



**UNITED  
NATIONS**



**Framework Convention on  
Climate Change**

Distr.  
GENERAL

FCCC/NC/15  
17 January 1996

Original: ENGLISH

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EXECUTIVE SUMMARY OF THE  
NATIONAL COMMUNICATION OF

**GREECE**

submitted under Articles 4 and 12 of the  
United Nations Framework Convention on Climate Change

In accordance with decision 9/2 of the Intergovernmental Negotiating Committee of the Framework Convention on Climate Change (INC/FCCC) and endorsed by the Conference of the Parties in its decision, 3/CP.1 (FCCC/CP/1995/7/Add.1), the secretariat is to make available, in the official languages of the United Nations, the executive summaries of the national communications submitted by Annex I Parties.

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GE.96-60202

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## INTRODUCTION

1. Over the past decade, the **greenhouse effect** has caused particular concern amongst scientific and political circles. Despite the persisting degree of uncertainty as to the actual trend and intensity of the phenomenon, the scientific community nevertheless agrees that the anthropogenic emissions of what are known as "greenhouse gases" -- and which include carbon dioxide (CO<sub>2</sub>), nitrogen oxides, methane and other volatile compounds -- have a seriously detrimental effect on the quality of the atmosphere and therefore upset the ecological balance.
2. Because of the increasing concentrations of greenhouse gases, the solar radiation which is reflected by the earth's surface is prevented from escaping through the atmosphere's layers and therefore contributes to the gradual warming of the planet. There are serious indications that the average temperature of the earth's surface has increased by 0.5°C in the course of the present century, while the scientific reconstruction of ambient temperature levels over the past 20,000 years points to even greater increases in certain areas. Not only are temperature levels a basic climate determinant, they also influence precipitation levels, wind occurrence, sea currents and other natural phenomena. The seriousness of the **threat posed by the greenhouse effect** becomes all the more apparent in the light of the more general **climatic change** it is capable of inducing.
3. The international community recently agreed to a joint and systematic approach to the imminent danger of a climatic change. At the Summit held in Rio in June 1992, 154 countries, along with the European Community, signed the Framework Convention on Climate Change (FCCC) in a united effort to drastically reduce the emissions of CO<sub>2</sub> and other greenhouse gases.
4. Following the ratification of the Summit's resolutions in April 1994 by the national Parliament, Greece is henceforth committed to the realisation of the objectives set out in the United Nations Framework Convention on Climate Change. Greece's obligations include:
  - (a) the elaboration of a detailed inventory of greenhouse gas emissions and the monitoring of their evolutions, and
  - (b) the formulation of a programme for the stabilisation of **emissions by the year 2000** at 1990 levels and the monitoring of its implementation.
5. Although the European Community has globally adopted the stabilization objective, it nevertheless acknowledges the different levels of development attained by each of the member States. The Council of Ministers has thus initially accepted that the Community's effort to reduce all greenhouse gas emissions should be based on a **fair distribution of responsibilities and burdens**.

6. The Greek Programme for the reduction of CO<sub>2</sub> and other greenhouse gases was elaborated under the responsibility and supervision of the Ministry for the Environment, Physical Planning and Public Works, in collaboration with the Ministry of Industry, Energy and Technology. The preparation of the programme was however completed with the participation and contribution of other competent Ministries, bodies of the wider public sector and experts from the private sector. Responsibility for the scientific support was assigned to a research team of the National Technical University of Athens.

7. Far from being dealt with in a disjointed manner, the programme for the reduction of CO<sub>2</sub> and other greenhouse gas emissions is perceived as a necessary element of any modern and global approach to the nation's development policy. Such a policy can, furthermore, no longer be restricted to purely economic factors, and must encompass the "external costs" (that is, the social and environmental impact) induced by the production process and use of goods, and more particularly of energy.

8. The objective of any modern development policy must be to strike a new balance between the population's understandable pursuit of social and economic well-being and the need to ensure the planet's viability. The application of the **sustainable development principle** must, therefore, satisfy present-day demands without jeopardising the future generations' right to well-being. This general orientation calls for necessary changes both in individual behavioural patterns and at a centralised level of policy elaboration.

9. The adoption of a sustainable development policy and its actual implementation cannot be expected to produce miraculous results overnight. A difficult and complex task must first be carried out in order to identify and resolve the contradictions arising from conflicting environmental and economic objectives. Such a course of action furthermore calls for **the mobilisation of the entire Greek economy and society**. The fair distribution of the costs to be assumed will facilitate the programme's implementation and help reinforce growth with respect to both mankind and the environment.

## THE DATA

10. Energy production and consumption in Greece account for 88 per cent of all greenhouse gas emissions and for as much as 98 per cent of the CO<sub>2</sub> released into the atmosphere. Any attempt to control greenhouse gases (present situation, evolutionary trends, abatement possibilities, etc.) must therefore be necessarily founded on an in-depth knowledge of the national **energy system**.

11. The demand for energy in Greece registered an important increase throughout the 1970s and 1980s, despite the impact of the two energy crises and the ensuing economic recession. This increase in energy demand, which was the sharpest in the entire European Community, led to an increase in the supply of electricity and an increased recourse to lignite, that is, an energetically poor and, at the same time, highly polluting fossil fuel.

Although this specific policy helped to meet the needs of the times by restricting energy costs and reducing Greece's energy dependence, the environmental impact was nonetheless severe.

12. The increase in energy demand was not uniform in all sectors. The industrial sector, for instance, presented much lower increase rates, being a privileged domain for the implementation of energy conservation measures, but also due to the stagnation of production. The increased rates recorded in the domestic and particularly in the transport sector were, on the contrary, much greater.

13. Despite these sharp increase trends, the **per capita energy consumption** remained **lower in Greece than in the other countries of the Community** (see figure 1 on page 2 of the communication). At the same time though, the **required energy per unit product** (primary demand or final consumption per gross domestic product (GDP)) was **not only high, but furthermore increased steadily throughout the 1970's and 1980's**, contrary to the improvement noted in almost all of the countries of the Community (see figure 2 on page 3 of the communication) and the Organisation for Economic Co-operation and Development (OECD). This basic finding gives us a first insight into the "pressures" likely to be exerted by consumers, but also points to the structural interventions which can and must be carried out respectively on supply and demand sides.

14. Due to the obvious connection between energy demand and CO<sub>2</sub> emissions, it is only logical to assume that the latter would have followed a similar **increasing trend**. However, as shown in figure 3 of the communication, the increase in CO<sub>2</sub> emissions was, in fact, much sharper than the respective growth rates of the Greek economy and of the national energy demand. This trend is attributed to developments both in the energy generation sector and in final use sectors (domestic-commercial-services sector, industry and transports).

15. The evolution of CO<sub>2</sub> emissions in Greece throughout the 1970-1990 period marked by a drastic increase from 22 to 82 million tonnes -- was **the worst** noted in the entire European Community. Thus, while the per capita emissions (figure 4 on page 3 of the communication) remained fairly low due to Greece's lower levels of economic activity, the emissions of CO<sub>2</sub> per unit GDP (figure 5 on page 4 of the communication) recently became the highest within the European Community.

16. Although the **electricity generation sector** accounts for the greatest direct participation in the emissions of CO<sub>2</sub>, what is even more striking is the impressive increase that this contribution actually registered (rising to 50 per cent in 1990 from 32 per cent in 1970).

17. If the contribution of power generation is distributed to the final energy users, it then appears that the **domestic-commercial-services sector** registered the sharpest increase in CO<sub>2</sub> emissions and the highest global (direct and indirect) participation in 1990 (rising from roughly 32 per cent in 1970 to 39 per cent in 1990). Although the emissions of the **industrial sector** increased in absolute numbers, their proportional contribution to the global

emissions of CO<sub>2</sub> actually decreased (from approximately 46 per cent in 1970 to 41 per cent in 1990). The relative contribution of **transports** to the emissions of CO<sub>2</sub> remained stable (at around 20 per cent). The sources of CO<sub>2</sub> emissions for 1990 per fuel, activity and final user category are detailed in figure 6 on page 4 of the communication.

## THE OBJECTIVE

18. The target set by the European Community is to achieve stabilisation, that is, to return CO<sub>2</sub> emissions in the year 2000 to 1990 levels. In Greece, a "**spontaneous**" **course of events** (in the absence, in other words, of abatement measures) would lead to an increase in emissions in the order of **27 per cent or 22 million tonnes CO<sub>2</sub>** by the year 2000 (increase from 82 to 104 million tonnes).

19. The inventory data compiled for 1990 are the result of an extensive and complex study based on OECD and Eurostat emission data and factors.

20. The projections for the year 2000 were established with the use of the Midas model, which obviously integrates the international estimates of future energy prices, as well as the impact of technologies which have already penetrated the market and of policies that were first implemented prior to 1990.

21. The model's results are also based on:

(a) the macroeconomic magnitudes forecast in the European Convergence Programme for the Greek economy, and

(b) the restoration and maintenance of a logical final price ratio between competitive fuels. Thus, a difficulty in achieving the objectives of the European Convergence Programme brings about lower forecast emission levels, while a prolonged distortion in relative fuel rates -- and more specifically of the price of electricity in relation to the respective prices of liquid fuels -- leads to higher emission levels.

22. The scientific research and study of Greece's specific problems revealed that, in terms of exclusively technological criteria, it would be **theoretically possible** to achieve a much greater abatement of CO<sub>2</sub> and other gas emissions and furthermore even to approximate the stabilisation objective, as soon as by the year 2000. In practical terms, however, this objective is dismissed as utterly unfeasible due to the pressing time factor and other serious restrictions such as: the limited availability of financial resources, the weaknesses of the Greek Administration, the inflexibility of the production system and the inertia displayed by consumers.

23. The programme presented for the abatement of CO<sub>2</sub> and other greenhouse gas emissions is based on the **specific development programmes** that have been elaborated for

the energy sectors (Public Power Corporation, Public Gas Corporation, etc.), transports, residences, etc. The complementary measures which are adopted are aimed at achieving an additional and **reasonable improvement** in the means by which energy is either produced or used.

24. Satisfactory **safety margins** -- of 25 per cent to 33 per cent -- have been estimated and adopted as far as the realisation of each isolated target is concerned and, more particularly, whenever the proposed measures involved a new type of intervention or were related to the behaviour of numerous economic categories.

25. The **availability of financial resources** (from national and Community funds) has also been taken into consideration in the estimation of the necessary public expenditures. The financial feasibility of the programme will be largely ensured by the operational programmes of the second Community Support Framework.

26. Having co-assessed all of the existing data, the Greek government considers that a **realistic objective** for its national programme would consist in **restricting the total increase in CO<sub>2</sub> emissions -- during the 1990-2000 period -- to 15 per cent (or 12.4 Mt)**. Discrepancies of +/- 3 per cent have been allowed for, due to unpredictable internal and international parameters and to possible revisions of the European Union's relevant policy. **In comparison with the "spontaneous evolution scenario"** (that is, in the absence of abatement measures), the specific objective adopted in the programme implies that a **decrease in emissions in the order 9.6 million tonnes CO<sub>2</sub> is expected to be achieved by the year 2000**.

## THE PROGRAMME

27. The abatement of CO<sub>2</sub> and other greenhouse gas emissions is to be achieved with the implementation of:

(a) **a drastic energy conservation policy** in all sectors of final consumption (domestic-commercial-services, industries, transports) aimed at **rationalising energy consumptions** without affecting the population's standard of living and

(b) **a bold investment policy** in order to **promote new energy generation means** (involving natural gas at an initial stage longer term) in an aim to **substitute for conventional fuels** without altering the basic characteristics of the energy system (safety, stability and reasonable operating costs).

## SUPPLY-SIDE INTERVENTIONS

28. As surprising as it may seem, 50 per cent of Greece's CO<sub>2</sub> emissions are caused by **the production of electrical energy**, since the national power generation system is based on the combustion of a thermally poor lignite. Consequently, the success of any policy for the abatement of CO<sub>2</sub> emissions will largely depend upon decisions affecting the power generation sector.

29. The modernisation of the existing system -- so as to improve the efficiency of the lignite-fired stations, to reduce the losses in the transmission and distribution system, and to introduce new and "cleaner" lignite combustion technologies (Liquified Red Units, Integrated Gasification Combined Cycle) -- will have a very favourable impact and therefore constitutes one of the national programme's fundamental objectives. These actions will, however, only produce significant results in the decade following the year 2000, since the basic measures (involving the introduction of new techniques) need considerable time to be completed.

30. **The development of combined heat and power generation systems** (with an energy efficiency of 80-85 per cent in comparison with the 30-35 per cent level reached in conventional plants) will be supported both legally and financially, although spectacular results are not expected prior to the year 2000. The prospects, in the long term, are nevertheless quite encouraging:

(a) in the domain of **tele-heating** in urban districts located close to the Public Power Corporation's plants (Ptolemaida, Kozani, Florina and Keratsini);

(b) **in other cases**, such as in highly energy consuming units, in industrial zones, and even in small-scale systems and non-industrial facilities (hospitals, public buildings, etc.). The introduction of natural gas will facilitate the development of co-generation systems.

31. On the horizon of the year 2000, the abatement of CO<sub>2</sub> emissions will mainly be achieved with the introduction of natural gas in the national energy system, that is, through one of the greatest investments ever to be carried out in Greece. After having been held up by considerable delays since the signing of the basic contracts in 1987, the construction of the central pipeline is now back on schedule and **the supply of natural gas is expected to begin within 1996**. According to the programme of the Public Gas Corporation, the secondary pipelines and city networks are to be completed by 2005, at which time the total absorption of natural gas will reach an estimated 3.5 billion Nm<sup>3</sup> per year (1.5 billion Nm<sup>3</sup> for electricity generation, 1.0 billion Nm<sup>3</sup> for industrial uses and 1.0 billion Nm<sup>3</sup> for the needs of the domestic and remaining sectors).



32. Plans to use natural gas for **electricity generation** have been finalised and incorporated in the Public Power Corporation's programme, as decisions have been taken to switch certain existing plants over to natural gas and to construct new gas-fired power stations, of some 1100 MW by the year 2000. Once in operation, these power plants alone are expected to enable the Public Power Corporation to meet its natural gas absorption commitments, while yielding an annual production of approx 5300 Gwh. The CO<sub>2</sub> savings, ensuing from the substitution of more polluting fuels and primarily of lignite, are also expected to be significant.

33. The completion of the central pipeline ramifications will accelerate the penetration of natural gas **in the industrial sector**. Of the total industrial natural gas consumption of 1.0 billion Nm<sup>3</sup> anticipated for the year 2000, approximately 80 per cent will be absorbed by a limited number of large industrial units, to judge from the negotiations currently in progress with potential clients. The smaller manufacturing units, however, will also draw multiple economic benefits from the use of natural gas and it is certain that their connection to the network will be carried out as soon as realistically possible.

34. Natural gas penetration will be slower **in the other sectors** and is not expected to exceed the 0.5 billion m<sup>3</sup> level in the year 2000. This is basically attributed to the long time periods necessary for the construction of the distribution networks in residential areas and the inertia characteristic of current consumer behaviour. The larger part of this natural gas will be used for space-heating purposes, as a substitute for diesel. Substitution for electricity (for cooking and water-heating purposes) will remain limited, since the significant expenses necessary to switch existing installations over to natural gas will only prove profitable in cases where the use of natural gas is substantially more energy efficient. The substitution of natural gas for electricity has, however, been envisaged in air-conditioning applications with the use of new types of equipment, mainly in the commercial and services sector.

35. As the introduction of natural gas in the national energy system is a major infrastructure project, the **economic benefits** will only be felt in the long-term and, to a large extent, indirectly. The **energy and environmental benefits** will, on the other hand, be immediate and proportional in importance to the achieved degree of substitution for electricity (in its final uses) and lignite (in power generation).

36. Renewable energy sources are also expected to make a marked contribution to the abatement of CO<sub>2</sub> emissions by the year 2000. In addition to being **the only energy sources that do not increase the burden on the environment (by causing CO<sub>2</sub> emissions or other hazards)**, they are also inexhaustible. The advancement of their exploitation will have a particularly favourable impact on regional development and contribute (directly or indirectly) to the generation of employment.

37. Despite Greece's comparative advantage in terms of renewable energy source availability, efforts to promote their development in the last decade have only been successful in the area of **solar collector** applications: the adoption of a decisive tax-related incentive policy boosted the national production and triggered the widespread installation of small water-heating systems. As far as the exploitation of **wind energy** is concerned, the Public Power Corporation was the only agency to plan important wind farm installations, the first of which were recently completed. Due to the specific legal framework until recently in effect (Law 1559/85), the contribution of the private sector was limited to the installation of an isolated number of wind-generators in order to meet specific private requirements. In other fields (such as biomass, geothermal energy, small hydroelectric works, etc.), only negligible progress has so far been made.

38. The new **Law 2244194** that was recently passed by the Greek parliament corrected the short-comings of the previous legislation. More specifically:

(a) by promoting relatively large investments, it enables "independent" producers, aside from the "self-sufficient producers" to use renewables for the generation of electricity, which can however only be sold to the Public Power Corporation,

(b) it substantially improves the rate at which the kwh is purchased by the Public Power Corporation, and

(c) it ensures long-term contracts (ten-year contracts with the possibility of extensions) for the "self-sufficient" and independent producers. All of these elements, in conjunction with the **policy for the reinforcement of renewable energy sources-related investments** promoted by the energy programme of the Community Support Framework and by development Law 1892/90 are expected to substantially advance renewable energy sources development in Greece during the next five years. At the same time, the necessary requirements will be met in order to support more intense renewable energy sources utilisation beyond the year 2000.

39. In this context and with the involvement of the private sector, it is estimated that the total installed generating capacity for the exploitation of Greece's abundant wind energy is expected to reach some 300 MW by the year 2000. This increase will be quite substantial in the country's insular regions where power generation costs from conventional fuels are particularly high. Solar energy applications are expected to be considerably expanded for the **heating of usage water** (with the installation of approximately 1.3 million m<sup>2</sup> of solar collectors from 1990 to 2000) and to be extended to both **new technologies** (for example, void heating) and **new uses** (for example, space-heating). In the case of biomass, the

prospects are particularly interesting: for in addition to the reinforcement of **traditional** applications with the use of new techniques and systems (tele-heating), the available **new technologies** can be used for the production of industrial heat and/or **bioelectricity** (80 MWe by the year 2000) or for the production of liquid transport **biofuels** (production of 50,000 tonnes of ethanol by the year 2000).

40. The benefit to ensue by the year 2000 from the exploitation of the remaining Renewable Energy Sources is expected to be of lesser importance. As far as the construction of **small hydroelectric works** is concerned, it is estimated that total installations will have reached 34 MW in the year 2000. As for **geothermal energy**, the exploitation of the substantial high enthalpy potential has come to a halt following the serious errors committed in the past in an experimental unit and which triggered a general feeling of apprehension amongst the population. Applications for the exploitation of low enthalpy geothermal fluids are, on the contrary, most likely to be promoted, primarily in agricultural uses (the heating of greenhouses and fish-farming units, etc.).

#### **DEMAND-SIDE INTERVENTIONS**

41. Even though the CO<sub>2</sub> problem in Greece is basically a "supply side" issue, energy conservation nevertheless constitutes an immediate priority which can substantially improve the system's energy and economic efficiency and reduce the emissions of CO<sub>2</sub> (and other greenhouse gases). In all sectors of activity, there are still numerous possibilities for profitable investments in technologies and/or products which contribute decisively to energy conservation. Previously acquired experience will serve as an additional asset and ensure the greater effectiveness of the adopted measures and elaborated policies.

42. In the **domestic-commercial and public sectors**, the energy conservation measures essentially involve:

(a) the reduction of energy requirements, by incorporating "**passive systems**" in new buildings, by increasing insulation requirements in new constructions and improving the situation in the existing building reserve;

(b) the **rational use** of all available energy sources with the introduction of new fuels and primarily of natural gas and

(c) the introduction of **new technologies** (increased efficiency equipment and appliances) and the proper maintenance of existing ones.

43. The realisation of all of these interventions is expected to lead to a considerable reduction in the emissions of CO<sub>2</sub> by the year 2000. This reduction will essentially come from the **penetration of natural gas** in such areas as space/water heating and even air-conditioning, and from the **extensive use of solar geysers**. Drastic interventions can also be carried out in the **lighting sector**. More specifically, the installation of sodium lamps could be rapidly advanced in the area of public lighting, while another advisable measure would consist in replacing incandescent lamps with fluorescent ones. The **maintenance of central heating boiler systems** is another measure of significance. It is, however, estimated that maximum benefits from the promotion of these interventions will only be drawn after the year 2000, due to the multiple policies necessary and the large number of consumers directly concerned.

44. In the industrial sector as well, the introduction of natural gas constitutes the most effective CO<sub>2</sub> abatement measure. Other previously mentioned measures, such as the reinforcement of "new technology" solar systems and the promotion of cogeneration -- although indubitably beneficial -- will have a less tangible impact

45. A wide range of what are usually considered "minor improvements" can be made in the auxiliary operations of industrial units. The most important of these interventions involve the **supply of steam** and **compressed air** or even the **lighting** of industrial premises. Other measures, such as the improvement of **space/water heating**, are expected to have a smaller impact, at least until 2000.

46. There are also numerous **technological interventions** which can be carried out in the production procedure of all of the industrial sectors. The industries which present the greatest abatement potential are, of course, the more energy-consuming ones, such as: the cement industry, metallurgy (steel and non-ferrous metals), fertilisers and the sugar industry.

47. The possible interventions for reducing the CO<sub>2</sub> emissions caused by the transport sector can be either direct or indirect in nature. The first category includes measures targeted in priority at restricting CO<sub>2</sub> emissions. In the indirect measure group, the reduction in emissions, on the contrary, results from the pursuit of other objectives, mainly related to the improvement of transport services. Whatever the case, the CO<sub>2</sub> abatement measures do not, by any means, worsen the already poor quality of transport services.

48. The **direct measures** focus either on:

(a) the **fuel types in use**, through the promotion of more effective fuels (diesel) and the use of biofuels (primarily after the year 2000) that do not burden the atmosphere with CO<sub>2</sub> emissions, or on

(b) the **vehicles in circulation**, through the promotion, for example, of their systematic maintenance and the use of more economical models.

49. The **indirect measures** involve either:

(a) the **rational management of the entire transport system** (improved road network and signalling, restructuring and combined use of transport modes, changes in driver mentality and behaviour), or

(b) the **modernisation of public transports**, which continue to provide particularly poor quality services (metro, tram, improvements in urban bus routes, etc.).

50. The effective management of biological resources and systems can make a very decisive contribution to the abatement of anthropogenic CO<sub>2</sub> emissions. The proposed measures achieve reduced emissions either by substituting for conventional fuels (with the up-grading of old and the advancement of new uses for bioenergy) or by increasing the terrestrial ecosystem's annual CO<sub>2</sub> fixation capacity (by either increasing the resource reserve in existence, or by reducing its rate of depletion).

51. As far as the other greenhouse gases are concerned, reductions in their emission levels are, depending on the case, to be achieved either through the same measures or through specifically devised complementary actions. Particular attention has been focused on reducing the emissions of methane, other volatile hydrocarbons and carbon monoxide. In the case of nitrous oxide and nitrogen oxides -- for which accurate estimates are difficult to establish -- a slight increase in emissions is anticipated, although this increase will be proportionally smaller than the one to be normally induced by the increase in vehicle numbers.

## **PROGRAMME IMPLEMENTATION**

52. The possibility of a **worse result occurrence** cannot be excluded, although such an outcome would imply a major failure in the programmes both of the Public Power Corporation and Public Gas Corporation, and a serious incapacity of the Administration to allocate the necessary funds or to ensure their effective absorption.

53. A worse result could also ensue if the energy demand were to increase at rates higher than the ones officially forecast, for example:

(a) if the importance of the shadow economy and invisible resources failed to be curtailed; and/or

(b) if the policy of low electricity pricing (both in relative and absolute terms) were to be continued.

54. The achievement of **better results is** feasible, even in the context of the proposed programme. Such an outcome could, for example, arise from the maximum possible use of the new gas-fired power generation plants (in order to cover base loads). Such a decision would, of course, entail a small increase in the average production costs per kwh. Better abatement results could also be achieved if additional capital were to be secured for the financing of necessary interventions (leading to an acceleration in the development of renewable energy source exploitation and of cogeneration, and the promotion of new energy conservation technologies).

55. An **increase in the available financial resources** could be achieved through the undertaking of new community initiatives or from increased taxation on energy uses. Should the CO<sub>2</sub> tax however be implemented, steps would then have to be taken to ensure that the ensuing revenues are used -- in part, if not in whole -- to finance emission abatement and environmental protection measures.

56. An increase in available funds can however also be achieved through a **greater involvement of the private sector**, as the necessary legal framework has already been largely elaborated (Law 2244/94 for the promotion of renewable energy sources and cogeneration, and a new law on incentives). It is furthermore estimated that the significant legislative revisions which are still pending will have been successfully completed in the near future. Such revisions are necessary for the completion of the **legal framework governing energy conservation** in general and, more specifically, in buildings, as well as for the **creation of new financing mechanisms** (for example, third party financing).

57. The necessary initiatives will also be undertaken so as to ensure proper **market organisation**. This objective will be achieved with the establishment of maximum **emission limits**, and the elaboration of mechanisms for the **standardisation, labelling, certification and quality guarantee** of energy consuming appliances and equipment.

58. An additional but essential element of any effective energy conservation and CO<sub>2</sub> abatement policy is the **creation of a market of services and intermediaries** between the controlling authorities and the vast number of decision-makers and consumers.

(a) The elaboration and monitoring of energy balances in the SMEs and large buildings;

(b) The certification of proper operation and the detection of necessary adjustments or corrections to be made; and

(c) The regular maintenance of boilers, engines and other equipment all require services from numerous fields of specialisation, from energy engineers to specialised technicians.

59. A recently appointed committee has been given one year to thoroughly examine the questions related to the organisation of these markets, that is, the general and technical training qualifications that will be required from the providers of these services, whether the registration of professionals and firms will or not be compulsory, whether and how client and certification files will be kept, etc. The funds necessary to promote this endeavour will be secured from the Operational Industrial Programme.

60. In any event, the success of the programme -- and even more so, the realisation of the more ambitious scenario objectives -- call for a vast range of multi-level actions and measures (technological feasibility, cost-effectiveness, legal revisions and/or support, etc.). The Greek Government will appoint and devolve the necessary authority to an Expert Action Team that will assume the systematic monitoring and the continuous control of measure/action implementation. As for the actual composition of the team, two essential criteria will be met: the necessary participation/representation of the main bodies/organisations concerned, and the need to ensure continuous scientific support within the actual team.

61. As shown in figure 7 on page of 11 of the communication, the Greek programme by the year 2000 will -- if successful -- have managed to reverse the alarming trend of development noted not only in terms of CO<sub>2</sub> emissions, but also at a level of primary demand and final energy consumption per unit GDP. It goes without saying that the achievement of even better results, as far as CO<sub>2</sub> emissions are concerned, will further improve the Greek economy's energy intensity. These objectives are not only dictated by Greece's international obligations and commitments, they are also directly linked to the general quality of life in Greece and to the competitiveness of the Greek economy.

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