices are also charged at a fixed rate.

8. Conclusions

Following the examination of the energy and water framework in Greece, it is obvious that both are complicated and that significant time is required to obtain the obligatory permissions. The latest law for RES aims at the acceleration of the necessary procedures, however it is too early to evaluate its effectiveness. Additionally, the Greek water framework seems sufficient but there is no specific procedure for the establishment of a desalination plant. This, due to numerous exceptions and lack of knowledge in desalination issues leads to delays and incomplete observance of the Laws.

The most important step forward for the progress of conventional and/or RES desalination in Greece is the development of a specific framework for water desalination and provision of fresh water. For the development of more adequate and effective administrative procedures, desalination units should be separated and categorized according to specific parameters, such as, installed power, type of plant (seawater or brackish water plant), environmental impact, etc. As a result of that the procedures for the installation and operation of conventional/RES Desalination plants will be clear, simple, and faster.

Regarding the tariff system, the price of water could not exceed the water cost. According to the Water Framework, water should be charged at a price which fully reflects the services provided. Provision of water could not and should not be an investment aiming at profit. On the other hand RES exploitation, for grid connected systems, is a profitable investment with significant feed-in-tariffs. For autonomous systems the situation is more complicated and less profitable. Thus, specific subsidies or feed-in tariff issues should be considered for those units that aim at and contribute) to the public benefit.

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