IEA DSM Task X

Performance Contracting

Country Report

Version 2

GREECE

March 22th , 2004

IEA DSM Task X – Performance Contracting

Country Report - Table of contents

Country: GREECE

Date of document: February 15th, 2004

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1. Executive Summary

Energy Performance Contracting (EPC) is still a promising concept for the energy market in Greece. End-energy users, both in the public and private sector face objective problems regarding energy intensity, efficiency and demand management and often lack the awareness and special expertise, within the local decision making process, to establish in practice a strategy for the optimisation of economic and environmental performance of their building or industrial sites. Therefore, problems associated to the traditional in-house financing of capital intensive integrated energy retrofit projects would arise, especially in the case where these projects would be associated to uncertain economic benefits and high risks. In addition, already instituted energy management procedures are scarcely applied in practice, leading to the absence of active interconnection between on-site technical/management personnel with top decision makers and external contractors-suppliers for efficient facility management.

Despite the favourable environment in Greece for wide outsourcing of energy efficiency projects via EPC mechanism, the pure ESCO activity is still negligible. It has been argued that the main reason for this is the lack of a specific legal framework, over related energy laws, on the ESCO business and of an explicit and agreed bidding, contractual and administrative procedure for the selection, control and repayment of the integrated energy service provided by an ESCO.

From 1995 onwards, the Hellenic Government has focused on the stimulation of energy demand management issues, especially addressing the regulation and upgrading of the building sector and equipment energy performance and the direct subsidy of energy efficiency investments of non-domestic end users. Following the legal provisions of EU policy, the associated governmental authorities, supported by the Centre for Renewable Energy Sources (CRES) and expert groups, have also given effort in the institution and stimulation of the alternative Third Part Financing (TPF) mechanism via EPC. The government capacity building involves the drafting and issue of specific legal acts, the design and implementation of pilot schemes, the introduction of upgraded energy management infrastructure, the organisation of targeted dissemination events and the documentation of the available international best practice and of the existing procedural specifications.

2. Administrative information

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3. Methodology

The country report of Greece has been elaborated by the Centre for Renewable Energy Sources (CRES), the national agency for the promotion of Renewable Energy Sources (RES), Rational Use of Energy (RUE) and Energy Saving (ES). CRES is appointed by law as the national coordinating organization in its areas of activity. The presented information refers to capacity building efforts to establish the mechanism of Third Party Financing of energy investments in Greece and to the technical experience gained from CRES involvement in pilot case projects within EU energy and research programmes with reference to public building energy efficiency, RE & CHP energy supply and the application of solar thermal systems to end energy-users. The report points out the position of the national market actors (from potential ESCOs to authorities and decision makers), as well as the procedures followed by the Ministry of Development in order to establish a legal framework for TPF contracting.

4. General Energy Context

4.1 Deregulation

The Law 2773/1999, regarding the liberalization of the electricity market in Greece (from February 2001), provides according to the E.U Directive 96/92, specific measures for the promotion of electricity generation from renewable energy sources (RES), in conjunction with the provisions of the former Law 2244/1994 which has previously established fixed sale rates of renewable and CHP electricity at a high percentage of the relevant end-use tariffs and made obligatory the purchase of that energy from the grid. The main aspects are the following:

- The removal of restrictions and the liberalization of regulations for electricity generation and exploitation from RES;
- The definition of an electricity consumption threshold (100 GWh per electricity meter), beyond which, a consumer is eligible to select his supplier from the open market
- The removal of restrictions for the exploitation of small water falls;
- Allowance to self-producers the possibility of compensating on equal terms their own production of electricity from RES and their consumption (net metering);
- Limitation of the amount of bureaucracy involved in the issuing of the licenses required;
- Establishment of the appropriate Regulatory Bodies, namely the Regulatory Authority for Energy and the independent High Transmission System Operator, (HTSO) which will retain full responsibility on the supervision of the electricity market and will ensure the development of competition in all major energy sectors. Priority will be given by the HTSO to the electricity produced from RES to cover the demand. A ten-year contract is given to the producers of electricity from RES at a favorable price.
- Definition of all basic elements of the new improved pricing system.
- The transformation of PPC to a corporation operating under private law (S.A), under the control of the state.

The Law 3175/*2003* revised aspects of the Law 2773/1999 in order to make up for the slackness of the liberalization process of the electricity market mostly attributed to the dominant position held by the public electricity utility, the PPC S.A. This revision is also necessary in order to reflect the modifications portended by Directive 2003/54/EC concerning common rules for the internal market in electricity. Lastly, the regulatory framework governing the enforcement of the Laws faced profound revision. The recent Decision 2000/2002 provides an updated Licensing Code of installation and operating permits of RES plants.

4.2 Privatization

The energy market in Greece is still dominated by highly integrated state-owned enterprises. The government has traditionally been using them to achieve social and economic policy objectives, such as lowering inflation, retaining competitiveness of energy intensive industry and supporting inhabitants in the islands. The energy prices do not fully reflect cost, and discretionary taxes on fuels have been adjusted by the government to avoid sharp price hikes. This has created uncertainty and distorted the market. An important reason why the government has relied on the state enterprises has been that it does not have sufficient resources in planning policies and monitoring the market. However, such close relationship has caused lack of transparency in the market and the prevalence of discretionary policy actions. Though the situation has improved gradually in the course of market liberalization and privatization of the state enterprises, keeping a distance between the government and the state enterprises has become more important to ensure effective competition by the arrival of new entrants.

The state-owned Public Power Company (PPC), holds the predominant share of the transmission system operator (HTSO). The transmission network tariffs should be finalized by being adjusted by the Greek government when the network will be reinforced. In addition, PPC has been the main investor in renewables but other private companies (through the investment and support programmes so-called: “Operational Programme for Energy and for Competitiveness”) are progressively penetrating the market.

The exploitation of indigenous lignite fields constitutes an unchallengeable preferential concession for PPC S.A. which in combination with the cheap price of natural gas the utility enjoys as the major consumer first entering the area, gives a key role of the leading energy company in the electricity sector.

In order to meet the consumption needs of the system, which in 2002 amounted to 52,6 TWh, the installed capacity totaled 11.713 MW of PPC-operated plants and 515 MW of auto producers and RES independent generators. Main fueling source was domestically extracted low-calorific-value lignite which accounts for 59,1% of the total. Oil, mainly used by the electricity generating facilities of the Greek islands not connected to the mainland system, had a share of 14,0%. Natural gas imported from Russia and Algeria in the form of LNG covered 12,7%. In the same year the large-scale hydroelectric plants yielded 6,3%. Lastly, wind energy, small hydro, biomass and photovoltaic combined showed up in scene with 2,4% whereas the net of imports-exports made up the rest 5,5%. The capacity in MW of the RES plants added each year and up to August 2003, is given in the **Table 1** below.

RES Type	Up to 1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Wind	25.7	0.3	-	-	11.6	41.1	80.8	79.5	16.4	65.6	**321.0**
Small hydro	41.5	-	0.9	-	0.2	5.1	3.6	3.1	2.2	3.6	**60.4**
Biomass	-	-	-	0.2	-	-	0.2	20.5	-	-	**20.9**
Solar	0.5	-	-	-	-	-	-	0.2	-	0.2	**0.9**
Total	**67.7**	**0.3**	**0.9**	**0.2**	**11.8**	**46.2**	**84.6**	**103.2**	**18.6**	**69.5**	**403.1**

Table 1. Capacity (MW) of RES plants added each year up to August 2003

The following **Tables 2, 3 & 4** and **Charts 1, 2, 3 & 4** represent Task X reference statistical data (2002) as well as a short term projection (2005) for the primary energy supply and total generated electricity by fuel, as well as for the total emissions of green-house gases by sector.

Year	Solid Fuel	Liquid Fuel	Gas Fuel	RES
2002	8980	16985	1801	2052
2005	9225	17973	2734	2395

(Source: "National Energy Balance" by Ministry of Development)

Table 2. Primary Energy Supply (kTOE) by fuel for 2002 and for 2005 (projection)

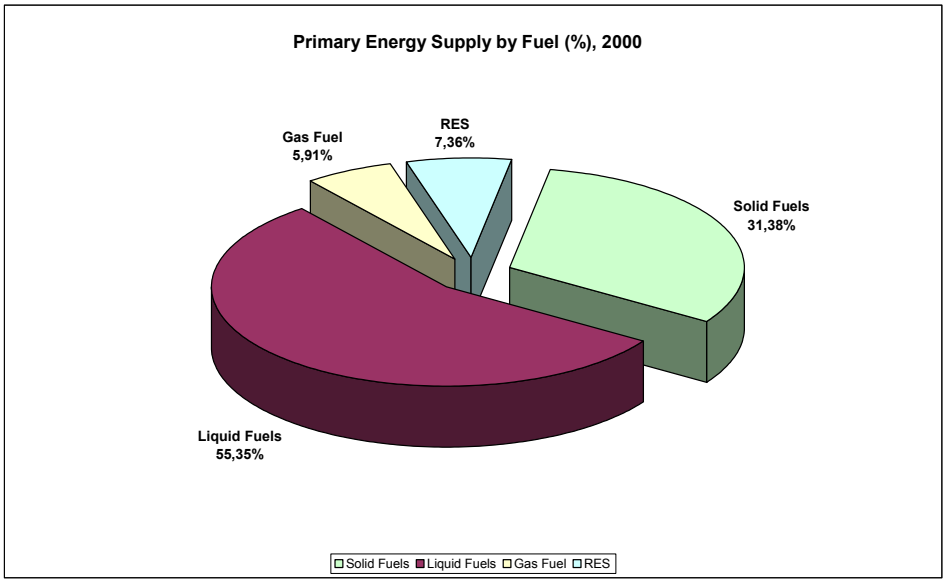

Chart 1. Percentage of primary energy supply by fuel in 2000

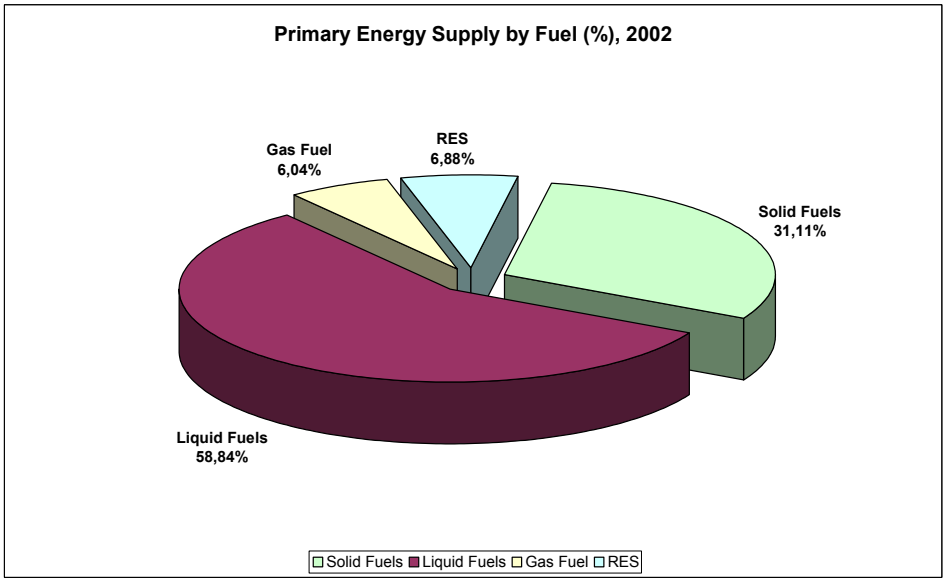

Chart 2. Percentage of primary energy supply by fuel in 2002

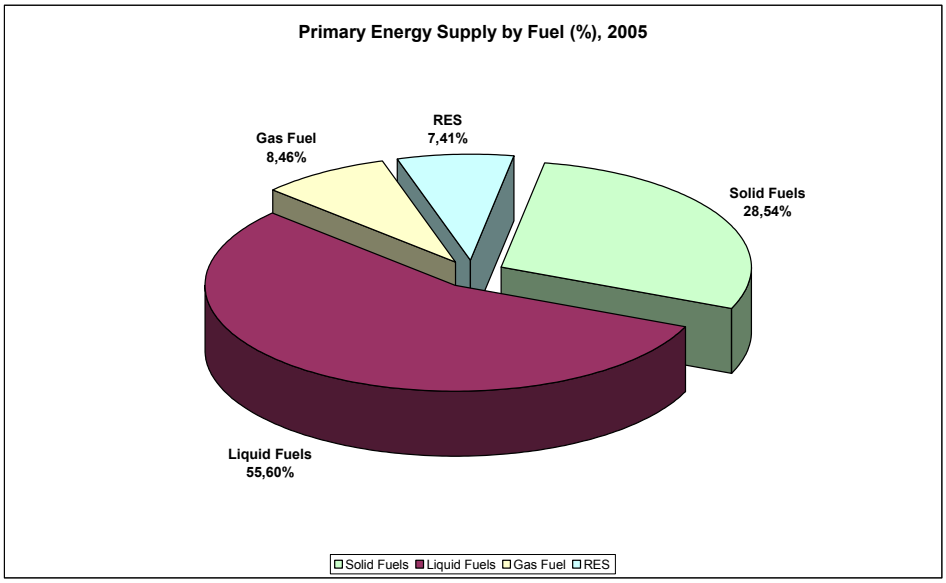

Chart 3. Percentage of primary energy supply by fuel in 2005 (projection)

Year	Solid Fuel	Liquid Fuel	Gas Fuel	RES (biomass – solar-wind)	Electricity (hydro)
2000	8231	2042	1279	0	969
2002	8320	2001	1348	197	803

(Source: "National Energy Balance" by Ministry of Development)

Table 3. Total electricity generation (kTOE) by fuel, in 2000 and 2002

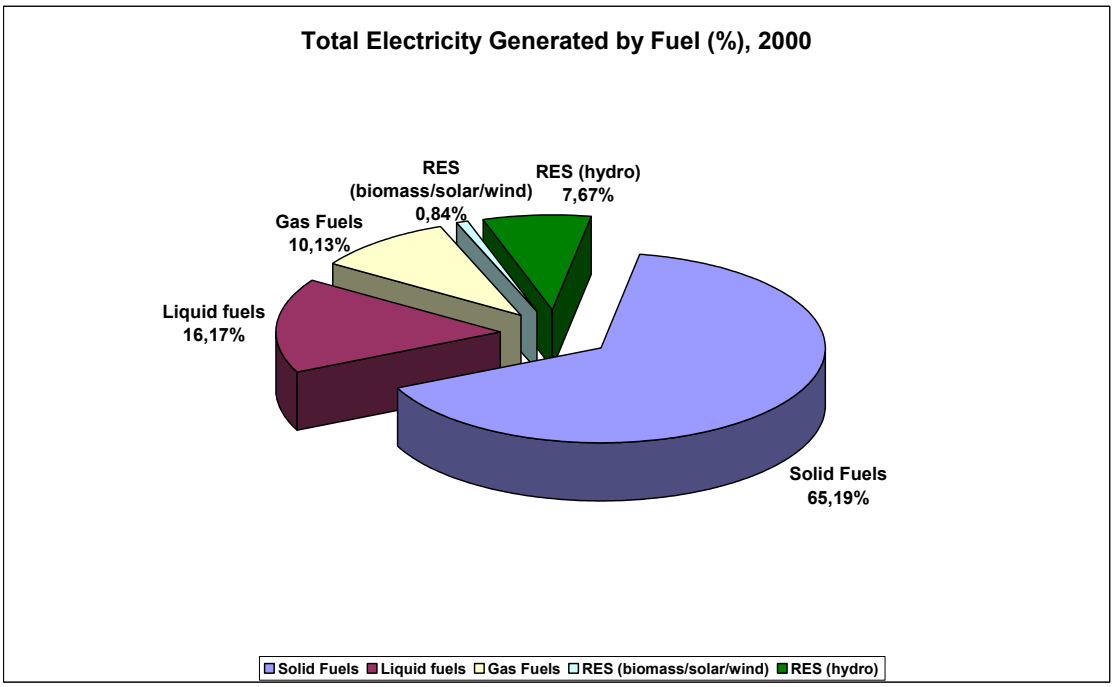

Chart 4. Percentage of total electricity generation, by fuel in 2000

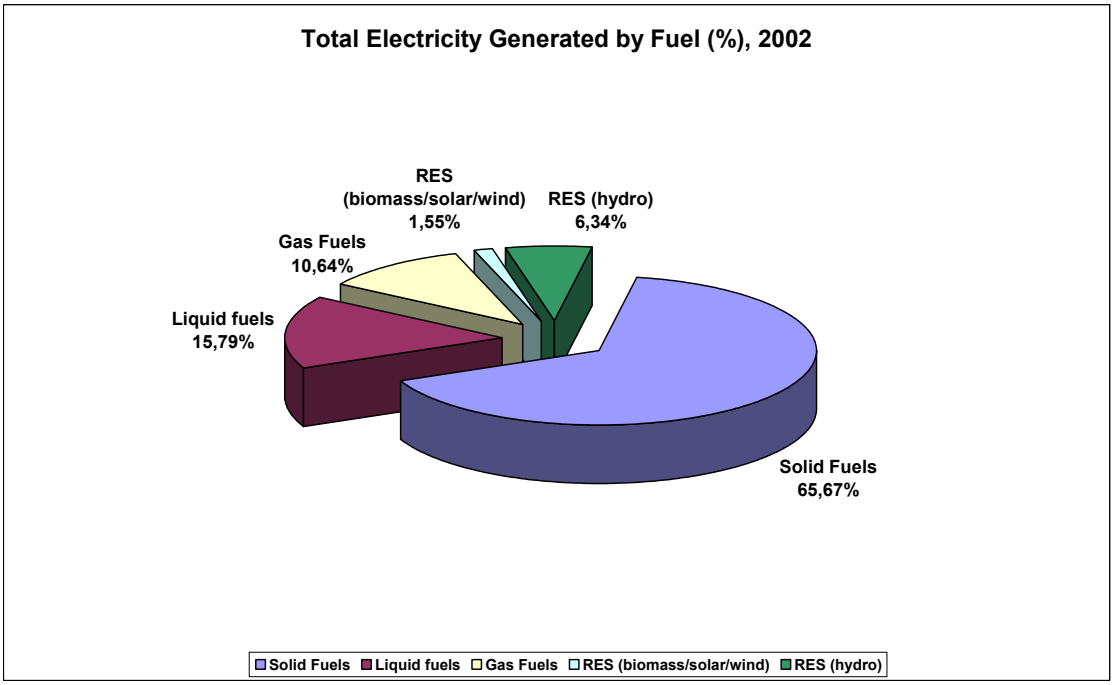

Chart 5. Percentage of total electricity generation, by fuel in 2002

Year	Emissions	Electricity Generation	Industry	Transport	Agriculture	Residential	Tertiary
2000	CO_2	51,702	13,771	19,182	2,659	7,592	776
	CH_4	7.5	78	155.4	9.1	206.4	0.5
	N_2O	2,035.20	610.7	380.1	304.1	387.2	31
2005	CO_2	53,199	14,063	23,324	2,758	7,840	899
	CH_4	18.9	90.3	159.6	4.2	130.2	0
	N_2O	2,139	744	620	310	341	31

(Source: "National Inventory for Greenhouse and other gases for 1999-2000" by National Observatory of Athens)

Table 4. Total emissions of greenhouse (GHG) gases (in kt $CO_{2\ equiv.}$) by sector in 2000 and 2005

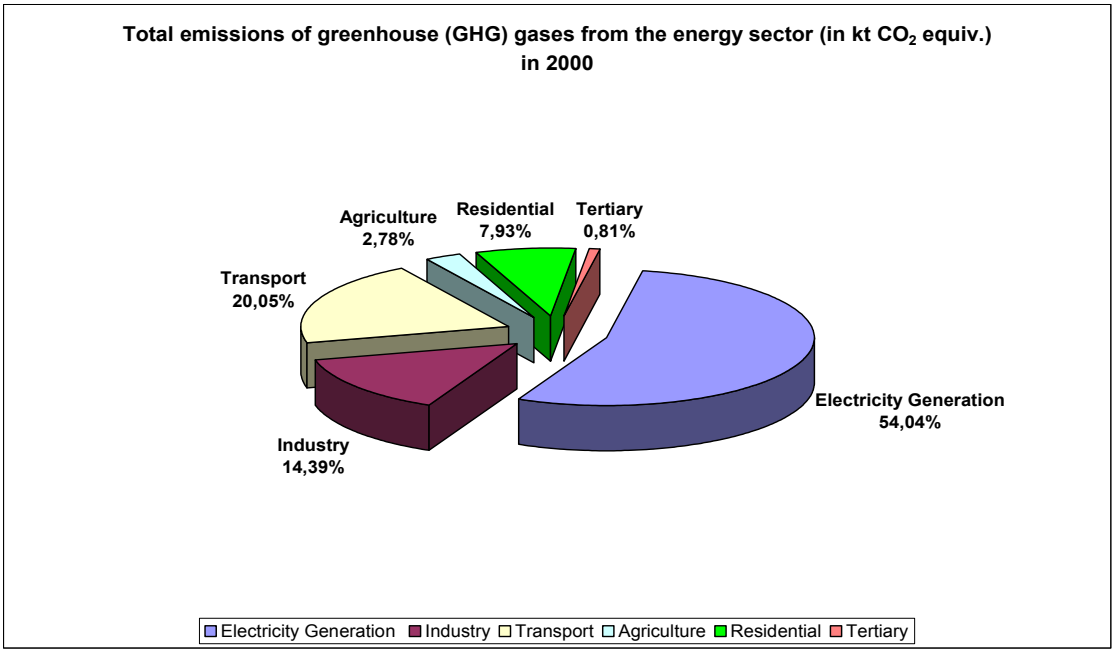

Chart 6. Percentage of total emissions of greenhouse gases by sector in 2000

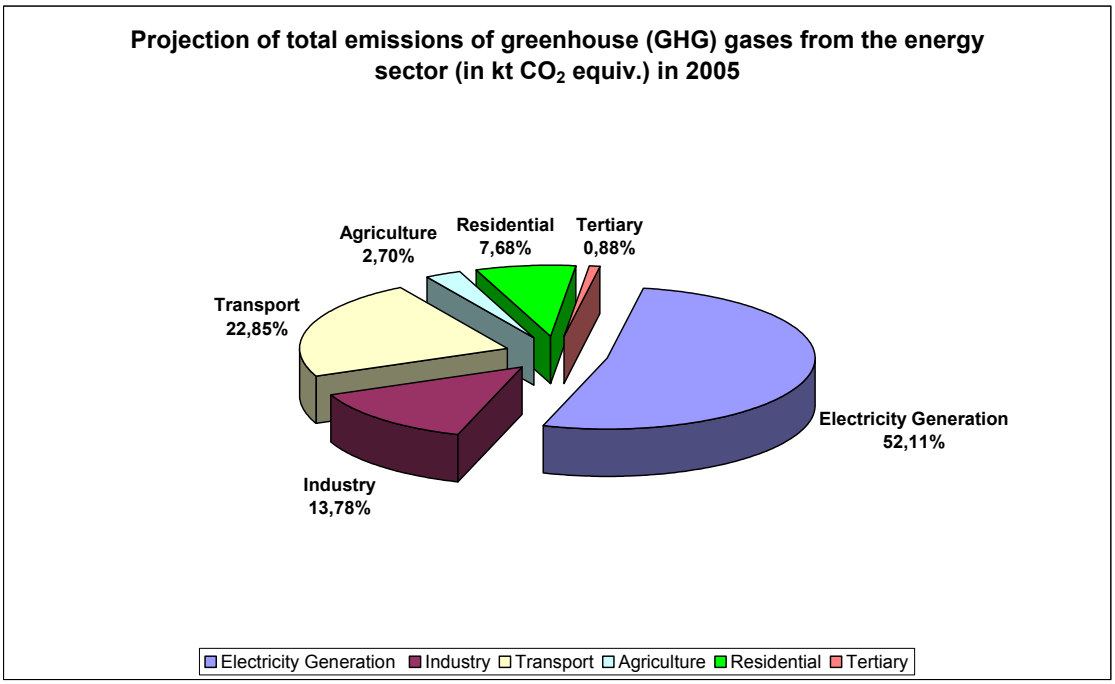

Chart 7. Projected percentage of total emissions of greenhouse gases by sector in 2005

4.3 Public policies

National actions are being implemented within Greek energy and environmental policy from the early 90s, to face European and global conditions and cope with EU policy and projected scenarios regarding the energy supply, use and management in all economic sectors. Greece introduced the "Hellenic Action Plan for the Abatement of CO_2 and other Greenhouse Gas Emissions" in 1995. It sets a CO_2 emission target at 2000 as 15±3% above the 1990 level. Actually, in 1999 these emissions were 18% above the 1990 level. Greece's greenhouse gas emission target under the European Union "burden-sharing" agreement, to meet its Kyoto Protocol target, is set at 25% above 1990. As CO_2 emissions are expected to grow fast in the future, strong additional measures are needed to meet this target. By virtue of Law 3017/2002 *"Ratification of the Kyoto Protocol to the Frame-work-convention on climate change"*, the Greek Parliament put on an official footing of the country's commitment for actions running against the aggravation of the "greenhouse effect". It is crucial that careful monitoring support the plan. In addition to taking national mitigation measures, Greece is interested in using the Kyoto flexible mechanisms to meet its GHG objective.

Following the basic goals of national energy policy for a) the secure energy supply at a reasonable cost, b) the enhanced market competitiveness and progressive liberalization c) the environmental quality improvement and d) the independence from external energy factors, the government has been engaged to adopt activities that include :

- The drafting and issue of legal acts,
- The design and implementation of pilot and subsidy programme actions,
- The introduction of upgraded energy management infrastructure,
- The implementation of structural subsidy programmes for the rational exploitation of indigenous energy sources including Renewable Energy Sources (RES), for the broad promotion of Rational Use of Energy (RUE), for the penetration of natural gas to all end-energy uses and for the application of cogeneration of heat and power (CHP).

In relation to the national energy efficiency policy and specifically for Energy Performance Contracting, the legal framework includes:

- Two Circulars of the Ministry for Public Administration (1997) and the Joint Ministerial Decision (JMD) 21475/4707 on the reduction of CO_2 emissions via improved building energy efficiency (1998), which have introduced the TPF/EPC option in the public building sector within a mandatory, well defined energy management procedure with complete energy auditing, monitoring and targeting actions.
- An infrastructure study assigned by the Ministry of the Environment regarding the organisation of Energy Management Offices and the specification of the TPF mechanism procedures for energy saving investments for the public building administration, on the basis of JMD 21475/4707/98 mandates.
- Elaboration and public presentation of the final draft and of complementary documentation on the new Law on *"TPF of Energy Investments for Energy Saving, Cogeneration & Independent Generation of Electrical or/and Thermal Energy from RES"* (2001). This Law, when issued, will establish formally the TPF mechanism and primarily the framework for ESCOs operation in Greece for the performance of private sector investments (including investment subsidy opportunities from the EU 3^{d} Community Support Framework for Greece-Operational Programme for Competitiveness (OPC) 2000-2006 / Actions 2.1.3, 2.1.4 for the private sector energy (RUE/RES/CHP) investments, or from other financial aid source). This Law will not tackle in particular the open topic of guaranteed energy saving contracting process in the public sector, but it will be relevant to public sector EPC as it will establish legally the ESCO business in Greece. **(Annex 1)**

4.4 Energy use

Total final energy consumption (TFC) in Greece was 19.5 Mtoe in 2000, up by 30% from 1990. Transport had the biggest share (37.8%), followed by the industry (26.6%), the residential sector (23.2%), the commercial sector (6.7%) and the agricultural sector (5.7%).

TFC of the industrial sector grew moderately, by 12 % in 1990-2000, whilst a 41% increase, i.e. 3.5% per year, is forecast by 2010 on the basis of 4% yearly growth of GDP and not of industrial production. An average annual TFC growth rate of 2.9 % has been recorded between 1995 and 2000, as compared to the average annual growth of industrial production of 2.8%. The largest energy consuming industries are the non-metallic minerals industry, which represents the 28% of all industrial consumption, the non-ferrous minerals with a 18% share and the food industry with a 14% share.

In the residential sector, TFC grew fast, by 66 % between 1990 and 1999, but even stronger growth took place in the services sector where the increase was 102% over the same period. Essentially driven by the rise in household income levels, increased energy consumption in the residential sector has mainly resulted from rapid increase in the use of air conditioning. The major factors contributing to growing energy consumption in the services sector have been rapid economic growth of the sector and increased use of air conditioning. The government estimates that TFC in both these sectors will grow by about 55% by 2010.

The total primary energy supply (TPES) grew by 28%, *i.e.* 2.5% per year, in the period 1990 to 1999. Greece's energy intensity (TPES per unit of GDP) has been slowly rising over the past ten years, so that the energy intensity of Greece is converging with the average of IEA Europe; in 1999, Greece exceeded that average. In the future, energy intensity in Greece is projected to grow slightly

From 1990-2000 the almost totally imported oil supply grew from 12.8 to 15.6 Mtoe (i.e. by 22%). The government expects total oil demand to grow by 40% by to 2010. The increase is expected in all end-use sectors. The share of oil in TFC remained steady in the 90s amounting to 69% in 2000. Industry accounted for 19%, transport for 55% and the rest sectors for 26%. Between 1990 and 2000 final oil consumption in the residential and commercial sectors grew by 35% and in industry by 18%.

The natural gas market is young and under development. In 1999, it accounted almost 5%

of the TPES. Gas consumption began to increase with the first imports of natural gas from Russia in the mid 90s. Gas has already gained a good footing in power production and replaced some oil use in the industrial sector. In the future, most gas demand growth is expected to take place in power generation and in the residential and services sectors. The current gas infrastructure is sufficient to meet the demand for several years.

Low-quality lignite accounts for 84% of Greece's indigenous energy production and 59% of electricity supply. While use of lignite contributes positively to the security of energy supply, it has adverse environmental impacts. Programmes are in place to reduce the environmental impact of mining by restoring the land used and investments have been made to reduce pollutant emissions from power plants. The government favors gas in power generation. New lignite-fired power plants are allowed provided only that they use state-of-the-art technologies and do not endanger meeting the greenhouse gas emission target.

In 2000, energy from renewable sources (including waste) amounted to 1.47 Mtoe, of which 0.32 Mtoe was hydropower. This is a slight increase from 1990, when the renewables supply totaled 0.7 Mtoe, with 0.15 Mtoe coming from hydropower. The contribution of renewables to TPES was 5.2% in 2000. The government estimates the supply of renewables to grow by 35% between 2000 and 2010 but their share of the total energy demand to drop to 4,9%. However, these estimates were made under the current policies and the new intensified efforts to mitigate climate change can lead to stronger growth.

In 2000, electricity production from renewables was 4.3 TWh, representing 8.1% of total generation. Hydropower contributed 3.7 TWh (with pumped storage), combustible renewables and waste 0.2 TWh, and wind and solar power 0.45 TWh. Production from wind, solar and biomass increased in the 1990s. Hydropower generation fluctuated and was influenced by weather conditions from year to year. At the end of 1999, the installed capacity of combustible renewables and waste was 7.47 GW, hydropower 2.96 GW (of which 0.62 GW is pumped storage) and wind power 0.09 GW. But, wind power capacity doubled during 2000 reaching 0.23 GW.

Solar energy is used principally for hot water production and 20% of the households use solar water heaters. Greece is the leading country within the EU with 2.75 million m^2 of collector area. A few small photovoltaic power plants are in operation especially in the smallest inhabited islands.

The current policies promote the use of biomass for combined heat and power production. But, by now, the number or biomass-fired CHPs has been limited. The

potential for geothermal energy in the Northern Greece is estimated at 200 MW of heat of which about 70 MW is currently exploited for heating greenhouses and other agricultural purposes, spas, and space heating.

5. Definition of ESCO / Performance Contracting / Third Party Financing

5.1 Target Markets

End-energy users in Greece, both in the public and private sector face objective problems regarding energy intensity, efficiency and demand management and often lack the awareness and special expertise, within the local decision making process, to establish in practice a strategy for the optimisation of economic and environmental performance of their building or industrial sites. Therefore, problems associated to the traditional in-house financing of capital intensive integrated energy retrofit projects would arise, especially in the case where these projects would be associated to uncertain economic benefits and high risks. In addition, already instituted energy management procedures are scarcely applied in practice, leading to the absence of active interconnection between on-site technical/management personnel with top decision makers and external contractors-suppliers for efficient facility management.

Third Party Financing (TPF) is perceived as a mechanism that involves the provision of outsourced finance for capital investment in energy performance projects by any "third party", which is neither the end-energy user nor the energy supplier of the industrial or building site. The third party might, for example, be the equipment supplier (who might offer some form of leasing deal) or a bank or finance house (who might provide project finance). The energy performance project concerned may involve more efficient or alternative forms of heat and/or electricity supply, including the use of renewable energy sources (e.g. CHP, solar heat, biomass heat etc.) or/and energy efficient technologies (e.g. building structural elements, HVAC, hot water, electric power, lighting, energy management systems) to reduce the demand for energy within a final industrial process or building service.

The concept of TPF more usually refers to the provision of third party financing by a specialized company, the Energy Service Company (ESCO) which provides a complete package of energy services for the implementation and operation of an energy performance project. An important feature of an ESCO's service, usually in end-energy efficiency investments, is generally some form of performance guarantee. For this reason, TPF, operated by an ESCO is also known as Energy Performance Contracting (EPC). It is this guarantee and the transfer of risk that it involves, usually over a relatively long period of project operation that differentiates TPF/EPC from most traditional 'turnkey' equipment supply contracts.

The aforementioned general profile of end-energy users combined with the continuous and very fast growth of the total final energy consumption of the domestic and services sector, i.e. the building sector, from 1990 onwards, point out the building sector as the most promising target market for TPF/EPC services. This is especially promising when a pool of target building sites is addressed, in order to have big energy savings potential, an adequate EPC budget and an efficient project contract and energy cash flows control.

The Hellenic government has especially recognized the large and increasing magnitude of energy consumption and the high energy saving potential of especially the public building sector. From 1997 onwards, following the provisions of EU SAVE Directive 93/76/EEC, a specific focus has been given on the stimulation of TPF/EPC mechanism for energy efficiency investments in the public building sector (for energy efficiency, CHP and solar heat supply investments in hospitals and pools of public administration buildings). The general analysis of energy use in public administration buildings indicates that up to 30% energy savings can be achieved if an overall energy management strategy is adopted and appropriate energy conservation measures are implemented on the basis of well organized auditing, monitoring and targeting activities. The procedure for the implementation of energy saving or/and alternative and efficient energy supply measures in public administration facilities should refer to a considerable life cycle economic and environmental benefit as well as to the subsequent quality of offered services and to human comfort. Existing structural deficiencies of Greek public budgeting favor the option of EPC when deciding for public investments in energy efficiency. A distinction must be pointed out between the regime of state-owned and of rented public administration buildings. Possible proposals for EPC/TPF projects must be primarily oriented to proprietary public buildings administrations.

Finally, the issue of the new Law draft on *"TPF of Energy Investments for Energy Saving, Cogeneration & Independent Generation of Electrical or/and Thermal Energy from RES"* (2001) will establish the proper framework for ESCOs operation in Greece for the performance of any private sector capital investment energy project (including investment subsidy opportunities from state aid schemes) This Law will not tackle in particular the open topic of guaranteed energy saving contracting process in the public sector, but it will be relevant to public sector EPC as it will establish legally the ESCO business in Greece (Annex 1)

5.2 Services

An ESCO may provide not only the finance but also the technical expertise and experience to implement the energy performance project and operate (and perhaps maintain) the plant that is installed for this reason. The ESCO may be independent of both equipment suppliers and energy utilities, and so be free to choose the best technical and commercial options for each client. However, some equipment suppliers, construction groups and utilities may act as ESCOs, or to be closely associated with them. In some cases, especially where the projects are large, the ESCO can be a specially created joint venture company involving (for example) an equipment manufacturer, a construction company and a finance provider.

A typical ESCO is capable of offering a "one stop shop" service to the client covering all or some of the following stages of a project:

- **Project Preparation** : identification and appraisal of projects (e.g technical feasibility studies), followed by definition of the project and preparation of a technical specification and financial plan at the level needed to secure funding
- **Project Funding** : provision of finance for capital investment and (if appropriate) initial operating costs, generally through grants and/or loans from different sources (although the ESCO will usually provide all the funding from its own resources, which may include its retained profit and global loan facilities that it has negotiated with a bank or parent company);
- **Design and Construction** : all aspects of project implementation (design, specification, procurement, installation, commissioning) to the point of handover of the new plant to the operator (in this case the ESCO will also be the operator);
- **Operation and Maintenance** : management and operation of the energy services (generally both old and new plant) following handover of the new plant by the contractor;

- **Revenue and Profit** : collection of revenues (e.g. from central or regional authorities) and generation of the expected return on capital employed.

5.3 Savings

Regarding to the main energy retrofit measures to be applied, the energy saving potential is estimated to be in the range between 20% and 30%.

5.4 Size of the ESCOs

The market in Greece lacks of explicit specifications for EPC tendering, proposal evaluation, contract monitoring and energy cost benefits reimbursement. As a consequence, the established Energy Saving Companies (ESCOs) market in Greece is very limited mainly due to the vague definition of TPF/EPC actors' role. It seems therefore costly and time-consuming for a new entrant ESCO to penetrate the Greek market, especially for the building sector. The start-up of a new pure ESCO would also require considerable funds to support the necessary marketing and administrative expenses before an adequate number of pilot TPF contracts are concluded, in order to provide an adequate cash flow. It has been estimated that the initial funds for the start-up of a pure ESCO accounts at least 350,000 € in the first year of operation. Further funds are required to cover the expenses occurred during the design, implementation and monitoring of the energy projects.

The general factors that are thought to delay the successful deployment of TPF mechanism in Greece are the following:

- The legal consolidation of ESCOs
- The project financing, investment, design, construction and insurance mechanism
- The determination of incentives and the securing of organizations funds dedicated to TPF
- The lack of institutional regulations and warranties regarding the cooperation between TPF expert actors
- The lack of central organization and monitoring procedure for TPF and ESCOs operation
- Legal and tax problems arising from TPF implementation

- The lack of a joint encoding of the existing legislative framework which is affecting TPF implementation

5.5 Type of ESCOs

The main types of ESCOs in Greece may be:

- Independent, specialist companies
- Public and private utilities
- Equipment suppliers
- National/regional authorities/ agencies

Independent, specialist ESCOs vary in size from small privately owned companies operating at a local or regional level to large public companies operating nationally or internationally. They account for an increasing share of the total TPF market, and have the provision of TPF services as their sole (or main) business. They may meet the requirements for project finance from their own resources, or (more usually) through an agreement with a bank of finance house.

Utilities see the provision of TPF services not only as a business opportunity in its own right but also as making a significant contribution to Demand Side Management'. In this context, the term 'utilities' has included both private-sector and public-sector organizations involved in the supply not only of energy (electricity, oil, gas, coal) but also in the provision of other utility services such as water. Indeed, there is a marked trend across Europe towards the formation of 'multi-utilities' which offer a range of utility services (energy, water, telecommunications etc).

Some energy **equipment suppliers** also offer TPF services through an in-house ESCO. However, in most cases this is simply a form of leasing arrangement linked to a performance guarantee on the item of plant that they themselves supply. The exception to this is suppliers of Building Energy Management Systems (BEMS), which are important energy management tools. Several BEMS suppliers operate as ESCOs at an international level, investing not only in their own systems but also in other energy saving systems and technologies.

Public agencies can have an important role to play as ESCOs, particularly in markets where private-sector ESCOs have not yet been established. Such ESCOs generally (but not exclusively) fund projects with public-sector energy users such as schools,

universities and hospitals. They may enjoy particular privileges (for example, low-rate public-sector finance), which makes this approach more attractive than a private-sector ESCO. They may also be able to operate a 'rolling fund' for energy investment, funded out of the savings achieved in earlier projects (this is easier to achieve where profit is less of a consideration).

5.6 Different market segments

The potential market for Performance Contracting can in principle be divided into two main segments, the industrial/private processes and public/private service building sector. Especially in the building sector, an ESCO includes long term profits, business growth and synergies with the company's relevant core business to bring new clients or sustain existing ones through diversified services as well as demand side management (case for utilities) and environmental credentials. The extent to which these expectations will be realised depends on the new legal framework, the nature and potential attitude of the market and on the approach to that market (market entry strategy).

5.7 Different actors initiating

Since 1997, following the provisions of SAVE Directive 93/76/EEC, the Ministries of Development (MIDE) Environment (MEPPPW), Public Administration (MIPAD) with the support of CRES and other experts have being focusing on the stimulation of TPF/EPC mechanism for energy performance investments in the public and private sectors.

These activities include, among others, the drafting and issue of a proper legal framework, the design and implementation of pilot and subsidy programme activities, the organization and/or participation of targeted dissemination events and the documentation of the available best practice and procedure specifications.

6. How ESCOs Operate

6.1 Type of services provided

TPF/EPC via the operation of a pure ESCO generally falls into the contracting option of Operating Contracts where the private contractor not only constructs the facility but also operates it for a period. In these cases it is usual for the contractor to provide the investment capital, and to recover this capital over the operating period. This is virtually identical to 'BOOT' contracts used for large infrastructure projects

The options available for operating contracts in general include:

- **Build, Operate and Transfer (BOT)**, in which the private contractor constructs and operates the facility for a specified period. The client pays the contractor a fee, which may be a fixed (e.g. monthly) sum, linked to output (e.g. energy sales) or, more likely, a combination of the two. The fee will cover the operators fixed and variable costs, including recovery of the capital invested by the contractor. In this case, ownership of the facility rests with the public agency;
- **Build, Own, Operate and Transfer (BOOT)**, which is similar to BOT except that the contractor owns the facility up to the point of transfer. In practice, this is the most common form of operating contract;
- **Build Own and Operate (BOO),** in which the contractor constructs the facility and then operates it on behalf of the public agency. The initial operating period (over which the capital cost will be recovered) is defined, but there is no requirement to transfer ownership to the client at the end of that period. As an alternative to transfer, a further operating contract (at a lower cost) may be negotiated.

In all of these cases (including TPF) the contractor provides a wide range of different resources, including manpower, technical expertise, project finance, operating experience and all the associated management and commercial skills. Since the contractor is responsible for operation as well as project implementation, performance guarantees are inherent in the approach. If the contractor does not provide the service (defined in terms of specific standards such as room temperatures and volumes of domestic hot water) he does not get paid, and indeed may be required to provide an equivalent service using an alternative facility at his own expense.

A key advantage of this approach is the transfer of technical and financial risk to the contractor. This risk transfer relates not only to the construction but also to the operation

of the facility. The cost depends strongly on the length of the operating period, which can be similar to the 'traditional' amortisation period of public infrastructure investment (15 to 20 years) – although shorter periods (8-12 years) are more usual. Longer amortisation periods can make the effective annual 'cost of finance' much lower than the cost of borrowing from a private bank (over a shorter period), quite apart from the clear benefit in that the contractor will meet the full capital cost of the facility not just part of it.

It is, however, important to recognise that in a long-term contract like this the contractor cannot be expected to take responsibility for factors that are completely outside his control, such as inflation. In some circumstances the contractor will also require guarantees relating to the expected 'inputs' (for example, the way energy is used on the site). As in the case of a turnkey contract, the client will need to select and manage the contractor, using appropriate tendering procedures, especially in the case of a public organisation. This can be a challenging task, given that many public agents will be adopting this approach for the first time whereas the contractors (ESCOs) are much more experienced as service providers. It is therefore likely that the public client will need a specialist, independent advice on the contracting specification and procedures. The public client will also need to monitor the standard of service provided.

These options still face legal and institutional constraints in Greece. The legal framework for such contracts must exist, and there may also be issues relating to the re-employment of the client's own staff by the contractor. Other potential problem areas are access, responsibilities for existing plant, ownership of plant, financial guarantees and purchase of energy.

The Energy Saving Companies (ESCOs) can offer a wide range of energy saving potential services including:

- Analysis, planning and implementation of energy-saving measures
- Savings guarantee, usually defined as a percentage of the energy costs reference value
- Services regarding the operation and maintenance of newly installed or renovated facilities
- Services regarding the operation and maintenance of existing facilities
- Free choice of energy efficiency measures. Within a certain framework, the contractor can choose freely which measures to use. Essential framework conditions may be:
    I. Execution of measures according to the latest state of technology
    II. Maintaining minimum standards of utilization comfort

III. Exclusion of negative effects on the environment

- Investment services
- Training and qualification measures

6.2 How the industry is evolving

The pure ESCO industry in Greece may be considered negligible and stable for the present. A legal push in terms of integrated energy services and energy management specific legislation in combination with mandatory national and sectoral energy consumption reduction targets would possibly take-off the EPC market especially from utilities and big companies handling a pool of potential clients. The issue of a law for ESCO business operation would clarify the operational environment

7. Main issues in Performance Contracting

7.1 Financing

The ESCO takes over the financing of the energy saving measures and refinances its expenditures. ESCOs usually refinance their activities by banks and other financial institutions, venture capitals and mother companies. In Greece, the major problem is identified on the magnitude and the long-term engagement of the capital required for a big energy project as well as the uncertainty regarding the expected energy savings. This uncertainty reflects technological risks as well as investment risks related to the recovery of the invested capital. Therefore, the supply of a form of State warranties or State participation in a financing network for the private sector is proposed to act as a security means. A possible way of doing this is to create a special financing group with the participation of banks, industrial companies, ESCOs and the State. An alternative and easier way is the initiation of specialized investment banks as well as commercial banks with dedicated project financing departments.

7.2 Contractual/Legal matters

The proper operations of ESCOs within the Greek market conditions have raised the importance of three factors:

- The importance of targeted information flow towards a) private unitary energy-users as well as public central and municipal authorities and major housing propriety agents and lobbies who possess or manage a critical size of building stock, b) the relevant decision making authorities in the central or regional government c) the financial organisations (e.g. banks) and d) the integrated energy service providers / potential EPC project contractors

- The importance of clear legal and contractual environment for the easy operation and fair assessment of ESCO business

- The importance of programme level measures and associated funds (e.g. grants) as well as legislative mandates for the explicit promotion of TPF/EPC mechanisms as proper options to overcome otherwise unsolved situations regarding the energy and environmental upgrading which would formally initiate and supplement the capital investment of the ESCO within an EPC contract for

certain end-users (public administration and critical welfare buildings, housing complexes)

The role of energy agencies like CRES on the standard design and pilot implementation, including monitoring and verification of projects addressing these issues, in close cooperation with the relevant government authorities is considered to be extremely important. Therefore, in the immature market of Greece for integrated energy services, which is still on the development phase of EPC, there is a need for a strong commitment from the part of the government to adopt experts' proposals and elaborate on the necessary legislative, regulatory and administrative reforms.

7.3 Standard/Model contracts

In principle, all EPC/TPF companies interested in a project will have to submit documents proving their ***competence***, their financial, economic and technical ***capability*** and their ***reliability***. When all the above preconditions are met then the contracting partners will set the necessary requirements and conditions of the contract. Although contract arrangements will differ depending upon the two parties involved and the type of project that will be carried out, however an agreement must be set on the two phases (installation and operation), after which ownership and operation will be transferred to the client.

The typical contract contents to be covered in a TPF/EPC contract are the following:

1. Introduction

This section should include the reasons for the contracting partners to enter the contract, along with the purpose of the contract. It could also include an explanation of how the budget funds are going to be saved.

Statement of Contract	Brief statement of nature and purpose of contract;
Status of ESCO	Name and legal status of client as party to the contract;
Status of Client	Name and legal status of client as party to the contract;
Site/Process	Site and/or process covered by contract (name, location and description, including precise definition of area covered;

Legal Basis	Legal basis of contract (e.g. Greek law, regional law etc), and arrangements for arbitration in event of dispute;
Phasing	Defined phases of contract (usually Installation Phase, followed Operation Phase followed by Handover or Continuation)

2. Definitions

An explicit definition of the most important concepts occurring in the contract should be included, in order to avoid different interpretations of the concept by contract partners, and thus possible disputes between them. The following concepts might be useful to be included:

- Agreement
- Audit
- Baseline
- Dates – start date, end date
- Emergency
- Energy Savings
- Energy Cost Savings
- Equipment
- Full Contract Amount
- Investment
- Operator
- Owner
- Responsibilities
- Services

3. Base Consumption

This concept must be included to demonstrate that the contract parties agree upon the reference baseline for the energy saving calculations. This provides a basis for the further comparison of energy consumption after the implementation of energy saving measures.

4. Installation

This part of the contract refers to the stages and timing of project implementation i.e. what measures to be implemented, what equipment will be delivered, and when it is going to be installed and commissioned. This part should also specify whether the ESCO

is going to use sub-contractors to carry out specific tasks, although it may not be possible to identify specific equipment suppliers at this stage.

5. Operation

Operation of the site energy services during the operation phase will normally be carried out by the ESCO as a service to the client. The general terms and conditions of this service should be agreed upon by both parties and included in the contract.

6. Handover/Continuation

The arrangements for the contract end e.g. transfer of ownership of new plant from ESCO to client.

7. Financial agreements

This part of the contract should specify the payments to be made by the client to the ESCO. These payments will be based on the energy savings made, the cost of operating and maintaining the system, and a profit element for the ESCO

8. Other contractual issues

This section should cover a number of potentially foreseeable future scenarios and basically defines the procedures to be followed when they occur. Most of these clauses should be standard contractual procedures.

7.4 General conditions

Entering into a TPF contract, both the ESCO and the client undertake significant risks. It is therefore important that this process is carried out responsibly, since both parties have significant stakes in the contract. During the process of setting the TPF contract arrangements the ESCO companies should make sure of their obligations and responsibilities to the client. Some of their principal responsibilities must include:

- The design of the new installation as well as setting up the specifications for plant, equipment and improvements;
- Making the specified investment in plant, equipment and improvements;
- Carrying out the installation and improvements by an agreed date;
- Operating (and possibly maintaining) the energy systems, including any old plant that is retained as well as new plant;
- Meeting specific performance levels in terms of specific energy consumption (depending on usage and climatic factors).

On the other hand, the client should make sure that he:

- Allows access to the ESCO and associated sub-contractors;
- Co-operates with the ESCO in order to achieve potential energy and cost savings;
- Provides relevant data on usage factors needed to assess specific performance levels;
- Purchases of fuel and/or electricity (if not contracted to the ESCO);
- Pays the ESCO in accordance with agreed parameters and schedules.

Additionally, there are also some issues that are outside the direct control of both the ESCO and the client, but which still need to be considered in the contract. These include:

- General inflation, which will impact on the ESCO's costs;
- Fuel and electricity tariffs and taxes, which may not be linked to general inflation;
- Major changes in the operation of the site (closure, extension, change of use);
- Impact of unanticipated legislation.

Furthermore, although the TPF contract must operate in good faith, some future scenarios should also be included during the contractual procedure. These scenarios must answer to the following questions:

What Happens If?	ESCO does not receive payment?
	ESCO goes bankrupt?
	ESCO wishes to sell-on the contract?
	ESCO disrupts site operations?
	Client goes bankrupt?
	Client wishes to close all or part of site?
	Client wishes to expand site?
	Client wishes to make major changes?

7.5 Ownership of installed equipment

Operating contracts involve the private contractor not only constructing the facility but also operating it for a period of time. In this case it is usual for the contractor to provide the investment capital, and to recover this capital over the operating period. This is precisely the approach adopted by ESCOs to most TPF projects, and is virtually identical to ***Build, Own, Operate and Transfer*** (BOOT) contracts used for large infrastructure projects. According to BOOT contract the ESCO constructs and operates (owns) the

facility for a specified period of time up to the point of transfer. In practice, this is the most common form of operating TPF contract.

7.6 Guarantees and enforcement

The majority of TPF contracts include guaranteed energy savings by ESCOs to the client. Hence, the energy savings will be based on actual consumptions, with appropriate adjustments made for fuel price changes and inflation of non-energy costs. During the contract period, the client pays the ESCO a fee that is guaranteed to be less than the original (historical) energy bill by a specified amount (e.g. 5%). This fee covers not only the purchase of fuel and/or electricity but also the cost of the new plant (amortized over the contract period) and the cost of the energy management service provided by the ESCO. At the end of the contract period all the savings fall to the client, although the client may wish to pay the ESCO a (much-reduced) management fee simply to continue operating the plant.

7.7 Measurement and verification

Measurements and verification are considered to be very important for both the ESCO and the client. Data on the new energy consumption (using the new installation equipment by the ESCO) must be frequently recorded in order to verify that the new installed equipment is running properly and efficiently as planned during the installation phase (part of the contractual phase). Other factors relevant to energy consumption and costs should also be recorded in order to allow specific adjustments. These could include:

- Changes to tariff and/ or metering arrangements
- Plant maintenance and efficiency
- Plant replacements

7.8 First year and the following years

The development seems to go towards more complex solutions, where the ESCOs offer a broader range of services, but obstacles and problems associated to the legal consolidation of ESCOs, project financing, investment, diffusion and confusion of responsibilities within public authorities for the procurement/ services/ work and maintenance, legal tax problems (from TPF implementation) can delay the introduction and implementation of broader range of such ESCOs services in the Greek market.

8. Barriers and opportunities

Although it is found that the size of the yearly energy bills of Greek public administration buildings together with the big potential for energy savings with proven energy technologies of relatively low overall pay-back times enhance the introduction and implementation of TPF mechanisms, there are still several potential barriers in the Greek market that delay the successful deployment of the TPF mechanism in the national market. Some of the barriers include:

- The legal consolidation of ESCOs
- The project financing, investment, design, construction and insurance mechanism
- Not direct economic benefits for the end-use service budget (re-allocation of public funds irrelevant to energy savings)
- Diffusion and confusion of responsibilities within public authorities for the procurement, services, works and maintenance regarding the building infrastructure
- Legal and tax problems arising from TPF implementation
- Lack of institutional regulations (e.g. where a public building owner is not its user) and warranties regarding the cooperation between TPF experts' actors.

On the other hand, CRES through its participation in EPC projects (EC SAVE projects), have produced a number of important instruments (including guidelines for EPC process) In order to promote energy efficiency investments mainly in hospitals and buildings (public administration buildings). For the latter, instruments so-called "tool fact sheets" are used for:

- Guidelines, model contracts, control of contractual guarantees. These are informative tools aiming at structured information addressed to the public and private sector clients of TPF services as well as at detailed presentation of the stages for the implementation of typical project with the use of TPF mechanism.
- Guidelines for Energy Management and TPF procedure guidelines. These are informative and computational (CD-ROM) tools aiming at introducing case studies, methodology and techniques for energy auditing measurements in buildings.
- An important tool (guidelines for TPF investments) has been produced by CRES in the framework of a SAVE project, with title "Promotion of TPF in public buildings with emphasis in hospitals". This tool provides concrete advice to the following issues:
- Market potential/development

- Energy Service Companies
- Targets, Conditions and Priorities for the ESCO
- Conditions of TPF project
- General Framework of a TPF project
- Assessment criteria and Planning

9. Government policies

The Greek Government has already recognised the relative obstacles and opportunities, in association to the national and European energy policy and in consideration of the aforementioned observations. From 1997 onwards, following the provisions of SAVE Directive 93/76/EEC, the Ministries of Development (MIDE), Environment (MEPPPW), Public Administration (MIPAD) with the support of the Centre for Renewable Energy Sources (CRES) and other key experts have focused on the stimulation of TPF/EPC mechanism for energy efficiency investments in the public building sector. These activities involve the issue of legal acts, the design and implementation of pilot and subsidy programme activities, the introduction of upgraded energy management infrastructure, the organisation and/or participation of targeted dissemination events and the documentation of the available best practice and procedure specifications, as follows:

- Two MIPAD Circulars (1997) and the Joint Ministerial Decision (JMD) 21475/4707 on the reduction of CO_2 emissions via improved building energy efficiency (1998), which have introduced the TPF/EPC option in the public building sector within a mandatory, well defined energy management procedure with complete energy auditing, monitoring and targeting actions.
- An informative Guidebook introducing EPC/TPF for public buildings which has been elaborated by the work team of MIPAD and CRES in order to be delivered among public administration energy management units.
- Full reports and analytical topic documentation on TPF/EPC pilot projects, best practice case studies, monitoring and contracting activities and guiding specifications within 2 previous European Commission SAVE and 1 ALTENER projects addressed for public buildings, i.e. public administration, social buildings hospitals as test cases for Greece (CRES coordination or participation)
- Four national and international conference events followed by complete proceedings
- An infrastructure study assigned by MEPPPW regarding the organisation of Energy Management Offices and the specification of TPF mechanism procedures for energy saving investments for the public building administration, on the basis of JMD 21475/4707/98 mandates.
- Editions, brochures, leaflets and web allocations relevant to energy saving and management, ecological construction, sustainable development, edited or sponsored by EC and national Programmes and market or local authority agents with reference to TPF mechanisms.

- Participation of CRES up to date as observing energy agency to the work tasks of IEA/DSM Programme Task X "Performance Contracting and assessment of task deliverables
- Elaboration and public presentation of the final draft and of complementary documentation on the new Law on *"TPF of Energy Investments for Energy Saving, Cogeneration & Independent Generation of Electrical or/and Thermal Energy from RES"* (2001). This Law, when issued, will establish formally the TPF mechanism and primarily the framework for ESCOs operation in Greece for the performance of private sector investments (including investment subsidy opportunities from the EU 3^{d} Community Support Framework for Greece-Operational Programme for Competitiveness (OPC) 2000-2006 / Actions 2.1.3, 2.1.4 for the private sector energy (RUE/RES/CHP) investments, or from other financial aid source). This Law will not tackle in particular the open topic of guaranteed energy saving contracting process in the public sector, but it will be relevant to public sector EPC as it will establish legally the ESCO business in Greece.
- The implementation of OPC 2000-2006 Actions 2.1.1 (design, promotion and support activities) and 2.1.4 (public sector part) of the OPE 2000-2006, as detailed in the OPC Programming Supplement, which foresee the design and application of a special financial support scheme for the performance of energy investments (RUE/CHP/RES) in the public sector via the mechanism of TPF/EPC provided from private ESCOs

10. Lessons learned

The market in Greece still lacks of binding, explicit specifications for EPC public tendering, proposal evaluation, contract monitoring and energy cost benefits reimbursement. The potential, formally established Energy Saving Companies (ESCOs) market is at present limited in Greece mainly due to the vague definition of TPF/EPC actors' role. It appears to be rather costly and time-consuming for a new entrant ESCO to penetrate the Greek market, especially for the public building sector. In addition, the start-up of a new ESCO would also require considerable funds to support the necessary marketing and administrative expenses before an adequate number of pilots TPF contracts are concluded, in order to provide sufficient cash flow.

Several potential barriers in the Greek market that delay the successful deployment of the TPF mechanism in the national market have been expressed in a TPF/EPC workshop, organized by CRES, that took place in Crete earlier this year. More than fifty experts, managers and energy consultants from potential Greek ESCOs and public authorities, attended the regional dissemination workshop in Crete in which experts (legal consultant) energy managers of public buildings (universities and hospitals), end-users and key players from potential Greek ESCOs and representatives of European firms operating in Greece with an ECS/TPF-EPC interest (financial institutions, energy consultants, utility service units, control and management system suppliers) expressed and presented their views and experiences on the TPF/EPC market potential as well as on the obstacles and limitations of the existing legislative and administrative framework and the ways to overcome the inability of defining TPF energy management procedures. According to their views and experiences, the best approach of boosting TPF mechanisms in the national market is to overcome the following barriers:

- The legal consolidation of ESCOs
- The project financing, investment, design, construction and insurance mechanism
- Not direct economic benefits for the end-use service budget (re-allocation of public funds irrelevant to energy savings)
- Diffusion and confusion of responsibilities within public authorities for the procurement, services, works and maintenance regarding the building infrastructure
- Legal and tax problems arising from TPF implementation
- Lack of institutional regulations (e.g. where a public building owner is not its user) and warranties regarding the cooperation between TPF experts actors

11. Case Study

1. Community Support Framework Greece 1994-1999 / Operational Programme for Energy (OPE) / Measure 3.3 – Pilot CRES Project : “Application of cost-efficient solar-supported water heating in a dairy industry through TPF”

12. References

2. CEC / DG XVII ENERGY / Programme SAVE II / Project No1031/97-017 : "TPF of Energy Efficiency in public buildings" – Coordinator: Klemens Leutgoeb / EVA Austria - Final Report and Country Report for Greece

3. CEC / DG TREN / Programme SAVE II / Project No : 4.1031/00-028 : "Best Practice of Energy Services in Pulbic Buildings-TPFBEST" - Coordinator: Boris Papousek / GEA Austria - Final Report

4. CEC / DG TREN / Programme SAVE II / Project No : SA/202/GR : "Promotion of Third Party Financing in Public Buildings with Hospitals as a Test Case" - Coordinator: Dr Ilias Sofronis / CRES Greece - Final Report & Guide for Greek Hospitals

5. Community Support Framework Greece 1994-1999 / Operational Programme for Energy (OPE) / Measure 3.3 – Pilot CRES Projects : "Application of cost-efficient solar-supported water heating in a dairy industry through TPF"

6. Community Support Framework Greece 1994-1999 and 2000-2006 / Operational Programme for Energy (OPE 1994-1999) and Operational Programme for Competitiveness (OPC 2000-2006) – Guides for Energy Investments and Documentation of draft Law on "TPF of Energy Investments for Energy Saving, Cogeneration & Independent Generation of Electrical or/and Thermal Energy from RES" – Hellenic Ministry of Development

7. IEA – Energy Policies of IEA Countries – Greece 2002 Review

Annex 1

Draft Law (in Greek)

“TPF of Energy Investments for Energy Saving, Cogeneration & Independent Generation of Electrical or/and Thermal Energy from RES"

ΣΧΕΔΙΟ ΝΟΜΟΥ

ΧΡΗΜΑΤΟΔΟΤΗΣΗ ΑΠΟ ΤΡΙΤΟΥΣ («Χ.Α.Τ.»)
ΓΙΑ ΕΝΕΡΓΕΙΑΚΕΣ ΕΠΕΝΔΥΣΕΙΣ
ΣΤΗΝ ΕΞΟΙΚΟΝΟΜΗΣΗ ΕΝΕΡΓΕΙΑΣ, ΣΥΜΠΑΡΑΓΩΓΗ & ΠΑΡΑΓΩΓΗ
ΗΛΕΚΤΡΙΚΗΣ Η΄/ΚΑΙ ΘΕΡΜΙΚΗΣ ΕΝΕΡΓΕΙΑΣ ΑΠΟ Α.Π.Ε.

Άρθρο 1
Ορισμοί

α) ***«Χρηματοδότηση από Τρίτους»*** («Χ.Α.Τ.») στο πεδίο της ενέργειας σημαίνει τη συνολική παροχή Υπηρεσιών υλοποίησης Ενεργειακών Επενδύσεων με χρηματοδότηση τρίτων, στους τομείς της εξοικονόμησης ενέργειας, που περιλαμβάνει και την υποκατάσταση συμβατικών καυσίμων από φιλικότερα προς το περιβάλλον καύσιμα, συμπαραγωγής ηλεκτρικής ενέργειας & θερμότητας και παραγωγής ηλεκτρικής ή/και θερμικής ενέργειας από ανανεώσιμες πηγές ενέργειας (Α.Π.Ε.).

β) ***«Υπηρεσίες»*** σημαίνει την ανάπτυξη, μελέτη, σχεδιασμό, χρηματοδότηση, προμήθεια, κατασκευή, εγκατάσταση, θέση σε λειτουργία, εκμετάλλευση, εκπαίδευση και συντήρηση από τον Φορέα των Ενεργειακών Επενδύσεων.

γ) ***«Νόμος»*** σημαίνει το Ν.2773/1999 (ΦΕΚ 286 Α΄) «απελευθέρωση αγοράς ηλεκτρικής ενέργειας – ρύθμιση θεμάτων ενεργειακής πολιτικής και λοιπές διατάξεις», όπως εκάστοτε ισχύει, με όλα τα εκτελεστικά του διατάγματα και αποφάσεις.

δ) ***«Παραγωγή Ηλεκτρικής Ενέργειας από Α.Π.Ε.»*** νοείται όπως ορίζεται στο άρθρο 2 του Νόμου και αφορά τους σταθμούς δυναμικότητας που προβλέπονται στο άρθρο 35 αυτού.

ε) ***«Συμπαραγωγή»*** νοείται όπως ορίζεται στο άρθρο 2 του Νόμου και αφορά τους σταθμούς δυναμικότητας που προβλέπονται στο άρθρο 35 αυτού.

στ) ***«Φορέας»*** είναι η επιχείρηση παροχής των Υπηρεσιών Χ.Α.Τ., δρα με την μορφή της ανώνυμης εταιρείας ή άλλης αντίστοιχης μορφής, και έχει εγγραφεί στο Μητρώο Φορέων Χ.Α.Τ. σύμφωνα με τα προβλεπόμενα στο άρθρο 3 του παρόντος.

ζ) ***«Χρήστης»*** είναι ο λήπτης των Υπηρεσιών Χ.Α.Τ. ή/και καταναλωτής της παρεχόμενης ενέργειας, φυσικό ή νομικό πρόσωπο ή κοινοπραξία.

η) ***«Ενεργειακές Επενδύσεις»*** σημαίνει την ίδρυση και λειτουργία σταθμών Παραγωγής Ηλεκτρικής Ενέργειας ή /και παραγωγής θερμικής ενέργειας από Α.Π.Ε. ή σταθμών Συμπαραγωγής καθώς και τις εγκαταστάσεις εξοικονόμησης ενέργειας.

θ) ***«Ενεργειακός Εξοπλισμός»*** είναι ο εν γένει εξοπλισμός, μηχανήματα και εγκαταστάσεις που χρησιμοποιούνται από τον Φορέα για την υλοποίηση και λειτουργία των Ενεργειακών Επενδύσεων.

ι) ***«Εγκατάσταση του Χρήστη»*** είναι η υφιστάμενη μονάδα ή επιχείρηση ή κτίριο του Χρήστη, στην οποία εγκαθίσταται ο Ενεργειακός Εξοπλισμός στην περίπτωση εγκατάστασης εξοικονόμησης ενέργειας.

κ) ***«Σύμβαση Χ.Α.Τ.»*** είναι η συμφωνία με την οποία ο Χρήστης αναθέτει το σύνολο ή μέρος των Υπηρεσιών με το σύστημα Χ.Α.Τ. στον Φορέα, έναντι άμεσου ή έμμεσου οικονομικού ανταλλάγματος, για την για λογαριασμό του υλοποίηση της Ενεργειακής Επένδυσης.

λ) ***«Χώροι που υπάγονται στη Σύμβαση Χ.Α.Τ.»*** είναι η έκταση ή χώροι που παραχωρούνται από τον Χρήστη για την ίδρυση και λειτουργία των σταθμών Παραγωγής Ηλεκτρικής Ενέργειας ή /και παραγωγής θερμικής ενέργειας από Α.Π.Ε. ή των σταθμών Συμπαραγωγής ή εγκαταστάσεων για την εξοικονόμηση ενέργειας.

μ) ***«Περίοδος Λειτουργίας»*** σημαίνει τη χρονική περίοδο που αρχίζει την ημέρα λειτουργίας της Ενεργειακής Επένδυσης και λήγει με τη λήξη της Σύμβασης Χ.Α.Τ.

ν) ***«Ρ.Α.Ε.»,*** η Ρυθμιστική Αρχή Ενέργειας με όλες τις εξουσίες και αρμοδιότητες, όπως ορίζεται στο Νόμο.

Άρθρο 2

Σύμβαση Χ.Α.Τ. – Διάθεση Ενέργειας

1.1 Η Σύμβαση Χ.Α.Τ. περιλαμβάνει κατ' ελάχιστον τα ακόλουθα:

α) Ο Ενεργειακός Εξοπλισμός θα εγκατασταθεί και χρησιμοποιηθεί αποκλειστικά στην Εγκατάσταση του Χρήστη ή στους Χώρους που υπάγονται στη Σύμβαση.

β) Στη λήξη της Σύμβασης, ο Ενεργειακός Εξοπλισμός μεταβιβάζεται στο Χρήστη έναντι συμβολικού τιμήματος, που καθορίζεται στη Σύμβαση.

γ) Την υποχρέωση του Χρήστη να απορροφά το σύνολο ή την πλειονότητα της παραγόμενης ηλεκτρικής ή /και θερμικής ενέργειας.

δ) Τη δυνατότητα του Φορέα να διαθέτει το παραγόμενο πλεόνασμα ηλεκτρικής ενέργειας.

1.2 Η απορρόφηση και διάθεση της παραγόμενης ηλεκτρικής ενέργειας στις περιπτώσεις των εδαφίων (γ) & (δ) της παραγράφου 1.1 αυτού του άρθρου, θα γίνεται σύμφωνα με τα προβλεπόμενα στην παράγραφο 4 του άρθρου αυτού.

2. Στον τομέα της εξοικονόμησης ενέργειας, ο Φορέας εγγυάται την απόδοση της Ενεργειακής Επένδυσης και το οικονομικό του αντάλλαγμα συνίσταται, εν όλω ή εν μέρει, σε ποσοστό επί του οικονομικού οφέλους που προκύπτει από την επιτυγχανόμενη εξοικονόμηση ενέργειας.

3. Στην περίπτωση των σταθμών Συμπαραγωγής και σταθμών Παραγωγής Ηλεκτρικής Ενέργειας ή /και παραγωγής θερμικής ενέργειας από Α.Π.Ε., το σύνολο ή μέρος του οικονομικού ανταλλάγματος του Φορέα συνίσταται στο δικαίωμα εκμετάλλευσης του σταθμού από αυτόν, ή στο δικαίωμα αυτό σε συνδυασμό με καταβολή αμοιβής.

4. Για τους ιδρυόμενους με το σύστημα Χ.Α.Τ. σταθμούς Συμπαραγωγής ή Παραγωγής Ηλεκτρικής Ενέργειας από Α.Π.Ε. κατά τους όρους του άρθρου 1 και στο πλαίσιο του νόμου αυτού, ο Φορέας δύναται κατά παρέκκλιση από τις διατάξεις των άρθρων 20 & 23 και των άρθρων 36 & 37 του Νόμου, να διαθέτει απ' ευθείας στο Χρήστη την

παραγόμενη ηλεκτρική ενέργεια με όρους που θα συνάπτονται ελευθέρως στην αντίστοιχη Σύμβαση Χ.Α.Τ.

Για το παραγόμενο πλεόνασμα ηλεκτρικής ενέργειας των σταθμών αυτών, εξακολουθεί να ισχύει το προτιμησιακό καθεστώς διάθεσης του Κεφαλαίου Ι΄ του Νόμου.

Άρθρο 3

Εποπτεία – Μητρώο Φορέων Χ.Α.Τ.

1. Η εποπτεία της δραστηριότητας Χ.Α.Τ. στον τομέα της ενέργειας στο πλαίσιο του παρόντος, ασκείται από τον Υπουργό Ανάπτυξης.
2. Συνιστάται Μητρώο Φορέων Χ.Α.Τ. στο Υπουργείο Ανάπτυξης (ΥΠ.ΑΝ.), που τηρείται από τη Διεύθυνση Ανανεώσιμων Πηγών & Εξοικονόμησης Ενέργειας του ΥΠ.ΑΝ.
3. Για την άσκηση της δραστηριότητας Χ.Α.Τ. απαιτείται προηγούμενη εγγραφή του Φορέα στο Μητρώο Φορέων Χ.Α.Τ. Η εγγραφή γίνεται ύστερα από αίτηση του ενδιαφερόμενου Φορέα, από τη Διεύθυνση της προηγούμενης παραγράφου και μετά από σχετική γνώμη της Ρ.Α.Ε.

   Η διατήρηση σε ισχύ της εγγραφής αυτής αποτελεί αναγκαία προϋπόθεση για τη συνέχιση της δραστηριότητας Χ.Α.Τ. από τον Φορέα αυτό, κατά τις διατάξεις του Νόμου αυτού.

4. Κριτήρια για την εγγραφή αποτελούν η οργάνωση και στελέχωση του Φορέα, η τεχνική και τεχνολογική του επάρκεια στους τομείς των Ενεργειακών Επενδύσεων του παρόντος, η εμπειρία σε παρόμοια έργα που έχουν εκτελεσθεί από το Φορέα στην Ελλάδα ή στο εξωτερικό, ο Ενεργειακός Εξοπλισμός που διαθέτει ο Φορέας ή συνεργασίες με προμηθευτές ή/και εταιρείες χρηματοδοτικής μίσθωσης για την προμήθεια του, η χρηματοδοτική και οικονομική δυνατότητα του Φορέα καθώς και δηλώσεις στήριξης από τραπεζικούς ή άλλους χρηματοοικονομικούς οργανισμούς, η διαχειριστική ικανότητα του Φορέα σε ανάλογα έργα, η φερεγγυότητα, πίστη και άλλα σχετικά στοιχεία.
5. Με απόφαση του Υπουργού Ανάπτυξης εξειδικεύονται τα κριτήρια της παραγράφου 4 του παρόντος άρθρου και ορίζονται τα επιμέρους στοιχεία που υποβάλλουν οι Φορείς για την εγγραφή τους στο Μητρώο Φορέων Χ.Α.Τ., και ρυθμίζεται επίσης

κάθε θέμα που αφορά την οργάνωση και διαδικασία τήρησης του Μητρώου αυτού και τη διαγραφή από το Μητρώο, καθώς και τη συγκέντρωση και παροχή στοιχείων από τη Διεύθυνση της παραγράφου 2 αυτού του άρθρου.

6. Η Διεύθυνση αυτή αρνείται την εγγραφή Φορέα στο Μητρώο Φορέων Χ.Α.Τ. αν από τα υποβληθέντα στοιχεία κρίνει ότι ο ενδιαφερόμενος Φορέας δεν έχει την απαιτούμενη τεχνική ικανότητα, χρηματοοικονομική επάρκεια και φερεγγυότητα, με βάση τα κριτήρια της παραγράφου 4 αυτού του άρθρου.
7. Η εγγραφή στο Μητρώο Φορέων Χ.Α.Τ. ισχύει για πέντε (5) έτη, και μπορεί να ανανεώνεται για ισόχρονο διάστημα με τις προϋποθέσεις του παρόντος άρθρου.

Άρθρο 4

Τύπος – Δημοσιότητα – Ενέργεια έναντι τρίτων – Πτώχευση – Μεταβίβαση – Ασφάλιση – Καταγγελία- Άδειες – Έλεγχος

1. Η Σύμβαση Χ.Α.Τ. καταρτίζεται εγγράφως. Το ίδιο ισχύει και για κάθε τροποποίηση της.
2. Οι Συμβάσεις Χ.Α.Τ. καταχωρίζονται στο δημόσιο βιβλίο του άρθρου 3 του Ν. 2844/2000 (ΦΕΚ 220 Α΄) του Υποθηκοφυλακείου του τόπου της κατοικίας ή της έδρας του Χρήστη και του Υποθηκοφυλακείου Αθηνών, σύμφωνα με την παρ.1 του άρθρου 19 του νόμου αυτού. Από την καταχώρηση αυτή, τα δικαιώματα του Χρήστη από τη Σύμβαση αντιτάσσονται κατά παντός τρίτου και τρίτοι δεν μπορούν έως τη λήξη της Σύμβασης να αποκτήσουν με οποιονδήποτε τρόπο κυριότητα ή άλλο εμπράγματο δικαίωμα πάνω στον Ενεργειακό Εξοπλισμό, που εγκαθίσταται στην Εγκατάσταση του Χρήστη ή στους Χώρους που υπάγονται στη Σύμβαση Χ.Α.Τ. Οι διατάξεις για την καλόπιστη κτήση κυριότητας ή άλλου εμπράγματου δικαιώματος από μη κύριο, για το τεκμήριο κυριότητας κατά το άρθρο 1110 του Αστικού Κώδικα και για την τακτική χρησικτησία, καθώς επίσης οι διατάξεις των άρθρων 1057 και 1058 του Αστικού Κώδικα και του άρθρου 1 παρ.2 του Ν.4112/1929 δεν εφαρμόζονται.

3. Αν ο Χρήστης πτωχεύσει, λύεται η Σύμβαση Χ.Α.Τ. και ο Φορέας έχει δικαίωμα, χωρίς κανέναν περιορισμό, να αναλάβει τον Ενεργειακό Εξοπλισμό.
4. Ο Χρήστης μπορεί να μεταβιβάσει ή εκχωρήσει τα δικαιώματα και τις υποχρεώσεις του από τη Σύμβαση Χ.Α.Τ. σε τρίτο με έγγραφη συναίνεση του Φορέα.
5. Ο Χρήστης οφείλει να διατηρεί ασφαλισμένη την Ενεργειακή Επένδυση κατά παντός κινδύνου σε όλη τη διάρκεια της Σύμβασης Χ.Α.Τ.
6. Ο Χρήστης δεν δικαιούται να καταγγείλει ή διαλύσει τη Σύμβαση Χ.Α.Τ. χωρίς σπουδαίο λόγο. Αν ο λόγος αυτός αφορά γεγονός για το οποίο δεν ευθύνεται ο Φορέας, τότε αυτός δικαιούται να ζητήσει αποζημίωση.
7. Ο Φορέας πριν προβεί σε εγκατάσταση της Ενεργειακής Επένδυσης, οφείλει να λάβει τόσο τις απαιτούμενες από το Νόμο άδειες, όσο και τις λοιπές άδειες ή εγκρίσεις κατά την κείμενη νομοθεσία. Όπου απαιτείται, οι άδειες αυτές θα εκδίδονται στο όνομα του Χρήστη.
8. Οι μετοχές του Φορέα είναι ονομαστικές, και ελεγκτές αυτού ορίζονται μέλη του Σώματος Ορκωτών Ελεγκτών.

Άρθρο 5

Εξουσιοδοτική Διάταξη

Λεπτομέρειες εφαρμογής του παρόντος νόμου ρυθμίζονται με κοινές αποφάσεις του Υπουργού Ανάπτυξης και των κατά περίπτωση αρμοδίων υπουργών, εκτός αν άλλως προβλέπεται στις επιμέρους διατάξεις του νόμου αυτού.

Άρθρο 6

Έναρξη Ισχύος

Η ισχύς των διατάξεων του νόμου αυτού αρχίζει από τη δημοσίευση του στην Εφημερίδα της Κυβερνήσεως.

Annex 2

Model Contract

“Shared Energy Savings and Supply Contract for Buildings”

DRAFT MODEL

SHARED ENERGY – SAVING AND SUPPLY CONTRACT

FOR BUILDINGS

Athens 2000

THIS ENERGY SAVING AND SUPPLY AGREEMENT is made in .....

this …….. day of ……200..

BETWEEN :

1. (name of supplier)
of (address)
("**the Supplier**")

2. (name of customer)
of (address)
("**the Customer**")

RECITALS :

(A) The Customer occupies the building details of which are set out in the first part of the Schedule. In this Agreement it is referred to as "**the Building**".

(B) The Supplier has carried out a preliminary study of the Building and has formed the preliminary view that if modifications are made to the Building and to the plant and machinery in it, it should be possible to make savings in the energy costs currently incurred in running the Building.

AGREEMENT :

1. DEFINITIONS

In this Agreement certain words and phrases have a defined meaning. The definitions are to be found in the text. The places where they may be found are as follows:

- "baseline consumption"	Clause 2 (3) (d)	on page 4
- "the Building"	Recital (A)	on page 2
- "calculation cost"	Clause 12(2)(a)	on page 10
- "commencement date"	Clause 4(2)	on page 5
- "end date"	Clause 11 (1)	on page 9
- "the Installation"	Clause 4 (5)	on page 6
- "the proposals"	Clause 2 (7)	on page 5

- “purchase price” Clause 12 (2) on page 10

2. FEASIBILITY STUDY

(1) The Supplier shall carry out a study to see whether, if the Supplier were to take over the supply of energy by providing fuel and labour and investing in energy-saving equipment, it would be feasible for the Customer to make savings in annual energy costs presently incurred in running the Building and, if it is, make recommendations as to how the savings may be made.

(2) To assist the Supplier in preparing the study the Customer will give the Supplier the following information about the Building in writing :

(a) records of energy consumption for the past three years, including its cost;

(b) the standards of service, such as room temperature, which existed during the past three years;

(c) plans of the Building;

(d) information as to the use of each part of the Building;

(e) information as to when each part of the Building is occupied;

(f) details of the equipment in the Building which uses energy and the type of energy used by each item;

(g) details as to when and where it would be possible to install new equipment;

(h) copies of any relevant maintenance contracts;

(i) copies of any existing energy supply contracts (see Clause 16(c));

(j) any other information which the Supplier reasonably requires.

(3) The Supplier will produce the study within [90] days of being given all the information which is to be supplied under sub-clause (2). Among other things the study will list:

(a) the present operating levels (level of heating, cooling, lighting and so on);

(b) whether the proposals involve a change in the present standards of service;

(c) a broad specification of any equipment to be installed;

(d) the **"baseline consumption"** – that is the energy consumption and costs for the past twelve months by reference to which any savings will be measured;

(e) the assumptions upon which the baseline consumption is calculated;

(f) the proposed method of calculating energy savings;

(g) the services to be supplied by the Supplier;

(h) the annual cost payable to the Supplier;

(i) comments on the provision of and costs of additional services such as fire monitoring and security systems.

The study will be in the form set out in the Schedule (Annex B) to this Agreement. The cost of producing the study is agreed at ……

(4) If the study shows that in the opinion of the Supplier no material savings can be effected in the cost of energy supplies in running the Building, the cost of producing the study shall be split equally between the Supplier and the Customer. The Customer shall pay its portion of the cost within 14 days of the date the study is produced. When it has paid its portion the ownership of the study shall belong to the Customer as well as the copyright thereon for a period of twenty (20) years, and this Agreement shall be at an end.

(5) If the study shows that material savings can be effected in the cost of energy supplies in the Building, the Customer has 30 days after receiving the study either to choose not to go further with the Supplier, or to adopt the study. If the Customer chooses not to go ahead with the Supplier, within 14 days after having made its decision it shall pay the Supplier the entire cost of producing the study, the ownership of which shall then belong to the Customer as well as the copyright thereon for a period of twenty (20) years, and this Agreement shall be at an end. If the Customer adopts the study, the Supplier shall bear the cost of producing it and the Supplier and the Customer shall continue as set out in this Agreement. If the Customer makes no positive choice within 30 days it will be treated as having chosen not to go further with the Supplier.

(6) Where the Customer chooses to adopt the study, the Customer and the Supplier shall consult together as to the proposals for implementing energy savings, and the proposals shall be modified in the light of those consultations. If after 30 days (or longer if they agree) the Customer and the Supplier cannot agree on the modifications, the Customer will be treated as choosing not to proceed. The Customer must then pay the Supplier within 14 days the cost of producing the study. Upon payment, the ownership of the study will then belong to the Customer as well as the copyright thereon for a period of twenty (20) years, and this Agreement will be at an end.

(7) Later references in this Agreement to **"the proposals",** are to be proposals in the study as modified after the consultations. The proposals when agreed will be signed on behalf of the Customer and the Supplier and will then form part of this Agreement.

3. IMPLEMENTATION OF THE PROPOSALS

Where the Customer and the Supplier sign the proposals the Supplier shall make the supplies of energy set out in the proposals, and make the investment in energy-saving equipment which is set out therein. The Supplier may use sub-contractors but shall remain responsible for what they do or fail to do.

4. INSTALLATION OF EQUIPMENT

(1) Where the proposals require new equipment to be installed in the Building the Supplier shall do this at its own expense. The installation must be carried out in a good and workmanlike manner without causing any more disruption to the use of the Building than is reasonably necessary, and without causing any material damage to the Building itself or to other equipment in the Building. All Governmental consents and approvals required in connection with the installation of such equipment will be obtained as appropriate (installation approval, operation permit, etc.). The Supplier shall co-operate with the Customer in obtaining such consents and approvals, and if required under the law, the Customer shall file and process in its own name, the respective application(s) and related documentation. The installation must also be carried out in accordance with the specifications and any timetable set out in the proposals. Each item of equipment installed by the Supplier will be warranted fit for the purpose for which it is installed.

(2) The **"commencement date"** will be set out in the proposals, and is the date on which the Supplier is to begin the supply of energy to the Customer.

(3) The Supplier may, with the Customer's consent and after any other necessary consent or approval has been obtained, at any time replace, remove, alter or add to the equipment which it has installed in order to increase the possible energy saving. The Customer may not withhold its consent unreasonably.

(4) Save as provided in Clause 16(d) below, the Supplier shall remain the owner of any equipment installed while this Agreement remains in force. The Customer agrees that if any equipment is installed in such a way that it would, as a matter of law, be treated as becoming part of the land on which the Building is placed – with the consequence that ownership of the equipment would pass to the owner of the land – the equipment shall nevertheless remain in the ownership of the Supplier. If the Customer is not the owner of the land, then before the Supplier begins to install the equipment the Customer will obtain such an agreement from every person who has an interest in the land. In addition the Customer will not acquire any interest in any intellectual or industrial property rights, such as patents or copyright, applicable to or used in connection with the equipment and shall indemnify the Supplier for the consequences of any breach of any such rights.

(5) In the rest of this Agreement the equipment installed by the Supplier together with the [heating] equipment already installed and used in the Building, is referred to as **"the Installation".**

5. MAINTENANCE

(1) The Supplier shall service and maintain the Installation or (if appropriate) those parts of the Installation as are set out in the Schedule (Annex A). The service, maintenance and repair shall be at the Supplier's expense, unless required as a result of the neglect, negligence or misconduct of the Customer or the Customer's agents or employees, in which case the Customer shall bear the cost.

(2) The Customer shall continue, but under the supervision of the Supplier, to service and maintain at its own expense those parts (if any) of the Installation which are not to be services and maintained by the supplier. The Customer will also comply with any obligations relating to the Installation which the proposals require to be undertaken by the Customer.

(3) The Supplier will not enter into or renew any contract for maintenance of any part of the Installation without the written consent of the Supplier. The Supplier may not withhold its consent unreasonably.

(4) The Customer will notify the Supplier within 24 hours of the breakdown of the Installation (or any part of it) or the interruption of the energy supply to the Building. If damage is caused to the Installation as a result of the Customer's failure to give notification within this period, the Customer will be responsible for any consequential loss arising from this failure.

(5) The Customer shall keep the Building in a good state of repair and condition. The Customer shall not add to or alter the Installation, nor replace nor remove any item of it. The Customer will allow the Supplier and its employees, agents and sub-contractors all reasonable access to the Building for the purpose of installing the equipment and carrying out the maintenance and repair obligations.

6. INSURANCE

(1) The Customer will insure the Installation to its replacement value against fire and all other risks normally covered by a comprehensive building policy. The policy shall be endorsed with a memorandum recording the interest of the Supplier.

(2) If the Installation is damaged but it is possible to repair or replace it, the Customer will lay out the insurance proceeds in the repair or replacement and will make good any shortfall.

(3) If the Installation is damaged beyond repair, this Agreement shall come to an end. The insurance proceeds will then belong to the Supplier, but, except as regards any matter occurring while the Agreement was still in force, neither the Supplier nor the Customer will have any claim against the other.

(4) The Customer will maintain occupier's liability insurance for an amount not less than ..... for each and every claim.

(5) The Supplier or the Customer (as the case requires) will produce a copy of the relevant insurance policy to the other on demand, together with a receipt for the payment of the premium most recently due.

7. PAYMENT

(1) In consideration of the supply of energy, the Customer will pay the Supplier the yearly fee at the rate set out in the proposals by twelve equal instalments in advance on the first day of each month.

(2) All fuel and energy bills will remain in the name of the Customer, but the Customer and the Supplier will arrange that they are sent direct to the Supplier, and the Supplier will be responsible for paying them, unless either

(a) the Supplier has not received the bill in question by the due date for payment stipulated on the bill; or

(b) the Customer fails to make the payments of instalments as it is required to under sub clause (1).

(3) The yearly fee will be of an amount which guarantees the Customer a minimum saving on energy costs incurred on the baseline consumption (the amount of such "minimum saving" being set out in the proposals). It is recognised that the energy costs incurred by the Customer during the period of this Agreement might change even without the services supplied by the Supplier, but simply through a change in the underlying cost of energy. Accordingly the element of the annual fee apportioned to fuel costs will be linked to an "index", details of which will be set out in the proposals. The fuel element of the annual fee will be increased or decreased in line with the index.

(4) The Customer will pay the yearly fee to the Supplier [by direct debit].

(5) Within 14 days after each anniversary of the commencement date, the Supplier will provide the Customer with a detailed calculation of the annual fee payable for the year which has just ended. The calculation must show any adjustments referred to in Section 6 of Annex A. The calculation will be accompanied by copies of all invoices and other documents needed to support the calculation. Any adjustments to payments made in the year just ended which need to be made, will then be made.

(6) If the detailed calculation appears to the Customer to be incorrect, the Customer must notify the Supplier of this within 14 days of receiving the calculation. Failure to give this notice will mean that the Customer will be deemed to have accepted the amount of the calculation.

(7) Where the Supplier is given notice that the calculation appears to be incorrect, the Supplier and the Customer will try to agree what the correct calculation should be. If they are unable to do so within 28 days of the Customer notifying the Supplier of the apparent incorrectness either the Customer or the Supplier may require the matter to be referred for resolution in accordance with Clause 14 below.

8. LATE PAYMENT

Where any sum of money is not paid on the day on which it ought to have been paid, it will carry interest until it is paid under this Agreement at an annual rate of ……% ("contractual interest"). This provision will apply until a legal action is instituted and a judgment is obtained, as of which the so-called "default interest" will then apply. For this purpose payment of any adjustment under Clause 7(5) is treated as due 28 days after the relevant anniversary date, whether or not the amount of the adjustment is then know, and interest will be calculated accordingly when it is known.

9. CHANGE IN ASSUMPTIONS

(1) The annual fee payable to the Supplier as set out in the proposals will be based upon certain assumptions which will also be set out in the proposals. If any of those assumptions becomes incorrect, the annual fee will need to be changed in order to reflect what the annual fee would have been if the changed assumptions had been the actual assumptions upon which the Supplier's proposals had been prepared.

(2) The Customer will notify the Supplier immediately upon becoming aware that an assumption has become incorrect.

(3) If within 28 days after being told of an incorrect assumption the Supplier cannot agree with the Customer how the annual fee is to be changed, the matter will then be referred for resolution in accordance with Clause 14 below.

(4) While the matter is being adjudicated as above, the Customer will continue to pay the Supplier the monthly installments at the existing rate. When the new fee is ascertained, the fees for the period since the assumption became incorrect shall be recalculated and such adjustments made to the fees already paid as are necessary. An additional payment by the Customer, and any refund due to it, will carry interest from the date of the relevant payment which should have been of the new amount until the adjustment payment is made at the annual rate referred to in Clause 8 above.

10. FORCE MAJEURE

If either the Customer or the Supplier shall be unable to carry out its obligations under this Agreement as a result of circumstances beyond its control, such as fire, flood, shortage of materials, or labor disputes, the obligations of both Parties under this Agreement will be suspended until the uncontrollable circumstances come to an end or (if this is a shorter

period) for 60 days. If at the end of the period of suspension the uncontrollable circumstances continue, then either the Customer or the Supplier may bring this Agreement to an end, and the provisions of Clause 12 shall apply.

11. TERMINATION

(1) Subject to the following provisions of this Clause, the energy shall be supplied by the Supplier for a period of [...] years from the commencement date. The last day of this period is called the **"end date".**

(2) Either the Customer or the Supplier may bring this Agreement to an end immediately by serving notice to that effect if the other of them:

(a) fails to pay any sum of more than – [.....] within [...] days of its being due or consistently fails to pay sums of less than – [.....] within [...] days of their being due;

(b) fails to carry out any of its other obligations under this Agreement if the failure is one which cannot be remedied;

(c) fails to carry out any of its other obligations under this Agreement if the failure is one which can be remedied but is not remedied within [a reasonable time];

(d) becomes bankrupt, insolvent or subject to an administration order or a petition is filed for its winding up or it makes a composition with its creditors or a receiver is appointed over all or part of its property or assets.

(3) The Supplier may bring this agreement to an end immediately upon notice of the Customer's violation (actual or intended) of its warranties under Clause 16(d) below.

12. CONSEQUENCES OF TERMINATION

(1) Where this Agreement comes to an end in accordance with Clause 11(1), the Supplier shall transfer ownership of the equipment installed by the Supplier to the Customer free of charge, and the equipment be at the Customer's risk.

(2) Where this Agreement is terminated by the Customer in accordance with Clause 11(2), the Customer shall buy the equipment installed by the Supplier. The price to be paid will be calculated as follows:

(a) ascertain the original capital cost of the equipment (including installation and labour charges) and add the cost of producing the feasibility study. This total is called the **"calculation cost";**

(b) assume that the calculation cost is to be written off by equal annual installments from the commencement date to the end date;

(c) ascertain those annual installments which have not yet been written off;

(d) discount each annual installment which has not been written off from the date on which it is assumed that it would have been written off to the date of the purchase at an annual rate of ……%;

(e) add together the discounted amounts of the annual installments;

(f) to the total in (e) add any cost which the Supplier may have to bear as a result of the early termination, such as penalties for repaying finance early, etc.,
and that is the **"purchase price".**

Upon such termination, the equipment shall be at the Customer's risk and ownership shall pass to the Customer upon payment of the purchase price.

(3) The obligation to buy the equipment which is imposed on the Customer does not deprive the Customer of its right to claim damages from the Supplier for any loss occasioned by the Supplier's action which permitted the Customer to terminate the Agreement. The Customer may set off such damages against the purchase price payable to the Supplier.

(4) Where this Agreement is terminated by the Supplier in accordance with Clause 11(2), the Supplier has a choice. It may either require the Customer to buy the equipment installed by the Supplier for a price calculated in accordance with sub-clause (2) of this Clause; or else it may remove the equipment installed by it and (after giving credit for the net value of the equipment after deducting the cost of removing it) claim damages.

(5) Where this Agreement is terminated by the Supplier under Clause 11(3), the Supplier is entitled to immediately remove his equipment and claim in any case its value, plus any damages and costs sustained.

13. STATUTORY PROVISIONS

(1) The Supplier will be responsible for obtaining all necessary by-law approvals and ensuring that the design, installation and operation of the equipment complies with all applicable statutes and regulations, including Health and Safety at Work, Environmental regulations, etc.

(2) The Customer must ensure that the Building is a safe place for the Supplier and its employees, agents and subcontractors to work in.

14. RESOLUTION OF DISPUTES

(1) If there is a dispute under this Agreement, it will be referred to an Expert to be resolved. Either Party may apply for the Expert to be appointed. Such an Expert shall be appointed by mutual agreement of the Parties hereto. Any Expert who is appointed may seek advice on technical matters with which he is not familiar. The Expert shall not be an arbitrator, but he shall be obliged to consider any written representations that are made to him by the Parties. His determination shall be conclusive for the Parties hereto, and his costs shall lie in his award. If an Expert, once appointed, dies or is otherwise unable or unwilling to act, another expert may be appointed in his place, and so on.

(2) In case however the Parties cannot agree on the appointment of such an Expert within a reasonable time, or there is still disagreement between them as to the dispute even after the Expert's determination, then such dispute shall be finally resolved by the competent ..... Courts upon the recourse of either Party hereto.

15. DISPOSAL OF INTEREST IN THE AGREEMENT

(1) The Supplier may assign or charge its right to receive its fee hereunder, but apart from that neither Party may assign or transfer its rights or obligations under this Agreement unless such assignment or transfer is first approved in writing by the other Party. Neither Party may unreasonably withhold its approval to such an assignment or transfer.

(2) If the Customer wishes to dispose of its interest in the Building and the Process the Supplier will, if it is satisfied with the identity and financial standing of the new owner, agree to the new owner assuming the obligations of the Customer under this Agreement, provided that the condition under Clause 16(d) below has been observed up to the time of such transfer.

16. WARRANTIES BY THE CUSTOMER

The Customer undertakes, represents and warrants to the Supplier:

(a) that it intends to operate the Building during the period of this Agreement in a similar manner to its present operation;

(b) that all information to be provided to the Supplier in writing will be true and accurate in all material respects; and

(c) that the Customer has not commissioned a feasibility study as to energy saving from any third party nor entered into any similar energy-saving contract within the past five years.

(d) that at the time of this Agreement, the Customer has not granted any mortgages on the land and/or the Building where the equipment is to be installed nor agreed to any chattel liens on equipment, machinery etc. included in the Building, as a security (collateral) to loans or credits obtained under special laws Nos. 4112/1929, 17.7/13.8.1923, 1038/1949 and 1328/1949 (as amended) and related legislation; further, the Customer warrants that while this Agreement is in force, it will not grant any such mortgages or chattel liens without prior consultation and consent of the Supplier ("negative pledge covenant").

17. VALUE ADDED TAX

Value added tax shall, where appropriate, be added to every payment to be made under this Agreement against delivery of a proper invoice, and it will be for the Customer's account.

18. PRELIMINARY STUDY

The preliminary study which has already been carried out by the Supplier and which is referred to in Recital (B) is not the Supplier's considered view of the modifications required, and the Supplier gives no warranty that the estimated savings will in fact be made.

19. NOTICE

Any notice to be given under this Agreement shall be in writing and may (without prejudice to any other method of notice, e.g. fax, telex, etc.) be sent by first class post to the registered office for the time being of the person to whom it is addressed. If it is sent in that way it will be treated as having been received …… hours later (unless it is proved to have been actually receiver earlier).

20. GOVERNING LAW

This Agreement and the rights and obligations of the Parties hereunder shall be governed by and construed in accordance with the laws of …….

21. REGISTRATION

This Agreement shall be registered by the Customer, within ……. ……. of its signing, with the Industrial Property Organization of ……., as a technology transfer Agreement.

This Agreement has been signed by both parties' hereto in three originals in the English language and it is considered to be valid and effective as from the date of signature.

AS WITNESS the hands of the Parties hereto by their duly authorized representatives the day and year first above written.

THE SCHEDULE

The Building

SIGNED by)
)
duly authorized on behalf)
of [the Supplier])

SIGNED by)
)
duly authorized on behalf)
of [the Customer])