

PART 10

GREECE

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PART 10

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## CHAPTER 35

# ELECTRICITY

## 1. INTRODUCTION

The Greek electricity market has undergone radical changes over the past **35-01** decade, the most prominent of which is the effort to open up the market to competition. At the same time efforts have been made in relation to the country's energy infrastructure such as the infiltration of natural gas, the construction of trans-european networks and the promotion of renewable energy sources (RES). Much of the restructuring of the Greek energy market has aimed at reducing the country's dependence on imported oil and on lignite (i.e. Greece's primary source of electricity production for several decades).

The installed capacity of 12.9 GW is dominated by thermal sources (71 per cent) whilst hydro sources account for 24 per cent. In 2005, Greece produced 59.5 TWh, of which 61 per cent from lignite, 14 per cent from gas and 9 per cent from hydro. The country imports between 2m and 3m TWh annually. The electricity price was in 2005 at 9.0 cents/KWh for households and 5.3 cents/KWh in industry. Whilst industrial prices are only 10 per cent lower than the EU average, household prices are much lower, i.e. by 25 per cent. For non-eligible customers, the price is the same in all the country, including on the islands. In real terms, electricity prices decreased about 40 per cent between 1990 and 2000. The Greek Public Power Company ("PPC"), the formerly vertically integrated undertaking, remains the dominant electricity generator. At the end of 2005, PPC's installed power capacity amounted to 12.3 GW out of a total of 12.9 GW. During 2005, PPC produced 52.9 TWh (about 95 per cent of total electricity generation). PPC, which is now state-owned by 51.45 per cent and listed at the Athens Stock Exchange, provides electricity to seven million customers.

The market is split into two different systems: the mainland grid and the so-called "non-interconnected islands". The latter include Crete and Rhodes and have their own autonomous systems. The distinction is important because there are different rules applicable for each system (for instance, a tendering procedure for authorisations is used in the non-interconnected islands).

Power generation in the mainland is concentrated in north Greece where lignite deposits are located. The total installed thermal and hydro capacity of the interconnected system (i.e. the mainland grid) is 11,350 MW, of

## *Electricity*

which 5,288 MW come from lignite-fired power plants, 1,841 MW come from natural gas, 836 MW from oil-fired plants and 3,385 MW from hydro plants. The total capacity installed on the non-interconnected islands amounts to 1,605 MW, of which 140 MW come from RES and 1,465 from fuel fired plants. The total output of thermal capacity has recently increased due to the commissioning of two new power plants. One of these is owned by Thessaloniki Energy SA – an affiliate of the partially state-owned Hellenic Petroleum SA (“ELPE”); the other is a gas-fired plant in Viotia owned by IRON THERMOILEKTRIKI, which started its commercial operation at the end of December of 2004 and operates under a contract with the Greek TSO to offer ancillary services. RES, CHP and autoproducers are under a special protective regime according to which the Greek TSO buys all electricity generated from renewable and small CHP at regulated feed-tariffs.

The transmission and distribution system consists of high-voltage transmission lines (400 kV, 150 kV and 66 kV), the total length of which is approximately 10,500 km. In the mainland grid, transmission lines are of 400 kV and of 150 kV. The 400 kV network, which has been developed considerably in recent years, forms the backbone of the transmission system. The distribution system includes medium and low voltage lines. The total length of the distribution lines is about 185,000 km. The medium voltage lines are of 20 kV and 15 kV with a small number of lines at 22 kV and 6.6 kV. The low voltage lines are of 380/220 V. Greece has been connected to the other EU Member States since July 2002 through a submarine line with Italy of a capacity of 500 MW and a length of 63 km. The construction of the line cost €340 m and took four years. The line belongs as to 75 per cent to the Italian operator Terna and as to 25 per cent to PPC.

## 2. THE FIRST ELECTRICITY LAW OF 1999

**35–02** Statute 2773/1999 (“On the liberalization of the Electricity Market”, hereinafter “First Electricity Law”) was introduced to transpose directive 96/92/EC into Greek law. It was passed in December 1999 and in so far as the opening-up of the market to competition was concerned it came into force on February 19, 2001. The statute introduced the new key entities of the sector, namely the regulator (RAE) and the Greek transmission system operator (HTSO). The former came into being in July 2000 and the latter in 2001 after Presidential Decree 328/2000 was promulgated. The First Electricity Law also set in train the unbundling of the PPC. The new regulatory system allowed the participation of electricity generators and suppliers, whilst the transmission and distribution systems remained monopolies under the management of the HTSO and the PPC respectively. Ownership of both systems remained with PPC. Crucially, the First Electricity Law shared regulatory competencies between RAE and the Minister for Development who

### *The First Electricity Law of 1999*

retained the authority to pass all secondary legislation envisaged in the Law, i.e. the Licence Code, the Supply Code, the Market Rules, the Grid Code and the Distribution Code.

Although set to become the cornerstone of the liberalisation of the Greek electricity market, the First Electricity Law failed dismally to bring about the intended results. Even though an impressive number of authorisations were issued, neither new competitors entered the market nor any new power plants were constructed – for a number of reasons. First, PPC, which has held (and still holds) a dominant market position, has used profits from non-eligible customers to cross subsidise offers to eligible customers and beat the very objectives of unbundling. Secondly, the First Electricity Law obstructed the supply and trading of electricity as it required that every supplier be the owner of generating capacity, in Greece or another EU country, which would be sufficient to meet the demands of the contracted customers. Therefore, every supplier had to be a generator as well, which made the existence of energy wholesalers practically impossible. Thirdly, banks considered involvement in the electricity market as a high-risk investment. Fourthly, the natural gas market was nowhere near liberalisation.

### 3. AMENDMENTS MADE BY STATUTE 3175/2003

Statute 3175/2003, which amended the First Electricity Law, aimed to overcome some of the early barriers to liberalisation. In so doing, it dealt with the following. **35–03**

#### *Broadening of eligible customers*

Except for those who used electricity for domestic purposes, all consumers in the mainland became eligible customers on July 1, 2004. It was further stipulated that as of July 1, 2007 all consumers, with the exception of those in the non-interconnected islands, would become eligible customers. **35–04**

#### *Suppliers as traders*

Suppliers were no longer required to *own* generating capacity but only to show that they had secured the respective capacity of electricity production from generators inside the EU. **35–05**

#### *Capacity payments system*

The capacity payments system aimed to provide an additional source of income to generators and reduce investment-related risks. It was thus intended to develop mechanisms that would ensure capacity adequacy (in comparison with demand) in both the short and longer term. The mechanisms **35–06**

## *Electricity*

involved the imposition of capacity obligations on suppliers (load serving entities) and the development of a market for tradable capacity certificates or capacity availability contracts or direct capacity payments. Such mechanisms would be controlled and operated by the HTSO under the supervision of RAE. Thus the HTSO would carry out a tender procedure to conclude capacity availability contracts between the HTSO and licensed generators. The HTSO would therefore enter into a contract for the sale or purchase of electricity only if this was required for the provision of ancillary services and the needs of balancing the generation – demand imbalances during the operation of the system in real time. In this fashion, availability of sufficient capacity and of sufficient reserve capacity could be secured on a long-term basis.

### *Day-ahead electricity market*

- 35–07** Under Statute 3175/2003 the definition of deviations became wider to facilitate the management of balance payments by the HTSO. Participation in the day-ahead market became obligatory for all generators and suppliers who wanted to buy or sell electricity the following day. All suppliers would pay the same price as this would be determined by the bids submitted during the previous day. The new model was fundamentally based on the “pool model” used in the UK during the 1990s.

### *Unbundling*

- 35–08** A new definition was introduced about the horizontally and vertically integrated undertakings to ensure a more effective unbundling and transparency of accounts.

## 4. STATUTE 3426/2005 (“NEW ELECTRICITY LAW”)

- 35–09** Despite these legislative measures and the rapid increase in electricity demand, the Greek electricity market never really opened up to competition nor any power plant projects ever got off the ground. Indeed, of the 12 generation authorisations granted to gas-fired non-PPC producers for a total capacity of 4,153 MW between 2001 and 2005, only the two power plants mentioned in the Introduction came into being. Partly because of this failure and partly because of the need to transpose directive 2003/54/EC into national legislation, Statute 3426/2005 (“Acceleration of Electricity Market Liberalization” hereinafter “New Electricity Law”) came into force on December 22, 2005.



*Statute 3426/2005 (“New Electricity Law”)*

*Unbundling and transparency of accounts*

To speed up liberalisation, network access is intended to be granted on non-discriminatory, transparent and fairly priced terms. In compliance with arts 18 and 19 of Directive 2003/54/EC, the New Electricity Law sets out in greater detail the rules on the unbundling and the transparency of the accounts of electricity undertakings. It provides for separate accounts for transmission, distribution, production and supply activities so as to avoid discrimination, cross-subsidisation and distortion of competition. Undertakings are made subject to audit so as to avoid discrimination and cross-subsidies. Electricity undertakings must publish their accounts in accordance with Greek company law (Statute 2190/1920), as amended by statutes 3229/2004 and 3301/2004. RAE has the right to audit the compliance of electricity undertakings with the above obligation and to this end it has the right to access their accounts. **35–10**

*Unbundling of transmission and distribution system operators*

PPC remains the owner of the transmission system whilst the HTSO remains in charge of the operation and exploitation of the transmission system. The HTSO is 51 per cent state-owned and 49 per cent owned by the generators; at the moment PPC still controls 49 per cent of the shares of the HTSO and appoints all minority members of the board of directors of the HTSO. Article 17 of the New Electricity Law provides that the members of the board of directors of the HTSO should be entirely unrelated, whether in terms of employment relationships or otherwise, to enterprises doing business in electricity generation or supply. Members of the board of directors of the HTSO who are designated by PPC are granted independence assurances in the exercise of their duties. **35–11**

*Transmission network*

The New Electricity Law sets out new provisions to ensure operational and legal unbundling of the operators of the transmission and distribution networks. The operational unbundling of the HTSO comprises, among others, its independence from the vertically integrated undertakings involved in the generation or supply of electricity. New provisions also aim at further promoting the operational unbundling of PPC by making PPC independent in terms of its organisation and decision-making. The duties and rights of PPC as the owner of the transmission system are distinguished from the duties of the HTSO which becomes the exclusive incumbent for the maintenance and development of the system. Under the new regime the HTSO has a broader role. On the one hand, it acts as the Transmission System Operator entrusted with the maintenance and development of the system. Thus it: **35–12**

- manages energy flows on the system and electricity exchanges with other interconnected systems. To this end, the HTSO submits to

### *Electricity*

RAE and to the European Commission a quarterly report on the imports of electricity including those from third countries;

- co-operates actively with the operators of other interconnected systems to ensure cross-border exchanges and interoperability of the interconnected systems;
- plans the development of the system, maintains technical standards and efficiency, and applies transparent, objective and impartial criteria in rendering its services so as to avoid discrimination between system users or classes of system users;
- provides system access to electricity generation and supply licensees; to those who have been legally exempted from receiving such licences; and to eligible customers;
- dispatches available generating installations, determines the use of the interconnectors with other electricity networks and manages generation-demand imbalances between the generation and supply licensees;
- takes the necessary steps to ensure a sufficient margin of electricity reserves from the producers;
- ensures the secure, reliable and efficient operation of the system and the availability of all necessary ancillary services.

In the performance of these duties the HTSO is supported by PPC which (a) ensures the development of the transmission network according to the rules laid down by the HTSO; (b) enters into contracts with the HTSO for the performance of projects related to the development of the system; and (c) looks after the structural and technical integrity of the system in accordance with the HTSO's planning.

In addition to acting as a system operator and dispatcher, the HTSO also acts as the market operator and a clearing house that settles daily and on the basis of the system marginal price (SMP) the accounts between market participants.

### *Distribution network*

**35-13** Until the combined operator takes over (see following section), PPC remains the exclusive owner and operator of the distribution network both for the mainland and for the non-interconnected islands grids. Acting as the DSO, PPC must:

- develop and maintain a reliable, efficient and secure distribution network while protecting the environment;
- ensure access to the distribution network by generation and supply licensees and eligible customers in line with the Distribution Code;

*Statute 3426/2005 (“New Electricity Law”)*

- connect all applicants to the distribution network in line with the Distribution Code;
- avoid discrimination between distribution network users or classes of distribution network users particularly in favour of PPC’s subsidiaries or shareholders;
- assess and draw up cases of priority access to its generation capacity and distribution network interconnections;
- ensure the confidentiality of commercially sensitive information obtained in the course of carrying out its business;
- publish tariffs for the use of the distribution network.

*Combined operator*

The New Electricity Law goes for the option given by Directive 2003/54/EC **35–14** for a combined operator rather than for a separation between the TSO and the DSO(s). Thus, until July 1, 2007 the HTSO must take on the duties of distribution and be made a combined operator (“HCO”). This new entity will obtain its licence from the Minister for Development, following RAE’s opinion. The new legal entity will be created by the transformation of the HTSO so as to accommodate the duties of the DSO too. The combined operator is intended to be structurally independent. Thus the New Electricity Law provides that those persons responsible for the management of the combined operator must not have any interest whatsoever in electricity undertakings, whether on the generation or the supply end.

*RAE*

The Greek Regulatory Authority for Energy was established in 1999 under **35–15** art.4 of the First Electricity Law and became operational in July 2000. RAE has its own financial resources (i.e. levies from the regulated industry, lump sums and annual charges to energy companies or charges for licensing and amendment of licences). The President and the two Vice-Presidents are appointed by a decision of the cabinet; the remaining members are appointed by the Minister for Development. All members’ tenure of office is five years, which can be renewed only once. The members of RAE are not allowed, after the end of their tenure of office, to participate as partners, holders, members of a board of directors or consultants or employees of any kind in companies or enterprises, the activities of which are supervised by RAE. The First Electricity Law also called for the establishment of the RAE Secretariat to provide for the necessary organisational structure for the authority’s work. The Secretariat performs its duties in line with Presidential Decree 139/2001 (“Regulation for the Internal Operation and Administration of RAE”) which is currently under revision. The revised text is expected to come out in mid-2007. RAE’s Secretariat consists of 90 employees and is

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structured in operational and support units. The operational units of RAE's Secretariat are five:

- Markets and Competition Supervisory Unit
- Unit for the Protection of Consumers and the Environment
- Unit for the Processing and Substantiation of Decisions
- Unit for the Analysis of Energy Systems
- Unit for Energy Planning and International Issues.

Under the New Electricity Law, RAE supervises and monitors the operation of all sectors of the energy market and advises the competent authorities on the necessary changes to be made to secure compliance with competition rules and consumer protection. In particular, it monitors the rules on the management and allocation of interconnection capacity jointly with the regulatory authorities of countries with which interconnection exists; on congestion capacity mechanisms; on the time taken by transmission and distribution undertakings to make connections and repairs; on the publication of information by transmission and distribution system operators concerning interconnectors, grid usage and capacity allocation to interested parties; on the effective unbundling of accounts so as to ensure that there are no cross-subsidies between generation, transmission, distribution and supply activities; on the terms, conditions and tariffs for connecting new producers and customers to ensure transparent, objective and non-discriminatory third-party access; on transparency and competition in the energy market; and on security of supply. Additionally, RAE is empowered to give opinion on the terms and conditions of access to the transmission and distribution system and on the granting of licences to electricity undertakings. It also approves tariff methodologies and imposes penalties on rule-breaking entities.

Moreover, RAE settles disputes through a twofold system based on a hearing procedure and on a permanent arbitration mechanism, as the latter is specified in arts 23 and 24 of Presidential Decree 139/2001. Hearings can be held after the submission of a written request or complaint by an interested party or can be initiated by RAE itself. As part of the complaint procedure, RAE has the power to carry out inspections, conduct investigations, examine witnesses and demand the submission of documents and data. When acting as a dispute settlement authority in respect of a complaint against a transmission or distribution system operator, RAE must decide within two months from the receipt of the complaint. In such cases RAE's decision has a binding effect unless overruled on appeal. The permanent arbitration of RAE has jurisdiction over disputes between the companies of the electricity sector. An agreement referring the dispute to the permanent arbitration of RAE is required for the commencement of this procedure. New rules, which are currently under final review, provide for international arbitration to be

### *Statute 3426/2005 (“New Electricity Law”)*

undertaken by RAE pursuant to Statute 2735/1999 which transposed the arbitration rules adopted by the United Nations Commission on International Trade Law (“UNCITRAL”) into Greek legislation.

#### *Non-interconnected islands*

The New Electricity Law adopts an authorisation procedure for electricity generation on the non-interconnected islands. An authorisation is granted to the applicant by the Minister for Development following RAE’s opinion. To deal with emergency needs of a non-interconnected island, an authorisation for electricity generation may be granted directly to PPC. A tendering procedure may be launched when unsolicited applications and the authorisations resulting from them are not sufficient to ensure security of supply. For small isolated systems, except in the cases of auto-producers and of generation of electricity from RES or from hybrid plants, a generation authorisation can be granted only to PPC. **35–16**

#### *Public service obligations*

New provisions foster a number of principles such as environmental protection, protection of vulnerable customers and access to remote areas, which are understood as public service obligations. The New Electricity Directive provides that public service obligations must be clearly defined, transparent, non-discriminatory and measurable. They are designated by the Minister for Development. **35–17**

#### *Eligible customers*

Except for household consumers and consumers connected to small isolated systems, all customers become eligible customers and can select any electricity supplier of their choice. From 1 July 2007, all consumers will be viewed as eligible customers except those who are connected to small isolated systems. HTSO and PPC will then have the obligation to grant access to the network to all eligible customers. **35–18**

#### *Direct lines*

The New Electricity Law aims to facilitate electricity producers or suppliers to supply their own premises, subsidiaries and eligible customers through a direct line. The Licence Code sets out the criteria under which constructing, owning and operating a direct line is allowed. The granting of this authorisation does not release its holder from the obligation to obtain all other required authorisations and licences. **35–19**

#### *Overall assessment*

Despite the changes made to the regulatory and institutional framework, liberalisation of the Greek electricity market is still an elusive objective. **35–20**

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Whether recent statutory amendments will make a difference remains to be seen. In addition to institutional, statutory and market forces, political developments are also expected to give an impetus to the long awaited liberalisation. Of these developments, the most salient is the Energy Treaty, which was signed in Athens on October 25, 2005, establishing the Energy Community. An outcome of the process that started in November 2002 in Athens and initially known as the Athens Memorandum and later as the Regional Energy Market, the Energy Community aims to create a stable and investment-friendly energy market and to develop a common electricity and gas market in southeast Europe. Moreover, the imminent launch of a call for tenders by the HTSO for 1300 MW (of which 1100 MW is from independent operators) is expected to add to the momentum. The commissioning of the new capacity has been scheduled to take place by July 2007.

## CHAPTER 36

# RENEWABLE ENERGY SOURCES

## 1. INTRODUCTION

The share of the RES sector (i.e. solar, wind, biomass, small hydro-power stations, and geothermal energy) in the country's energy balance amounts to less than 10 per cent of total demand. There is still therefore room for development in all areas of RES in Greece, even though there has been considerable growth over the past few years, mainly through the development of wind farms. Rules regulating the production of electricity from RES were first introduced into Greek law by Statute 1559/1985 ("Regulations of Issues of Alternative Forms of Energy and Specific Issues of Power Production from Conventional Fuels"). On the basis of this statute, PPC installed 24 MW and local government bodies confined themselves to 3 MW, whilst the private sector was entirely left out. The inadequacies of this statute, which made licensing an almost impossible task, led to its amendment by Statute 2244/1994 ("Regulation of Issues pertinent to the Generation of Electrical Energy Sources and Fossil Fuels"), which became a landmark piece of legislation for the development of RES in Greece. Indeed the new statute attracted investors into the RES sector by ensuring that electricity produced by RES would be sold to PPC. Crucially, Statute 2244/1994 introduced fixed tariffs at 90 per cent of the medium-voltage tariff for RES electricity sold into the country's interconnected system and at 90 per cent of the low-voltage tariff for RES electricity sold into the country's non-interconnected islands. In either case, PPC was obliged to buy such electricity under 10-year contracts with RES producers. Moreover, RES projects were generously supported by investment laws which provided grants and subsidies amounting to as high as 60 per cent of the project budget. This led to the establishment of the first private wind farms in 1998. **36-01**

Statute 2773/1999 ("On the liberalization of the Electricity Market") retained the favourable pricing regime for RES whilst placing emphasis on priority access of RES to the grid. Moreover, it introduced a 2 per cent duty on renewable energy sales in favour of local government bodies. Growing investment interest in RES also led to Statute 2491/2001 ("Simplification of Procedures for Establishing Companies, Licensing Renewable Energy Sources Plants etc."). Between 2002 and 2005 a thorough revision of the statutory framework for RES had been under way, partly because of commitments undertaken by Greece under international

### *Renewable Energy Sources*

conventions (e.g. the Kyoto Protocol which was adopted by Statute 3017/2002) and EU secondary legislation (e.g. Directive 2001/77/EC) and partly because of the country's fast-growing RES sector. Statute 3175/2003 aimed to give a further impetus to RES development (e.g. it adopted the definition of Directive 2001/77/EC on hybrid plants and what counts as RES, including geothermal energy; and promulgated new rules aimed at speeding up the licensing process). Yet the regulatory framework for RES remained uneven and inconsistent. What is more, authorisation and licensing procedures were still time-consuming, local communities were unsympathetic to RES projects, which often had them get stuck with hapless litigation, and the grid was occasionally of limited capacity in accommodating all RES production.

The following table shows the substantial growth in the number of authorisations granted for RES production between 2001 and 2005 prior to the enactment of Statute 3468/2006 ("Generation of Electricity using Renewable Energy Sources and High-Efficiency Co-generation of Electricity and Heat") ("RES Statute").

<b>Technology</b>	<b>Generation Authorisations</b>	<b>Total capacity (MW)</b>
Wind	350	4,088.1
Biomass	16	64.3
Geothermal	1	8.0
Small Hydro	204	403.6
Solar	12	1.9
<b>TOTAL</b>	<b>583</b>	<b>4,565.9</b>

*Source: RAE, Annual Report 2005 to the European Commission*

## 2. THE RES STATUTE

**36-02** The RES Statute, which entered into force on July 14, 2006, transposed Directive 2001/77/EC ("On the Promotion of Electricity Produced from RES in the Internal Electricity Market") into Greek legislation and set out *de novo* the entire legal framework for RES. The new statute regards as renewable all non-fossil energy sources such as wind energy, solar energy, wave energy, tidal energy, biomass, landfill gas, sewage, biogases, geothermal energy and hydropower. In the main, it is intended better to meet the commitments undertaken under the Kyoto Protocol; to simplify and accelerate the authorisation process; to attract further investment to the RES sector; and to meet the thresholds set by Directive 2001/77/EC. Under the RES Statute, the monitoring of RES development is vested into CRES (i.e. the Centre for Renewable Energy Sources) which drafts an annual report regarding (a) the RES penetration into the country's energy balance; (b) reasons



### *The RES Statute*

impeding such penetration; and (c) comparative data between Greece and other EU Member States. The new statute introduces several provisions that are intended to attract further investment in the RES sector by reducing bureaucracy, simplifying procedures and overcoming administrative constraints. Pursuant to art.19 of the RES Statute, a RES Projects Committee is set up. Its role is to promote and monitor investments in RES and co-generation projects which are related to power plants with an installed capacity of at least 30 MW or with an investment budget of at least €30,000,000.

#### *Production authorisation*

The RES Statute sets out a coherent authorisation framework for the production of electricity from RES. In doing so, it brings together for the first time dispersed and incomplete provisions laid down in a number of different laws. Under art.3 of the RES Statute, the applications submitted to RAE are evaluated on the following criteria: (a) national security; (b) protection of public health and safety; (c) safety of the facilities and the equipment; (d) energy efficiency; (e) implementation phasing; (f) the site under consideration; (g) financial, scientific and engineering background of the applicant; (g) performance of public service obligations; and (h) environmental protection. **36-03**

The authorisation is granted for a period of 25 years and may be renewed for a term of no more than another 25 years. Unless an installation permit is granted within 24 months from the time the authorisation was granted, the authorisation must be revoked. RAE reviews how the above criteria match a particular application and requests a so-called Preliminary Environmental Impact Study from the competent environmental authority. This authority must give an opinion to RAE within 60 days, following which RAE reaches its own opinion and communicates it to the Minister for Development. It is the Minister who decides whether to grant the authorisation or not and whether to amend a production authorisation following an application by the holder. A production authorisation does not release its holder from the obligation to obtain other required authorisations, permits or licences (e.g. approval from the environmental authority or the granting of an installation permit by the urban planning authority). As in other countries, the wide range of authorisations, licences and permits to be granted still remains a painstaking exercise. Moreover, the new statute sets out strict rules on monitoring holders of production authorisations to ensure that, unlike what was happening under the licensing regime before the introduction of the RES Statute, licence trading is no longer under way.

#### *Exempted persons*

The RES Statute exempts certain classes of RES producers from the obligation to get an authorisation. Such producers are those who own electricity production installations located on a site owned or leased by them, provided that electricity is produced: **36-04**

### *Renewable Energy Sources*

- by geothermal energy from plants with an installed capacity of less than or equal to 500 KW;
- by biomass or biofuels from plants with an installed capacity of less than or equal to 100 KW;
- by photovoltaic systems from plants with an installed capacity of less than or equal to 150 KW;
- by wind energy whether from plants with an installed capacity of less than or equal to 20 KW, provided these plants are located on isolated micro grids as such grids are defined in Statute 2773/1999; or from plants with an installed capacity of less than or equal to 40 KW, provided these plants are located in the non-interconnected islands; or from plants with an installed capacity of less than or equal to 50 KW, provided these plants are located on the mainland grid;
- in plants constructed for educational or research purposes with an installed capacity of up to 5 MW;
- in plants installed by CRES.

The decision whether or not to grant such exemption rests with RAE. Such decision is not necessary in cases of plants with an installed capacity of up to 20 KW which are situated in locations that make part of the so-called inter-connected system.

#### *RES installations*

**36–05** The RES Statute repealed the previous regime under which priority was given to some producers and now provides for a simplified and uniform system for authorisation and licensing of RES plants. Article 7 of the RES Statute provides for the areas in which installations of power generation using RES or co-generation may be installed and operate, i.e. on a lot or location whereon the applicant has the right of lawful use; on the shoreline, coast, sea or seabed following a decision of the Minister for Development; and in forests or scrublands provided that such use is permitted on account of the public interest. Applications for the installation of RES facilities must occur with the production authorisation or the exemption from the obligation to obtain it. The bodies competent to decide on the granting of the installation permit are the Minister for Development and the Minister for Agriculture. Similarly, a permit is also required for the expansion of RES plants, the General Secretary of the Prefecture in the territory in which the installation is situated being the person to grant such permit. Pursuant to a recent joint ministerial decision, small-scale RES plants have been classified as of zero environmental impact, which allows them to be integrated into urban areas.

*The RES Statute*

*Guarantee of origin*

Further measures have been put in force pursuant to the RES Statute to **36-06** guarantee the origin of RES electricity. New provisions aim at facilitating trade of electricity produced by RES and safeguard consumers' choice of electricity produced by RES or non-RES on the basis of non-discriminatory and transparent criteria. A "green certificate" is thus granted following a relevant application. Such certificate, which is of 30-day duration, includes information on the source of the electricity produced, the date and place of generation and in the case of hydroelectric plants, the capacity of the plants as well. The authorities entitled to issue Guarantees of Origin are:

- the HTSO for electricity supplied into the mainland grid;
- PPC for electricity supplied into the non-interconnected islands grid;
- CRES for electricity produced by autonomous plants.

RAE is the body responsible for supervising the overall procedure. The authority issuing the "green certificate" has the right to access the generation facilities in order to gather all necessary information.

*Tariffs*

The RES Statute sets out in detail the pricing of electricity. Indeed a table on **36-07** tariffs has been inserted in art.13 of the RES Statute. It is as follows:

Generation of electricity from	Price (Euro/MWh)	
	Inter-connected System	Non-interconnected islands
wind energy	73	84.6
wind energy from sea wind farms		90
small-scale hydroelectric plants with an installed capacity of up to 15 MW	73	84.6
solar energy from photovoltaic units with an installed capacity of up to 100 KW	450	500
solar energy from photovoltaic units with an installed capacity of over 100 KW	400	450
solar energy from units other than photovoltaic with an installed capacity of up to 5 MW	250	270
solar energy from units other than photovoltaic with an installed capacity of over 5 MW	30	250
geothermal energy, biomass, landfill gases and sewage treatment plants and biogases	73	84.6

### *Renewable Energy Sources*

Generation of electricity from	Price (Euro/MWh)	
	Inter-connected System	Non-interconnected islands
miscellaneous RES	73	84.6
high-efficiency cogeneration of heat and electricity	73	84.6

#### *Hybrid plants*

- 36–08** The RES Statute introduces a special regime on the authorisation of hybrid plants. An application for such an authorisation must come together with a detailed study of the projected operation of the plant, of the way the plant will be incorporated into the grid of the non-interconnected islands, of the minimum guaranteed power supply and of the terms and conditions of the plant's operation. The holder of such authorisation sells the produced electricity exclusively to the operator of the system in the non-interconnected islands (i.e. PPC).

#### *Photovoltaic (PV)*

- 36–09** EU report "Photovoltaic 2010" maintains that Greece has sufficient potential to meet a third of its energy requirements using PV. There are two ways of using photovoltaic technology in Greece, namely either in conjunction with PPC's interconnected system or through an autonomous system. In the former case, solar energy is sold to PPC at a rate specified in the RES Statute. Alternatively, a photovoltaic system may be a so-called autonomous system which is so installed as to cover the energy needs of a particular site such as a building. To secure an uninterrupted energy supply to the consumer, the photovoltaic installation should comprise a unit for the storage (batteries) and for the management of energy. PV is also used for emergency purposes: although connected with PPC's network, the system makes use of batteries to cover emergencies such as interruption of energy supply. Most PV is installed in remote areas. The total installed PV capacity in 2004 was 4.5 MW, of which  $\frac{3}{4}$  is made up of autonomous and  $\frac{1}{4}$  of interconnected systems. In 2005, the installed capacity of PV was estimated at 5 MW. And in 2006 it reached 5.30 MW. PV development has been expressly named as an objective of the RES Statute. At present, much activity is under way in this sub-sector, yet it will take some time before it is clear what such activity will translate into for the Greek RES sector.

## *Biofuels*

### 3. BIOFUELS

Greek legislation had recently adopted new rules regarding the promotion of **36-10** biofuels in the transport sector. To this end, Statute 3423/2005 (“Introduction of biofuels or other renewable fuels to the Greek market”) transposed Directive 2003/30/EC (“Promotion of the use of biofuels or other renewable fuels for transport”) into Greek law. The new statute defined biofuels as the liquid or gaseous fuel produced by biomass (biomass being the biodegradable fraction of products, waste and residues from agriculture, including vegetal and animal substances, forestry and related industries, as well as the biodegradable fraction of industrial and municipal waste).

In Greece, two types of biofuels are of interest: biodiesel (a methylester produced from vegetable or animal oil which is of diesel quality) and bioethanol (ethanol produced from biomass and/or from the biodegradable fraction of waste). Statute 3423/2005 confirmed in accordance with Directive 2003/30/EC that Greece will take measures so that by 2010 biodiesel and bioethanol participate by 5.75 per cent in, respectively, the petrol and diesel consumption of the Greek transport sector. Considerable activity has been under way in 2006 which is expected to increase biodiesel production and take this sector well beyond its negligible capacity of early 2005 when there were only two biodiesel plants in Greece, one in Kilkis and one in Volos with a maximum annual capacity of 40,000 tons each.



## CHAPTER 37

# GAS

### 1. INTRODUCTION

Natural gas production is negligible (less than 1 GM<sup>3</sup>), which makes the country dependent on imports. Imports started in 1996 and reached 2.7Gm<sup>3</sup> in 2005. The Greek natural gas industry is controlled by the Greek Public Gas Company (“DEPA”), which was created in September 1988 in order to diversify primary energy supply by increasing the role of natural gas in the country. DEPA was originally a wholly-owned subsidiary of Hellenic Petroleum S.A. (ELPE), at the time called the Public Petroleum Corporation. The listing of ELPE in 1998 at the Athens Stock Exchange resulted in 85 per cent of the share capital of DEPA being transferred to the Greek state, while the remaining 15 per cent remained with the parent company. Today, the share capital of DEPA is owned as to 65 per cent by the state and as to 35 per cent by ELPE. **37-01**

The construction of a natural gas network, the longest and most expensive post-war project in Greece at \$1.2 billion, is still under development. The network includes a main pipeline, running from north to south, various branches, city networks and a large liquefied natural gas (LNG) terminal. The substantial delays in the construction of the distribution network resulted in the imposition by RAE of a €300,000 penalty on EPA Attiki, the gas supply company for the Athens region, in early November 2006.

DEPA started receiving gas from Russia in July 1997 via a Bulgarian pipeline on the basis of a 20-year take-or-pay contract signed in 1987. The take-or-pay contract with Gazexport guarantees the supply of 2.8 billion cubic metres (cm) of natural gas on an annual basis, which makes up a total of almost 75 per cent of the current Greek annual demand. Furthermore, 0.68 billion cm of liquefied natural gas (LNG) per annum, i.e. 25 per cent of the annual consumption, is imported from Algeria, following a 20-year take-or-pay agreement concluded in 1998. Imports from Algeria were initiated in 2000 and will eventually be terminated in 2020. LNG is regasified in the Greek regasification terminal of Revythousa. The electricity sector absorbs 75 per cent of the gas consumption. Importantly, the introduction of natural gas to the Greek energy market helped develop co-generation which had been negligible for years.

A large increase in gas demand is expected to triple gas consumption by 2010 and make it reach 4.2 Gm<sup>3</sup> (or 17 per cent of the projected total energy

## *Gas*

consumption). This is mainly the reason why several gas pipelines projects are under way. The most advanced of these is the Greek-Turkish project ITG (Interconnection Turkey Greece). Following an agreement between DEPA and Botas, the Turkish counterpart of DEPA, in 2002, an agreement was signed between the line ministries of the two countries in 2003. The gas pipeline, which is currently at the commissioning stage, will have a length of 285 km and an initial capacity of 3.5 Gm<sup>3</sup>/year, which may extend to 11.5 Gm<sup>3</sup>/year. It will connect Bursa, in the west of Turkey, to Komotino, in the northeast of Greece, and will be supplied with gas from the Caspian Sea, mainly from Azerbaijan. Ideally, the pipeline could be used for the transit of gas from the Caspian region or Iran towards other EU Member States by the use of a 220 km underwater connection with Italy.

Under both EU Gas Directives, Greece has benefited from a derogation arrangement in its capacity both as an “emergent region” and as a “non-interconnected country”. Indeed Greece’s first supply by means of a long-term gas supply contract started in July 1997; moreover, the country had no interconnection with any other member state until January 1, 2007 and has only one main external supplier, namely Russia, which accounts for more than 75 per cent of the country’s imports. Greece benefited from this derogation up to the end of 2006.

Distribution licences have been granted for the regions of Attiki, Thessaloniki and Thessalia. The granting of licences for the distribution and supply of low-pressure gas in the areas of north eastern Greece, the island of Euboea and Central Greece has been around for some time but the anticipation of the new statutory framework as well as slow-moving tendering processes have resulted in no real progress having been made.

## 2. APPLICABLE LEGISLATION

**37–02** Statute 2364/1995, which came into force in December 1995, was the principal regulatory instrument in the gas sector for a decade. It laid down the framework for the importation, transportation, trading, distribution and supply of natural gas and provided for the distinction between gas distribution companies (“EDAs”) and gas supply companies (“EPAs”)—a distinction that was eventually discontinued. DEPA was granted the non-transferable right to import, transmit and sell natural gas. The transmission system and all related infrastructure belonged to it. Statute 2364/1995 was amended in 1997 by Statute 2528/1997 to promote the commercial viability of gas supply companies. In 1998 a Presidential Decree was passed which introduced the legal framework for the selection of private investors to construct and manage distribution networks and thus laid down the key rules for foreign investments. Statute 2364/1995 was further amended by Statute 2992/2002 which provided for the right of DEPA to establish new EPAs without the



### *Applicable Legislation*

prior establishment of EDAs. In late 2005 Statute 3428/2005 (“On the liberalization of the natural gas market”, hereinafter “Gas Law”) was passed to bring Greek law in line with the second Gas Directive 2003/55/EC and to lay down the rules for a market that had hardly made its first steps towards market liberalisation. The Gas Law is an ambitious statute, the implementation of which depends heavily on secondary legislation that is yet to be passed. In the main, it aims to spell out clearly third-party access to the transmission and distribution system of natural gas; the bodies to undertake the operation of the transmission and distribution systems; the gradual opening-up of the market to eligible customers; the minimum set of supervisory responsibilities to be assigned to RAE; tariff methodologies; and unbundling requirements.

## 3. INDUSTRY REGULATION

### **The role of DEPA**

DEPA was created in 1988 and is directly owned by the Greek State. Its former parent company, the partially privatised Hellenic Petroleum S.A. (ELPE), retains a 35 per cent stake. Plans to privatise DEPA have been around for some time but no real progress has been made. In 2003 the state initiated the privatisation of 35 per cent of the capital of DEPA which, however, did not go forward. Privatisation is again within the objectives of the Greek Government for 2007 and plans for an IPO have been made for the second half of 2007. Interestingly, PPC has an option to buy 30 per cent of DEPA. Prior to the Gas Law DEPA was vested with the essentially monopolistic right to purchase, import, export, transport, store, process, sell, distribute and generally trade in natural gas. Before the issue of licences to the EPAs of Attiki, Thessaloniki and Thessalia, DEPA also had the exclusive right to supply low-pressure natural gas. Being a vertically integrated natural gas undertaking as defined in both Gas Directives, DEPA is required to keep separate accounts for its natural gas activities and, where appropriate, consolidated accounts for non-gas activities. This was provided for in art.8 of Statute 2837/2000, which transposed the unbundling requirement of Directive 98/30/EC into Greek law and is reiterated in the Gas Law (art.32), as required in Directive 2003/55/EC. **37-03**

### **Gas transportation system—The new transmission system operator (“GTSO”)**

Before the Gas Law, the so-called National Natural Gas Transportation System (“Gas Network”) was managed by DEPA which had been granted the right to manage the system’s planning, construction, ownership and exploitation (art.3 of Statute 2364/1995). Transportation referred to the **37-04**

## *Gas*

transmission of natural gas by means of pipelines with a pressure greater than 19 bars, whilst distribution referred to the transmission of gas through pipelines at a pressure of up to 19 bars. The Gas Network (i.e. all installations comprising the natural gas transportation/transmission network within the territory of the Greek state, including a central conduit, branch lines, all installations of whatever nature for the storage of natural gas and its return to the transportation/transmission network, all installations for measurement, compression, decompression and control, and in general all installations that constitute functional and support elements of the transportation/transmission network) was made up of the following key components:

- a main high-pressure (70 bar) gas transmission pipeline from the Greek-Bulgarian border to Attica, of a total length of 512 km;
- high-pressure branch pipelines to Eastern Macedonia and Thrace, Thessaloniki, Volos, Inophyta, and Attica, of a total length of 450 km;
- metering and regulating stations to meter the gas and regulate pressure;
- a remote-control system to manage operations and telecommunications while exercising control of the Gas Network;
- operation and maintenance control centres in Attica (Patima, Elefsina), Thessaloniki (Nea Mesimvria), and Thessaly (Ambelia, Pharsala), and in the Xanthi region;
- twin submarine pipelines from the islet of Revythousa to Aghia Triada;
- liquified natural gas terminal (storage and gasification) on the islet of Revythousa;
- steel medium-pressure (19 bar) networks in Attica, Thessaloniki, Larisa, Volos, Inophyta, and Platy Imathias;
- polyethylene low-pressure (4 bar) networks in the cities of Athens, Piraeus, Thessaloniki, Larisa, and Volos.

Statute 2364/1995 also provided that seven years following DEPA's first gas deliveries in November 1996, the Greek state could grant licences for a period up to 30 years to other companies to install, manage and exploit natural gas transportation systems in areas to which the Gas Network would not be extended or in areas where DEPA has not expressed any interest in extending its services. Likewise, the statute also provided that ten years after the first gas deliveries, the Ministry for Development could grant licences to companies other than DEPA for the import, export and sales of gas either to DEPA or to large consumers located in areas where the Gas Network has not been extended or in any area where DEPA has not expressed any interest in extending its services.

The Gas Law sets out a new regulatory framework under which the management and development of the Gas Network is undertaken, in line with

## *Industry Regulation*

Directive 2003/55/EC, by an entity (i.e. GTSO) that is separate from the vertically integrated DEPA. The GTSO is set to be a spin-off of DEPA which will transfer to the GTSO the ownership of the transportation network, i.e. of more than 19 bar pressure (“Transmission Network”), while remaining entirely separate from DEPA in terms of shareholding, management, accounting and decision-making. The Gas Law grants extensive powers to the GTSO in operating the Transmission Network and various guarantees and safety valves to ensure the independence of the operator. The GTSO will come into being through a Presidential Decree and will very much depend on the transmission system and the metering codes, which have not yet been published.

The GTSO will be responsible, among others, for operating, maintaining, managing, exploiting and developing the Transmission Network and its inter-connections; for ensuring non-discriminatory third-party access; and dealing with capacity allocation and deliveries; system balancing; emergency management; settlements; and public service obligations. The GTSO may in the future assume the role of a full market operator in the event that the Greek natural gas market adopts a pool market model.

### **Gas distribution and supply**

#### *Past regime*

Article 3(6) of Statute 2364/1995 granted DEPA the right to sell natural gas **37–05** to:

- gas distribution companies (“EDAs”) and gas supply companies (“EPAs”);
- “eligible consumers”, i.e. those using 100 GWh or more per year;
- consumers using gas as motor vehicle fuel; and
- all consumers regardless of their consumption, during the period preceding the issue of licences for the distribution of natural gas.

Prior to the passing of Statute 2364/1995, three gas distribution companies (“EDAs”) had been established in 1995 as wholly owned subsidiaries of DEPA for the regions of Attiki (Athens), Thessaloniki and Thessalia. The statute also provided that within their own areas EDAs enjoy the exclusive and transferable right to:

- plan, design, construct, own and exploit the Gas Network in their area;
- sell gas to consumers other than “eligible consumers”, i.e. consumers using less than 100 GWh per year.

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Statute 2364/1995 as amended by Statute 2528/1997 provided that the EDAs, despite owning and operating the gas distribution systems, should establish EPAs in the form of separate legal entities. On the basis of art.4(7) of Statute 2364/1995 and Presidential Decree 10/1998, the three EDAs undertook international tenders under which a Cinergy-Shell joint venture acquired 49 per cent of the EPA of Attiki; and Italgas acquired 49 per cent of the EPAs of Thessaloniki and Thessalia. At the same time the EDAs maintained 51 per cent of the shares of these three EPAs, thus securing the state's vertical intervention in the gas market under Statute 2837/2000.

Statute 2992/2002 stipulated that DEPA could carry out international tenders for the establishment of EPAs (gas supply companies) without the establishment of an EDA (gas distribution companies) at all, since it had become clear by then that the dual system of EDAs and EPAs was dysfunctional. Moreover, the new statute provided for the power of DEPA to merge with the three EDAs (gas distribution companies) and for EDAs to merge with each other. Statute 2992/2002 also amended the framework for the role of local governments in the EDAs. Thus the right of local governments to participate in the share capital of the respective EDAs has been replaced by their right to levy a special tax equal to the 10 per cent of the dividend that DEPA or the existing EDAs would receive from the EPAs (gas supply companies).

### *New regime*

**37-06** Under the Gas Law the EDAs that have been set up under Statute 2364/1995 will either be merged in a single EPA or will be taken over by DEPA. The Gas Law retained the arrangements of Statute 2992/2002 under which DEPA no longer needed to establish new EDAs (i.e. gas distribution companies). Pursuant to art.21, DEPA is granted gas distribution and supply licences in various regions of the country and may proceed with the establishment of a gas supply company or EPA (of the type provided under the previous regime) in any of the designated regions. A distribution licence remains different from a supply licence which is to follow the rules of the supply code that is yet to be issued. Licensing is, in any case, to follow the provisions of a licence code that has not been published either. The Gas Law provides for detailed rules for the unbundling of accounts and for access to them in accordance with Directive 2003/55/EC. The effectiveness of such provisions in what is a quite monopolistic market, is yet to be seen.

The Gas Law provides for a new phasing of market opening. Under art.25, eligible customers are, in addition to those already eligible under the past regime, all co-generation production licensees whose annual consumption exceeds the 100 GWh per year. As of November 15, 2008 all non-household customers located outside areas that belong to an EPA or are derogated under art.28 of Directive 2003/55/EC, will also become eligible. As of November 15, 2008 EPAs can also become eligible for quantities beyond the quantities that have already been contracted with DEPA (the Gas Law sets the

### *Industry Regulation*

contracted quantity for 2010 as the threshold beyond which an EPA becomes an eligible customer). As of November 15, 2009 all household customers who are not located in a derogated region or in a region that falls under an EPA also become eligible. In contrast to the established EPAs, any new EPA becomes an eligible customer.



## CHAPTER 38

# OIL

### 1. PROSPECTING, EXPLORATION AND PRODUCTION OF HYDROCARBONS

#### Introduction

Even though Greece is considered to have a high oil potential, it remains one of the most unexplored countries in the Mediterranean region. At the same time, the modest oil reserves that have been proven keep decreasing: from 2.9 Mt in 1990 they were reduced to 0.95 Mt in 2005. Several factors such as sea depth and geological peculiarities have confined targets to relatively shallow depths of up to 3,000 m and have discouraged major exploration projects. However, expectations were high in the mid-1970s in the aftermath of maritime exploration in the region of Thasos (i.e. Prinos and south Kavala), which had led to the discovery of the first exploitable oil deposits in the country and to the establishment of the Public Petroleum Corporation, what has today become the Hellenic Petroleum (ELPE). Three commercially exploitable fields (i.e. Prinos, north Prinos, south Kavala) were thus developed, whilst two other deposits, one in the maritime area of Katakolo and another in Epanomi (for oil and gas, respectively), turned out to be marginally exploitable. But the high expectations of the 1970s proved inconsequential. The Prinos oil deposit, which was discovered in 1973 and started production in 1981, had 110,000,000 barrels in recoverable reserves and ceased production by 1998. Likewise, the south Kavala natural gas deposit, which had also entered production in 1981 and had recoverable reserves of about 615,000,000 m<sup>3</sup>, ended production in 1993. In 1994 the so-called north Prinos oil deposit (with recoverable reserves of 4,000,000 barrels) was discovered about 1.5 km from the existing production site of Prinos. The deposit was considered economically viable because of joint exploitation with the production section of the main Prinos field by the North Aegean Petroleum Company (NAPC), which was the concession holder of the Prinos deposits. In 1999 NAPC withdrew from the region and operation of the field has since been undertaken by Kavala Oil. Today, there are three proven hydrocarbon (oil and gas) deposits in Greece with a total of less than 2 Mt in proven reserves: the Prinos and north Prinos deposits, the Epanomi deposit and the oil content of the Katakolo deposit. With such meager deposits, it is not surprising that the contribution of domestic production to the country's hydrocarbons needs has remained infinitesimal

## *Oil*

and today is less than 1 per cent. Indicatively, at the end of 2006, of the approximately 380,000 barrels consumed in Greece daily, only 2,000 came from domestic production (i.e. the Prinos field). Crucially, prospecting activities have ceased as of 2002; by then ENTERPRISE OIL, UNION TEXAS (now Arco), MOL and TRITON, which had been granted the right to prospect/explore four regions, had discontinued their operations for reasons other than the existence of reserves.

### **Applicable legislation**

**38-02** Statute 2289/1995 (“Hydrocarbons Exploration Law”) is the law governing the prospecting, exploration and exploitation (other than distillation) of hydrocarbons. It replaced Statute 468/1976, which had formed the basis for the development of the Prinos field by NAPC, and transposed Directive 94/22/EC into Greek law. The statute uses the following definitions:

- Hydrocarbons are all oil products found in solid, liquid or gaseous form and in particular mineral crude oil and natural hydrocarbonated gas as well as all kind of minerals and substances found with them.
- Prospecting is the process of locating hydrocarbons in specified areas by all methods with the exception of drilling.
- Exploration is the process of identifying for the purposes of extraction, deposits of hydrocarbons by all methods including drilling.
- Exploitation is the mining of hydrocarbons, the process of turning them into marketable products (with methods other than distillation) and the storage and carriage of such products to transit installations for further distribution.

The fact that Chapter A of the Hydrocarbons Exploration Law is entitled “Exercise of Public Rights” indicates that the rights of prospecting, exploration and exploitation of hydrocarbons are treated as exclusively public, their exercise always being conditional on THE “public interest” (art.2(1) Hydrocarbons Exploration Law). Ownership of petroleum and other hydrocarbons is thus vested in the Greek state. The state in turn controls rights of exploration development and production through the Minister for Development and ELPE. These bodies can lease exploration and exploitation areas to third parties on the basis of a contractual relationship.

By and large, the statute was intended to create a competitive investment climate and to attract new investors by improving the framework for the commercial exploration and development of hydrocarbon deposits in Greece. Its key principles provided for (a) the right of exploration and exploitation to be conceded by the state to interested parties by way of a tendering process; (b) two types of concessions, one for leasing and another for



### *Prospecting, Exploration and Production of Hydrocarbons*

production sharing; (c) the duration of exploration to be made up to six years on-shore and up to seven years off-shore with the possibility of extension; (d) the duration of exploitation to be 25 years; (e) the extent of the exploration area to be left to each particular tender to specify; (f) the extent of the exploitation area not to exceed 100 Km<sup>2</sup>; and (g) the income/corporate tax for exploitation to be set at the fixed rate of 40 per cent.

A fundamental part of the Hydrocarbons Explorations Law is the regime for granting concessions/authorisations. The State may grant the right to *prospect* and *explore* and *exploit* hydrocarbons only after a public tender. The concession contract is signed by the Minister for Development on behalf of the Greek State. ELPE acts as technical adviser to the Ministry throughout the selection of applicants and the monitoring of concession contracts. The State reserves the right to impose at any time conditions, additional obligations and requirements by joint decisions of the Minister for Development and other competent Ministers. Such decisions may be taken on grounds of national security, public health, safety of transportation, environmental protection, protection of biological resources, national treasures and historical monuments, and the safety of infrastructure and personnel.

The Hydrocarbons Exploration Law resulted in four concession areas being awarded in 1997 in western and north western Greece following the first international round of concessions for six regions (three on-shore and three offshore) for a total area of 12,139 km<sup>2</sup>. Eight international oil companies expressed interest and ten proposals were submitted for four regions. In the summer of 1997, four leasing agreements were signed for four regions (Ioannina, Aitolokarnania, northwest Peloponnese and the maritime area of Patras) between the Public Petroleum Corporation and ENTERPRISE OIL, UNION TEXAS (now Arco), MOL, and TRITON HELLAS. Concessions were said to have been granted on four criteria, i.e. the proposed technical programme, the level of financial commitment, the duration of commitment for the exploration phase and the rate of relinquishment.

#### **Prospecting**

The Greek territory is divided into areas for prospecting and exploring hydro- **38-03**  
carbon deposits. Terms, conditions and criteria for the areas to be selected are defined in Ministerial Decision 12.657/1995, which is technical in character and refers to the Mining Code (see Chapter 39) and to the territorial maps of the Hellenic Navy Hydrographic Department.

The Hydrocarbons Exploration Law makes a distinction between an authorisation for prospecting hydrocarbons and the authorisation for exploration and exploitation that is granted either through a lease contract or a contract for production sharing. An authorisation to prospect for hydrocarbons is granted by way of the tendering procedure introduced by Directive 94/22/

## *Oil*

EC: an invitation for applications is issued by the Minister for Development and published in the Government Gazette and the EU Official Journal; the invitation must specify in detail, amongst others, the geographical area, specific conditions and obligations that apply to applicants, the selection criteria, financial guarantees, deadlines and time-schedules. The Minister reserves the right to deny an authorisation to prospect if he considers the applicant unable to carry out the project. The duration of authorisations is for a period of up to 12 months. The Hydrocarbons Exploration Law encourages the development of small fields; thus the prospecting area cannot exceed 750 km<sup>2</sup> on-shore and 1500 km<sup>2</sup> off-shore.

The person or entity to whom the authorisation is granted must submit to the Ministry for Development a detailed, step-by-step schedule of the prospecting activities. On the completion of each step, copies of all technical and scientific output and conclusions must also be submitted. Within three months of the authorisation's expiration, the prospector must submit a report on the outcome of the prospecting process with all relevant documents and data attached to it. Any violation of the authorisation holder's obligations may lead to the revocation of the authorisation and the coming into default of the financial guarantee or bond given to the state.

### **Exploration and exploitation**

**38-04** Exploration and exploitation rights are granted through a public tender in accordance to which an invitation to tender is issued and formally published. Emphasis is placed on the applicants' financial status, technical capacity, track record and financial offer. The Minister for Development has the discretion to reject all offers if he personally considers that no offer is of sufficient economic benefit to the State. Awarded contracts take the form of either a leasing contract or a contract for production sharing. Contracts define the initial areas of exploration (the "Contractual Area") which are eventually reduced to the areas within which hydrocarbon deposits of commercial interest are found ("Areas of Exploitation"). The State may participate through lease contracts or production-sharing agreements during both the exploration and exploitation phases. Invitations to tender must indicate the degree of the State's participation, the legal entity through which the State's participation will be effected as well as any other requirements relating to the operation of the consortium.

Under the leasing contract arrangement, the concessionaire has the obligation to undertake all necessary preparations and research and to bear all related costs and financial risk. Thus, if the deposits found are not profitable or are insufficient, the rent will still be payable to the State. The production-sharing contract is the alternative method of carrying out exploration and exploitation of hydrocarbons. The concessionaire assumes the same obligations and financial risks, yet he also assumes the role of a contractor. The State retains the right to supervise and control the cost and the execution

### *Prospecting, Exploration and Production of Hydrocarbons*

of the project. Where hydrocarbons are produced, part of the production goes to the concessionaire to cover expenses whilst the rest of the annual production is shared between the State and the concessionaire as agreed in the contract. The Hydrocarbons Exploration Law provides in detail which expenses are permissible.

The Hydrocarbons Exploration Law also regulates the exploration and exploitation of by-products as well as rights relating to the land used for the project. Moreover, it grants the concessionaire considerable discretion in importing and exporting equipment and machinery as well as employing foreign personnel of his choice. The duration of the exploration phase cannot exceed a six-year term for on-shore regions and seven years for off-shore areas. A term extension for exploration is only allowable when unpredictable technical obstacles occur or the commercial viability of the deposits found requires further testing. On the expiration of the exploration period, the installations must be removed and sealed and the site must be restored within six months. The exploitation phase lasts 25 years, starting from the notice of discovery of profitable deposits. Time extensions may be allowed.

Presidential Decree 127/1996, which was adopted under the Hydrocarbons Exploration Law, regulates the terms and conditions to be included in exploration contracts. It regulates annual task schedules, estimated budgets, waiver of rights, income and expenses, pricing of hydrocarbons, dispute resolution and extension of terms. It also provides for the formation of a committee for the removal and usage of installations upon the termination of the concession for exploitation.

The Hydrocarbons Exploration Law imposes a 40 per cent all-inclusive income tax upon the concessionaire. The income tax provisions of the law involve a complex system of revenue classification and expense allowances. There are also certain exemptions from customs duties. Articles 8 and 9 of the Hydrocarbons Exploration Law establish a detailed taxation framework which controls the tax assessment process.

## 2. THE OIL MARKET

### **Introduction**

In 2001, 33 per cent of the country's energy needs still depended on oil, **38-05** which made the country the most dependent EU Member State on this energy source. The introduction of natural gas has slightly decreased this dependence. Crude oil imports come as to 50 per cent from Russia, 25 per cent from Saudi Arabia and 13 per cent from Iran. Oil product prices follow international fluctuations whilst remaining slightly lower than the average prices in the European markets by approximately 25 per cent for petrol

## Oil

and 15 per cent for diesel. Tax rates stand at 50 per cent for unleaded gasoline and at 44 per cent for diesel.

Pipeline interconnections are currently in the process of upgrading. Most importantly, the pipeline project between Bulgaria (Bourgas) and Greece (Alexandroupolis) to import oil from Russia and from the Caspian Sea has been recently launched and is estimated to cost €700 m. It envisages a pipeline of a length of 280 km and a capacity of 600,000 barrels/day. In 2002, a pipeline of 230 km connecting Thessaloniki and Skopje with a capacity of 2.5 Mt/year replaced rail transportation. The pipeline has been extended to Kosovo.

ELPE is the major player in the market. It was partially privatised in 1998 with the sale of 20 per cent of its capital and with a new divestment in March 2000. Still controlled at 58 per cent by the Greek State, the company is set to be further privatised. ELPE holds 50 per cent of the refining capacity by controlling two of the four refineries of the country through its subsidiary Eko-Elda (one in Thessaloniki and one in Aspropyrgos). The other two refineries are held by Motor-Oil Hellas, a private company held at 50 per cent by Aramco and 50 per cent by Petrola Hellas. With a total capacity at around 400,000 barrels/day, the country is under-equipped compared to its needs and diesel imports.

### Applicable legislation

**38-06** In the summer of 2002, the Greek parliament passed Statute 3054/2002 (“Organization of the petroleum market”, hereinafter “New Petroleum Law”), which resulted in a complete restructuring of the Greek oil market. The new statute repealed most sections of Statute 1571/1985, which had regulated the Greek petroleum market for nearly two decades. Statute 3054/2002 was subsequently amended by Statute 3190/2003 and most importantly by Statute 3335/2005 (“Monitoring of the Trade and Storage of Petroleum and Petroleum Products”).

The New Petroleum Law was largely necessitated by incompatibility with European Union law, which was aptly demonstrated in the case of decision C-398/98 (*Commission v Greece*) of the ECJ. The Court ruled that Greece had failed to fulfil its obligations under ex-Article 30 of the EC Treaty (now Art.28 EC) by operating a system of emergency stocks under which trading and distribution companies maintained stocks by way of inappropriate access to the stocks of the refineries. The main objectives of the New Petroleum Law were to improve competition; rationalise the maintenance of emergency reserves; and develop fuel trading mechanisms that reduce smuggling and promote environmental protection. The new changes provided for the following:

### *The Oil Market*

- A new licensing regime under which each activity (i.e. distillation, wholesale trade, retail trade, transport of mineral oils via a pipeline and the bottling of LPG) requires a prior licence.
- Transparency in the administration of storage facilities to ensure proper maintenance of emergency reserves. To this end, all licensees should have access to storage facilities located in refineries or in the premises of trade licensees. Such storage facilities should be designated as emergency reserves facilities and should be made available under a tariff regime.
- A so-called crisis management committee.
- Incentives for fuel transportation through pipelines that would facilitate interconnections with storage facilities.
- Environmental safety and the establishment of environment-friendly petrol stations.
- The cracking down on smuggling, adulteration and tax evasion in the petroleum sector with the introduction of severe criminal and administrative penalties.
- Direct access to the refineries of petrol stations which form a joint venture or a co-operative.
- Special incentives for mergers of trading companies and for the construction of new storage facilities.

Despite this much-awaited piece of legislation, time has shown that there is still a long way to go before true competition is achieved. In its latest report published in January 2007 the Greek National Competition Authority has emphasised the need to deal with cartel behaviour that is under way in the Greek oil market. The Competition Authority has highlighted various price-fixing arrangements between dominant undertakings, as well as oligopolistic practices by the refineries operating in Greece, and argues that Statute 3054/2002 is susceptible to distortions of competition. The Authority proposes various amendments to the Statute and to competition law to facilitate a truly competitive functioning of the market. To this end, it suggests measures concerning the way in which prices, price discounts, price reductions and terms of business will be arranged between trade licensees and retail trade licensees (i.e. petrol stations).

### **Licensing**

Distillation, trade, retail trade, transport of petroleum and petroleum derivatives via a pipeline and the bottling of LPG are all subject to a licence. Licences for distillation, trade and transport of petroleum and petroleum derivatives via a pipeline are granted by the Minister for Development. Licences

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for retail trade and the bottling of LPG are granted by competent local authorities (i.e. prefectures). A licence for undertaking any of these activities does not exempt its holder from the obligation to obtain other licences, permits or authorisations required by law. In case a person holds more than one licence, this person is obliged to maintain separate accounts for each licensed activity. Pursuant to art.14 of the New Petroleum Law, the Minister for Development may decide to impose on licence holders additional obligations to promote public service obligations, security of supply, consumer and environmental protection.

On September 7, 2005, the Licence Code for the petroleum market was published by a decision of the Minister for Development following RAE's opinion and pursuant to arts 4 and 14 of the New Petroleum Law. This Licence Code sets out the terms and conditions under which the licence for distillation, trade, retail trade, transport of petroleum and petroleum derivatives and the bottling of LPG is granted. The application procedure is uniform for all activities.

### *Application procedure*

- 38-08** The licensor (i.e. the Minister for Development or the local government, depending on the type of activity) decides whether or not to grant the licence on the basis of the following criteria: national security; security of supply and of the facilities; environmental protection; construction time plan and project management; technical, economic and financial capacities of the applicant; public service obligations; healthy competition, and consumer protection. The licensor must decide within 60 days from the day the application was filed. The decision is subject to an appeal within a time period of 30 days from its publication.

### *Amendment of licence*

- 38-09** Following the holder's application, a licence may be amended only for a change to the name of the operator or to the installation's operation licence. In case of material changes to the licence such as the shareholding composition of the licensee, the licence may be amended by the granting authority without a prior application by the holder.

### *Renewal and revocation*

- 38-10** The licence may be renewed provided the licensee applies for a renewal six months before its expiration. The licence may be revoked if the licensee does not comply with either its provisions or the provisions of the Licence Code or those of the New Petroleum Law.

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### Key types of licence

#### (a) Distillation licence

A distillation licence is granted only to legal persons having the status of a **38-11** *Société Anonyme* or of a similar legal form (i.e. a corporation) and their seat in any Member State of the European Union. The licensee may distribute petroleum products in the local market and only to retail trade licensees, to co-operatives or joint ventures of petrol stations, large end consumers as defined in the New Petroleum Law and to the armed forces. The crude petroleum and petroleum products may be traded between distillation licensees. A distillation licensee is subject to certain obligations, among which is the requirement to have proper storage facilities and to allow third-party access to them.

#### (b) Trade licence

A trade licence for crude petroleum and petroleum products is granted to **38-12** legal persons having the status of *Société Anonyme* or a similar legal form (i.e. a corporation) and their seat in any Member State of the European Union. The holder of a trade licence may distribute petroleum products directly to trade licensees, retail trade licensees, large end consumers as defined in the New Petroleum Law, and end consumers with their own storage facilities. A trade licence is valid for the entire Greek territory. A trade licensee is required to have proper storage facilities and to allow third-party access to them.

#### (c) Retail trade licence

A retail trade licence is provided to natural persons or companies registered **38-13** under any legal form. In the case of petrol stations, a retail trade licence refers to the operating licence issued by the local authority (i.e. prefecture). Retail trade licence holders can obtain petroleum products only from trade licence holders. Retail trade involves activities, each of which requires a separate licence: (a) licence to operate a petrol station; (b) licence to operate a liquid gas station; (c) licence to sell heating gas oil and kerosene; and (d) licence to distribute LPG.

The terms and conditions under which a retail trade is granted have been laid down in Presidential Decree 118/2006. This decree introduces a number of land-planning restrictions and strict rules for the establishment and operation of petrol stations. The decree is intended to regulate the gigantic retail trade sector that makes Greece, by a large margin, the EU member state with the highest number of petrol stations per capita; nonetheless, some of the provisions of this decree have raised fierce objections (e.g. from super markets that wish to establish and operate petrol stations within their premises, yet the decree disallows this on grounds of public safety).

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### **Emergency reserves and storage facilities**

**38–14** According to art.12 of the New Petroleum Law, emergency oil reserves are maintained within the Greek territory for each class of petroleum product and in compliance with the EU rules currently in force. Emergency oil reserves are maintained in three classes: light, medium and heavy. The classes of emergency reserves may vary following a decision by the Minister for Development. To meet the requirement for maintaining emergency reserves, distillation licensees, trade licensees, large end consumers and co-operatives or joint ventures of petrol or LPG stations may have access to storage facilities located in refineries or in the premises of trade licensees provided that such storage facilities have been designated as emergency reserve facilities (art.10 of the New Petroleum Law). Storage facilities must be either the property of the licensee or leased or exclusively assigned to the licensee. Facilities owned by end-consumers other than large end consumers cannot be designated as emergency reserve storage facilities. The lease or assignment term of the storage facilities must be at least equal to the duration of the licence. Pursuant to the New Petroleum Law, a regulation governing emergency oil reserves must be issued following a decision of the Minister for Development after the expert opinion of RAE. The regulation must outline the terms and conditions under which emergency oil reserves are monitored and third-party access to storage facilities is granted. Although of critical importance for the development of truly competitive market forces, this regulation has been overdue for more than four years and is yet to be published. In its latest report of January 2007, the Greek National Competition Authority argues that the third-party access regime should be based on regulated rather than negotiated access (which is now in force). A regulated third-party access to storage facilities shall allow an independent authority (e.g. RAE) to better monitor access to the facilities, eliminate discrimination and lower storage costs.

### **Crisis management**

**38–15** According to art.13 of the New Petroleum Law, a management committee is to be formed and convenes at the Ministry for Development in the event of a crisis in petroleum supply. The tasks of this committee are to draw up and submit to the Minister for Development a plan of emergency measures to tackle the crisis in the supply of petroleum and petroleum products resulting from existing or anticipated reductions in the country's supplies of crude petroleum and petroleum products; to advise the Minister for Development on issues relating to the Regulation governing emergency oil reserves; to cooperate with the European Union and the International Energy Agency on issues relating to the allocation of crude petroleum and petroleum products; to monitor the implementation of the emergency measures plan by the licensees; and to certify storage facilities intended for the maintenance of emergency reserves.



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### **Inspection and supervision mechanisms**

The New Petroleum Law provides for special market inspection and supervision mechanisms undertaken by a special team of inspectors under the acronym KEDAK. These inspectors deal with such matters as *in situ* inspection of installations and refineries, storage facilities and means of transportation. **38-16**

### **Sanctions**

Articles 16 and 17 of the New Petroleum Law provide severe penal and administrative sanctions. Thus, a person who distills, stores, trades, transports, distributes or supplies crude petroleum or petroleum products without a licence is subject to a custodial sentence of at least six months. Moreover, the Minister for Development may impose a fine ranging from €5,000 to €1,500,000 for a violation of any provision of the New Petroleum Law, the amount of the fine depending on the frequency or severity of the violation. It is in the discretion of the Minister for Development to increase or reduce the range of fines. Additionally, rule-breaking may lead to the temporary or permanent revocation of a licence or to the suspension of operations, temporarily or permanently. If the rule breaker is the holder of more than one licence, then the violation is a sufficient cause to revoke all licences. **38-17**



## CHAPTER 39

# LIGNITE AND COAL

### 1. INTRODUCTION

There are no indigenous hard coal reserves in Greece. The Greek cement companies, mainly AGET HERACLES and TITAN CEMENT, are the major importers and consumers of hard coal in the country. PPC occasionally adds hard coal to its supplies of lignite in its thermal power plants to upgrade the calorific value of low quality lignite. Small amounts of hard coal are also sold to various craft industries (mainly in the field of building materials production), to the transport industry, to agriculture (for use in greenhouses, processing units, etc.) and to the metallurgical industry. Efforts have been made to reduce the use of hard coal in the cement industry by substituting biomass for hard coal. **39-01**

Greece's most important indigenous energy source is lignite ("brown coal"), a brownish-black coal of low quality used almost exclusively for electricity generation. Greece is the second largest lignite producer in the European Union after Germany and the sixth largest in the world. However, the quality of Greek lignite is poor because of the high water and ash content. Greek lignite reserves can be mined only at high cost. The largest deposits are in northern Greece at Ptolemais and Amintaio and in southern Greece at Megalopolis.

The large scale introduction of natural gas into the energy system of the country, together with the wider use of RES, has recently contributed towards curbing the use of lignite as a prime fuel for electricity generation. Indeed lignite has gradually been phased out and is being replaced by more efficient combined cycle plants. At present there are no plans for the construction of a new lignite-fired power plant.

### 2. APPLICABLE LEGISLATION

Statute 210/1973 ("Mining Code"), as amended by Statute 274/1976, is the principal piece of legislation for the Greek mining sector and applies to the entire range of minerals. The Mining Code is based on the principle of free exploration and exploitation of the mineral resources by any person who so **39-02**

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requests from the Greek government. The Government grants the right to explore and exploit mineral resources to the first applicant through a concession agreement.

This is not true for all minerals, however. For some, including hydrocarbons and lignite, special rules confine their exploitation to a limited number of persons or merely to the state; or make exploitation subject to tendering rules. In the case of lignite, the right to explore and exploit belongs exclusively to the state which has to date assigned the right mainly to PPC at no cost. Even if the state does not grant concessions for exploitation of minerals, it can still enter into leasing arrangements.

The Mining Code simplified the requirements and procedures for those interested in exploiting and exploring mineral resources. Key features of the Code are the following:

- the carrying out of a financial and technical study that meets proper exploitation requirements as a prerequisite for the granting of a concession;
- the finite duration (i.e. 50 years) of the concession agreement, which may, however, be extended;
- the possibility of transferring the site under exploitation to a new concessionaire rather than back to the state in the event of failure of the primary concessionaire.

According to the Mining Code, the right of possession of mineral resources is distinct from the right of ownership of the real property where the minerals are located. Interestingly, mineral rights have priority over other possessory and non-possessory rights in the relevant property. The exploitation of mines is regarded as an activity of “public interest”.

Lignite apart, there are two methods of acquiring a mining interest: the primary and the secondary acquisition.

- Primary acquisition which involves a concession agreement made between the Government and the beneficiary. There are three stages to this type of acquisition:
  - (a) The application for an authorisation to undertake exploration. This authorisation is issued by the local prefect for areas where no previous mineral title has been granted or no previous application for an authorisation for exploration has been made. The authorisation may cover an area of up to 10 km<sup>2</sup> and lasts for three years. After the end of the exploration period, the holder may apply for a concession.
  - (b) The application for the grant of a concession. If the holder of an authorisation to undertake exploration finds any mineral deposits, he is required to apply to the local prefect for a concession for the

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mining area where the exploration was successfully undertaken. The local Prefect forwards the application to the Minister for Development for approval.

- (c) The granting of the mine concession. After a review of all required documentation, including a financial, a technical and an environmental impact study, a Presidential Decree is issued by the Ministry for Development granting a concession for the area where the mineral exploration was undertaken. The concession lasts for 50 years and may be renewed for two more periods of 25 years each.
- Secondary acquisition. There are three ways of obtaining mining rights in this manner, all subject to the approval of the Ministry for Development, i.e.:
  - (a) assignment of the rights arising from an existing concession agreement through a sale or transfer of those rights;
  - (b) succession by law or bequest to mineral rights;
  - (c) leasing of mineral rights arising from a mine concession.

Research relating to the exploration and discovery of mineral resources is carried out by the state through the Institute of Geological and Mineral Exploration and by entities in the private sector which have been granted mineral rights. The Institute of Geological and Mineral Exploration was founded by Statute 92/1986 (“On the Establishment of the Institute of Geological and Mineral Exploration”) to promote the exploitation of mineral resources. The Institute is under the control and supervision of the state and follows an annual research and exploration schedule approved by the Ministry for Development. Private research is undertaken on a commercial basis.

In addition to the Institute of Geological and Mineral Exploration, other authorities involved in the mining sector are:

- the General Directorate of Natural Resources at the Ministry of Development;
- the two Mines Inspectorates (north and south Greece);
- local Prefectures.

Before the issue of an authorisation for the exploration or exploitation of mines, authorities such as the Archeological Authority, the Hellenic Organisation of Tourism, the Mines Inspectorates and the military authorities give opinions on matters falling within their field of responsibility.

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### 3. EXPLOITATION OF LIGNITE

**39-03** The lignite is used, almost exclusively, for electricity production and its share in power production in 1998, that is to say, before natural gas started to be used in Greece, was 82.6 per cent and supplied 21 lignite stations and half of PPC's total installed capacity at the time. Although in terms of calorific value the lignite is qualitatively amongst the poorest energy fuels used for the production of electricity, it is arguably the most significant indigenous energy source in Greece. This is primarily because of the considerable geological lignite reserves which are currently estimated at 6.8 billion tonnes; of these, approximately 3.0 billion tonnes are considered exploitable. These abundant lignite reserves have led to serious and consistent efforts since the early 1960s to have most of Greece's electrical power generated from lignite. Today over a quarter of Greece's energy consumption still relies on the use of lignite. As to the geographical distribution of lignite production, approximately 80 per cent is produced in western Macedonia while the remaining 20 per cent is produced in the Megalopolis area in the Peloponnese.

The Greek State has exclusive rights over developing and exploiting lignite deposits. It has assigned some of these rights to a few private lignite mining operations but most of them to the PPC for free. Indeed the PPC has priority over the development and exploitation of all lignite and coal fields; nearly all lignite in Greece is mined and consumed by the PPC for power production in two areas, namely Ptolemais and Amyntaio. There are also some private mines in the Florina and Megalopolis areas.

In the case of lignite mines, acquisition is different from the type of acquisition stipulated in the Mining Code for other minerals. The State may lease its right to explore and exploit mining interests through a tender procedure. In exceptional circumstances, the tender procedure may be omitted and direct negotiations with particular operators may be opted for. In the case of a tender procedure, competition among bidders focuses on the rent offered, the exploration or exploitation planned and the financial guarantees given by the tenderer.

Presidential Decree 92/1986 provides that the authorisation and concession regime is applicable to all natural and legal persons in the European Union. For entities outside the European Union, an approval is required from the cabinet for the acquisition or leasing of mineral rights from the State or private entities.