Brussels, xxxx
C(2008)yyyy final

Corrigendum to the Commission Decision C(2007)5256 of 26 October 2007:

## COMMISSION DECISION

of 26 October 2007
concerning the national allocation plan for the year 2007 for the allocation of greenhouse gas emission allowances notified by Bulgaria in accordance with Directive 2003/87/EC of the European Parliament and of the Council

## Corrigendum to the Commission Decision C(2007)5256 of 26 October 2007:

## COMMISSION DECISION

of 26 October 2007

# concerning the national allocation plan for the year 2007 for the allocation of greenhouse gas emission allowances notified by Bulgaria in accordance with Directive 2003/87/EC of the European Parliament and of the Council 

(Only the Bulgarian text is authentic)

## THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,
Having regard to Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC ${ }^{1}$, and in particular Article 9(3) thereof,

Whereas:
(1) The national allocation plan of Bulgaria for the year 2007, developed under Article 9(1) of Directive 2003/87/EC (hereinafter "the Directive"), was notified to the Commission in its preliminary version by letter dated 8 November 2006, registered by the Commission on 18 December 2006, and, following first questions by the Commission, in its revised version by letter dated 5 March 2007, registered by the Commission on 15 March 2007. Bulgaria submitted additional information on the notified plan by letter dated 17 August 2007, registered on 23 August 2007, in reply to questions from the Commission.
(2) The Climate Change Committee ${ }^{2}$ considered the national allocation plan and called on the Commission to assess all national allocation plans on a consistent, coherent and robust basis. In this context, the Climate Change Committee underlined the importance of using the 2005 emissions figures as a significant element for the assessment of second period national allocation plans. The Climate Change Committee, inter alia, expressed strong concern about the proposed total quantity of

[^0]allowances and urged the Commission to take all necessary measures to ensure that Bulgaria's allocation to the trading sectors will not be more than is needed. For that purpose, the Committee urged the Commission to compare Bulgaria's proposed allocation to projections and measures for the non-trading and trading sectors, including in particular assumptions made (on growth rates and carbon intensity trends) as well as to recent historic and projected emissions, and to examine the justification for deviations from recent historic and projected emissions for the trading sector. In particular, it asked the Commission to examine the justifications for the respective differences between 2005 emissions data, as far as they are available, and the proposed allocations for 2007 and use the best available data for its analysis. In addition, the Committee urged the Commission to ensure that the cap is determined as much as possible on the basis of independently verified emissions data and projections, and that it is in line with macroeconomic prognoses and the potential to reduce emissions. Furthermore, the Committee called on the Commission to examine projections for the different individual sectors, including for industrial sectors and CHP, as to whether they are realistic, adequately verified and explained. Moreover, the Committee called on the Commission to examine the compatibility of several reserves proposed in the plan and hereby also make sure that their intended use does not lead to inadmissible ex-post adjustments. The views of the Climate Change Committee have been taken into account.
(3) The national allocation plan, including the total annual average quantity of allowances of $51.979988^{3}$ million tonnes stated therein, has been evaluated against the criteria contained in Annex III to and Article 10 of the Directive, taking into account the Commission's guidance to Member States on the implementation of these criteria ${ }^{4}$. Certain aspects of the national allocation plan have been found incompatible with those criteria, and in particular with criteria 1, 2, 3, 6 and 10 in Annex III to the Directive.
(4) The national allocation plan contravenes criteria 1, 2 and 3 of Annex III to the Directive because the total quantity of allowances intended to be allocated is more than would be consistent with assessments of actual and projected progress made pursuant to Decision 280/2004/EC and more than would be consistent with the potential, including the technological potential, of activities covered by the Community scheme to reduce emissions. Criteria 2 and 3 provide for a methodology using the most representative emissions figures, taking into account economic growth and carbon intensity improvements. Pursuant to criterion 1, the total quantity of allowances to be allocated shall not be more than is likely to be needed for the strict application of the criteria of Annex III.
(5) With respect to criterion 2, considering that Bulgaria acceded to the European Union only on 1 January 2007 and that therefore the most recent Commission's assessment ${ }^{5}$ made pursuant to Decision 280/2004/EC does not include Bulgaria in respect of 2005 verified emissions figures, the Commission has critically assessed the 2005 emissions figures for the trading sector as indicated by Bulgaria in the plan, taking into account external expert advice. The Commission has hereby found that the 2005 emissions
figures as indicated by Bulgaria in the plan do not deviate significantly from the figures following from its own assessment and external expert advice. For this reason, the Commission accepts the 2005 emissions figures indicated by Bulgaria in its plan as the starting point of analysis for the assessment under criteria 2 and 3.
(6) The Commission is aware of the opinion brought forward by some Member States, but not endorsed by the Climate Change Committee, in favour of averaging 2005 emissions figures with Member States' estimates of emissions over other years in order to smooth out singular events in one particular year. However, in each year there are several factors, including weather patterns, are influencing aggregate emissions that generally balance each other out over one year in their effects on total annual emissions. The Commission has examined the availability and quality of other data concerning emissions and energy use prior to 2005. The Commission does not have sufficient indications that a clear majority of exceptional circumstances manifestly pointed in one direction in 2005 and that therefore 2005 emissions figures cannot be regarded as representative. Consequently, the Commission considers that there are no sufficient reasons with respect to Bulgaria to adjust emissions figures for 2005.

With respect to criterion 3, the Commission notes that for a national allocation plan to be consistent with the potential, including the technological potential, of activities covered by the scheme to reduce emissions a rigorous assessment of total allocations is required in accordance in particular with projections of economic growth and improvements in carbon intensity ${ }^{6}$. The Commission has assessed the figures at its disposal, including those in the public domain, with a view to calculating Bulgaria's projected emissions. In order to derive the total quantity of allowances that is consistent with the potential, including the technological potential, of activities covered by the Community scheme to reduce emissions, the 2005 aggregate emission figures of installations in the Community scheme have been multiplied with two factors: firstly, the projected gross domestic product (thereafter "GDP") growth rate and, secondly, the rate for carbon intensity improvement, each in the period from 2005 to 2007. The resulting figure is compared with Bulgaria's proposed allocation so as to determine to what extent it is in line with criterion 3. Of all data at its disposal, including those in the public domain, the Commission considers the data indicated in the PRIMES model ${ }^{7}$ as the most accurate and reliable estimations of both GDP growth ${ }^{8}$ and carbon intensity improvement rates. The PRIMES model has been used

[^1]for analysis of energy and climate policy for a long time and the baseline assumptions ${ }^{9}$ are updated on a regular basis to reflect the most likely future trend. Furthermore, baseline assumptions are validated with the involvement of experts from Member States. There is no other data source at the disposal of the Commission, which offers a comparable degree of consistency and uniform accuracy across all Member States.
(8) The PRIMES model has been concretely applied on the basis of a coherent set of assumptions and methodologies. The baseline used for the analysis of the national allocation plans of the 25 Member States prior to 2007 was based on information established in 2005 and published in the document "European Energy and Transport Trends to 2030" of the Commission's Directorate-General for Transport and Energy ${ }^{10}$ and in the document of its Environment Directorate-General containing the calculation of baseline scenarios for the revision of the National Emission Ceilings Directive ${ }^{11}$. However, Bulgaria acceded to the European Union only on 1 January 2007, leading to the need to notify its plan only as of that date. Moreover, the most recent baseline for Bulgaria with a high degree of accuracy was established in 2007 and therefore later than for the 25 other Member States. The Baseline for Bulgaria established before accession did not show a comparable degree of quality as for the other Member States. Therefore for Bulgaria the analysis of the national allocation plan is based on an

[^2]update ${ }^{12}$ of the document "European Energy and Transport Trends to 2030" of the Commission's Directorate-General for Transport and Energy established in $2007^{13}$.
(9) In the light of the above, the following table indicates the data for the developments from 2005 to 2007 of both GDP and carbon intensity in Bulgaria in absolute terms. The corresponding relative development factors and growth rates from 2005 to 2007 are also indicated:

| Calculation element | 2005 | 2007 | Relative development <br> factor 2005-2007 | Growth rate <br> $2005-2007$ |
| :--- | :--- | :--- | :--- | :--- |
| GDP $^{14}$ | 21.40 | $24.09^{15}$ | $1.125721^{16}$ | $12.5721 \%^{17}$ |
| Carbon intensity <br> "low carbon constraint"-case | 2101.90 | 1945.19 | $0.925444^{19}$ | $-7.45560 \%^{20}$ |

On the basis of this, the following table shows the calculation of the annual excess allocation for the year 2007, i.e. the difference between the annual average allocation proposed by Bulgaria and the allocation resulting from the strict application of

The 2007 update to the document "European Energy and Transport Trends to 2030" of the Commission's Directorate-General for Transport and Energy is based on a scenario that corresponds to a "low carbon constraint/no CCS - scenario". This scenario is identical to the one contained in the calculation of baseline scenarios for the revision of the National Emission Ceilings Directive, and assumes that the carbon price in 2010, which is an important determinant of the carbon intensity trend development from 2005 to 2010, will increase as compared to the scenario established in the publication "European Energy and Transport Trends to 2030" published in 2005. The introduction of the Community scheme in 2005 and the strong commitments by the EU and Member States to combat climate change provide a clear and sustained signal to installations covered by the Community scheme that there is an economic cost to emitting greenhouse gases, which will become even more important in the future. This reinforces long-term economic incentives to reduce emissions. As a consequence, carbon intensity will improve over time at least at a rate as indicated in the above mentioned scenario which corresponds to the "low carbon constraint / no CCS"-case. The update to the document "European Energy and Transport Trends to 2030" of the Commission's Directorate-General for Transport and Energy is available at: http://ec.europa.eu/environment/pubs/studies.htm.
The time horizon for the assessment of the national allocation plan of Bulgaria is the first half of 2007 due to their accession to the EU only as of 1 January 2007, which constituted also the deadline for notifying their plans.
This figure is expressed in thousand million Euro value year 2005.
The Commission's Economic and Financial Affairs Directorate-General released in May 2007 its "Economic Forecasts Spring 2007", published in EUROPEAN ECONOMY. No. 02/2007, Office for Official Publications of the EC, and on the Commission's website under the following hyperlink: http://ec.europa.eu/economy finance/publications/european_economy/forecasts_en.htm.
As stated above, the time horizon for the assessment of national allocation plans of Bulgaria is the first half of 2007 due to its accession to the EU on 1 January 2007, which constituted also the deadline for notifying their plans. In order to take into account the most recent figures available to the Commission, the GDP figure that can be calculated from the PRIMES-model update of 2007 has been replaced by the more recent development factors from the "Economic Forecasts Spring 2007" for those years, for which they are available (see p. 49 therein), i.e. the years 2006 (factor of 1.061) and 2007 (factor of 1.061). The overall development factor from 2005 to 2007 is calculated by multiplying the indicated annual development factors, i.e. 1.061*1.061.
24.09/21.40.
((24.09/21.40)-1)\%.
This figure is expressed in terms of $\mathrm{CO}_{2}$ Emissions to GDP (tonne of $\mathrm{CO}_{2} /$ million Euro value year 2005).
1945.19/2101.90.
((1945.19/2101.90)-1)\%. The negative figure indicates an improvement in carbon intensity, meaning that the amount of $\mathrm{CO}_{2}$ emitted to produce one unit of GDP decreases over time.
criteria 2 and 3. Concretely, the latter is calculated as the product of the total 2005 emissions figure and the relative development factors of GDP and carbon intensity from 2005 to 2007 as indicated in the above table:

| Calculation of the annual excess allocation for the year 2007 (all figures in million tonnes $\mathrm{CO}_{2}$ eq.) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & 2005 \\ & \text { emissions } \end{aligned}$ | 2005 emissions multiplied by relative development factors 2005-2007 for GDP and carbon intensity | Resulting allowed annual total quantity for 2007 | Annual 2007 allocation on basis of proposed national allocation plan | Annual average excess <br> allocation |
| $40.57400^{21}$ | $42.269658{ }^{22}$ | 42.269658 | 51.979988 | $9.710330^{23}$ |

Accordingly, given that in the year 2007 the proposed allocation exceeds emissions taking into account GDP growth, carbon-intensity improvements as indicated in the table, the Commission finds that the annual average excess allocation by Bulgaria in the year 2007 amounts to 9.710330 million tonnes, which contravenes criteria 1, 2 and 3.
(10) Pursuant to criterion 5 of Annex III to the Directive, the Commission has also examined compliance of the national allocation plan of Bulgaria with the provisions of the Treaty, and in particular Articles 87 and 88 thereof. The Commission considers that the allocation of allowances free of charge to certain activities confers a selective economic advantage to undertakings which has the potential to distort competition and affect intra Community trade. The allocation of allowances for free appears to be imputable to the Member State and to entail the use of State resources to the extent that more than $95 \%$ of allowances are given for free. The Commission therefore at this stage considers that the plan could potentially imply State aid pursuant to Article 87(1) of the Treaty. On the basis of information provided by Bulgaria, the Commission at this stage cannot consider with certainty that any potential aid granted under the national allocation plan is consistent with and is necessary to achieve the overall environmental objective of the Directive. Non-compliance with criteria 1, 2 and 3 fundamentally jeopardises the overall environmental objective of the emission trading scheme. The Commission considers that in such a case the environmental benefit of any aid included in the allowances may not be sufficient to outweigh the distortion of competition referred to above. The Commission notes in particular that an allocation exceeding projected emissions will not require beneficiaries to deliver an environmental counterpart for the benefit they receive. The Commission at this stage therefore cannot exclude that any aid involved would be found incompatible with the common market should it be assessed in accordance with Articles 87 and 88 of the Treaty.
(11) Furthermore, pursuant to criterion 5 of Annex III to the Directive, the Commission has examined the methodology by which Bulgaria intends to allocate allowances at sector and installation level. The Commission notes that the proposed allocation methodology may lead to unduly favourable advantages to certain sectors or installations in that it distinguishes between different sectors by applying different

[^3]compromises between macroeconomic projections prepared by the government and installation's own projections. For these reasons, the Commission at this stage and on the basis of the currently available information cannot exclude that State aid involved in the allocations may partially be found incompatible with the common market should it be assessed in accordance with Articles 87 and 88 of the Treaty.
(12) Pursuant to criterion 6 of Annex III to the Directive, the plan shall contain information on the manner in which new entrants will be able to begin participating in the Community scheme. The Commission notes in particular that according to Chapter 5.2 the national allocation plan provides for a reserve for late installations that could apply to new entrants and incumbents at the same time, and that the plan also uses an inconsistent definition of new entrants and an inconsistent allocation methodology. Also, Chapter 5.2 provides for a separate reserve for new entrants (other than cogeneration) of which the definition of new entrants is similarly inconsistent in that it applies similarly to incumbents as of 2004 and new entrants for the period 2008-2012, which is inconsistent with the definition of new entrants as defined in Article 3(h) of Directive 2003/87/EC. In addition, the provisions do not state the exact size of the reserve and are silent on what will happen with allowances that are left over in this reserve or if the new entrants reserve is depleted. Furthermore, the separate reserve for co-generators also contained in the plan does not state a sufficiently clear allocation method from which the size of the reserve can be deducted. Moreover, the provisions do not ensure that the allocation to new entrants is consistent with the technological potential of activities to reduce emissions. Accordingly, these provisions are inconsistent with criterion 6 because the information contained is insufficient to assess whether the other criteria of Annex III to the Directive and Article 10 thereof are respected. Due to this lack of clarity and the risk that new entrants might receive allocations beyond the level that can be achieved by using best available technique, the Commission cannot exclude either that any aid involved in the allocation to new entrants would be found incompatible with the common market should it be assessed in accordance with Articles 87 and 88 of the Treaty.
(13) The list of installations set out in the national allocation plan is incomplete and therefore contravenes criterion 10 of Annex III to the Directive since it does not include all installations with the full quantities of allowances intended to be allocated to each installation situated within the territory of Bulgaria.
(14) The intention of Bulgaria to adjust the allocation of allowances to installations listed in the national allocation plan and operating in its territory in application of the procedures provided in the plan, as outlined in the below recitals, contravenes criterion 10 in Annex III to the Directive which requires the quantity of allowances to be allocated to each installation to be stated ex-ante in the national allocation plan covering the period referred to in Article 11(1) of the Directive and not to adjust the allocation of allowances set out in the national allocation plan after the adoption of the decision referred to in Article 11(1) of the Directive. Following the final allocation decision the number of allowances to be allocated and issued for each installation is fixed and may not be changed, except in the case of full closure and withdrawal of the greenhouse gas permit of that same installation. In this respect, the Commission has examined the provisions in the proposed plan in its chapter 5.2 relating to "Corrections of the volume of the allocated allowances" and to "Annual verification of the amounts of allowances to particular installations" in that the allocation can subsequently be reduced when the production volume is subsequently reduced or limited even if there were no improvements in data quality. Furthermore, the plan
provides for a separate reserve for so called compulsory measures according to which operators could receive additional allowances subsequent to an allocation decision in cases where certain measures will lead to higher emissions.
(15) The Commission finds that as they may lead to adjustments of the amount of allowances allocated after the allocation decision has been taken even if there were no improvements in data quality, these provisions constitute an ex-post adjustment that contravenes criterion 10 in Annex III to the Directive. Such ex-post adjustments contradict the essential concept of a "cap-and-trade" system as conceived by the Directive. Under the Community scheme, each installation is allocated a certain amount of allowances in the decision referred to in Article 11(1) of the Directive, whose value it can freely dispose of with a view to taking optimal economic decisions. Three major alternatives exist, which are equally legitimate: investing in emissions reductions and selling freed allowances, reducing production volume and selling freed allowances, or maintaining/expanding production volume while buying additional allowances needed.
(16) The Commission considers that there is no administrative need or any other justification for ex-post adjustments. Member States are required to use the best data available when deciding on allocations up-front. As a matter of fact, the use of prognoses always requires to a certain degree an ex-ante estimation of emissions the actual volume thereof may eventually deviate in reality. This is an inherent feature of any "cap-and-trade" scheme and can thus certainly not justify a retroactive change to the allocation already decided upon up-front. Moreover, the reasons for such a deviation cannot be reliably identified and may well be the result of emissions reductions due to real investments having been carried out by operators in line with the economic incentives created by the scheme. The Directive allows only for two adjustments following the decision referred to in its Article 11(1) where such retroactive change does not occur or does not have a detrimental impact on the functioning of the Community scheme: firstly, where an installation is closed during the trading period, that Member States determine that there is no longer an operator to whom allowances will be issued; and, secondly, where allocation takes place to new entrants from the reserve, that Member States determine the exact allocation to each new entrant.
(17) In order to bring the national allocation plan in conformity with the criteria listed in Annex III to Directive 2003/87/EC, the plan should be amended. The Commission should be notified of the amendments made to the plan in accordance with this Decision by Bulgaria as soon as possible, taking into account the time-scale necessary to carry out the national procedures without undue delay. Were Bulgaria to amend its national allocation plan in a non-discriminatory manner in accordance with Article 2 of this Decision and duly taking into account the Commission's observations in recitals 10, 11 and 12, the Commission considers that any potential aid is likely to be compatible with the common market should it be assessed in accordance with Articles 87 and 88 of the Treaty.
(18) Information in the national allocation plan not relevant for the allocation of allowances for the period referred to in Article 11(1) of Directive 2003/87/EC has not been taken into account for the purposes of this Decision.
(19) The reports on the implementation of policies and measures and the use of the Kyoto Protocol's mechanisms submitted by Member States pursuant to Decision

280/2004/EC are important sources of information for the evaluation of the national allocation plans pursuant to criterion 2 of Annex III to Directive 2003/87/EC.

Pursuant to Article 9(3), second sentence, of the Directive, the Member State shall only take a decision under Article 11(1) of the Directive if proposed amendments are accepted by the Commission. The Commission accepts all modifications of the allocation of allowances to individual installations within the total quantity to be allocated to installations listed therein resulting from technical improvements to data quality. No further prior assessment and acceptance by the Commission is necessary because the allocation methodology and the total quantity of allowances remain unchanged. As the modification is limited to mechanically adjusting the result from the use of data of higher quality having become available more recently to the intended allocation, any such modification cannot be conceived to be incompatible with the criteria of Annex III to or Article 10 of the Directive. Similarly, changing the share of allocation of allowances free of charge within the limits set in Article 10 of the Directive is accepted, since it requires no prior assessment by the Commission. The Commission considers that such a change cannot per se be conceived to discriminate between companies or sectors in such a way as to unduly favour certain undertakings or activities in the light of criterion 5 or contravene any other criteria of Annex III to the Directive.
(21) The whole procedure comprising the notification to, assessment and possible rejection by the Commission of the national allocation plans and the final allocation decisions to be taken by Member States is foreseen by the Directive in a short schedule and implemented by the decisions taken pursuant to its Article 9(3) so as to ensure that the system operates effectively with a minimum of uncertainty for market participants,

## HAS ADOPTED THIS DECISION:

## Article 1

The following aspects of the national allocation plan of Bulgaria for the year 2007 are incompatible respectively with:

1. criteria 1, 2 and 3 of Annex III to the Directive: the part of the intended total quantity of allowances, amounting to 9.710330 million tonnes $\mathrm{CO}_{2} \mathrm{eq}$ per year, that is not consistent with assessments made pursuant to Decision 280/2004/EC and not consistent with the potential, including the technological potential, of activities to reduce emissions;
2. criterion 6 of Annex III to the Directive: the information on the manner in which new entrants will be able to begin participating in the Community scheme;
3. criterion 10 of Annex III to the Directive:

- the lack of a complete installation list that indicates the full quantity of allowances intended to be allocated to each installation;
- the provisions of the Bulgarian national allocation plan contained in chapter 5.2 allowing that the allocation is subsequently reduced when the production volume is reduced or limited, and also allowing an increase due to compulsory measures, in that they adjust the allocation of allowances to an installation listed in the
national allocation plan and operating in its territory after the decision pursuant to Article 11(1) of the Directive has been taken.


## Article 2

No objections shall be raised to the national allocation plan, provided that the following amendments to the national allocation plan are made in a non-discriminatory manner and notified to the Commission as soon as possible, taking into account the time-scale necessary to carry out the national procedures without undue delay:

1. the total quantity to be allocated for the Community scheme is reduced by 9.710330 million tonnes $\mathrm{CO}_{2} \mathrm{eq}$ of allowances per year;
2. information is provided on the manner in which new entrants will be able to begin participating in the Community scheme, in a way that complies with the criteria of Annex III to and Article 10 of the Directive;
3. a complete list of all installations covered by the Directive in Bulgaria with the full quantities of allowances intended to be allocated to each installation is provided;
4. the allocation of allowances to an installation listed in the national allocation plan and operating in its territory is not adjusted after the decision pursuant to Article 11(1) of the Directive has been taken.

## Article 3

1. The total annual average quantity of allowances of 42.269658 million tonnes to be allocated by Bulgaria according to its national allocation plan to installations listed therein and to new entrants shall not be exceeded.
2. The national allocation plan may be amended without prior acceptance by the Commission if the amendment consists in modifications of the allocation of allowances to individual installations within the total quantity to be allocated to installations listed therein resulting from improvements to data quality or to reduce the share of the allocation of allowances free of charge within the limits set in Article 10 of the Directive.
3. Any amendments of the national allocation plan made to correct the incompatibilities indicated in Article 1 of this Decision but deviating from those referred to in Article 2 must be notified as soon as possible, taking into account the time-scale necessary to carry out the national procedures without undue delay, and require prior acceptance by the Commission pursuant to Article 9(3) of the Directive. Any other amendments of the national allocation plan, apart from those made to comply with Article 2 of this Decision, are inadmissible.

## Article 4

This Decision is addressed to the Republic of Bulgaria.


[^0]:    1 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, OJ L 275, 25.10.2003, p. 32, as amended by Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004, amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community, in respect of the Kyoto Protocol's project mechanisms, OJ L 338, 13.11.2004, p. 18.
    2 Decision 280/2004/EC of the European Parliament and of the Council of 11 February 2004 concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol, OJ L 49, 19.02.2004, p. 1, established under Article 9 thereof.

[^1]:    $6 \quad$ See in particular point 11 of $\operatorname{COM}(2005) 703$ final.
    7 PRIMES is a modelling system that simulates a market equilibrium solution for energy supply and demand in the EU Member States. The model determines the equilibrium by finding the prices of each energy form such that the quantity producers find best to supply match the quantity consumers wish to use. The equilibrium is static (within each time period) but repeated in a time-forward path, under dynamic relationships. The model is behavioural but also represents in an explicit and detailed way the available energy demand and supply technologies and pollution abatement technologies. The system reflects considerations about market economics, industry structure, energy/environmental policies and regulation. These are conceived so as to influence market behaviour of energy system agents. The modular structure of PRIMES reflects a distribution of decision making among agents that decide individually about their supply, demand, combined supply and demand, and prices. Then the market integrating part of PRIMES simulates market clearing. PRIMES is a general purpose model. It is conceived for forecasting, scenario construction and policy impact analysis. It covers a medium to longterm horizon. It is modular and allows either for a unified model use or for partial use of modules to support specific energy studies. More information can be found on the following website: http://www.e3mlab.ntua.gr/.
    The GDP growth assumptions are based on the Commission's Economic and Financial Affairs Directorate-General's forecasts of April 2007 for the short term (2006-2008) as well as the long term

[^2]:    (2005-2030). More specifically, short terms forecasts are taken from European Commission Economic Forecasts, Spring 2007 (EUROPEAN ECONOMY. No. 2/ 2007. Office for Official Publications of the EC. ISBN XXYY), also published on the website: http://www.ec.europa.eu/economy finance/publications/european_economy/forecasts_en.htm Long-term forecasts are taken from European Commission, DG ECFIN "Long Run Labour Productivity and Potential Growth Rate Projections for the EU25 Countries up to 2050 (information note for Members of the EPC's working group an ageing populations)", ECFIN/50485/04-EN. Examples for baseline assumptions are future developments in population, fuel prices, etc.
    10 European Energy and Transport, Trends to 2030 - update 2005, European Commission, DirectorateGeneral for Energy and Transport, 2006, prepared by the Institute of Communication and Computer Systems of National Technical University of Athens (ICCS-NTUA), E3M-Lab, Greece, Authors: Dr. L. Mantzos and Prof. P. Capros, published on the Commission's website under the following hyperlink: http://ec.europa.eu/dgs/energy_transport/figures/trends_2030_update_2005/energy_transport_trends_20 30_update_2005_en.pdf.
    Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants (hereinafter the National Emissions Ceilings Directive). The baseline scenarios are published on the Commission's website under the following hyperlink: http://ec.europa.eu/environment/air/baseline.htm

[^3]:    21
    $2240.574000 * 1.125721 * 0.925444$.
    $2351.979988-42.269658$.

