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Case Document No. 8

Marangopoulos Foundation for Human Rights v. Greece
Collective Complaint No. 30/2005

FINAL RESPONSE FROM THE GREEK GOVERNMENT ON THE MERITS

registered at the Secretariat on 24 November 2006

HELLENIC REBUBLIC

MINISTRY OF EMPLOYMENT AND SOCIAL PROTECTION

FINAL OBSERVATIONS AND RESPONSE OF THE HELLENIC REPUBLIC TO THE REMARKS OF 'MARANGOPOULOS FOUNDATION FOR HUMAN RIGHTS' (MFHR) ON THE HELLENIC REPUBLIC'S FURTHER OBSERVATIONS

Artificial wet-land in West Macedonia Lignite Centre created in exhausted mines

NOVEMBER 2006

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Contents

I. **Introductory Remarks** 1

II. On the alleged violation of article 11 ..... **1**

II-1 Air Quality 2

II-2 Constant progress and Improvement of the environmental conditions 8

II-3 The misuse of the evidence on best available technology by the Complaint and the hard reality 14

II-4 Licensing practices and environmental permits 21

II-5 Monitoring, enforcement and sanctions 23

II-6 Methodological Questions and the "precautionary principle" 25

II-7 The purported non compliance with the Kyoto Protocol 27

III. On the alleged violation of Article 2 §4 ..... **30**

IV. On the alleged violation of Article 3 ..... **30**

V. Air pollution and health **31**

VI. Concluding Remarks 35

Diagrams

Figure 1: Dust emissions reductions versus increase in energy production from DEH's LCPs, due to pollution control measures imposed on them. 10

Figure 2: SO_2 emissions reduction from lignite power plants. 12

Figure 3:DEH 2005: Emissions' reduction and versus allowances purchase 29

Tables

Table 1 –Findings of Air Quality Studies in the KPV Region (a) **3**

Table 1 –Findings of Air Quality Studies in the KPV Region (b) 4

Table 1 –Findings of Air Quality Studies in the KPV Region (c) 5

Table 1 –Findings of Air Quality Studies in the KPV Region (d) 6

Table 2 – Comments on MFHR's allegations about inconsistencies between SO-1 and SO-2 15

LIST OF ANNEXES

LIST OF ABBREVIATIONS AND ACRONYMS

FINAL OBSERVATIONS AND RESPONSE OF THE HELLENIC REPUBLIC TO THE REMARKS OF THE 'MARANGOPOULOS FOUNDATION FOR HUMAN RIGHTS' (MFHR) ON THE HELLENIC REPUBLIC'S FURTHER OBSERVATIONS

I. Introductory Remarks

1. This document is submitted by the Respondent Government as a summary response to the 'Remarks on the Hellenic Government's further observations and summary restatement of the case" (hereinafter "the Remarks") of the Marangopoulos Foundation for Human Rights (hereinafter, 'the complainant', or 'the MFHR') on the merits of Collective Complaint No. 30 (hereinafter, 'the Complaint'). In supplementing earlier submissions and responds to the MFHR petition, the present observations have a summary character, as the Respondent Government considers it has thoroughly and analytically refuted in its former observations all the allegations presented by the complainant.

II. On the alleged violation of article 11

2. The State has proven that it has taken all possible measures to minimise the, inherent to all energy production, dangers of environmental degradation. For this reason, there are no health effects imputable to its actions or omissions, even as regulator. It has also demonstrated that ambient air quality in both the Kozani-Ptolemaïda and Megalopolis areas generally is conforming to the EU standards and, as such, comparable to other areas, even non industrial ones. Moreover, it has been also substantiated the constant progress in this field, due to the adoption of BAT. Regarding the monitoring mechanisms and sanctions it has also been proven that, despite the existing imperfections, the situation is constantly improving.

3. Facing these facts, the MFHR has adopted in its final remarks a three-fold strategy for creating confusion about the case: First of all, under the pretext of restatement of the complaint, it continues to extend ad infinitum its argumentation, by presenting new, usually manipulated, data and issues. In this way, it has turned a petition initially focusing on the operation of mines and factories of DEH to an omnibus complaint for all environmental issues in Greece. **The new petition, based on a different legal base and on different provisions of the Charter than the initial collective complaint, is inadmissible, on procedural grounds.**

   Regardless that, it is obvious that in this way it is very difficult for the Commission to cross-examine and verify allegations and data. Secondly, due to its inability to contradict the facts presented by the previous submissions of the respondent state, it tries to raise doubts about the methodology of the related studies. However, this is not a scientific forum for an academic discussion on these issues, and the MFHR has turned deliberately its complaint to a non justifiable one, by legal methods. Thirdly, it is using double measures and standards, using on the first hand ad libitum EU standards and legislations and on the second accusing the state for doing the same.

II-1 Air Quality

4. Indicatively, the respondent state presents at the following table undisputed findings of the existing studies on Air Quality Studies in the KPV Region not accounted for by the MFHR

Table 1 –Findings of Air Quality Studies in the KPV Region (a)

	Main findings on TSP and PM_{10} concentrations <u>not accounted for</u> by the MFHR and State's comments
Triantafyllou (2000)	This study was the first to publish PM_{10} measurements for Kozani in the southern Eordea Basin, covering the period 1991-1994. The MFHR quotes that "This study found that: The annual mean concentration of PM_{10} at the TEI (1 km north of Kozani) was found to be 70 μg/m^3 in 1991, 70 μg/m^3 in 1992 and 61 μg/m^3 in 1993, exceeding clearly the US EPA's air quality standard of 50 μg/m^3." **The MFHR omits the following important finding of the study:** **In 1994, this value was dropped just below the air quality standard (49 μg/m^3). <u>The reduction observed in 1993 and particularly in 1994 was attributed by the author to the installation of new electrostatic precipitators at the Ptolemais power station in July 1993 and at the Kardia power station in December 1993 (p.1020).</u>** It is also pointed out that: **Although in this study, the author measured PM_{10} concentrations in an attempt to find the reasons for their variability, he was not in a position to do so, because he had no solid information, concerning the origin of PM_{10}. The author could only make hypotheses and suggestions, since monitoring studies do not provide information on source identities and source contributions. Such information is derived by source apportionment studies, like those carried out by Samara, 2005. Hence, the author suggested that point sources (stack emissions) were hypothetically significant, but he noted that the picture was rather complex leading to the conclusion, that other sources (mining operations, anthropogenic sources, and natural sources might also contribute (p. 1021). The anthropogenic and natural sources were not further determined by the author.**
Triantafyllou (2003)	**This study analyzed the measurements of TSP from eight monitoring stations from 1983-1998 (seven out of them belonging to DEH).** **The study showed that the EU long-term limit-level of 150μg/m^3 (Figure 3, pp. 23-25) was <u>met</u> at:** • **Amynteo, Kapnochori, Polymylos and Petrana during the whole monitoring period** • **K. Spor in 1988-97** • **PPC Village in 1997-98** • **Komanos (marginally) in 1996-97** • **Akrini in 1991-97**

Table 1 –Findings of Air Quality Studies in the KPV Region (b)

	Main findings on TSP and PM_{10} concentrations not accounted for by the MFHR and State's comments
Triantafyllou (2003)	**Moreover, the EU short-term TSP limit-level of 300μg/m^3 was met at:** • **Amynteo, Kapnochori, Polymylos and Petrana during the whole monitoring period** • **K. Spor in 1987-96** • **PPC Village in 1997-98** • **Komanos (marginally) in 1987-97** • **Akrini in 1986-97,** **However, the MFHR omitted to mention these important findings.** **The author has reached to very important conclusions, which the MFHR omits to quote. These are;** **"A negative trend is evident in all stations. The highest rate of decrease (i.e. 3.5% per year) is observed at the PPC village station. This is equivalent to an average TSP concentration decrease of 45.5% between 1986 and 1998. This could be attributed mainly to the control techniques which were applied by PPC in order to reduce fugitive dust sources. The lower decrease rate (i.e. 0.2% per year) is observed at the Petrana station. This is equivalent to a decrease of 2% in average TSP concentration between 1989 and 1998. This station is located on a hill, out of the basin and is aggravated only by the stack emissions, since no other activities take place near to the station. The use of the new electrostatic filters and the consequent decrease of emissions did not affect significantly the concentrations of pollutants in distant places, such as the Petrana location.** **Given that the amount of burnt lignite increased by 20% between 1990 and 1999 and consequently the particulate emission rate also increased, it can be concluded that the effectiveness of the antipolluting measures that have been implemented by PPC in the area is higher than that implied from the above observations.** **The antipollution measures that have been implemented by the energy industry resulted in an improvement of the air quality in the area, mainly in the regions inside the basin. The percent decrease of the average TSP concentration in the regions inside the basin is higher than the percent of decrease of the average PM_{10} concentrations in U.S.A., while the corresponding reduction observed in the region outside the basin is much lower".** **Additionally, the author underlined that (p. 29):** It should also be pointed out that **Saharan dust transport was observed during spring into the area of interest** under specific atmospheric prevailing conditions (Triantafyllou *et al*., 2002). Furthermore, in the study (p.21 & 26), the concentrations of PM_{10} in the center of Kozani were recorded during 1996-1998 and **were compared to the US EPA limits, 50 μg/m^3 (annual limit) and 150μg/m^3 (24-hour limit).** **Neither comparison was made with the European standards, nor was information provided by the author concerning the percent violations of the short-term limit of 50 μg/m^3, as the MFHR wrongly alleges in its Second Response.**

Table 1 –Findings of Air Quality Studies in the KPV Region (c)

	Main findings on TSP and PM_{10} concentrations <u>not accounted for</u> by the MFHR and State's comments
Triantafyllou (2005)	This study uses measurements for both TSP and PM_{10} from 1997-2003 (data taken from DEH's monitoring stations, pas acknowledged by the author). The MFHR quotes that according to the study: • "80% of the particles escaping from electrostatic precipitators (ESPs) were in the range <10μm, 25% of which in the range <2,5μm which is of paramount importance for human health related effects". **But the MFHR ignores that these fine particles are emitted from a height of 200 m above ground level from the majority of power plants, which corresponds to a <u>much higher effective height</u> due to their velocity, thus achieving a very good dispersion. Therefore, their contribution to the pollution measured at various sites in the human breathing zone (1.5-3 m above ground) is substantially small. This small contribution was revealed by the CMB receptor model applied in Samara, 2005.** About the PM_{10} long-term exceedances, it should be commented that**:** - **"Limit values exceedances" are not substantiated for the period 1997-2003, since the standards are valid as from year 2005 and onwards.** - **According to the European State and Outlook 2005 issued by the EEA), page 268: *PM_{10} is a pan-European air quality issue. The limit values are exceeded at urban measuring stations for background concentrations in nearly all countries*** - **The PM_{10} limit values are exceeded all over Greece, even at less anthropogenically impacted sites. This is related to the different meteorological and topographical conditions of the southern Europe countries. Several studies have shown that PM_{10} concentrations in urban and rural sites of southern Europe are higher than those observed in similar-type sites of central and northern Europe. This might be attributed to one or more of the following reasons:** **(a) the greater contribution of local resuspension of soil dust due to drier and looser soils in the semi-arid Southern Europe** **(b) the lower frequency of rains which results to less effective removal of atmospheric particles by wet deposition** **(c) the enhanced formation of secondary aerosols due to higher photochemical rates** **(d) the occasional transport of Saharan dust under specific atmospheric conditions (see also Triantafyllou, 2003)** (e) **the poorer renewal of air masses in the Mediterranean region**

Table 1 –Findings of Air Quality Studies in the KPV Region (d)

	Main findings on TSP and PM_{10} concentrations <u>not accounted for</u> by the MFHR and State's comments
Samara (2005)	According to the MFHR "This source apportionment study (see below, §13) found that TSP **long-term** exposure limit-levels from 2000-2001 were exceeded only in Klitos. But it also found that limit-levels for Arsenic (As), mainly associated with diesel combustion particles (p.6439) were exceeded in Pontokomi, PPC community, Kozani, Klitos, Florina, Ptolemaïda and Vegoritis (Table 2, p.6434). This shows that in measurements stations with totally different characteristics, arsenic limit-levels in ambient air are exceeded." **But:** - **In Samara, 2005, the elemental composition of <u>TSP</u> was determined, whereas the future EU ambient air quality standards for As (to be valid as from 2013 and onwards) and other heavy metals (Ni, Cd, etc.) refer to the quantity of the above elements contained in <u>PM_{10} in one cubic meter of ambient air.</u> Therefore, no comparison can be made with the future standard, and the MFHR's conclusion is totally wrong.** **Let aside the fact, that the quantity of As contained in the TSP measured in one cubic meter of ambient air is much higher than the quantity of As contained in the PM_{10}, which is only a fraction of the same TSP .** **So "limit values exceedances" allegations are in no way substantiated and the MFHR, intentionally or not, misquotes the findings of Samara (2005) in order to create false impressions.** - **Moreover, the fact that TSP-As concentration values measured at the two urban sites, Kozani and Ptolemaida,) were higher than the concentrations measured at the located close to power plants Klitos, reveals that <u>urban diesel traffic is the major contributor to the ambient As levels.</u>**
Petaloti (2006)	According to MFHR "Analysis of the effect of wind on TSP concentration found that in six out of nine measurement stations increases of TSP levels in ambient air are associated to DEH's mining and combustion activities (pp.7-9). Moreover, the **long-term** exposure limit-levels for Cd [Cadmium] (5 ng/m^3), As [Arsenic] (6 ng/m^3) and Ni [Nickel] (20 ng/m^3) associated to PM_{10}, were exceeded at S4 [Klitos] (Cd, As, Ni), S1 [Kozani](As), S7 [Ptolemaïda] (As) and S10 [Florina](As) (p.4) Cadmium and Arsenic were strongly associated with diesel combustion, a source of emissions in itself largely attributable to DEH's activities (see below, §13)". **But:** - **According to Petaloti et al. (2006), at five out of the ten sites studied, wind directions from the power plants areas, from high traffic roads and from mining activities were associated with high concentrations of TSP. This indicates that power generation activities affect the sites in their vicinity under favourable wind conditions. However, this influence is not representative of the contribution of DEH's emissions throughout the whole year.** - **Concerning the "alleged exceedances" of the future European air quality standards for Cd and Ni, like in the case of As, these in no way can be substantiated.** **Additionally, the TSP-associated concentrations of Ni and Cd are expected to be much higher than the corresponding PM_{10}-associated fractions as explained previously. The MFHR also misquotes the "Petaloti 2006" findings.**

5. In other parts of the remarks, the MFHR puts into question the ability of the state for systematic measurements of ambient air quality for the Kozani-Ptolemaïda Valley (KPV) and Megalopolis areas. However, as the State has mentioned in its further observations on the merits, para 62, air quality in the KPV and Megalopolis regions have been monitored from the beginning of the 80s.

   More specifically, SO_2 monitoring program started in the area of Megalopolis, on December 1976 and three months later in the area of KPV, where only three SES existed at that time, namely Ptolemais SES, Liptol SES and Kardia SES (only Units I,II), earlier than the relevant Ambient Air Quality Directive, issued in 1980 provided for.

   Settlable solids were measured in Megalopolis area, since February 1977 and at KPV since April of the same year. At both areas, NO_2 and total suspended particulates (TSP) measurements were carried out since June 1978 and 1980 respectively.

   For a certain time, mobile monitoring stations have been used for the air pollution measurements at both the areas, so the data series for the same site did not cover a whole year and a full data processing could not be carried out.

   It is obvious that the ambient air quality monitoring techniques used by DEH since 1976, has followed the progress in the development of the relevant technology and scientific knowledge. But the need for assessment of ambient air quality was always met.

6. Moreover, the complainant accuses the state for not providing data to the public, raising, by this way, questions about the quality, completeness and relevance of the information on air quality it provided". Triantafyllou et all in all the "peer-reviewed scientific studies published and presented by the Complainant" have used the data

from DEH's "ineffective", according to the Complainant, environmental monitoring mechanism. The same is valid for the emission factors used in Kaldellis articles.

7. It is clear that the MFHR must decide whether DEH's data are reliable or not. The same data cannot be reliable when used in the studies the Complainant invokes and at the same time unreliable and doubtful when the State uses them!

8. The fact that the studies invoked by the MFHR used data from DEH's monitoring system proves without any doubt that the data are publicly available.

II-2 Constant progress and improvement of the environmental conditions

9. The respondent State wishes to stress that even the few instances in which some elements have exceeded the European Air quality standards, have been efficiently dealt with by introducing the Best Available Techniques (BAT), so as to constantly improve the situation. Indicatively, recently (09.10.2006) SES Aghios Dimitrios, *"the most polluting power plant in Europe,"* according to the Remarks (para 30), was awarded the ISO 14001 Certificate for its Environmental Management System. The Certificate has been issued by TUV NORD, the German authorized organization, following an extensive inspection of the applied Environmental Management System. This Certificate proves, inter alia, that SES Agios Dimitrios operates at least according to the environmental legislation, and cares in a systematic way for the continuous improvement of its environmental behaviour. This award proves in the most undeniable way how unfair is MHFR in challenging the credibility of the data provided by earlier submissions and in putting on questions about the sources and methodology of them.

10. The complainant is protesting about the graphics way of presentation in SO-2. Actually, the respondent State cannot understand the reason for this protest, as:

    - The monitoring stations location has been clearly presented in Fig. 2 and 3 of the SO-2. The source of data was very clear (see para, 62-64, SO-2)

    - In these graphics the annual average value of the daily means of all the monitoring stations of KPV and Megalopolis regions was presented, as the

objective was to present the emissions descending trend during the whole period of measurement. Regarding the average calculation, the State has not used any weighted coefficient, because it did not want to restrict the importance of any station, as all the monitoring stations are important and cover both the KPV and Megalopolis regions. That is why at the diagrams the “average” and not the “weighted average” value was used (SO-2, para 124). Besides, this descending trend is also presented at the Triantafyllou’s, Samara’s and Petaloti’s studies and has been admitted by the MFHR.

11. The State has never hidden that there is occasionally emission limit value exceedances in Klitos and in Kozani city, a fact that the MFHR has admitted. Consequently, in no way can the MFHR allege that the State misinforms or hides data. What has bothered the MFHR is that the air quality improvement, which cannot be doubted, is presented in such an apparent way at the aforementioned diagrams.

12. It should be noted that the SO-2 objective was not to present the bulk of the measured data and to compare them with the limit values. The State has never referred to these diagrams in order to allege compliance with the limit values, but only to demonstrate the clear improvement trend in ambient air quality as regards particulates and SO_2 (because for NO_2 the compliance is more than obvious), which is unquestionable and admitted by the MFHR, despite the continuous increase in power generation in the studied period of time 1970-2004, and is solely attributable to the measures imposed on DEH for pollution abatement.

    The following diagram is also very depictive of the above fact for the dust emissions in kt from DEH’s Large Combustion Plants compared to the increase in their energy production.

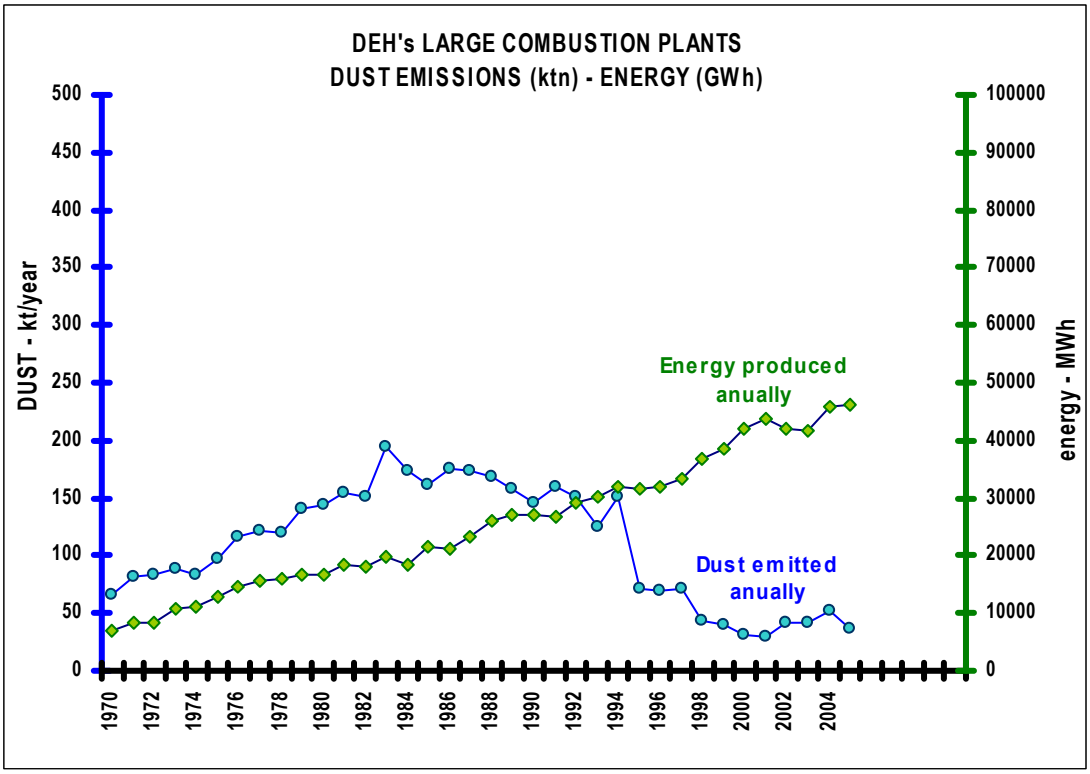

Figure 1: Dust emissions reductions versus increase in energy production from DEH's LCPs, due to pollution control measures imposed on them.

13. Despite the complainant's admitting of the downward trend in TSP ambient air concentrations, it, nevertheless attempts in its Remarks to undervalue and diminish this important achievement, by mentioning that "the TSP standard is no longer used by the EU because it is not an adequate indicator for health-endangering particles". Apparently, as adequate indicator, the MFHR considers the PM_{10} ambient air concentrations.

    But, as anyone can understand, the facts are as follows:

    a. The ambient air TSPs (at least those of emitted dust origin) have been reduced through the drastic reduction of dust emissions due to pollution control measures (ESPs).

    b. Since ambient air PM_{10} (of emitted dust origin) constitute a fraction of the total dust emitted (which has been drastically reduced), it is naturally expected, that ambient air PM_{10} resulting from a drastically reduced quantity, of emitted dust, are much lower, as a fraction of a much lower total dust quantity when compared to the situation before the installation of new ESPs to the lignite units.

c. In the BREF LCP, no specific techniques to reduce PM_{10} emissions are described, because such techniques do not exist. Only techniques to reduce particulate emissions (total dust) from LCPs are described, and as such the ESPs are the first presented among all the others: "capable of operating under a wide range of temperature, pressure and dust burden conditions. **It is not particularly sensitive to particle size**, and collects dust in both wet and dry conditions" and "the **ESP is by far the most commonly used equipment in Europe in power plants using coal or lignite**." [1]

Furthermore, the State has provided in SO-2 para 67, additional international proof, about the ESPs (such as those installed and operated by DEH) capability to efficiently retain PM_{10}.

d. For the above reasons, no EU legislation exists, regulating PM_{10} emissions from stacks (see para 69, SO-2).

14. The State acknowledges, however, that regarding PM_{10}, there is a general problem throughout EU, as many EU countries have failed to meet the limit value. Therefore, the 2757th Council Meeting (Environment) in Luxembourg, 23 October 2006 reached an agreement on the draft Directive on ambient air quality and cleaner air for Europe. The Agreement includes the following key elements:

- the possibility to postpone attainment of the limit value for PM_{10} until three years after the entry into force of this new Directive;
- the possibility to postpone the deadlines for certain other pollutants, such as nitrogen dioxide (NO_2) and benzene, by a maximum of five years (until 1 January 2015);
- the principle that limit values should apply everywhere, but in certain locations compliance with limit values should not be assessed.

At the same time, more flexibility was given to the Member States, in order to allow them a time limited extension to the compliance deadline.

[1] EC, European IPPC Bureau, "Integrated Pollution Prevention and Control (IPPC) Reference Document on Best Available Techniques for LCP", July 2006, 55 p. & 180 p. (Annex 21)

15. This is a clear proof that instances of exceedance of the ambient air PM_{10} is not due to any neglect by the State or DEH of their obligations, but a more general problem that all European countries face. Furthermore, the State has proved that the situations is continuously improving and those specific important projects, have already been constructed or are under construction for the further air quality improvement (see § 118-124, SO-2 and analytically comments on Complainant allegations in State's Comments §55-119).

16. The complainant asserts also that the insufficiency of SO_2 abatement measures is particularly serious. This is not the case. The extensive programme for the efficient abatement of SO_2 emissions is in progress, as it is analytically described in SO-2 (para 142). The expected reduction in SO_2 emissions is given here after:

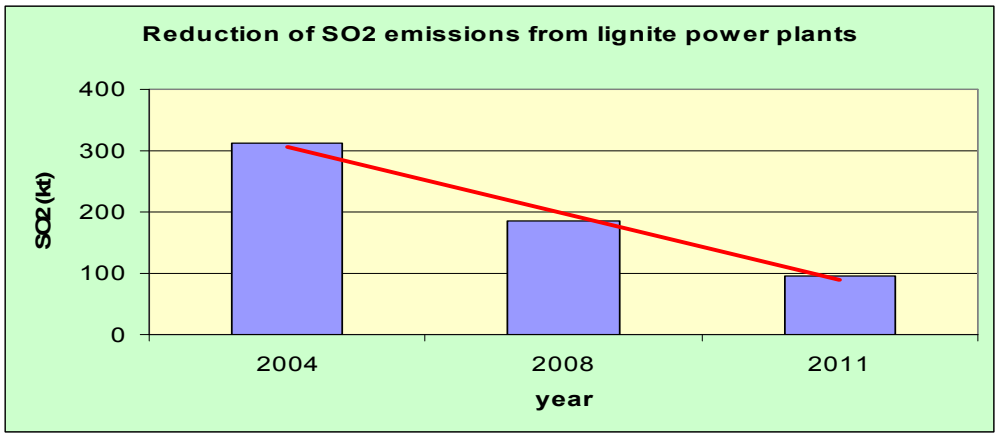

Figure 2: SO_2 emissions reduction from lignite power plants.

17. Concerning NO_2 levels in the ambient air of KPV and Megalopolis regions, the State repeats that:
    a. the NOx emission concentrations from PPC's lignite-fired power plants are low, due to the low combustion temperatures and the primary NOx reduction measures (see SO-2§ 130-140)
    b. the ambient air NO_2 ground level concentrations in both KPV and Megalopolis region are very low, compared to the EU limits values (see SO-2, § 135 and State's Comments, § 135)

c. the total annual NOx emissions from all the Large Combustion Plants are less than 70kt and no violation of the emission ceiling exists for any of the previous years (see State's Comment, § 133).

18. As regards the Complainant's allegations about hazardous trace elements in ambient air, the State notes the following: **In Samara, 2005, the elemental composition of TSP was determined, whereas the future EU ambient air quality standards for As (to be valid as from 2013 and onwards) and other heavy metals (Ni, Cd, etc.) refer to the quantity of the above elements contained in PM_{10} in one cubic meter of ambient air. Therefore, no comparison can be made with the future standard, and the MFHR's conclusion is totally wrong. Let aside the fact, that the quantity of As contained in the TSP measured in one cubic meter of ambient air is much higher than the quantity of As contained in the PM_{10}, which is only a fraction of the same TSP . So "limit values exceedances" allegations are in no way substantiated and the MFHR, intentionally or not, misquotes the findings of Samara (2005) in order to create impressions.**

19. As far as source apportionment studies concerned States remarks that as reported in Samara (2005), the CMB source apportionment model indicated diesel combustion as the major contributor to TSP at all 10 receptor sites in the Eordaia basin with contributions ranging between 29-55% in the cold season and 27-58% in the warm season. The CMB model is unable to discriminate between different uses of the same source; therefore it was not possible to discriminate diesel traffic from diesel combustion at the power plants. The author reports that the amounts of diesel annually consumed in the basin for vehicular traffic is almost equal to those consumed by the DEH for generators start up. A first point is the accuracy of the traffic (probably underestimated) diesel consumption data collected by the author. The second and most important point is the fact that diesel combustion particles originating from the DEH's uses are emitted from a height of 100-200 m above ground level, **which corresponds to a much higher effective height due to their velocity,** therefore their contribution to the pollution measured in the human breathing zone (1.5-3 m above ground) is expected to be substantially smaller than the contribution of diesel combustion particles originating from diesel traffic, emitted at ground level.

20. In its inability for a more solid foundation of its accusations, the Complainant Remarks (para 13) tries to demonstrate that there is a danger for the environment because of the vehicular traffic related to the commutation of about 10,000 DEH employees and contractors. It is clear that the traffic pollution cannot be imputed to the State, which nevertheless takes measures for its prevention, or to DEH's actions or omission. However, this allegation is useful, as it demonstrates clearly the penury of the complainant's argumentation. Let aside, the obvious fact that by providing jobs to a workforce of 10000 people, while taking good care of the environment, the State promotes a goal of public interest, which, in no way, can be considered contrary to the objectives of the Charter.

21. Finally, regarding its obligation to remove the causes of ill-health, more specifically with regard to the operation of the lignite mines, the State has analytically and in great detail presented the huge environmental restoration activities, which take place since 1986 and onwards, thus refuting Complainants allegations as unsubstantiated and groundless. These activities have proven beyond any doubt the constant and factual preoccupation and care of the State for the protection of environment regarding mining activities. Referring to the solid waste disposal the State's submission is so clear in para 222 and 223 of SO-2, that no questions can be raised by the MFHR.

II-3 The misuse of the evidence on Best Available Techniques by the Complaint and the hard reality

22. The complainant, acting against bona fide, has tried in its Remarks to exploit some linguistic mistakes of the translation in English of certain technical terms[2], information and data, initially provided in Greek in SO-1, in order to claim inconsistency between the State's first submissions on the merits (*SO-1*) and its further submissions on the merits (*'SO-2'*).

    In SO-1 there was only a reference to the year that the whole program of gradual replacing and upgrading the ESPs to all existing lignite units had started (1987),

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For instance, *Flue Gas Desulphurisation unit* has been erroneously translated as *fuel desulphurisation unit.*

clearly stating that "In the context of the said program, **since 1987 to date,** PPC…" Obviously, this program did not include the newest units, such as Agios Dimitrios Unit V and SES Megalopolis B Unit IV, which had been equipped with ESPs of high efficiency along with their construction. In SO-2 more detailed data were provided for each power plant separately. According to the above, no inconsistencies between SO-1 and SO-2 exist, as the Table 2 below shows:

Table 2 – Comments on MFHR's allegations about inconsistencies between SO-1 and SO-2

Unit	DEH's alleged technologies *(SO-1)*	*DEH's alleged technologies (SO-2)*	*Comment*
Megalopolis A Units I-II	▪ The operation of these units will be restricted from 2008-2015 (p.31); therefore interventions in ESPs are of limited possibility, given that their remaining lifetime is little (p.7). ▪ No FGD mentioned.	▪ Extensive maintenance and upgrading of ESPs are in progress for units I-II. The project has already been completed for unit I and is in progress for unit II (pp. 47, 88). ▪ No FGD mentioned.	Misuse of the term "interventions". The possibility of interventions in the ESPs of Units I and II of Megalopolis SES is limited, given that their remaining lifetime is short (**by the end of 2010**, as clearly stated in SO-2 §127 and §243). The State meant major interventions like the ones executed in Unit III, i.e. upgrading of the existing and addition of new ESP's. The extensive maintenance and upgrading of ESP's in Unit I and II of Megalopolis SES are not considered by the State as major interventions, but improvements appropriate for their case, where the remaining lifetime is short. No inconsistency exists.
Megalopolis A Unit III	▪ Interventions for the improvement of the ESPs are taking place, to be completed by the beginning of 2006 (p.6). ▪ The installation of a FGD unit is under way (p.30-31, 33).	▪ The installation of high performance ESPs was completed in March 2006 (pp. 41 and 84 tables). ▪ A wet-FGD system is in construction in Unit III, to be completed in 2008 (p. 52).	No inconsistency exists.

Megalopolis B	**Unit IV**	▪ High-efficiency ESP has been installed (p. 6). ▪ Already has a FGD unit which presented problems, was upgraded, and its operation now can be considered sufficient (p. 6) ▪ Upgrade of FGD under way (pp.31, 33).	▪ The installation of high performance ESPs was completed in March 2006 (p. 84, table). ▪ A wet-FGD is in operation in Unit IV since 1999 (p. 84, table). ▪ Upgrade of FGD under way (p. 52, table).	The MFHR dates in column SO-2 is wrong and never given by the State. This date refers to Unit III. Unit IV has had high efficiency ESP's since its construction (1991). No inconsistency exists.
Kardia	**Units I-II**	▪ The ESPs were replaced since 1987 (p. 32). ▪ No FGD mentioned.	▪ High performance ESPs operate since 1993 (p. 83, table). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).	No inconsistency exists.
Kardia	**Units III-IV**	▪ The ESPs were replaced since 1987 (p. 32). ▪ No FGD mentioned.	▪ High performance ESPs operate since 2003 and 2004 respectively (p. 83, table). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).	No inconsistency exists.
Ptolemaida	**Units I-III**	▪ ESPs replaced since 1987 (p. 32). ▪ No FGD mentioned.	▪ High performance ESPs operate since 1987 (pp. 41 and 83, tables). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).	No inconsistency exists.
Ptolemaida	**Unit IV**	▪ ESPs replaced since 1987 (p. 32) ▪ No FGD mentioned.	▪ High performance ESPs operate since 1994 (p. 83, table). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).	No inconsistency exists.

Ag. Dimitrios **Units I, III, IV**	▪ Upgrading of existing ESPs and addition of new ones (p. 32). ▪ The Aghios Dimitrios I-IV ESP replacement project to be completed in 2007 (p.6). ▪ No FGD mentioned.	▪ A project of upgrading existing ESPs and adding new ones to be completed at the end of 2007 (p. 41, table). ▪ A project of upgrading existing ESPs and adding new ones to be completed early 2008 (p. 83, table). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).	As clearly stated in SO-2 §252: "DEH early introduced in its business plan the environmental project "Upgrading of the old and installation of new ESPs at the units I-IV of Ag. Dimitrios SES", in order to satisfy the stricter environmental requirements, by the upcoming European legislation, that DEH always follows up closely and attentively. The estimation for its validity was the end of 2007-2008, and DEH, according to its programming, would be ready to satisfy them", and §258: "**Upgrading of the existing and addition of new ESPs at Ag. Dimitrios SES, units I-IV, is in progress**. As noted above the new ESPs of Unit II have already operated **successfully** and according to the contractual timetable. New ESPs for Unit I will be concluded in the fall of 2006 and works shall continue under the 130 M€ contract for the new ESPs in Units III-IV in the years 2007-2008." No inconsistency exists. The MFHR misses the point of gradual execution of the project (one unit ESPs at a time, then the next, etc.)

Ag. Dimitrios	**Unit II**	▪ Upgrading of existing ESPs and addition of new ones (p. 32). ▪ Aghios Dimitrios I-IV ESP replacement project to be completed in 2007 (p.6).	▪ High performance ESPs are in operation since May 2006 (p. 83, table). ▪ Upgrading and addition of new ESPs to be completed at the end of 2007 (p. 41, table).	As clearly stated in SO-2 §256: "The project for the new ESPs in Aghios Dimitrios Unit II was successfully completed in May 2006", and §258:"As noted above the new ESPs of Unit II have already operated **successfully** and according to the contractual timetable."
		▪ No FGD mentioned	▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).	Unit's II ESPs were the first to replace. Currently Unit's I is connected and ready for its new ESPs commissioning, in line with the gradual – one Unit at a time – time schedule of the project. No inconsistency exists.
Ag. Dimitrios	**Unit V**	▪ No information provided	▪ High performance ESPs since 1999 (p. 83, table).	No inconsistency exists.
		▪ No FGD mentioned.	▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).	
Melitis		▪ It was constructed taking into account the most state-of-the-art anti-pollutant technology, according to the IPPC (p.30)	▪ High performance ESPs in combination with Wet-FGD (p. 84, table). ▪ Operation of wet-FGD (p. 52).	No inconsistency exists.

23. The repeated reference of the Complainant to the lack of FGD systems in lignite power plants in northern Greece (besides Meliti's power plant) is strong evidence of the misunderstanding or misrepresentation of the concepts of Best Available Techniques and the IPPC context of protecting the environment as a whole.

24. **FGD techniques are only applied to installations, where it is necessary to abate their SO_2 emissions.** Among the many available FGD techniques only the wet FGD techniques, due to their scrubbing effect, are able to reduce except of the emissions of SO_2, at the same time the remaining dust in the flue gases, acting only supplementary to the main dust abatement technique, i.e. the ESPs.

25. It is extremely unrealistic, totally technically, economically and environmentally ungrounded and unacceptable under IPPC integrated approach (taking into account

the Unit's loss in efficiency, the CO_2 emissions increase, the production of waste etc.), the MFHR's suggestion to apply FGD (meaning apparently the most expensive and with severe cross media effects wet FGD) at installations that have no need for SO_2 emission abatement, downstream their operating ESPs, allegedly inefficient ones, only to further reduce dust emissions! For instance, a wet FGD system in a 300 MW lignite power plant has an installed capacity of at least 8 MW (consuming around 48 GWh annually) or 3% of its power capacity, consumes a large amount of energy limestone and water and produces gypsum (which needs landfilling in Greece, where there is no market for it) and around 100.000 tons of CO_2 per year. All the above negative effects seem to mean nothing to the Complainant in its peculiar conception of IPPC, BATs and cross-media effects.

26. One should carefully consider all the above, and many more, parameters (following the principles of the BREF "Economics and Cross Media Effects") in order, through the licensing procedure to determine and impose the unit specific BAT and to achieve in an integrated approach the protection of the environment as a whole.

27. The MFHR misses the essence of the integrated approach of IPPC and downgrades the BAT implementation process to a simple and misleading quotation of unrelated pieces taken randomly from a keynote document like the BREF LCP.

28. The BREF LCP, being a general document, acknowledges the capability of low sulphur fuel to result in reduced SO_2 emissions, which "generally" is not itself sufficient. What has to be taken additionally into account in BAT implementation at specific installations, such as DEH's northern power plants, is the fuel and ash quality. This factor is clearly described in the BREF LCP (pages 65, 181). So, it is quite clear that low sulphur content of lignite is not itself sufficient to reduce SO_2 emissions, but in combination with the high alkaline ash content of lignite, which acts as a natural sorbent of SO_2.

29. Meliti's power plant uses lignite of completely different composition (in sulphur content and alkaline ash content) compared to lignite feeding the rest of power

plants in northern Greece, providing a small percentage of natural desulphurisation (<10%) and this fact necessitates the use of an FGD system.

30. For Units I and II of Megalopolis SES, the State wonders whether the MFHR's suggestion to install an FGD to Units allowed operating only until the end of 2010, i.e. with a remaining lifetime of four years, constitutes BAT according to IPPC, BREF LCP and BREF Economics and Cross Media Effects!

31. The MFHR distorts completely the State's conclusion in SO-1, page 9, about Units I and II of Megalopolis SES. The conclusion is crystal clear:
The possibility of interventions in the ESPs of Units I and II of Megalopolis SES is limited, given that their remaining lifetime is short. The State meant major interventions like the ones executed in Unit III, i.e. upgrading of the existing and addition of new ESP's.
The extensive maintenance and upgrading of ESP's carried out in Unit I and underway in Unit II of Megalopolis SES are not considered by the State as major interventions, but improvements appropriate for this case, where the remaining lifetime of the Units is short.

32. According to data submitted to the EC by March 2006 available at "http://ec.europa.eu/environment/ippc/ippc_indic_permits.htm", in 18 Member States 43% of the existing installations falling under the scope of IPPCD (13343 out of 30851) have been granted new IPPC-permits or their permits have been reconsidered or/and updated based upon IPPCD. In Greece, **until November 2005,** the corresponding percentage is 39%, i.e. pretty comparable to the general EU progress (140 out of 358 bound installations). It is obvious that an important progress has been realised in the meantime and the substantial effort is on going in Greece, as elsewhere in Europe.

33. The respondent State, once more, stresses that BREFs **are not legally binding documents**. If the MFHR does not recognise and distorts the legal value of what is written in the preface of the Reference Document on Best Available Techniques for Large Combustion Plants published in July 2006, it should acknowledge that

according to Chapter 4, section 4, section 4.5.1, page 266 of the section "Best Available Techniques for the combustion of coal and lignite" of the above mentioned BREF LCP, the following are clearly stated:

"**It is intended that the general BAT in this section are a reference point** against which to judge the current performance of an existing installation or to judge a proposal for a new installation. In this way **they will assist in the determination of appropriate 'BAT-based' conditions for the installation** or in the establishment of general binding rules under Article 9(8). It is also considered that **existing installations could move towards the general BAT levels or do better, subject to the technical and economic applicability of the techniques in each case."**

And it continuous:

"While the BREFs do not set legally binding standards, they are meant to give information for the guidance of industry, Member States and the public on achievable emission and consumption levels when using specified techniques. **The appropriate limit values for any specific case will need to be determined taking into account the objectives of the IPPC Directive and the local considerations.**"

34. The same text is repeated in all the relevant sections of the fuel related Chapters of the above mentioned BREF LCP (see Sections 5.5 for biomass, 6.5 for oil, 7.5 for gaseous fuels, 8.5 for co-combustion, of the BREF LCP).

II-4 Licensing practices and environmental permits

35. Recently, IPPC based environmental permits have been issued for Megalopolis A SES and Agios Dimitrios SES covering all aspects of Best Available Techniques in an integrated approach. However, the MFHR has again tried (intentionally or not) to distort facts, in order to present the licensing practices of the State and the issuance of environmental permits as a case of disrespect of the law and the standards of environmental protection.

36. Although the functions and the rationale of the joint temporary permit had already been analyzed in the State's response, the Complainant still misunderstands (or purposely does so) its role and function. Therefore, it must be explained again, in

order to avoid further misunderstandings and doubts. The temporary operation permit is provided to DEH´s power plants in order for the latter to fulfill an explicitly assigned obligation under the law that is to ensure the continuous, safe and appropriate electricity supply all over the Greek territory. The duration of this permit is specific, and it will deprive of any validity at the time the administrative progress, issuing the permanent individual per plant operation permit, is completed. On the contrary, the absence of such an operation permit would have put in danger the development of the Greek economy and the welfare of the society in general.

37. The extension of the temporary operation permit, till December of 2008, can by no means be regarded as an environmental permit, as the Complainant alleges. The environmental permit is and has been granted to Megalopolis A and Aghios Dimitrios SES, and obviously to all DEH's Power Plants, following a totally different administrative process under special rules and procedures in order to make an electricity unit work appropriately and according to the conditions that the European and Greek Environmental Law have already set. It is obvious that the approval of the environmental terms is given in order to make sure that the unit conforms to all the conditions that the law foresees and that the electricity generation process is causing the minimum possible effect to the environment as a whole.

38. The above mentioned is enough evidence for the real meaning and the role of the joint temporary operation permit and disperse any doubts about its scope. For further explanations, there is a more detailed analysis in the State‘s SO-2 further observations, which has not been estimated by the Complainant.

39. In the State's further observations, the differences between the two permits, the environmental permit and the joint temporary operation permit, as well as the role each one plays had been analyzed. Although these differences are obvious and clear, the Complainant still insists on distorting them. Due to the fact that this issue has already been analyzed, the State is limiting itself to mention the following:

40. The joint temporary permit of operation is a *sui generis* permit, issued to DEH´s power plants in order for the Corporation to meet its obligation under the law of

providing safely, appropriately and continuously electricity to any consumer all over the Greek territory.

41. The environmental permit is issued individually to any given power plant, concerns the operation of the plant according to the European and Greek environmental legislation. It is obvious that this permit acts as the safeguard the protection of the environment as a whole during the power plant's operation and there is no connection between this permit and the temporary operation permit. Therefore the allegations of the Complainant that the temporary operation permit is issued in order to substitute the environmental one is totally misleading and disorienting.

42. In addition to the above mentioned, it must also be pinpointed that the environmental terms are granted by ministerial act, that has a specific duration and validity, in order for these terms to be reviewed if necessary, following the progress of the technology and the new research in the relevant field, as well as the fulfillment of the environmental objectives-quality standards. According to this obligation, the environmental terms are modified in order to be in compliance with the European and national laws and practices, and must be followed by all factories and industries and not only by DEH. Therefore, the allegation that the *environmental terms are repeatedly modified… in order to facilitate DEH´ s compliance*, apart from being vague and indefinite, is not understood and deprives any reason to be commented.

II-5 Monitoring, enforcement and sanctions

43. The complainant insists (para 39 ff that there is a violation of the obligations of the States as regulator because sanctions, are, purportedly, not applied and the inhabitants' complaints are treated in an incomplete manner. This is just one more unfounded accusation. In SO-2 the State has analyzed that the sanctions are imposed under an open and concrete procedure, and the Law defines the limits of the sanctions. Furthermore, imposing a sanction according to the principle of proportionality is enough evidence for appropriate monitoring. There is a detailed analysis and statistics concerning the implementation of the related legislation and sanctions in the State's observations. However, the Complainant raises this issue

again, accusing the State of not giving a single example that indicates that DEH is sanctioned properly.

44. In addition to this, the Complainant falls into contradictions, because at the moment he accuses the State of not providing the above-mentioned information, he had already submitted them to the Committee, in an analytical list with sanctions and fines imposed to DEH (Response para 108). In this way, the Complainant tries to substitute the Committee. In any case, should the Committee need more information, statistics, reports and any other element in order to constitute its position, the State is eager to provide it.

45. Furthermore, the statement that the inhabitants are treated in a defective and inadequate manner by the competent authorities, each time they complain about infringements is totally vague, indefinite and the only reason of being invoked is to disorientate and to create false impressions to the Committee against the State and DEH. A sanction is imposed according to a specific procedure, by the Competent Authorities, mainly by the Prefecture. The Complainant must have known this procedure very well, because in his merits there is a catalogue of the sanctions imposed in DEH's power plants.

46. What must once again be emphasized is that the sum of the fine is estimated and defined each time by many factors relevant to the specific situation and taking into account the extension of the violation or the pollution. The statement that the sum of the sanctions is not enough to deter future or repeated violations is indefinite and ignores the principle of proportionality, thoroughly analyzed in the State' s further observations, a basic principle of each rule of law, that prevents the Administration' s authority' s abuse, and subsequently safeguards people' s rights against their infringement. According to the principle of proportionality the amount of a sanction varies and depends on many factors concerning the specific situation that has to be estimated. Therefore, the statement that the average fine is very close to the minimum is disorientating and ignores the fact that the sum of a sanction is estimated and imposed according to the specific situation that the competent Authority has in front of it. It is astonishing, the fact that the Complainant, although he appears as the guarantor of the protection of Human Rights, systematically ignores this constitutional principle, recognized by the case law.

47. More specifically, regarding the monitoring and sanctioning activities of the SEPE, the respondent state stresses the following: The SEPE has achieved, through its continuous inspections that the conformity of the companies under the obligation to employ work doctors according to legislation, has reached almost 100%. As Table 2 of SO-2 showed, SEPE has conducted extended audits and imposed sanctions to DEH itself, as well as to the contractors undertaking DEH's projects.

48. It should be further underlined that the Complainant avoids commenting on the fact that beyond imposing 6 sanctions during 2005 in companies activating in the sectors power generation, natural gas distribution and hot water and steam production, SEPE has submitted 29 prosecutions as well. Furthermore, to the above mentioned sanctions, the 33 fines imposed during 2005 to contractors undertaking DEH's projects in Megalopolis and Kozani area have to be added.

49. As regards the allegation of the Complainant related to the number of accidents reported to IKA in comparison with the number of its insured employees, one should bear in mind that IKA-insured employees, include employees of all big companies, industries, construction firms, etc., i.e. companies activating in sectors where the most frequent and serious accidents occur. Furthermore, the major part of the foreign workers and the workers under contractors are IKA-insured.

50. As regards the fatal occupational accidents, the corresponding data presented by SEPE for the years after 2001 proved their gradual decrease. Taking into account that SEPE operates since the second semester of 1999, it is obvious that the processes of audits and sanctions imposition established by SEPE decisively contributed to the above mentioned decrease.

II-6 Methodological Questions and the "precautionary principle"

51. The complainant, in its inability to refute these undeniable facts, after spreading confusion raising methodological issues, which, obviously, cannot be solved by the Committee, insinuates that, due to the precautionary principle, the assumed uncertainty over the reliability of data should lead to the acceptance of the

complaint's allegations. This is also a misleading argument, based on a distorted interpretation of the precautionary principle.

52. According to the precautionary principle, as it was solemnly enshrined in article 15 of the 1992 Rio Declaration on Environment and Development, where there are threats of serious or irreversible environmental damage, lack of full scientific certainty shall not be used as a reason for postponing the decision for undertaking cost-effective measures to prevent environmental degradation. The Declaration incorporates the precautionary principle, using the following phrasing: "*In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.*"

53. It is clear that the precautionary principle cannot be applied *ex post*, for the evaluation of existing policies for reducing the environmental impact, but only *ex ante*, before the adoption of such measures, imposing to the States, *"according to their capabilities"*, the adoption of *"cost-effective measures"*. In consequence, the evaluation of the existing policies and implementation of measures decided in the past cannot be assessed at a later stage according to the precautionary principle, but according to the standards recognized by the International and European legal order. The respondent Government has showed, beyond any doubt, that its policies, and the DEH's policies, fully conform to these standards.

54. The respondent State has proven that it fully complies with the EU legislation, the EU standards for air quality and the EU best available techniques (BAT). This is not a defensive tactic, as the MFHR implies (para 3), although the complainant is right by insinuating that the State's position is that, by complying with them, it also fulfils its Charter's requirements: Although the obligations of the Charter are not legally identical with the obligations stemming from the EU law, it is clear that a) there are not Charter specific quantitative standards for the protection of the environment and b) the European related standards of environmental protection are internationally accepted as objective, meticulous and functional. Moreover, the double fact that any violation of the pertinent EU legislation is fully justifiable before the European

Court of Justice and that Greece has never, until now, been condemned for issues related with the complaint, is full proof of the lack of truth in MFHR's allegations.

55. Theoretically, it is possible that compliance with EU law would not coincide with compliance with the European Social Charter, as the Remarks claim at para 229. However, if this was the case, the complainant should have to prove that the implemented European law is contrary to the Charter, or somehow defective, with regard to environmental protection. Of course, the MFHR has prudently avoided this impossible task, for not exposing its essentially ideological and not realistic stance.

II-7 The purported non compliance with the Kyoto Protocol

56. The complainant has tried to prove (para 46-51 of the Remarks) a purported non compliance with the Kyoto Protocol. The truth is that, according to the latest European Commission's press release[3], seven EU-15 Member States (Austria, Belgium, Denmark, Ireland, Italy, Portugal and Spain) will exceed their individual emission limits, which are binding under EU law. Greece, on the contrary, is going to reach its Kyoto target.

57. **Not only does the MFHR choose to neglect the above acknowledged by the European Commission fact, but once again, provides the Committee with inaccurate data** (see State's Comment 156[2] and Annex I). According to the final Greek National Allocation Plan for the period 2005-2007, followed the CMD 36028/1604 of 01.19.2006, Greece distributed 71.162.432 allowances (tons of CO_2) to 139 installations operating in its territory in 2005 and falling under the scope of Directive 2003/87/EC. 133 of these installations are in compliance status (6, for different reasons, are not) meaning they have already surrendered 'emissions allowances' equal to the total verified (real) emissions. (Data from the EU registries http://ec.europa.eu/environment/ets, last visited on 26.10.2006). These 133, in compliance status, installations have verified emissions of 71.250.370 tons CO_2 (i.e. 0,1% or 87.938 tons CO_2 higher than total allocated allowances).

[3] 27 October 2006 - http://ec.europa.eu/environment/index_en.htm.

For the power generation sector the verified emissions are 52.626.207 tons CO_2 (i.e. 0,8% or 428.070 tons CO_2 higher than the corresponding allocated allowances). Especially for the 29 installations of DEH **(constituting natural pool)**, the verified emissions are 52.587.962 tons CO_2 (i.e. 0,9% or 492.356 tons CO_2 higher than the corresponding allocated allowances). Finally, for all non power generation installations the verified emissions are 18.624.163 tons CO_2 (-1,8% or 340.132 tons CO_2 less than the corresponding allowances).

58. Following the above data, and keeping in mind that the Business as Usual (BaU) projected 2005 CO_2 emissions for the power generation sector in NAP were 54.732.000 tons (consequently 54.629.469 tons CO_2 for DEH's installations), **there is a significant shortfall of 2.533.863 tons CO_2 (-4,6%) in allowances allocated to DEH.** Furthermore, there is a reduction of 2.041.507 tons CO_2 (3,7%) **in verified DEH's emissions**, compared to the corresponding BaU projected 2005 emissions. Therefore, it is very clear that **DEH has achieved a straight reduction of its emissions of 2.041.507 tons CO_2, due to actions including improvement of energy efficiency in lignite-fired power plants and management of the generation portfolio of the Company (thermal and hydro-power plants, imports and exports), in such a way as to minimize emissions at the lowest cost and take into account cost-effectiveness on a daily basis.**

59. **DEH has only used purchased allowances for 492.356 tons CO_2 from the emission allowances trading market, that is only 19,4% of the 2.533.863 tons CO_2 gap between the BaU projected emissions and the allowances allocated.**

60. **This percentage is much lower than the commonly acceptable percentage of 50% from supplementary actions (i.e. flexible mechanisms, such as emissions trading).**

61. The above mentioned are illustrated in the figure below:

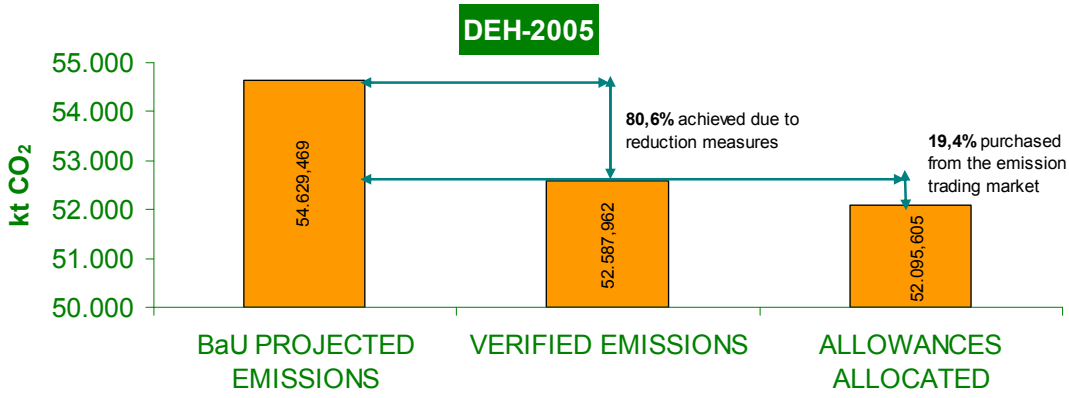

Figure 3:DEH 2005: Emissions' reduction and versus allowances purchase

62. Therefore, the State is very right to be proud of both DEH's compliance and performance, in achieving such significant reductions.

63. According to the official Annual Report 2005 of DEH, 845.783 emission allowances (tons CO_2) were purchased for 12,6 MEuros (mean price of 15 Euros per ton), and **not 2,34 MEuros and 2,74 Euros per ton respectively, as the Complainant wrongly alleges, to misinform the Committee and to diminish the cost of the expenditure.**

64. According to the "National Inventory for greenhouse and other gases for the years 1990-2003 / February 2005" submitted by the State on 15 April 2005 to UNFCCC, available at: <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/2761.php>, which has been **evaluated and validated by UNFCCC** through the "Report of the individual review of the greenhouse gas inventory of Greece submitted in 2005", published on 12 April 2006, available at: <http://unfccc.int/resource/docs/2006/arr/grc.pdf>, **the actual emissions of GHG (CO_2, CH_4 and N_2O) in Greece between 1990 and 2000 showed an increase of 18%.**

65. **It is concluded from this validated figure, that the target of the 1st National Action Plan for the Climate Change (15%±3%) has been fully accomplished by**

the State. Consequently, the Complainant's corresponding allegations are absolutely groundless.

66. **To conclude with, the State is protecting its population and minimizes the health risks associated to global warming, by abiding to EU legislation (Directive 2003/87/EK), to its undertaken obligations under NAP1 and by being dedicated to the universal efforts for GHG emissions reduction through the UN Framework Convention on Climate Change and its Kyoto protocol.**

III. On the alleged violation of Article 2 §4

67. Regarding the right of lignite mine workers to additional paid holidays or reduced working hours, the Remarks do not add anything essential to the allegations already refuted by the State's earlier submissions. They just repeat the accusation that DEH, as de facto operator, has not, purportedly, entered with lignite miners into collective agreements for this reason. As already exposed, it is the DEH's trade unions, which represent the mine personnel that have never presented such a demand, opting, instead, to promote other professional interests. This is a sovereign decision of the social actors, protected by the Charter.

IV. On the alleged violation of Article 3

68. The allegations regarding the purported violation of article 3, are another clear example of the tactics of the MFHR to change the nature and the scope of its accusation, after their complete refutation by the state. As the complainant cannot challenge the fact that DEH has a thorough occupational disease scheme, based on its internal 'General Directive', it tries to raise questions in a general way about the regulatory framework at national level, which has already been presented by the State in earlier submissions.

69. As concerning the health and safety in DEH's practices, the already proven facts are:
    - Workers' medical examinations are running.
    - SEPE's inspectors increase the frequency of audits.

- DEH is running systematically risk assessment studies and measurements in chemichal agents.

All the above mentioned prove a continual improvement in the management of health and safety issues in DEH's installations

V. Air pollution and health

70. The Greek State, as already demonstrated in SO-2, has put into effect legislation concerning both the private (industry or private actions) and public sectors in order to minimize air pollution. The end-target of the State is to develop a public health culture to the citizens in the framework of health promotion actions, as defined by the World Health Organization (The Ottawa and Alta-Ata declarations). This is strongly evidenced from the state-sponsored publicity of results (in part or as a whole) of scientific studies, in which regional stakeholders (Mayors, Prefectures, and Medical Associations) are participating.

71. A multitude of studies has confirmed the effect of exogenous environmental factors on the health status of the general population. Out of these bibliographical studies, epidemiological studies, especially ones that are population based, have the greatest interest. Results from this type of study very rarely reveal the independently correlated factors involved, due to the multi-factorial nature of diseases. Having this in mind, the efficiency of studies which analyze the correlation between air pollution and disease tendency, either in workers of power plans or in inhabitants of industrial areas, becomes disputable.

72. However, such concerns do not decrease the value of planning the above studies or implementing the technique of primary prevention e.g. by avoiding exposure to risk factors.

73. The Greek State and DEH have adopted these two methodologies both by putting in effect necessary technical and medical prevention measures and by monitoring effectively environmental parameters, with the concomitant decrease of air pollution from the use of lignite in power plans.

74. Epidemiological studies that use a continuous recording of health indices (mortality, morbidity) have the important advantage of being applicable to the entire observed

set of biotic events. Moreover, in such studies the analysis of age groups is feasible as well as the application of specific epidemiological techniques for the elimination of differences in the age structure of the compared populations, for example the technique of standardization, which is not used in most studies of small areas in the prefecture of Kozani. In any case, such studies require large population samples in order to eliminate potential errors, which however are not guaranteed when analyzing data from small areas and communities.

75. Moreover, the changes in Greek population during the industrialization of the country, have certainly led to an increase in cancer incidence which was probably attributed mainly to the aging of the population. Thus, an increase in the frequency of malignancies that is age-dependent is observed due to the increase in life expectancy of the Greek population and a consequent extension of exposure to cancer-inducing agents. Clearly, there is no scientific objection that recognizing the various carcinogenic agents and identifying the causing factor per incident (classifying incidence per causing factor) is impossible, due to the multi-factorial nature of these diseases and the high smoking attitude of the Greek population. Another reason is that the whole area of North Greece has been exposed to significantly high levels of radiation as a result of the Chernobyl nuclear station accident.

76. In relation to carcinogenesis, revealing the effect of factors involved, either primary or secondary, is extremely complex e.g. smoking which is a high frequency habit. In addition, nutritional habits today, play an increased role in cardiovascular diseases, as there is a continuous reversal in recent time from a Mediterranean or Cretan diet to a diet of Western type. This phenomenon was evolved in time in parallel with Industrial development and the increase of energy consumption nationwide. Finally, in relation to diseases such as asthma or allergies it is clear that an ever increasing frequency worldwide is observed, in accordance to the German paradox where West Germany displays a higher frequency than East Germany, albeit the disparity in the use of lignite as fuel in power plants.

77. Another subject of interest is explaining time trends in data analysis of morbidity and mortality. For multi-factorial biotic events like the appearance of disease (or of

concomitant mortality), it is scientifically risky to adopt single-sided justifications, especially to epidemiological studies of ecological type, in which time trend of health estimators is studied in parallel to measurements of environmental factors or, in a more traditional way, of the establishment and function of a new production unit (power plant).

78. Conclusions based on the potential increase of morbidity using as an estimating factor the number of admitted patients in public hospitals of the prefecture of Kozani, a most doubtful epidemiological factor, is under much dispute. The development of the National Health System in Greece brought an increase in the numbers of hospitalized patients, especially in regional hospitals. Moreover, it is likely that many hospitals tend to report increased patient numbers (morbidity overestimation), through managerial acts, for reasons related to their future development and funding.

79. Mortality studies guarantee the minimum of potential mistakes in death certificates, since, as it is repeatedly stated, these errors do not contribute to drifting away the greater set of similar death causes (cancer, cardiovascular diseases). Additionally, the fact that the records concern the entire population and not an isolated sample which does not represent all cases, contributes to reducing relative errors. Such types of mortality studies have concluded a minor increase in mortality due to cardiovascular diseases (an older study on the population of the city and prefecture of Kozani and a recent study on the population of the municipality of Megalopolis

80. Epidemiological studies have been presented to the public in the prefecture of Kozani, by the independent research groups in collaboration to the prefecture of Kozani and other regional agents like medical associations. One event was organized by the Municipality of Kozani and took place in May 1998, in order to present the results from phase B of the study that was completed by the Laboratory of Hygiene, Medical School of Aristotle University of Thessaloniki. Another public presentation on atmospheric pollution, which took place again in Kozani on 28.06.1998, was organized by the Laboratory of Hygiene, Medical School of Aristotle University of Thessaloniki in collaboration with the Medical Association of Kozani. Similar evens are scheduled aiming at informing the public about the

epidemiological study on the population of Megalopolis, a study conducted by the Hellenic Institute of Health and Safety in collaboration with the staff of Laboratory of Hygiene and Environmental Protection, Medical School of Democritus University of Thrace.

81. Although, problems in methodologies are considerable, this does not limit the value of epidemiological studies. The Greek State has funded such studies either via the General Secretariat for Research and Development or via prefectures of areas where power plants are positioned (which obtain indirect funding from DEH via a lignite usage tax).

82. **Of outmost importance is the fact that a number of epidemiological studies have been completed with strong support from the Greek state and, in some cases, resources from DEH. Assigning, these studies to independent researchers and specialized laboratories in Universities or research institutions ensured scientific objectivity and credibility**.

83. In addition, the respondent State reminds that, as already mentioned in previous submissions, there are presently two epidemiological studies curried out in Florina and Arcadia by independent research Institutes (ELINYAE and University of Thessalonica), funded by the state, aiming to identify, assess and confront the situation and eventual problems in the area, These studies will publicize results soon.

84. However, it must be stressed that, the complexity of methodological and epistemological problems, as well as scientific arguments and discrepancies that can be the result of different methodological approaches or even covered competition for funding, should not be allowed to obstruct the advancement of the general discussion over these issues.

85. Finally, the respondent state considers it necessary to respond to a minor issue related to an expert's (Dr. Batra's) study, because the MFHR has chosen, to denounce the state's criticism to it as *"truly shocking (…)"* and a public threat to *"academic freedom"* (sic). Furthermore the MFHR has promoted Dr Batra to the

rank of associate professor and presented her as a victim of witch hunting by the State and DEH. The truth is that Dr. Batra, who is an untenured lecturer at the National Technical University of Athens, not a professor, has violated basic methodological principles and presented a distorted image of her object of research. These observations do not constitute a threat to academic freedom, as the MFHR pronounces, but quite the opposite: The criticism for unfounded or unsubstantiated argumentation is a prerequisite for the exchange of ideas and the promotion of science, in the open community of researchers.

86. The observations by Dr. Batra on DEH's accident monitoring and reporting are based on old data, 10-15 years ago. Moreover, she appears not to understand elementary issues concerning the status of the persons who fill in the reports. For instance, she refers to ''Committee of Safety Officers'' whereas this Committee consists of the worker's representatives elected by the stuff. Regarding the difference that appears in the number of fatal accidents between Eurelectric reports and Batra's Thesis it is due to the fact that Eurelectric uses the methodology ESAW. (European Statistic for Accidents at Work). In this methodology traffic accidents in the process on commuting are not included. Also pathological events occurring during working day are not included.

VI. Concluding Remarks

87. It can be concluded from the foregoing that no violation of the Charter has occurred. In consequence, for the reasons set out above and in its earlier Observations, the Respondent Government requests the Committee to declare and to decide that the Complainant's claims are ill-founded on the merits, since all requirements of the Charter have been satisfied.

88. More specifically: Regarding the alleged violation of article 11§ 1, which requires states to guarantee the best possible state of health for the population according to existing scientific knowledge, it has been fully proven that the measures adopted do

not fall of European averages and are in constant improvement, which, according to the Committee, are the main indicators of compliance with this provision.

89. Regarding the alleged violation of article 11§2: The Respondent Government has fully ensured the right of affected populations to participation and access to information in environmental assessment and adequate health information, through the epidemiological researches and the overall functioning of the educational system.

90. Regarding the alleged violation of article 11§3: The Respondent Government has taken all necessary measures to guarantee environmental protection, by enforcing relevant regulations and decisions of the Courts and taking all the adequate measures for the prevention and the protection of the population in all areas involved in the Complaint.

91. Regarding the alleged violation of Article 2§4, it has been analytically exposed the constant effort to improve conditions of work and to eliminate risks.

92. Regarding the alleged violation of Article 3§1, the respondent State has proven its full compliance, as it has ensured the assessment of work-related risks and the introduction of an efficient range of preventive measures, the monitoring of the effectiveness of those measures and provision of information and training for employees, as well as the development of an appropriate public monitoring system.

93. Regarding the alleged violation of Article 3§2, it has been proven that a) national health and safety regulations provide for preventive and protective measures against the risks specified in the international technical reference standards, i.e. the relevant ILO Conventions and the European Community directives on health and safety at work and b) that the competent authorities, including the specialized Inspectorate of Mines have conducted effective monitoring on them.

94. Further observations by the State on the detailed remarks of the complainant are attached here to (see State's Comments on MFHR's "Paragraph by paragraph analysis of the State's Response, ANNEX 1), however limited to the most outrageous allegations, and in an effort to further explain certain issues and to avoid as much as possible, the repetition of earlier submissions.

Athens, 21. 11. 2006

THE SECRETARY GENERAL
OF THE MINISTRY OF EMPLOYMENT
AND SOCIAL PROTETION

DIMITRIOS KONTOS

LIST OF ANNEXES

Annex 1	State's Comments on MFHR's "Paragraph by paragraph analysis of the State's Response (hard copy and e-version)
Annex 2	Verified CO_2 emissions of Greek bound installations (CITL 26.10.2006) (hard copy and e-version)

LIST OF ABBREVIATIONS AND ACRONYMS

BAT	Best available techniques
BaU	Business as usual scenario
BREF	Reference document on best available techniques
CB	Conveyor belt
CO_2eq	Carbon dioxide equivalent
Com.	Complaint
Comment	MFHR's "Paragraph by Paragraph Analysis of the State's Response"
DEH	Public Power Corporation *S.A.*
EEA	European Environment Agency
EPA	United States Federal Environmental Protection Agency
ESP	Electrostatic Precipitator
EU ETS	European Union Emissions trading scheme
FGD	Flue gas desulphurization
GHG	Greenhouse Gases
IDR (#)	UNFCCC In-depth review of national communications

IPPC	Integrated prevention of pollution control
JMD	Joint ministersial decision
LCP	Large combustion plants
LUCF	Land use change and forestry
NAP	National Allocation Plan
NAP1	Greece's National Allocation Plan for the period 2005-2007
NAP2	Greece's National Allocation Plan for the period 2008-2012
NC (#)	National Communication to the UNFCCC secretariat
NO_X	Nitrogen Oxides
$PM_{2,5}$	Particulate matter <2,5μm
PM_{10}	Particulate matter <10μm
Remarks	Complainant's response to *SO-2, received by the State 26*. September 2006
Res.	Response to the State's first observations on the Merits of Collective Complaint No. 30/2005
S.EP.E.	Greek Labour Inspectorate Body
State's Comments	State's Comments on "MFHR's Paragraph by Paragraph Analysis of the State's Response"
UNFCCC	United Nations Framework Convention on Climate Change
SO_2	Sulphur dioxide
SO-1	State's first observations on the merits of Collective Complaint No. 30/2005
SO-2	State's second observations on the merits of Collective Complaint No. 30/2005
TSP	Total suspended particles