REPUBLIC  OF CYPRUS

EMISSIONS TRADING DIRECTIVE 2003/87/EK

NATIONAL ALLOCATION PLAN
(2005 –2007)

October 2004

NATIONAL ALLOCATION PLAN FOR THE YEARS 2005-2007

1. DETERMINATION OF THE TOTAL QUANTITY OF ALLOWANCES

What is the Member State's emission limitation or reduction obligation under Decision 2002/358/EC or under the Kyoto Protocol (as applicable)? What principles, assumptions and data have been applied to determine the contribution of the installations covered by the emissions trading Directive to the Member State's emission limitation or reduction obligation (total and sectoral historical emissions, total and sectoral forecast emissions, least-cost approach)? If forecast emissions were used, please describe the methodology and assumptions used to develop the forecasts. What is the total quantity of allowances to be allocated (for free and by auctioning), and what is the proportion of overall emissions that these allowances represent in comparison with emissions from sources not covered by the emissions trading Directive? Does this proportion deviate from the current proportion of emissions from covered installations? If so, please give reasons for this deviation with reference to one or more criteria in Annex III to the Directive and/or to one or more other objective and transparent criteria. What policies and measures will be applied to the sources not covered by the emissions trading Directive? Will use be made of the flexible mechanisms of the Kyoto Protocol? If so, to what extent and what steps have been taken so far (e.g. advancement of relevant legislation, budgetary resources foreseen)? How has national energy policy been taken into account when establishing the total quantity of allowances to be allocated? How is it ensured that the total quantity of allowances intended to be allocated is consistent with a path towards achieving or overachieving the Member State's target under Decision 2002/358/EC or under the Kyoto Protocol (as applicable)? How is it ensured that the total quantity of allowances to be allocated is not more than is likely to be needed for the strict application of the criteria of Annex III? How is consistency with the assessment of actual and projected emissions pursuant to Decision 93/389/EEC ensured? Please explain in Section 4.1 below how the potential, including the technological potential, of activities to reduce emissions was taken into account in determining the total quantity of allowances. Please list in Section 5.3 below the Community legislative and policy instruments that were considered in determining the total quantity of allowances and state which ones have been taken into account and how.
If the Member State intends to auction allowances, please state the percentage of the total quantity of allowances that will be auctioned, and how the auction will be implemented.

1. In the framework of the commitments that arise from the Kyoto Protocol, the European Union, based on article 4 of the Protocol, has committed for an 8% reduction in greenhouse gases emissions for the period 2008 – 2012. The determination of the commitments of each member state of the European Union has constituted the object of an agreement at the Council of Ministers of Environment in June 1998 (burden – sharing agreement).

   Cyprus has no quantified greenhouse gases emissions limitation and reduction commitments, mainly because Cyprus,

i) has not been included in Annex I of the Convention on Climate Change,
ii) has not been included in Annex B of the Kyoto Protocol, and
iii) was not an EU member when the burden - sharing agreement on the allocation of commitments between the EU member states was reached, for the first period (2008 – 2012), in order to jointly achieve the -8% reduction target for the EU.

2. However, the approval of a Strategic Plan for a reduction on greenhouse gases emissions is absolutely essential, in order for Cyprus to contribute to the reduction of the aforesaid emissions.

In view of the above, a Strategic Plan for the limitation of the greenhouse gases emissions in Cyprus was prepared by the National Observatory of Athens, commissioned by the Ministry of Agriculture, Natural Resources and Environment. The Strategic Plan (SP) took into account technical as well as economic criteria.

The proposed SP estimated the greenhouse gases emissions in Cyprus, projected the emissions up to 2020, evaluated the perspectives for the limitation of greenhouse gases emissions and assessed the total effect (costs and benefits) from the implementation of various measures.

The implementation of the proposed SP entails the systematic application of a considerable number of measures and policies that will bring about major changes. Even if certain measures seem to have potential economic benefits, nevertheless the enforcement of the Plan will require the engagement of substantial funds.

The sector for the production/use of electricity constitutes the basis of achievement of the targets of the SP, with programs and measures such us:

a) the installation of new conventional units operated with natural gas,
b) the decommissioning of the old steam turbine units of the Moni power station,
c) the establishment of wind parks,
d) the implementation of important interventions in the domestic-tertiary sector aiming at penetration of more efficient electric appliances and improvement of the energy efficiency of buildings.

According to the proposed SP, the transport sector is expected to play an important role mainly through the encouragement of the use of public transport, the promotion of small engine capacity vehicles, the systematic maintenance of vehicles, etc.

Also, according to the same Plan, the basic emissions reductions in the industrial sector will come from the introduction of natural gas in certain industrial units and the incineration of waste in the cement production industry.

Finally, the effective implementation of the proposed SP requires also activities of education/information of all the stakeholders as well as the public, in general.

The successful implementation of the greenhouse gases emissions reduction program requires the co-ordination of all parties involved and the systematic monitoring of its implementation.

Based of the above and after a proposal submitted by the Ministry of Agriculture, Natural Resources and Environment to the Council of Ministers, the latter approved the proposed Strategic Plan in its general principles and empowered the Minister of Agriculture, Natural Resources and Environment to co-ordinate its gradual implementation, in collaboration with all parties involved, governmental and non-governmental, and after it is amended accordingly, taking into serious consideration the opinions of such parties.

The proposed SP, once amended, will be forwarded to the European Commission. This is planned for the first half of 2005.

3. In view of the above, it is noted that:

a) Cyprus does not have any obligation regarding the limitation or reduction of greenhouse gases emissions under Decision 2002/358/EC or under the Kyoto Protocol.
b) The contribution of the individual installations covered by the Emissions Trading Directive to the emissions limitations or reduction obligations of Cyprus emissions cannot be determined.
c) The allocation of the allowances for the period 2005-2007 is being done based on the Business us Usual Scenario.

The total quantity of allowances to be allocated for the period 2005-2007 was estimated at 5.509.253 tones of carbon dioxide for the year 2005, 5.711.432 tones for the year 2006, and 6.001.126 tones for 2007.

The aforementioned emissions allowances represent, approximately, 60% of the total emissions in Cyprus.

d) Cyprus does not intent to auction any emissions allowances for the period 2005-2007.

2. DETERMINATION OF THE QUANTITY OF ALLOWANCES AT ACTIVITY LEVEL (IF APPLICABLE)

By what methodology has the allocation been determined at activity level? Has the same methodology been used for all activities? If not, explain why a differentiation depending on activity was considered necessary, how the differentiation was done, in detail, and why this is considered not to unduly favour certain undertakings or activities within the Member State.
If the potential, including the technological potential, of activities to reduce emissions was taken into account at this level, please state so here and give details in Section 4.1 below. If Community legislative and policy instruments have been considered in determining separate quantities per activity, please list the instruments considered in Section 5.3 and state which ones have been taken into account and how. If the existence of competition from countries or entities outside the Union has been taken into account, please explain how.

The allocation of the allowances for the period 2005 –2007 was made at installation level (chapter 3) and not at an activity level, since in Cyprus the number of installations covered by the Directive is very small (13 installations).

The allocation was based on the Business as Usual Scenario and the same methodology was used for all installations.

The methodology used includes the following:

a) The calculation of the historical carbon dioxide emissions at installation level.
b) The development of the Business as Usual scenario at an activity or/and installation level.
c) The allocation of allowances at installation level.

3. DETERMINATION OF THE QUANTITY OF ALLOWANCES AT INSTALLATION LEVEL

By what methodology has the allocation been determined at installation level? Has the same methodology been used for all installations? If not, please explain why a differentiation between installations belonging to the same activity was considered necessary, how the differentiation by installation was done, in detail, and why this is considered not to unduly favour certain undertakings within the Member State. If historical emissions data were used, please state whether they have been determined in accordance with the Commission's monitoring and reporting guidelines pursuant to Article 14 of the Directive or any other set of established guidelines, and/or whether they have been subject to independent verification. If early action or clean technology were taken into account at this level, please state so here and give details in Sections 4.2 and/or 4.3 below. If the Member State intends to include unilaterally installations carrying out activities listed in Annex I below the capacity limits referred to in that Annex, please explain why, and address, in particular, the effects on the internal market, potential distortions of competition and the environmental integrity of the scheme. If the Member State intends temporarily to exclude certain installations from the scheme until 31 December 2007 at the latest, please explain in detail how the requirements set out in Article 27(2)(a)-(c) of Directive 2003/87EC are fulfilled.

3.1 GENERAL

The allocation of the allowances for the period 2005 – 2007 was done at installation **level** based on the Business as Usual Scenario.

The same methodology was used for all the installations and the allocation was done at installation level.

The Cyprus NAP did not exclude, temporarily, any installation for the period of 2005 – 2007, and also did not include, unilaterally, installations carrying out activities listed in Annex I below the capacity limits referred to in that Annex.

The methodology used includes the following:

1. The calculation of the historical carbon dioxide emissions at installation level.
2. The development of the Business as Usual scenario at an activity or/and installation level.
3. The allocation of allowances at installation level.

3.2 CALCULATE OF HISTORIC EMISSIONS AT INSTALLATION LEVEL

3.2.1 Calculation of historic emissions from installations for the manufacture of Ceramic products

General

The methodology used to calculate the carbon dioxide emissions from the processes that take place at the Ceramic industry, is the one described in the Commission Decision of the 29th of January 2004 "*Establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council*".

According to the above Decision, the determination of the carbon dioxide emissions (and all of the other greenhouse gas emissions), can be done using either a calculation methodology ("*calculation*") based on a ***specific*** procedure and ***given*** factors or a measurement methodology ("*measurement*").

The calculation methodology was selected.

The calculation of carbon dioxide emissions was done for the following installations:

- Ηνωμένα Τουβλοποιεία Λτδ
- Κεραμείο ΚΑΠΑ Λτδ
- Κεραμουργείο Χρυσάφης Λτδ
- Κεραμείο Κακογιάννης Λτδ
- Επιχειρήσεις Μέλιος και Παφίτης Λτδ
- Τουβλοποιείο ΓΙΓΑΣ Λτδ
- Κεραμείο ΓΙΓΑΣ Λτδ
- Κεραμείο ΛΗΔΡΑ Λτδ

The calculation of the CO_2 emissions was based on the following formula:

CO_2 emissions = Process emissions + Combustion emissions

Period of analysis

The data used for the calculation of the carbon dioxide emissions from the Ceramic installations, are for the years 2001, 2002 and 2003. These data are considered to be satisfactory and concern the annual quantities of raw materials per type and the annual quantities of fuels.

Calculations

Table 1 shows the total value of carbon dioxide emissions, which resulted from the combustion and the production processes:

The fluctuations in the values of the carbon dioxide emissions of the installation "Κεραμείο ΛΗΔΡΑ Λτδ", are due to the fact that the plant was closed for reconditioning during the second half of the year 2002.

The installations "Κεραμείο ΓΙΓΑΣ Λτδ" and "Τουβλοποιείο ΓΙΓΑΣ Λτδ" had decreased their production during the period 2001 – 2003 for which the above calculations took place, because of technical problems.

Table 1: Total Carbon Dioxide Emissions

Company Name	**Tones of CO_2 / year**		
	2001	**2002**	**2003**
Ηνωμένα Τουβλοποιεία Λτδ	9.489	13.772	15.549
Κεραμείο ΚΑΠΑ Λτδ	11.044	14.506	16.308
Κεραμουργείο Χρυσάφης Λτδ	8.936	12.890	16.085
Κεραμείο Κακογιάννης Λτδ	7.772	13.596	14.985
Επιχειρήσεις Μέλιος και Παφίτης Λτδ	10.658	12.867	16.714
Τουβλοποιείο ΓΙΓΑΣ Λτδ	6.448	7.676	6.332
Κεραμείο ΓΙΓΑΣ Λτδ	4.798	5.947	6.199
Κεραμείο ΛΗΔΡΑ Λτδ	12.496	6.625	17.334
TOTAL	**71.640**	**87.878**	**109.506**

Approximately 50% of the total carbon dioxide emissions concerns emissions due to the raw material (process emissions) and reduction of these emissions is very difficult to be achieved because of the quality of available raw material.

3.2.2 Calculation of historical emissions from Cement production installations

General

The methodology used to calculate the carbon dioxide emissions from the processes that take place at the Cement industry, is the one described in the Commission Decision of the 29th of January 2004 "*Establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council*".

According to the above Decision, the determination of the carbon dioxide emissions (and all of the other greenhouse gas emissions), can be done using either a calculation methodology ("*calculation*") based on a *specific* procedure and *given* factors or a measurement methodology ("*measurement*").

The calculation methodology was selected.

The calculation of carbon dioxide emissions was done for the following installations:

- Τσιμεντοποιία Βασιλικού Λτδ
- Κυπριακή Εταιρεία Τσιμέντων Λτδ

The calculation of the CO_2 emissions was based on the following formula:

CO_2 emissions = Process emissions + Combustion emissions

Period of analysis

The data used for the calculation of the carbon dioxide emissions from the Cement installations, are for the period 1990 - 2003. These data concerned the annual quantities of raw materials per type and the annual quantities of fuels.

Calculations

The following Tables 2 and 3 show the total values of carbon dioxide emissions for the Cement production installations that resulted from the combustion and the production processes:

TABLE 2: ΤΣΙΜΕΝΤΟΠΟΙΙΑ ΒΑΣΙΛΙΚΟΥ ΛΤΔ – Total Carbon Dioxide Emissions (for the Period 1990 – 2003)

Fuel rotary kilns		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Coal	t	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
							94,53	122,1	118,1	118,5	120,6	122,4	117,7	122,0	123,7	132,0
Petcoke	t	85,374	70,689	84,867	90,953	95,365	8	85	72	28	09	22	62	89	04	00
Treated used oil. etc	t	0	0	0	0	0	0	0	0	0	0	0	0	3,067	3,241	3,241
							19,07									
Heavy Fuel Oil	t	23,295	18,508	22,741	21,374	21,360	2	8,201	6,510	6,142	5,441	5,218	4,894	0	0	0
Tirrel and rubber (Tires)	t												730		600	3,500
Sewage Sludge	t														4,200	
MeatFlour	t												2,822	4,822	6,156	
Oliveseeds	t											1,300	1,960	1,034	2,853	
Refinery Sludges	t											1,960				
Fuels for Electricity production																
Heavy Fuel Oil	t														1,613	5,280
Gasoil	t														200	150
Fuel raw material drying																
Petcoke	t							1638	7590	7,793	6,592	6,712	6,712	6,709	7,961	7,961
											10,21	10,24	12,35	11,88	12,70	12,70
Heavy Fuel Oil	t	14634	12483	15982	17384	17434	16843	16586	10106	9,299	9	7	3	7	4	4
Fuel for moving machinery																
Diesel	t	310	310	315	300	300	320	320	310	300	450	500	342	324	360	360
Calorific value of Fuels and Emissions Factor(*)																
Coal	GJ/t	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.5	27.6	29.2	28.7	29.1	29.1
Petcoke	GJ/t	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Treated used oil. etc	GJ/t	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4	33.4
Heavy Fuel Oil	GJ/t	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1	40.1
Tirrel and rubber (Tires)	GJ/t	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Sewage Sludge	GJ/t	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0	18.0
MeatFlour	GJ/t	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Oliveseeds	GJ/t	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
Refinery Sludges	GJ/t	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Diesel	GJ/t	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3	40.3
Total Emissions of CO_2 (Factory)																
	t/year	347,68	285,45	344,32	359,71	373,90	364,1	419,5	401,3	401,3	405,9	412,9	396,5	402,0	408,9	441,8
Rotary Kilns		4	8	9	7	5	36	74	81	87	24	61	94	15	65	87
	t/year						52,27	56,76	55,84	53,99	52,98	53,45	59,99	58,53	65,10	65,10
Raw Material Drying		45,420	38,744	49,604	53,955	54,111	6	2	9	9	0	4	1	5	9	9
	t/year															16,83
Electricity production		0	0	0	0	0	0	0	0	0	0	0	0	0	5,604	6
Moving Machinery	t/year	926	926	941	896	896	956	956	926	896	1344	1493	1021	968	1075	1075
Total Emissions from combustion/moving machinery/electricity production	t/year	394,03 0	325,12 8	394,87 4	414,56 9	428,91 2	417,3 68	477,2 91	458,1 55	456,2 82	460,2 48	467,9 09	457,6 06	461,5 17	480,7 52	524,9 07
Total Emissions of process (ασβεστοποίηση)	t/year	486,51 6	427,08 5	490,04 2	551,25 0	588,51 2	562,5 33	629,1 05	589,4 67	567,5 29	568,0 88	577,3 60	559,7 26	573,3 33	564,8 63	595,9 51
Total Emissions of CO_2	t/year	**880,54 6**	**752,21 4**	**884,91 6**	**965,81 9**	**1,017, 424**	**979,9 01**	**1,106, 396**	**1,047, 622**	**1,023, 810**	**1,028, 336**	**1,045, 269**	**1,017, 332**	**1,034, 850**	**1,045, 616**	**1,120, 857**

TABLE 3: ΚΥΠΡΙΑΚΗ ΕΤΑΙΡΕΙΑ ΤΣΙΜΕΝΤΩΝ ΛΤΔ – Total Carbon Dioxide Emissions (Period: 1998 – 2003)

Fuel rotary kilns		1998	1999	2000	2001	2002	2003	2004
Coal	t	25365	30493	49556	52349	52610	53232	
Petcoke	t	16802	17153	939	0	0	0	
Treated used oil. etc	t	4050	1363	5103	864	726	692	
Heavy Fuel Oil	t	1733	2069	1858	722	561	693	
Tirrel and rubber (Tires)	t							
Sewage Sludge	t							
MeatFlour	t							
Oliveseeds	t							
Refinery Sludges	t							
Fuels for Electricity production								
Heavy Fuel Oil	t							
Gasoil	t							
Fuel raw material drying								
Petcoke	t							
Heavy Fuel Oil	t	81	227	100	269	611	1030	
Fuel for moving machinery								
Diesel	t	85	73	70	74	72	75	
Calorific value of Fuels and Emissions Factor(*)								
Coal	GJ/t	27.5	27.5	27.6	29.2	28.7	29.1	
Petcoke	GJ/t	33.9	34.5	39.7	0	0	0	
Treated used oil. etc	GJ/t	33.4	33.4	33.4	33.4	33.4	33.4	
Heavy Fuel Oil	GJ/t	40.1	40.1	40.1	40.1	40.1	40.1	
Tirrel and rubber (Tires)	GJ/t	25.0	25.0	25.0	25.0	25.0	25.0	
Sewage Sludge	GJ/t	18.0	18.0	18.0	18.0	18.0	18.0	
MeatFlour	GJ/t	16.0	16.0	16.0	16.0	16.0	16.0	
Oliveseeds	GJ/t	13.0	13.0	13.0	13.0	13.0	13.0	
Refinery Sludges	GJ/t	12.0	12.0	12.0	12.0	12.0	12.0	
Diesel	GJ/t	40.3	40.3	40.3	40.3	40.3	40.3	
Total Emissions of CO_2 (Factory)								
Rotary Kilns	t/year	135904	145341	154038	151245	148594	152662	
Raw Material Drying	t/year	246	689	304	817	1855	3127	
Electricity production	t/year	0	0	0	0	0	0	
Moving Machinery	t/year	254	218	209	221	215	224	
Total Emissions from combustion/moving machinery/electricity production	t/year	136403	146248	154551	152283	150664	156012	
Total Emissions of process (ασβεστοποίηση)	t/year	179849	179928	193198	192998	200217	193877	
Total Emissions of CO_2	t/year	**316252**	**326176**	**347749**	**345280**	**350880**	**349890**	

3.2.3 Calculation of historical emissions from Power stations

General

The methodology used to calculate the carbon dioxide emissions from the processes that take place at Power stations, is the one described in the Commission Decision of the 29th of January 2004 "*Establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council*".

According to the above Decision, the determination of the carbon dioxide emissions (and all of the other greenhouse gas emissions), can be done using either a calculation methodology ("*calculation*") based on a ***specific*** procedure and ***given*** factors or a measurement methodology ("*measurement*").

The calculation methodology was selected.

The calculation of carbon dioxide emissions was done for the following installations:

- Ηλεκτροπαραγωγός Σταθμός Βασιλικού
- Ηλεκτροπαραγωγός Σταθμός Δεκέλειας
- Ηλεκτροπαραγωγός Σταθμός Μονής

The calculation of the CO_2 emissions was based on the following formula:

CO_2 Emissions = Activity Data * Emission Factor * Oxidation Factor

Period of analysis

The data used for the calculation of the carbon dioxide emissions from the Power stations, are for the period 1990 – 2003.

Calculations

Table 4 shows the total value of carbon dioxide emissions which resulted for the Power stations:

TABLE 4: Total Carbon Dioxide Emissions per Power Station

Year	Η/Σ Μονής		Η/Σ Δεκέλειας	Η/Σ Βασιλικού		Total Emissions
	HFO	Diesel	HFO	HFO	Diesel	
1990	531,422		1,135,927			1,667,349
1991	512,992		1,216,323			1,729,315
1992	690,273	32,456	1,298,728			2,021,457
1993	581,684	10,738	1,561,967			2,154,389
1994	549,698	6,060	1,691,579			2,247,337
1995	497,688	25,319	1,542,481			2,065,488
1996	573,348	18,300	1,594,179			2,185,827
1997	549,182	17,742	1,743,267			2,310,191
1998	636,085	35,730	1,866,061			2,537,876
1999	729,384	49,365	1,905,670	6,513	15,276	2,706,208
2000	622,043	46,202	1,641,949	514,482	11,398	2,836,074
2001	362,346	10,337	1,478,195	917,165	1,086	2,769,129
2002	349,893	3,685	1,456,562	1,065,578	1,200	2,876,918
2003	404,663	13,838	1,579,609	1,102,295	1,811	3,102,216

3.3. DEVELOPMENT OF THE BUSINESS AS USUAL SCENARIO AT AN ACTIVITY LEVEL OR/AND AT INSTALLATION LEVEL

Introduction

For estimating the expected evolution of carbon dioxide emissions for the period 2005 – 2007 the following were taken into consideration:

a) The historic emissions from the installations as calculated above.
b) Other data and parameters.

Other data and parameters

The statistical parameters of the population were examined along with the Gross Domestic Product and the changing growth rate in the construction industry. These parameters are related with the industrial sector, therefore safe conclusions can be derived regarding the expected CO_2 emissions for the Ceramic installations.

Population

The total population in the area under the control of the Government of Cyprus amounted, according to a recent registration of the population, to 705.500 in 2001 and approximately 666.800 in 1999. The annual average rate of population increase for the period 1989 – 2001 was 1,9%. It is estimated that the upward trend of the population growth will continue at the same rate (approximately 2% annually for the period 2005 – 2010).

Regarding the distribution of the population, Nicosia is the District with the highest number of inhabitants, followed by Limassol, Larnaca, Paphos and Famagusta.

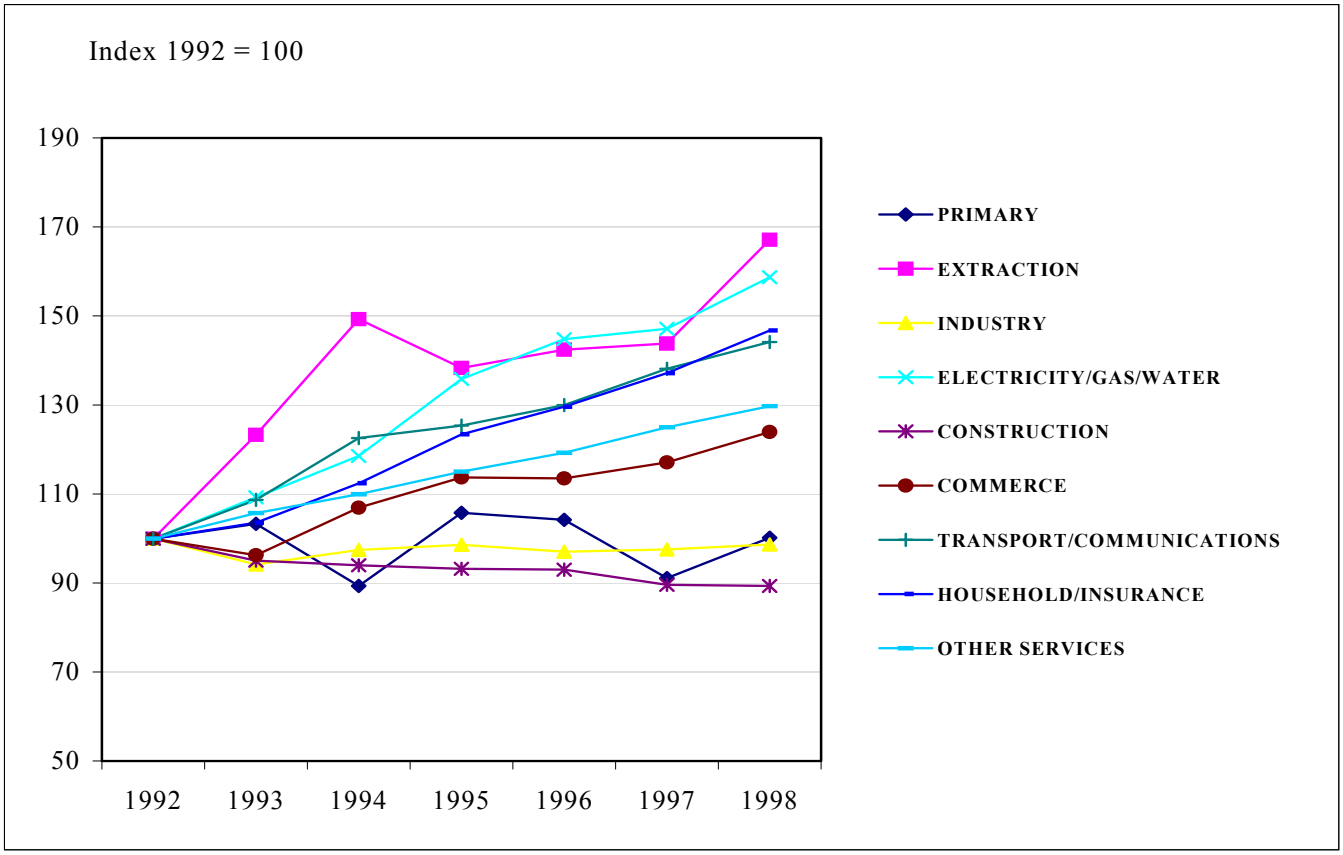
Evolution of the Gross Domestic Product

The Business as Usual Scenario is based on the assumption that the historic increasing rates of the Cyprus economy will continue. For the period 2005 – 2010, the average growth rate of GDP will rise up to 4%.

According to Planning Bureau data, the GDP was increased in 2003 by 2%, in 2002 by 2%, in 2001 by 4%, in 2000 by 5%, in 1999 by 4,7% and in 1998 by 4,8%.

Figure 1 shows the annual changing rate in mining, supply of electricity, city gas, water, households, insurance, for the years 1992 – 1998:

Figure 1: Revolution of GDP (in constant values 1992)



Source: Study on the development of a Strategic Plan and Policy for the Limitation of the Greenhouse Gas Emissions, National Observatory of Athens, December 2001.

Changing rate in the Construction Industry

A particularly increasing trend is observed in the Construction Sector during the last year of reporting (2003) in comparison with previous years. During the first quarter of 2004, the number of Building Permits increased by 13,5% in comparison to the same quarter of the year 2003. During the year 2004, 2823 Building Permits were issued (1565 permits for urban areas and 1258 for rural) while during the year 2003, 2487 such Permits were issued, from which 1360 were for urban areas and 1127 for rural (Source: Statistical Service of Cyprus, 2004). The total value of the construction for which the aforementioned permits were issued shows an increase of 8,4% in comparison to the value of the 2003 construction, whilst regarding the total surface area that corresponds to the permits issued, there is an increase of 1,6% (source: Statistical Service of Cyprus, 2004).

3.3.1 Development of the Business as Usual Scenario for installations for the manufacture of Ceramic products

Calculation of the expected evolution of emissions

The expected evolution of the carbon dioxide emissions for the Ceramic product production installations was determined based on the historic emissions and their rate of increase. This methodology was selected after studying the statistical parameters, which indicate an increase of the emissions for the Ceramic installations during the next years (for the period 2005 –2007).

According to the changing population rates, the changing rate of the Gross Domestic Product and the given increasing rate of activity in the Construction Industry, it can be reasonably assumed that the calculated changing rates of the indicators will remain constant, and eventually will follow linear tendency for increase at least in the next three years.

In addition to the above, the following are pointed out:

- The current tendency in the Cyprus Construction Industry requires the adoption of heat insulation techniques in the new buildings, a fact which demands bricks of bigger mass and therefore bigger quantity of material for each building (increased thickness of brickwork, increased weight of bricks). The heat insulation technique is applied for a number of years in the European countries, saving a considerable amount of energy and simultaneously reducing greenhouse gases emissions. Consequently, the production of high mass bricks is expected to increase considerably, in order to cover the rising needs that will appear very soon in the Cyprus market.

  Already, the historic development of external brickwork in buildings in Cyprus exhibits increased needs in ceramic materials for equal surface. That is, initially the brickwork had a 10 or 20cm thickness while today this is replaced by an increasing tendency for brickwork of 25 and 30cm thickness because of their heat insulation properties.

  From the Statistical Service´s data, it has been established that in 1999 the number of bricks produced with a 30cm thickness was 3,5% of the total production of bricks while in 2004 this rose to 13,4%.

  It is noted that the heat transfer resistance coefficient of certain type of bricks of 30cm thickness is calculated to be approximately 35% higher than the heat transfer resistance coefficient of bricks of 20cm thickness.

- The raw material used in the Ceramic industry has high levels of Calcium and Magnesium Carbonates which emit considerable amounts of carbon dioxide during the production process. The geological composition of the rock used as a raw material has a significant effect on the greenhouse gas emissions and it is a factor very difficult to be altered having in mind geological conditions in Cyprus. Thus, the use of other types of soil in the next five to ten years is almost impossible.

- In order to increase the heat transfer resistance of bricks made up from ecological material, the Ceramics industries are looking into using alternative materials, such as the product of rendering of animal by-products, paper or polystyrene. Additionally, there is the intention

of using material as additives in the bricks, which would enter the cooking oven and burned creating small heat transfer resistant "pockets" in the product. The use of organic additives will increase considerably the emissions of carbon dioxide from the Ceramic industry.

- According to the Statistical Service's data, there is an increasing construction activity during the current year, and the Growth Rate of the Construction Industry has been increasing significantly. Consequently, the Ceramic industries have increased their production accordingly contributing, at the same time, to carbon dioxide emissions. This increase in carbon dioxide emissions is assessed that it will be intensified during the next few years, because of differentiations in living standards and European development policy being adopted in Cyprus.

- Recent data of the Statistical Service of the Ministry of Finance show that, for the same floor area of construction works, 30% more households have been build in 2004 than in 2003. This means reduction in the floor area of the rooms of a household and consequently for the same total floor area of the buildings build in 2004 more bricks were used in comparison to the buildings build in 2003.

- According to data provided by the main manufacturers of ceramics and bricks, the production capacity for bricks in Cyprus amounts to 152.500.000 bricks/year and 22.000.000 tiles/year. This implies the production of 762.500 tones of bricks per year and 74.800 tones of tiles per year, or a total of 840.000 tones of product per year.

  The 2003 production from the Operators amounted to 362.000 tones of product. That is, the capacity of the Operators is 2, 63 times higher than the production of 2003.

  The total carbon dioxide emissions for the year 2003 from all operators amounted to approximately 110.000 tones/year. Consequently, emissions corresponding to the real capacity of the operators are approximately 290.000 tones of carbon dioxide per year.

  It is estimated that due to the increasing trend observed in the construction industry and the differentiations observed in the construction sector, soon the Ceramic installations in Cyprus will be operating at full production capacity.

  Based on the above, Table 5 shows the historic emissions at installation level as calculated for the period 2001 – 2003 and the expected evolution of emissions for the period 2004 – 2007:

Table 5: Evolution of Carbon Dioxide Emissions per Installation

Installation Name	Tones CO_2 / year						
	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Ηνωμένα Τουβλοποιεία Λτδ	9.489	13.772	15.549	18.193	21.285	24.904	29.137
Κεραμείο ΚΑΠΑ Λτδ	11.044	14.506	16.308	19.080	22.324	26.119	30.559
Κεραμουργείο Χρυσάφης Λτδ	8.936	12.890	16.085	18.819	22.019	25.762	30.141
Κεραμείο Κακογιάννης Λτδ	7.772	13.596	14.985	17.533	20.513	24.000	28.081
Επιχειρήσεις Μέλιος και Παφίτης Λτδ	10.658	12.867	16.714	19.556	22.880	26.770	31.321
Τουβλοποιείο ΓΙΓΑΣ Λτδ[1]	6.448	7.676	6.332	14.081	16.474	19.274	22.550
Κεραμείο ΓΙΓΑΣ Λτδ[1]	4.798	5.947	6.199	8.453	9.890	11.571	13.538
Κεραμείο ΛΗΔΡΑ Λτδ	12.496	6.625	17.334	20.280	23.728	27.762	32.481
TOTAL	**71.640**	**87.878**	**109.506**	**135.995**	**159.113**	**186.162**	**217.808**

Note 1:

The installations "Τουβλοποιείο ΓΙΓΑΣ Λτδ" and "Κεραμείο ΓΙΓΑΣ Λτδ" during the period 2001 – 2003 for which the above calculations were made, had reduced their production because of technical problems they encountered. The data given to the Competent Authority concerning the first nine months of 2004, show that the aforementioned companies returned to normal production rhythms. According to the data submitted, the total carbon dioxide emissions for the first nine months of 2004 were calculated to be 10.561 tones of CO2 for the installation "Τουβλοποιείο ΓΙΓΑΣ Λτδ" and 6340 tones for the installation "Κεραμείο ΓΙΓΑΣ Λτδ".

3.3.2 Evolution of the Business as Usual Scenario for the Cement production Installations

Calculation of the expected evolution of emissions

The expected evolution of the carbon dioxide emissions from the Ceramic product production installations was determined based on the historic emissions, their rate of increase as well as the capacity of the installations. This methodology was selected after the studying of the statistical parameters, which indicate an increase (approximately 8%) of the emissions for the Cement production installations during the next years (for the period 2005 –2007).

Based on the above, Table 6 shows the historic emissions at installation level as calculated for the period 2001 – 2003, and their expected evolution for the period of 2004 – 2007:

Table 6: Evolution of Carbon Dioxide Emissions per Installation

Year	Τσιμεντοποιίο Βασιλικού Λτδ	Κυπριακή Εταιρεία Τσιμέντων Λτδ
1990	880546	-
1991	752214	-
1992	884916	-
1993	965819	-
1994	1017424	-
1995	979901	-
1996	1106396	-
1997	1047622	-
1998	1023810	316252
1999	1028336	326176
2000	1045269	347749
2001	1017332	345280
2002	1034850	350880
2003	1045616	349890
2004	1120857	360000
2005	1200000	360000
2006	1200000	360000
2007	1200000	360000

3.3.3 Evolution of the Business as Usual Scenario for the Electricity production installations

Calculation of the expected evolution of emissions

The expected evolution of the carbon dioxide emissions from the Electricity production installations was determined based on the historic emissions, their rate of increase as well as the forecast for electricity demand.

Electricity Demand Forecast

An electricity demand forecast was done using the methodology the World Bank suggests.

A special model was used that calculates the data of consumption that is the contribution of the present consumers and the contribution of the new consumers. The model was applied for each category of consumers separately (domestic, commercial, industrial, agricultural, etc).

An important and necessary element is the calculation of the parameters of the model, i.e. the anticipated number of new consumers and the rate of development of the annual average consumption for each year of the forecast period.

The number of the new consumers relates basically to the increase in the population while the growth rate of the annual average consumption relates to the GDP.

The statistical population data were taken from the Statistics Service while the data for the GDP from the Planning Bureau.

Based on the calculations, the electricity demand forecast for the year 2005 amounts to 6,5%, for the year 2006 to 6,3% and for the year 2007 to 6,1%.

Based on the above, Table 7 shows the historic emissions at installation level as calculated for the period 2001 – 2003 and the expected evolution for the period 2004 – 2007:

Table 7: Evolution of Carbon Dioxide Emission per Installation

Year	Moni Power Station		Dekelia Power Station	Vasilikos Power Station		Total Emissions
	HFO	Diesel	HFO	HFO	Diesel	
2004	760,196	129,791	1,357,140	1,351,393	14,420	3,612,940
2005	728,293	117,377	1,219,907	1,711,521	13,043	3,790,141
2006	326,452	172,988	1,179,312	2,207,298	19,220	3,905,270
2007	389,954	213,495	1,229,011	2,307,137	23,721	4,163,318

3.4 ALLOCATION OF THE ALLOWANCES AT INSTALLATION LEVEL BASED ON THE BUSINESS AS USUAL SCENARIO

Table 8 shows the allocation of allowances for the period 2005 – 2007 at installation **level**, based on the Business as Usual Scenario:

Table 7: Allocation of allowances at installation Level

Installation name	Tones CO_2 / year		
	2005	**2006**	**2007**
Ηνωμένα Τουβλοποιεία Λτδ	21.285	24.904	29.137
Κεραμείο ΚΑΠΑ Λτδ	22.324	26.119	30.559
Κεραμουργείο Χρυσάφης Λτδ	22.019	25.762	30.141
Κεραμείο Κακογιάννης Λτδ	20.513	24.000	28.081
Επιχειρήσεις Μέλιος και Παφίτης Λτδ	22.880	26.770	31.321
Τουβλοποιείο ΓΙΓΑΣ Λτδ	16.474	19.274	22.550
Κεραμείο ΓΙΓΑΣ Λτδ	9.890	11.571	13.538
Κεραμείο ΛΗΔΡΑ Λτδ	23.728	27.762	32.481
Τσιμεντοποιίο Βασιλικού Λτδ	1.200.000	1.200.000	1.200.000
Κυπριακή Εταιρεία Τσιμέντων Λτδ	360.000	360.000	360.000
Ηλεκτροπαραγωγός Σταθμός Βασιλικού	1.724.564	2.226518	2.330858
Ηλεκτροπαραγωγός Σταθμός Δεκέλειας	1.219.907	1.179.312	1.229.011
Ηλεκτροπαραγωγός Σταθμός Μονής	845.670	499440	603.449
TOTAL	**5.509.253**	**5.651.432**	**5.941.126**

4. TECHNICAL ASPECTS

4.1. POTENTIAL, INCLUDING THE TECHNOLOGICAL POTENTIAL

Has criterion (3) been used to determine only the total quantity of allowances, or also the distribution of allowances between activities covered by the scheme? Please describe the methodology (including major assumptions made) and any sources used to assess the potential of activities to reduce emissions. What are the results obtained? How is it ensured that the total quantity of allowances allocated is consistent with the potential? Please explain the method or formula (e) used to determine the quantity of allowances to allocate at the total level and/or activity level taking the potential of activities to reduce emissions into account. If benchmarking was used as a basis for determining the intended allocation to individual installations, please explain the type of benchmark used, and the formula (e) used to arrive at the intended allocation in relation to the benchmark. What benchmark was chosen, and why is it considered to be the best estimate to incorporate achievable progress? Why is the output forecast used considered to be the most likely development? Please substantiate the answers.

The potential of activities to reduce emissions has not been evaluated.

The methodology described in Chapter 3 was used for the quantified determination of the emissions allowances.

4.2. ERLY ACTION (IF APPLICABLE)

If early action has been taken into account in the allocation to individual installations, please describe in which manner it is accommodated. Please list and explain in some detail the measures that were accepted as early action and what the criteria for accepting them were. Please demonstrate that the investments/actions to be accommodated led to a reduction of covered emissions beyond what followed from any Community or national legislation in force at the time the action was taken. If benchmarks are used, please describe on what basis the grouping of installations to which the benchmarks are applied was made and why the respective benchmarks were chosen. Please also indicate the output values applied and justify why they are considered appropriate.

Early action has not been taken into account in the allocation to individual installations.

4.3. CLEAN TECHNOLOGY (IF APPLICABLE)

How has clean technology, including energy efficient technologies, been taken into account in the allocation process? If at all, which clean technology has been taken into account, and on what basis does it qualify as such? Have any energy production technologies intended to be taken into account been in receipt of approved State aid for environmental protection in any Member State? Please state whether any other industrial technologies intended to be taken into account constitute "best available techniques" as defined in Council Directive 96/61EC, and explain in what way it is particularly performing in limiting emissions of covered greenhouse gases.

Clean technology, including energy efficient technologies, has not been taken into account in the allocation process.

5. COMMUNITY LEGISLATION AND POLICIES

5.1. COMPETITION POLICY (ARTICLE 81-82 & 87-88 OF THE TREADY)

If the competent authority has received an application from operators wishing to form a pool and if it is intended to allow it, please attach a copy of that application to the National Allocation Plan. What percentage of the total allocation will the pool represent? What percentage of the relevant sector's allocation will the pool represent?

The competent authority has not received, yet, any application from operators wishing to form a pool.

5.2. INTERNAL MARKET POLICY – NEW ENTRANTS (ARTICLE 43 OF THE TREADY)

How will new entrants be able to begin participating in the EU emissions trading scheme? In the case that there will be a reserve for new entrants, how has the total quantity of allowances to set aside been determined and on what basis will the quantity of allowances be determined for each new entrant? How does the formula to be applied to new entrants compare to the formula applied to incumbents of the relevant activity? Please also explain what will happen to any allowances remaining in the reserve at the end of the trading period. What will apply in case the demand for allowances from the reserve exceeds the available quantity of allowances? Is information already available on the number of new entrants to expect (through applications for purchase of land, construction permits, other environmental permits etc.)? Have new or updated greenhouse gas emission permits been granted to operators whose installations are still under construction, but whose intention it is to start a relevant activity during the period 2005 to 2007?

As mentioned in Chapter 1, Cyprus does not have any quantified commitments regarding the limitation of the greenhouse gases emissions. Thus, the allocation of the allowances for the period 2005 – 2007 was done according to the Business as Usual Scenario for the existing installations.

The Plan anticipates the existence of 60.000 tones of carbon dioxide as a reserve for the year 2006 and 60.000 tones for the year 2007. These quantities concern the emissions that will come out from the operation of a new ceramics installation whose construction has already been planned and is expected to operate beginning of 2006. For the calculation of the carbon dioxide emissions that will result from the processes that will take place at the new Ceramics installation, it was assumed that the Best Available Techniques will be used and the calculation methodology used is the one described in the Commission Decision of the 29th of January 2004 "*Establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council".*

Because of the difficulty to anticipate emissions from other new entrants based on the Business as Usual Scenario, no other reserve of emissions allowances was withheld for the period 2005 – 2007.

If the case arises for participation of more new entrants in the European Union scheme of emissions trading, then an amendment to the National Allocation Plan will be considered. The National Allocation Plan amendment will include, additionally, the emissions allowances that will be allocated to any new entrants.

The allocation of the emissions allowances will be done provided that the new installations will use the Best Available Techniques.

The emissions allowances will be allocated free of charge and the allocated percentage will be examined per case.

Any amendment of the National Allocation Plan will be approved, first, by the European Commission.

It is noted that Cyprus does not expect other participations, besides the ones described above, in the European Union Emissions Trading Scheme.

5.3. OTHER LEGISLATION AND POLICY INSTRUMENTS

Please list other Community legislation or policy instruments that were considered in the establishment of the National Allocation Plan and explain how each one has influenced the intended allocation and for which activities. Has any particular new Community legislation been considered to lead to an unavoidable decrease or increase in emissions? If yes, please explain why the change in emissions is considered to be *unavoidable*, and how this has been taken into account.

During the preparation of the National Allocation Plan, the following legislative and political means of the Community were taken into consideration:

a) Directive 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market.

This directive was taken into account during the determination of the expected evolution of the emissions for the electricity production installations.

b) Directive 1996/61/EC regarding Integrated Pollution Prevention and Control.

This directive was considered for the determination of the reserve for the allocation of the emissions allowances to the new entrant installation, since for the estimation of its expected emissions the use of Best Available Techniques was assumed.

6. PUBLIC CONSULTATION

How is this national allocation plan made available to the public for comments? How does the Member State provide for due account to be taken of any comments received before a decision on the allocation of allowances is taken? If any comments from the public received during the first round of consultation have had significant influence on the national allocation plan, the Member State should summarise those comments and explain how they have been taken into account.

Cyprus adopted Directive 2003/87/EC through the Law on the Establishment of a Scheme for Greenhouse Gases Emissions Allowance Trading (No. 132(I)/ 2004).

The Law sets the procedure for the development of the National Allocation Plan which includes, among other provisions, the consultation of the public before the taking of any decision regarding the distribution of allowances.

Based on the provisions of the Law, the Competent Minister (Minister of Agriculture, Natural Resources and Environment), once he has the opinion of an Advisory Committee, issues a Ministerial Order for the adoption of a National Allocation Plan, for a specific period, stating the total quantity of allowances he intents to allocate for that specific period and how he proposes to allocate them. Before the publishing of the National Allocation Plan, the Competent Minister must take due account of comments and suggestions from the public.

The Advisory Committee includes representatives of the following:

a) The Environment Service of the Ministry of Agriculture, Natural Resources and Environment ·
b) The Ministry of Labour and Social Insurance·
c) The Ministry of Commerce, Industry and Tourism·
d) The Ministry of Communications and Works· and
e) The Scientific Technical Chamber of Cyprus.

The present National Allocation Plan was developed by the Advisory Committee after it consulted publicly with all interested parties.

The Competent Authority (Ministry of Agriculture, Natural Resources and Environment) has invited comments by the public for a period of 20 days. The public was informed about the Plan by public announcements through the media.

Following that, the Advisory Committee, after it took into consideration comments from the public (once these were considered important based on the criteria of Annex III of the directive), finalized the National Allocation Plan.

The Competent Minister, will issue a Ministerial Order adopting the National Allocation Plan for the period 2005 – 2007, once he has the opinion of the Advisory Committee and the Plan is approved by the European Commission.

7. CRITERIA OTHER THAN THOSE IN ANNEX III TO THE DIRECTIVE

Have any criteria other than those listed in Annex III to the Directive been applied for the establishment of the notified National Allocation Plan? If yes, please specify which ones and how they have been implemented. Please also justify why any such criteria are not considered to be discriminatory.

No other criteria were applied.

8. ANNEX I – LIST OF INSTALLATIONS

Please submit a matrix containing the following information:
– Identification (e.g. name, address) of each installation
– The name of the operator of each installation
– The number of the greenhouse gas emissions permit
– The unique (EPER) identifier of the installation
– The main activity, and, if applicable, other activities carried out at the installation
– Total quantity of allowances to be allocated for the period, and the annual breakdown, for each installation
– Whether the installation has been unilaterally included or temporarily excluded and whether it is part of a pool
– Annual data per installation, including emission factors if emissions data are used, which have been used in the allocation formula (e)
– A subtotal per activity of data used and number of allowances allocated

See Table 8.

TABLE 8: LIST OF INSTALLATIONS

Permit Number	Operator	Name of the Inst	Inst Address	Main Activity	Number of installations	Allowances 2005	Allowances 2006	Allowances 2007
ET01/1	Αρχή Ηλεκτρισμού Κύπρου	Μονάδα Παραγωγής Ηλεκτρικής Ενέργειας Βασιλικού	Βασιλικό, ΤΘ54294, 3722, Λεμεσός	Electricity Generation	3	3.752.240	3.866.217	4.121.685
		Μονάδα Παραγωγής Ηλεκτρικής Ενέργειας Μονής	Μονή, ΤΘ50471, 3605, Λεμεσός	Electricity Generation				
		Μονάδα Παραγωγής Ηλεκτρικής Ενέργειας Δεκέλειας	Δεκέλεια, ΤΘ40113, 6301, Λάρνακα	Electricity Generation				
ET02/1	Τσιμεντοποιία Βασιλικού Λτδ	Τσιμεντοποιία Βασιλικού Λτδ	Βασιλικό, 3722, Λεμεσός	Cement production	1	1.200.000	1.200.000	1.200.000
ET03/1	Κυπριακή Εταιρεία Τσιμέντων	Κυπριακή Εταιρεία Τσιμέντων	Μονή, 3605, Λεμεσός	Cement production	1	360.000	360.000	360.000
ET04/1	Ηνωμένα Τουβλοποιία Λτδ	Ηνωμένα Τουβλοποιία Λτδ	Δάλι, ΤΘ24992, 1306, Λευκωσία	Production of Ceramic products	1	21.285	24.904	29.137

TABLE 8: LIST OF INSTALLATIONS (cont.)

Permit Number	Operator	Name of the Inst	Inst Address	Main Activity	Number of installations	Allowances 2005	Allowances 2006	Allowances 2007
ET05/1	Κεραμείο ΚΑΠΑ Λτδ	Κεραμείο ΚΑΠΑ Λτδ	Βιομηχανική περιοχή Γερίου, 2200, Λευκωσία	Production of Ceramic products	1	22.324	26.119	30.559
ET06/1	Κεραμουργείο Χρυσάφης Λτδ	Κεραμουργείο Χρυσάφης Λτδ	Λεωφόρος Λεμεσού, 6042, Λάρνακα	Production of Ceramic products	1	22.019	25.762	30.141
ET07/1	Κεραμείο Κακογιάννης Λτδ	Κεραμείο Κακογιάννης Λτδ	Βιομηχανική περιοχή Νήσου, Λευκωσία	Production of Ceramic products	1	20.513	24.000	28.081
ET08/1	Επιχειρήσεις Μέλιος και Παφίτης Λτδ	Επιχειρήσεις Μέλιος και Παφίτης Λτδ	Δάλι, 2224, Λευκωσία	Production of Ceramic products	1	22.880	26.770	31.321
ET09/1	Τουβλοποιίο ΓΙΓΑΣ Λτδ	Τουβλοποιίο ΓΙΓΑΣ Λτδ	Δάλι, 2528, Λευκωσία	Production of Ceramic products	1	16.474	19.274	22.550
ET10/1	Κεραμείο ΓΙΓΑΣ Λτδ	Κεραμείο ΓΙΓΑΣ Λτδ	Ερμού 8, Δάλι, 2540, Λευκωσία	Production of Ceramic products	1	9.890	11.571	13.538
ET11/1	Κεραμείο ΛΗΔΡΑ Λτδ	Κεραμείο ΛΗΔΡΑ Λτδ	Αγ.ία Βαρβάρα, 1687, Λευκωσία	Production of Ceramic products	1	23.728	27.762	32.481
	Reserve						60.000	60.000