

## Greece

### Sources of information

The information in this appendix is based on:

- Table of Policies and Measures compiled by NOA and dated 18/5/99
- Second National Communication to the UNFCCC, June 1997
- Information provided as part of the Monitoring Mechanism 2001
- Communication from Institute of Environmental research and Sustainable Development, Athens, April 2001

### Quality and transparency of reporting

The most recent list of policies and measures is that compiled by NOA in May 1999, which updates details given in the Second National Communication. However, the amount of information provided in this updated list is much less comprehensive than that provided earlier. In the table below the scores are given for the May 1999 list, with those for the Second National Communication in brackets, where there are differences.

**Table 1: Information provided on policies and measures**

Information provided	Level provided	Comments
Policy names	Yes	
Objectives of policies	Yes	
Which greenhouse gases?	CO <sub>2</sub> only	Second National Communication focuses on CO <sub>2</sub>
Status of implementation	+++	
Implementation body specified	+(+++)	The responsible body is clearly identified in the 2 <sup>nd</sup> Nat. Comm.
Quantitative assessment of implementation	-(+++)	Quantitative assessment in the Second National Communication is for the year 2000.
Interaction with other P&Ms discussed	-	

+, ++, +++ level of information available increases as the number of + signs increases

The most recent emissions projections are those contained in the Second National Communication and as such, do not take account of all the measures identified in the May 1999 list of policies and measures.

Five scenarios are presented:

1. Business-as-usual (BaU)
2. Conventional Wisdom (CW)
3. Forum (FO)
4. Current Trends (CT)
5. Effects of the Community Support Framework (ECSF)

The first three scenarios are based on work undertaken at the National Technical University of Athens using the MIDAS 5.1 energy model and were originally developed for EC DGXVII for the prediction of future energy and economic trends in all Member States. The fourth scenario is based on current trends in energy demand and anticipated GDP growth and the last scenario is based on a macroeconomic approach.

**Table 2: Information provided on projections**

Category of information	Level of information provided	Comments
Scenarios considered	+++	5 scenarios are considered from various sources
Expressed relative to inventory for previous years	Not stated	
Starting year	2000	First year for which projections are given
Split of projections	+	Only national totals for CO <sub>2</sub> are given
Presentation of results	+	
Description of model (level of detail, approach and assumptions)	+	
Discussion of uncertainty	-	
Details of parameters and assumptions	++	Parameters and assumptions provided for each scenario

+, ++, +++ level of information available increases as the number of + signs increases

## Assessment of policies and measures

The May 1999 list of policies and measures indicates that most are in progress, with a few others just beginning or under elaboration.

**Table 3: Summary of the effect of policies and measures included in the projections (MtCO<sub>2</sub>)**

	With measures	With additional measures
Total (CO <sub>2</sub> only)	28.8*	

\* Excludes carbon sinks

The with measures projection includes the policies under the business-as-usual scenario. Little progress has been made with the forestry and agricultural policies and thus these policies and measures, including carbon sinks, were not included in the projections. A disaggregation of the emission saving into sectors or policies was not provided.

**Table 4: Detailed information on policies and measures**

Sector	Name	Objective	GHG affected	Type of instrument	Status	Implementing entity	Estimate of savings (MtCO <sub>2</sub> )		CCPM
							2010	2020	
Cross sector	Penetration of natural gas	<ul style="list-style-type: none"> <li>Introduction of gas in electricity generation, industry, domestic, commercial, service &amp; transport sectors</li> </ul>	CO <sub>2</sub>	Not given	Mostly in progress, with transport just starting	Ministry for Development/PPC	Not given	Not given	N
Energy supply	Improvements in conventional power generation	<ul style="list-style-type: none"> <li>Efficiency improvements</li> <li>New combined heat and power systems</li> </ul>	CO <sub>2</sub>	Not given	In Progress	Ministry for Development/PPC/Local Authorities	Not given	Not given	N
Energy supply	Renewable energy	<ul style="list-style-type: none"> <li>Further deployment of wind, small hydro, solar, geothermal and biomass technologies</li> </ul>	CO <sub>2</sub>	Research / Not given	Mostly in progress	Ministry for Development/PPC/Local Authorities/Ministry for Economics/Ministry for Environment, Physical Planning & Public Works	Not given	Not given	Y
Industry	Energy efficiency improvements in industry	<ul style="list-style-type: none"> <li>Cogeneration</li> <li>Improvements in auxiliary operations</li> <li>Interventions in the energy intensive</li> </ul>	CO <sub>2</sub>	Regulation	In progress	Ministry for Development/Ministry for Environment, Physical Planning & Public Works	Not given	Not given	Y

Sector	Name	Objective	GHG affected	Type of instrument	Status	Implementing entity	Estimate of savings (MtCO <sub>2</sub> )		CCPM
							2010	2020	
sectors									
Domestic and tertiary	Interventions in the domestic and tertiary sectors	<ul style="list-style-type: none"> <li>• Introduction of energy efficient lighting</li> <li>• Cogeneration</li> <li>• Boiler maintenance</li> </ul>	CO <sub>2</sub>	Not given	In progress	Ministry for Development/ Ministry for Environment, Physical Planning & Public Works	Not given	Not given	Y
Transport	Interventions in the transport sector	<ul style="list-style-type: none"> <li>• Vehicle related interventions</li> <li>• Interventions in transport systems</li> <li>• Interventions in public transport</li> </ul>	CO <sub>2</sub>	Regulatory and fiscal	Mostly in progress	Not stated	Not given	Not given	Y
<b>'With additional proposed measures' — not included in projections</b>									
Forestry	Forestry	<ul style="list-style-type: none"> <li>• Various programmes</li> </ul>	CO <sub>2</sub>	Not given	Little progress except on rational use of farmlands	Ministry for Agriculture	Not given	Not given	N

## Evaluation of projections

This section has been based on the projections contained in the Second National Communication. As noted earlier, five scenarios are presented, of which the Business-as-Usual scenario has been taken to reflect existing policies and measures. The projections are only given for CO<sub>2</sub> and not the other gases and they are not broken down by sector.

**Table 5: Summary of projections by gas in 2010 (MtCO<sub>2</sub>)**

	Base year <sup>*a</sup>	with measures <sup>*b</sup>	with additional measures
CO <sub>2</sub>	84.7	113.4	
CH <sub>4</sub>			
N <sub>2</sub> O			
HFC			
PFC			
SF <sub>6</sub>			
Total	99.3	128.0	
CO <sub>2</sub> % change relative to base year		29 %	

\* Excludes carbon sinks

a) Base year is for CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O

b) The projection for the existing P&Ms is provided for CO<sub>2</sub> only, thus the change (1990–2010) for CO<sub>2</sub> only has been combined with the base year for 3 GHGs.

Based on the 'with existing policies and measures' forecast, Greece will exceed its Kyoto commitment by 3.9 Mt CO<sub>2</sub> equivalent. This gap is significant at 4 % of the base year emissions though it would be possible for Greece to tackle it as they already have measures planned and in place to save 29 Mt CO<sub>2</sub> equivalent.

**Table 7: Assessment of the target**

	MtCO <sub>2</sub> equiv.	% of 1990 level (six gas basket)
Base year (from projections) <sup>*a</sup>	99.3	
Commitment	124.1	25 %
With existing P&Ms <sup>*b</sup>	128.0	29 %
Gap (-ve means no gap)	3.9	4 %
Effect of additional P&Ms		

\* Excludes carbon sinks

a) Base year is for CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O

b) The projection for the existing P&Ms is provided for CO<sub>2</sub> only, thus the change (1990–2010) for CO<sub>2</sub> only has been combined with the base year for 3 GHGs.

## Description of modelling approach

As noted earlier, the projections consist of 3 scenarios produced using the MIDAS energy model, one based on an extrapolation of current trends and a final scenario using a macroeconomic approach. No further details are given as to the approach used.

Parameters used in the different scenarios are given in the Table below.

**Modelling parameters**

Parameter	Unit	BAU	CW	FO	CT
GDP annual growth	1990–2010	2.7 %	2.3 %	2.4 %	2.8 %
GDP annual growth	1990–2000	2.0 %	1.8 %	1.5 %	2.1 %
Population	Million 2010			10.75	
International oil price 2010	\$1995/bbl	17.0	30.3	16.7	N/A
Oil price 2000	\$1995/bbl	13.4	21.9	16.7	N/A
Gas price	\$1995/toe	105.1	167.1	114.9	N/A
Coal	\$1995/toe	45.5	68.9	58.5	N/A
Market liberalisation		Only auto-producers	Only auto-producers	Included	N/A
Passenger growth	1990–2010	2.8 %	1.6 %	1.4 %	N/A
Passenger growth	1990–2000	2.7 %	1.8 %	1.2 %	

**Country conclusions**

Greece has provided a list of policies and measures that covers most of the relevant sectors and sources. The progress with implementing this programme is also very well described. However, unlike the Second Communication, this most recent submission did not contain details on the expected effects and costs of these policies and measures. Furthermore the most recent projections available are those in the Second Communication for which there does not appear to be a clear link between the scenarios presented and the action being taken. Clearly, new projections incorporating the latest list of policies and measures would be useful in assessing the extent to which the current programme will help Greece meet its commitment under the EU burden sharing agreement.