Cyprus

National Projections of Greenhouse Gases Emissions

Policies and Measures for the Reduction of Greenhouse Gases Emissions

2011 Submission

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to the European Commission
under article 3(2) of decision no 280/2004/ec of the European Parliament and of the Council concerning a mechanism for monitoring community greenhouse gas emissions and for implementing the Kyoto Protocol

Climate Action Unit

Department of Environment
Ministry of Agriculture, Natural Resources and Environment

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Title of inventory	**National Projections of Greenhouse Gases Emissions 2011 - Policies and Measures for the Reduction of Greenhouse Gases Emissions**
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1. Introduction

This report has been prepared by the Department of Environment of the Ministry of Agriculture, Natural Resources and Environment, on behalf of the Republic of Cyprus, and is submitted voluntarily, since Cyprus has no obligations under UNFCCC and the Kyoto Protocol. This document, accompanied by the reporting template, forms the 2011 report that is required to submit to the European Commission under Article 3(2) of Decision 280/2004/EC concerning a mechanism for monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol.

The Ministry of Agriculture, Natural Resources and Environment and in particular the Department of Environment is the Cyprus competent authority for climate change. Large part of this topic is the program for the reduction of greenhouse emissions. However, jurisdiction for measures to reduce greenhouse gas emissions is distributed among several Ministries of the Government.

The highly fragmented responsibilities for climate change mitigation among the different Ministries, causes difficulties for coherent monitoring and evaluation of policies and measures towards the reduction of greenhouse gases (GHG) emissions. This was due to a lack of complete and comparable information on policies and measures and also to the fact that many measures, e.g. in energy consumption, transport or waste management, are not undertaken primarily for the purpose of climate change mitigation. A variety of other environmental, social and economic needs are responsible for specific action.

Further cooperation and more attention are needed for proper GHG emissions monitoring, that will have a positive, measured and evaluated, side effect. As a consequence, estimation of effects on greenhouse gas emissions is impossible for many individual measures undertaken in the past.

In view of the implementation of the Effort Sharing Decision (406/2009/EC), the system of designing, implementing, monitoring and adapting the strategy for the reduction of greenhouse gases emissions, is under review. The first step is the validation of the historical data (i.e. the inventory), which the EEA has accepted to implement a desktop review of the national inventory report of 2011.

It should be noted that after the Turkish invasion of 1974, approximately 40% of the island territory is under Turkish occupation. The data presented in this report concerns the areas under the effective control of the Government of the Republic of Cyprus.

2. National Policies and Measures

This section presents the policies and measures that the Cyprus Government and stakeholders are taking to reduce greenhouse gas emissions. While the Department of Environment has the overall responsibility for ensuring that a programme is put in place to deliver the reduction of greenhouse gases, all the administration levels and services need to contribute in meeting these targets.

The selection of policies and measures presented below was made by using the following criteria: (a) the technological and commercial maturity of the available technologies, so that their immediate promotion is possible, (b) their direct and measurable performance regarding the reduction of CO_2 emissions and (c) the particular structural features of Cypriot economy and society.

Emission reductions from each policy and measure are presented in detail in the next chapter, in the scenarios "*With Existing Measures*" and "*With Additional Measures*".

Energy calculations, potentials and forecasts are in line with context of the first draft of second National Energy Efficiency Action Plan (2nd NEEAP), as prepared by of Energy Service of the Ministry of Commerce Industry and Tourism by May 2011 (before its submission to the European Commission). In comparison to the scenarios of Annex IV of the draft 2nd NEEAP, numbers for the energy savings for "*With Additional Measures*" correspond to the total energy savings potential in primary consumption from measures in final non-electricity consumption and from measures in final electricity consumption between «energy efficiency» and «do nothing». Accordingly, the numbers for the energy savings for "*With Existing Measures*" could be compared to the total energy savings in primary consumption from measures in final non-electricity consumption and from measures in final electricity consumption between «reference scenario» and «do nothing», taking into account the calculations for the real energy savings achieved from measures materialised up to 2010.

2.1. Policy A. Energy

The emissions of the energy sector except transport increased from 4,523 Gg in 1990 to 8,429 Gg in 2009, corresponding to 86% increase. In 2009, emissions decreased by 8% compared to 2008. Energy is the sector which has to contribute the most in the reduction of greenhouse gases of Cyprus. The import of natural gas, and its initial use for electricity production, is expected to contribute the highest in the reduction of emissions until 2020.

According to the energy balance of 2009, Cyprus primary energy consumption dependence was 60% imported petroleum products (excluding road and air transport that contribute an additional 36.7%) and 3.4% RES. Primary energy consumption in 2009 was 1771 ktoe

(excluding road and air transport that contribute an additional 1025 ktoe). The main energy consumers for 2009 according to the energy balance of the country[5] are presented in Figure 2.1 (transport included).

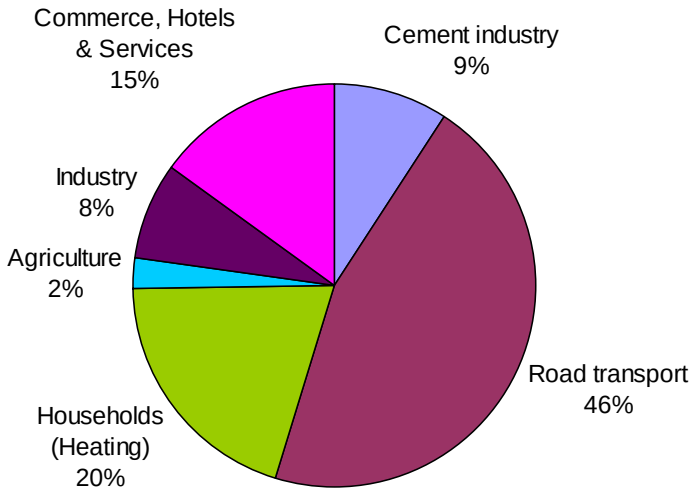

Figure 2.1. Main energy consumers in 2009 (road transport included) [5]

The main goal of the Republic of Cyprus is shaping a new competitive energy model based on a comprehensive long-term energy policy, which also gives special emphasis to social and environmental dimensions of energy economy. The new energy model is a key aspect of overall development policy of the country which has been adopted and its implementation is based on three areas: security of energy supply, competitiveness and protection of the environment.

Cyprus is the southernmost region of the European Union at the crossroads of three continents, with a dominant position in the Mediterranean and South East. In general Cyprus presents the common energy problems of most islands:

(a) Isolated energy system.
(b) High rates of economic and social development involving high rates of growth in energy demand.
(c) High cost of energy supply.
(d) High dependence on petroleum products - small supply security.
(e) Seasonal variations in energy demand.
(f) Maximum operation of the system of production and distribution of electricity in peak load demand.
(g) Strict limitations of protection and promotion of the island environment that act as a disincentive to develop initiatives in energy investments.

A considerable amount of the existing electricity generating capacity will be replaced in the coming years. This is as a result of tightening environmental regulation (Large Combustion Plant Directive and Industrial Emissions (Integrated Pollution Prevention and Control)

Directive) and ageing power stations, in addition for need of improvement of efficiency due to increasing competition.

The competent authority in relation to energy policies is the Energy Service of the Ministry of Commerce, Industry and Tourism.

2.1.1. A1. Natural Gas

The Government of Cyprus, recognizing the positive contribution that the introduction and use of natural gas will have on the economy and the environment of Cyprus, has decided to introduce natural gas to Cyprus, primarily for use in electricity generation. It is however expected that shortly after its arrival, natural gas will be supplied to the heavy industry, while in the future natural gas will also be used in other sectors

According to the up-to-date available information, natural gas is expected in Cyprus by 2014. Consequently, the Electricity Authority of Cyprus (single conventional fuel electricity producer) has developed its new development strategy around this. According to the information provided by the Energy Service, a contribution of 32% to the total energy mix in 2020 will be from natural gas.

In line with the above, the Electricity Authority of Cyprus is also planning the replacement/modification of its current HFO-fired electricity generation units to utilise natural gas. By importing natural gas, apart from the reduction of emissions from the actual use of the natural gas, this action will also contribute positively to emission reductions through the increased efficiency of the newer technologies used.

Table 2.1. Description of the measure "natural gas"

Measure	**A1. Import of natural gas for electricity production**		
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism		
Other involved authorities	(a) Cyprus Energy Regulatory Authority (b) Public Natural Gas Company (DEFA) (c) Electricity Authority of Cyprus (d) Department of Environment		
Type	Political, legislative		
National legislation	Κ.Δ.Π. 115/2006		
Relevant European legislation	Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC		
Measurable Target	Contribution of natural gas to the energy mix		
	2010	2015	2020
	N/A	N/A	1053 toe
Measures towards attainment	(a) Import and use of natural gas for electricity production		

	(b) Installation of combined cycle electricity production units using natural gas as fuel (c) Decommissioning or conversion of existing electricity production units
Comments	According to the delays noticed for the procedures and political decisions necessary for the import of natural gas, 2016 has been considered as a more realistic date by which commercial supply of natural gas to Cyprus will commence. Therefore, 2016 has been used as the year of import of natural gas for the "*With Existing Measures*" scenario and 2014 for the "*With Additional Measures*" scenario.
Source of information	Energy Service Electricity Authority of Cyprus

2.1.2. A2. Renewable Energy Sources

The share of renewable energy sources in the primary energy consumption, based on the energy balance of Cyprus, has increased from 1.7% in 2007 to 3.4% in 2009[5]. Table 2.1 shows the distribution of the renewable energy sources according to the type of renewable technology and consumer.

Table 2.2. Renewable energy sources in the energy balance of Cyprus, 2009 [5]

	Biofuels (toe)	Solar Thermal (toe)	Geothermal (toe)	Biomass (toe)	Electricity from Biomass (toe)	Electricity from PV Systems (toe)	TOTAL (toe)
Cement industry				6,705			6,705
Road transport	15,131						15,131
Households (Heating)		49,476	351	7,190		80	57,097
Agriculture				959	573		1,532
Industry				280			280
Commerce, Hotels & Services		8,731		3,551			12,282
TOTAL	**15,131**	**58,207**	**351**	**18,685**	**573**	**80**	
Electricity from RES fed to the Grid					1,707	250	1,957

Cyprus is one of the leading countries in the use and construction of solar water heating systems. 92% of households are equipped with solar water heaters and 53% of hotels have installed large solar water heating systems. According to ESTIF (European Solar Industry Federation), in 2009 Cyprus had the larger number of solar collector installations per capita, with approximately 650 kWth per capita [6].

Renewable energy sources and energy efficiency is promoted to the public by provisions of financial support schemes. The first support scheme was created in 1999 and the latest version, is for the period 2009 to 2013, and was published in August 2010. The scheme has been well accepted by the public from the start of its implementation and the number of applications submitted annual to the competent authority for subsidies is increasing considerable year by year. The scheme is separated into three categories:

(a) promotion of electricity production from large commercial wind farms, solar thermal and photovoltaic systems, the utilization of biomass
(b) promotion of Energy Conservation and the Renewable Energy Sources for Individuals and Organizations that not exercise economic activity
(c) promotion of Energy Conservation and the Renewable Energy Sources for Individuals and legal entities that exercise economic activity

According to the particular category, there are different buying price for the kWh produced which is further differentiated according to the type of technology implemented. The support scheme has been approved by the DG Competition (C(2009)5398).

The largest projects for which subsidy has been approved so far, are six commercial scale wind farms with total installed capacity of 157.5 MWp [7]. The largest of the wind farms is already in operation since August 2010 (installed capacity 82MW). 1.74 MWp of large photovoltaic plants has also been accepted for subsidy appraisal and further approval during 2009 and 2.26 MWp in 2010 (total of 32 projects) [8]. All the projects are expected to be operational within 2012. It should be noted that the total installed capacity of the current electricity producing installations is approximately 1,000 MWp. An illustration of the applications submitted for energy conservation between 2004 and 2009 is presented in Figure 2.2[9] and for RES developments during the same period in Figure 2.3.

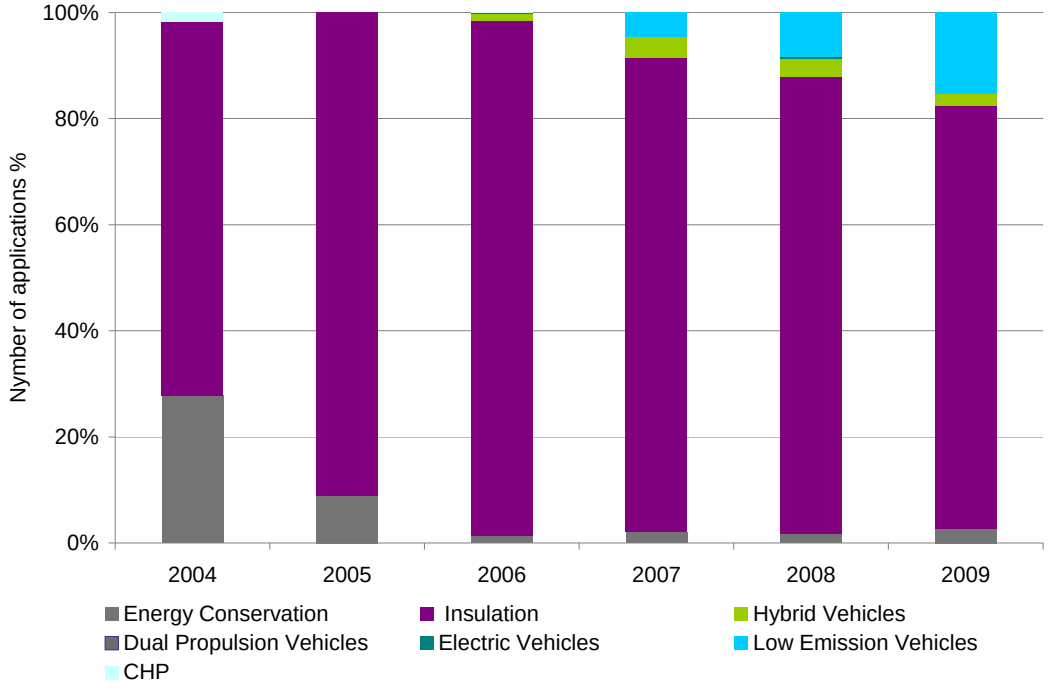

Figure 2.2. Number of applications submitted for energy conservation between 2004 and 2009 [9]

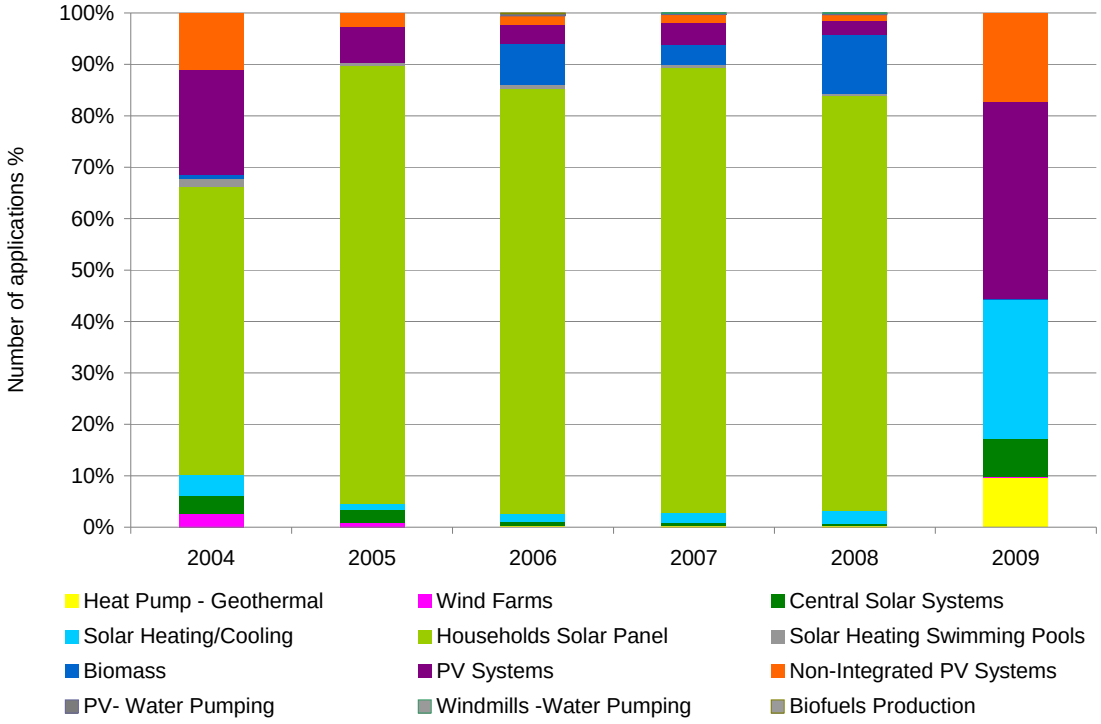

Figure 2.3. Number of applications submitted for RES developments between 2004 and 2009 [9]

According to Directive 2009/28/EC, the share of renewable energy in gross final energy consumption in the European Union for 2020 should at least reach 20%. The specific binding target for Cyprus is 13%. Also, the share of energy from renewable sources in all forms of transport (vehicles, trains, metro) in 2020 should represent at least 10% of the final consumption of energy in transport. Each Member State is obliged to submit to the Commission the National Action Plan for Renewable Energy, which includes, inter-alia, the target path for achieving the targets for the share of RES in electricity, heating and cooling, and transport. The estimated target trajectory of energy from renewable sources for the years 2010, 2015 and 2020 for Cyprus to reach the goal of 13% is presented in Table 2.3. Table 2.4 shows the intermediate targets to reach the 10% renewables in transport by 2020.

Table 2.3. Summary of the binding targets for Cyprus, for renewable energy sources to reach 13% in 2020

	2010	2015	2020
Heating and cooling	16.2%	20%	23.5%
Electricity production	1.3%	8.4%	16%
Transport	2.2%	3.1%	4.95
Total share of RES	6.5%	9.0%	13%

Table 2.4. Binding targets for Cyprus, for renewable energy sources in transport to reach 10% in 2020

	2010	2015	2020
Transport	2.2%	3.3%	10%

Details on how Cyprus will achieve the targets are available in the National Renewable Energy Action Plans that has been prepared according to Article 4 of the renewable energy Directive (2009/28/EC) and should have been submitted by 30 June 2010 [10].

A2.1. Renewable energy sources in electricity production

Electricity production contributed 54% to the emissions of the energy sector in 2009, which corresponds to 43% to the total emissions of the country (excluding LULUCF) [4]. This corresponds to 4,005 Gg CO_2 e., whereas the total emissions of the country without LULUCF were 9,400 Gg CO_2 e. All units producing electricity in Cyprus for public use running on conventional fuels are operated by the Electricity Authority of Cyprus. The main fuel is HFO and some contribution of gas oil. Electricity production is regulated by the Emissions Trading System.

Table 2.5. Description of the measure "A2.1 Renewable energy sources in electricity production"

Measure	**A2.1. Use of renewable energy sources for electricity production**
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism
Other involved authorities	(a) Cyprus Energy Regulatory Authority (b) Transmission System Operator (c) Ministry of Finance (d) Department of Town Planning and Housing, Ministry of Interior (e) Department of Environment, Ministry of Agriculture, Natural Resources and Environment
Type	Legislative, voluntary
National legislation	Law No. 33(I)/2003 on the promotion and encouragement of the use of renewable energy sources and Energy Conservation Law 132(I)/2004 establishing a European emissions trading system
Relevant European legislation	Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity from renewable energy sources in the internal electricity market* Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of

	energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community		
Measurable Target	RES share in electricity production		
	2010	2015	2020
	6,000 toe (1.3%)	46,000 toe (8.4%)	101,000 toe (16%)
Measures towards attainment	(a) RES support schemes (b) Informational campaigns (c) Implementation of relevant legislation		
Comments	Directive 2009/29/EC and its predecessor, 2003/87/EC indirectly promote the production of electricity from RES.		
Source of information	Energy Service		

* Directive 2001/77/EC is repealed by Directive 2009/28/EC from 1 January 2012. Moreover, from 1 April 2010, Article 2, paragraph 2 of Article 3 and Articles 4 to 8 will be deleted

A2.2. Renewable energy sources for heating and cooling

Heating and cooling for industrial, housing and tertiary sectors, contributed 15% to the emissions of the energy sector in 2009, and 11% to the total emissions of the country (excluding LULUCF) [4]. As it has already been mentioned, Cyprus has the larger number of solar collector installations per capita that is mainly used in the residential and tertiary sectors. The RES technologies promoted through the scheme are solar thermal, biomass and geothermal.

Table 2.6. Description of the measure "A2.2 Renewable energy sources for heating and cooling"

Measure	**A2.2. Renewable energy sources for heating and cooling**
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism
Other involved authorities	(f) Department of Town Planning and Housing, Ministry of Interior (g) Department of Environment, Ministry of Agriculture, Natural Resources and Environment (h) Department of Labour Inspection, Ministry of Labour and Social Insurance
Type	Legislative, voluntary
National legislation	Law No. 33(I)/2003 on the promotion and encouragement of the use of renewable energy sources and Energy Conservation

<table>
<tr><td></td><td colspan="3">Law No. 142(I)/2006 regulating energy efficiency in buildings
Law No. 30(I)/2009 amending Law No. 142(I)/2006 regulating energy efficiency in buildings
Law No. 56(I)/2003 on Integrated Pollution Prevention Control (with amending laws no. 15(I)/2006, 12(I)/2008)</td></tr>
<tr><td>Relevant European legislation</td><td colspan="3">Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity from renewable energy sources in the internal electricity market*

Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community

Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control and related amendments</td></tr>
<tr><td rowspan="3">Measurable Target</td><td colspan="3">RES share in energy consumption for heating and cooling</td></tr>
<tr><td>2010</td><td>2015</td><td>2020</td></tr>
<tr><td>71,092 toe
(16.2%)**</td><td>91,590 toe
(20%)**</td><td>111,230 toe
(23.5%)**</td></tr>
<tr><td>Measures towards attainment</td><td colspan="3">(d) RES support schemes
(e) Informational campaigns
(f) Implementation of relevant legislation</td></tr>
<tr><td>Comments</td><td colspan="3">Directive 2009/29/EC and its predecessor, 2003/87/EC indirectly promote the production of energy conservation through the use of alternative technologies using RES
Directive on waste
IPPC directive is indirectly promoting anaerobic digestion to livestock breeding units.</td></tr>
<tr><td>Source of information</td><td colspan="3">Energy Service, Department of Environment</td></tr>
</table>

* Directive 2001/77/EC is repealed by Directive 2009/28/EC from 1 January 2012. Moreover, from 1 April 2010, Article 2, paragraph 2 of Article 3 and Articles 4 to 8 will be deleted

** % includes the toe from measure A5, i.e. use of waste as fuel for cement industry. Toe doe not include the use of waste as fuel for cement industry.

A2.3. Renewable energy sources in transport

According to the Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC and the action plan submitted by Cyprus for the achievement of the target set, RES in transport should be 2.2% in 2010, 3.1% in 2015 and 4.9% in 2020. Moreover, in order to reach the 10% target by 2020, the aim is to have 2.2% biofuels in 2010 and 3.3% in 2015.

Table 2.7. Description of the measure "A2.3 Renewable energy sources in transport"

Measure	**A2.3 Renewable energy sources in transport**
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism
Other involved authorities	(a) Department of Customs, Ministry of Finance (b) Department of Environment
Type	Legislative, mandatory
National legislation	Law No. 33(I)/2003 on the promotion and encouragement of the use of renewable energy sources and Energy Conservation Law No.148(I)/2003 on the petroleum products and fuels specification Decrees 63/2008 and 16/2009 on the content of biofuels in transport conventional fuels
Relevant European legislation	Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity from renewable energy sources in the internal electricity market* Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC Decision 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the

	Community's greenhouse gas emission reduction commitments up to 2020		
Measurable Target	RES share in energy for transport		
	2010	2015	2020
	15,700 toe biofuels	22,700 toe biofuels and electricity	38,400 toe biofuels and electricity
Measures towards attainment	(a) Tax exemption for biofuels (b) Implementation of grant scheme for installations producing biofuels (c) Promotion of electric vehicles		
Comments	Decision 406/2009/EC is requiring the sector of transport to reduce its emissions.		
Source of information	Energy Service, Department of Environment		

* Directive 2001/77/EC is repealed by Directive 2009/28/EC from 1 January 2012. Moreover, from 1 April 2010, Article 2, paragraph 2 of Article 3 and Articles 4 to 8 will be deleted

2.1.3. A3. Energy Efficiency and Savings

According to the Directives 2002/91/EC and 2010/31/EC, the member states have submitted to the European commission their action plan to achieve the target for energy savings in buildings. Measure A3, presents the targets set by Cyprus through the action plan submitted. Tables in the pages that follow describe the measures included in the energy efficiency and savings measure.

A3.1. Savings from energy efficiency in residential buildings

Table 2.8. Description of the measure "A3.1. Savings from energy efficiency in residential buildings"

Measure	**A3.1. Savings from energy efficiency in residential buildings**
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism
Other involved authorities	(a) Ministry of Interior (b) Municipalities (c) Department of Environment
Type	Legislative, compulsory
National legislation	Law No. 142(I)/2006 regulating energy efficiency of buildings and amending Law No. 30(I)/2009
Relevant European legislation	Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings Directive 2010/31/EC of the European parliament and of the council of 19 May 2010 on the energy performance of buildings (recast) Decision 406/209/EC of the European Parliament and of the

	Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020		
Measurable Target	Energy savings		
	2010	2015	2020
	15,428 toe	105,598 toe	199,025 toe
Measures towards attainment	(a) Implementation of national action plan on energy efficiency (b) Implementation of national legislation		
Comments	Decision 406/2009/EC is also requiring the sector of buildings to reduce its emissions.		
Source of information	Energy Service		

A3.2. Savings from energy efficiency in tertiary buildings

Table 2.9. Description of the measure "A3.2. Savings from energy efficiency in tertiary buildings"

Measure	**A3.2. Savings from energy efficiency in tertiary buildings**		
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism		
Other involved authorities	(a) Ministry of Interior (b) Municipalities (c) Department of Environment		
Type	Legislative, compulsory		
National legislation	Law No. 142(I)/2006 regulating energy efficiency of buildings and amending Law No. 30(I)/2009		
Relevant European legislation	Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings Directive 2010/31/EC of the European parliament and of the council of 19 May 2010 on the energy performance of buildings (recast) Decision 406/209/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020		
Measurable Target	Energy savings		
	2010	2015	2020
	2,000 toe	14,897 toe	28,519 toe
Measures towards attainment	(c) Implementation of national action plan on energy efficiency		

	(d) Implementation of national legislation
Comments	Decision 406/2009/EC is also requiring the sector of buildings to reduce its emissions.
Source of information	Energy Service

A3.3. Savings from efficient bulbs

Table 2.10. Description of the measure "A3.3. Savings from efficient bulbs"

Measure	**A3.3. Savings from efficient bulbs**		
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism		
Other involved authorities	Department of Environment		
Type	Legislative, compulsory		
National legislation	Law No. 31/2009 on energy end-use efficiency and energy services		
Relevant European legislation	Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC Decision 406/209/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020		
Measurable Target	Energy savings		
	2010	2015	2020
	13,868 toe	20,404 toe	11,215 toe
Measures towards attainment	(a) information campaign and promotion of energy efficient lambs		
Comments	Decision 406/2009/EC is also requiring the sector of buildings to reduce its emissions.		
Source of information	Energy Service		

A3.4. Savings from insulation in residential sector

Table 2.11. Description of the measure "A3.4. Savings from insulation in residential sector"

Measure	**A3.4. Savings from insulation in residential sector**
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism
Other involved authorities	Department of Environment
Type	Legislative, compulsory
National legislation	Law No. 31/2009 on energy end-use efficiency and energy

	services		
Relevant European legislation	Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC. Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings Decision 406/209/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020		
Measurable Target	Energy savings		
	2010	2015	2020
	9,952 toe	9,952 toe	*9,952 toe*
Measures towards attainment	Grant scheme for energy conservation		
Comments	Decision 406/2009/EC is also requiring the sector of buildings to reduce its emissions.		
Source of information	Energy Service		

A3.5. Savings in existing companies

Table 2.12. Description of the measure "A3.5. Savings in existing companies"

Measure	**A3.5. Savings in existing companies**		
Competent authority	Energy Service, Ministry of Commerce, Industry and Tourism		
Other involved authorities	Department of Environment		
Type	Legislative, compulsory		
National legislation	Law No. 31/2009 on energy end-use efficiency and energy services		
Relevant European legislation	Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC. Decision 406/209/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020		
Measurable Target	Energy savings		
	2010	2015	2020
	12,784 toe	11,700 toe	6,000 toe
Measures towards attainment	Grant scheme for energy conservation		

Comments	Decision 406/2009/EC is also requiring the tertiary sector to reduce its emissions.
Source of information	Energy Service

2.1.4. A4. Improvement of distribution systems

The distribution systems are under the management of the Transition System Operator of Cyprus. Through its collaboration with the Electricity Authority of Cyprus which is the only conventional electricity producer and provider in the country, there is an annual pal for improvement of the electricity distribution system.

Table 2.13. Description of the measure "A4. Improvement of distribution systems"

Measure	**A4. Improvement of distribution systems**		
Competent authority	Transition System Operator of Cyprus		
Other involved authorities	(a) Electricity Authority of Cyprus (b) Department of Environment		
Type			
National legislation			
Relevant European legislation			
Measurable Target	Electrical Energy savings		
	2010	2015	2020
	N/A	N/A	N/A
Measures towards attainment	Annual system improvements		
Comments			
Source of information			

2.1.5. A5. Promotion of biomass and alternative fuels in industry

There are two cement plants in operation in Cyprus which have merged into one company in 2009. Both cement plants which will stop their operation once a new cement plant will start its operation. It is expected that the new plant will be in operation at the end of 2011. One of the advantages of the new installation, in addition to the higher efficiency in production, is that it can use larger amounts of biomass and alternative fuels for the production of thermal energy.

Table 2.14. Description of the measure "A5. Promotion of biomass and alternative fuels in industry"

Measure	**A5. Promotion of biomass and alternative fuels in industry**
Competent authority	Energy Service
Other involved authorities	Department of Environment
Type	Voluntary
National legislation	Law No. 33(I)/2003 on the promotion and encouragement of the use of renewable energy sources and Energy

	Conservation		
Relevant European legislation	Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity from renewable energy sources in the internal electricity market* Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community		
Measurable Target	Energy production from waste		
	2010	2015	2020
	6,568 toe	9,360 toe	12,370 toe
Measures towards attainment			
Comments	The implementation of the directive 2009/29/EC gives a good incentive for the promotion of alternative fuels for thermal energy production in cement manufacturing.		
Source of information	Energy service Department of Environment		

* Directive 2001/77/EC is repealed by Directive 2009/28/EC from 1 January 2012. Moreover, from 1 April 2010, Article 2, paragraph 2 of Article 3 and Articles 4 to 8 will be deleted

2.2. Policy B. Transport

In 2009, road transport emissions contributed 28% of the total national emissions excluding LULUCF [4]. Road transport is the sector with the largest increase compared to 1990 level of emissions (189.5%). Road transport in 2009 consumed 39% of the fuels of the country[5]. According to information from the International Road Federation, Cyprus has the highest car ownership rate in the world with 742 cars per 1,000 people[12]. Other means of transport are almost inexistent: 3% public transport and bicycle less than 2%[11].

In addition to the importance for emissions, transport has been an issue of particularly great interest to the society of Cyprus, due to the very large growth of the number of privately owned cars and the associated problems in traffic that are experienced, especially in the capital, Nicosia. Even though many studies have been completed since the 1990s on how to deal with traffic in the urban areas of Cyprus and especially Nicosia, only recently (end of 2009) action has been taken and measures are implemented.

2.2.1. B1. Promotion of public transport

According to the plans of the Ministry of Communications and Public Works, the target is to increase the contribution of public transport from 2% in 2009 to 10% by 2015[13]. Towards this end, at the end of 2009 the legal framework concerning public transport was revised, which has allowed the development of the new urban, suburban and intercity bus routes and schedules.

Table 2.15. Description of the measure "B1. Promotion of public transport"

Measure	**B1. Promotion of public transport**		
Competent authority	Ministry of Communications and Public Works		
Other involved authorities	Department of Environment		
Type	Policy		
National legislation	Law No. 101(I)/2009 on the access to the profession of road transport (amending) Law No. 96(I)/2009 on the regulation of road transport (amending)		
Relevant European legislation	Decision 406/209/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020		
Measurable Target	Share of public transport to total		
	2010	2015	2020
		10%	
Measures towards attainment	(a) Development and implementation of mobility master plans and land use transportation studies for the four large urban areas in the areas under the effective control of the Republic of Cyprus (b) Development of infrastructure for public transport (bus lanes, bus priority lanes, new bus stops, new bus stations) (c) Development and implementation of "park-and-ride" systems (d) Study for the development of a tram system		
Comments	Approximately 50% of the non-ETS emissions of Cyprus are from transport, therefore considerable effort is needed by the sector to reduced the overall non-ETS emissions		
Source of information			

2.2.2. B2. Promotion of alternative technologies (hybrid and electric vehicles)

The promotion of hybrid and electric vehicles is part of the energy efficiency scheme of the Ministry of Commerce, Industry and Tourism. This Scheme, which includes both subsidies, tax reductions and reduced circulation fees, includes the following categories and subcategories for transport[10]:

- Purchase of a new Hybrid Vehicle
- Purchase of a new Fuel Flexible Vehicle - FFV/Dual Propulsion Vehicle
- Purchase of a new Electric Vehicle
- Purchase of a new low carbon emission vehicle

Table 2.16. Description of the measure "B2. Promotion of alternative technologies (hybrid and electric vehicles)"

Measure	**B2. Promotion of alternative technologies (hybrid and electric vehicles)**		
Competent authority	Ministry of Commerce, Industry and Tourism		
Other involved authorities	(a) Ministry of Communications and Public Works (b) Department of Environment		
Type	Voluntary		
National legislation	Law No. 31/2009 on energy end-use efficiency and energy services		
Relevant European legislation	Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC Decision 406/209/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020		
Measurable Target	Energy savings in toe		
	2010	2016	2020
Hybrid	357 toe	357 toe	357 toe
Electric	19 toe	19 toe	19 toe
Measures towards attainment	Grant scheme		
Comments	50% of the non-ETS emissions of Cyprus are from transport, therefore considerable effort is needed by the sector to reduced the overall non-ETS emissions		
Source of information	Energy Service		

2.2.3. B3. Promotion of low emission vehicles

In addition to the hybrid and electric vehicles, low emission vehicles are included in the energy efficiency scheme of the Ministry of Commerce, Industry and Tourism. This measure is also promoted by the implementation of the Regulation

Table 2.17. Description of the measure "B3. Promotion of low emission vehicles"

Measure	**B3. Promotion of low emission vehicles**
Competent authority	Ministry of Commerce, Industry and Tourism
Other involved authorities	(a) Ministry of Communications and Public Works (b) Department of Environment

Type	Voluntary		
National legislation	Law No. 31/2009 on energy end-use efficiency and energy services		
Relevant European legislation	Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC Decision 406/209/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020 Regulation No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO_2 emissions from light-duty vehicles		
Measurable Target	Energy savings		
	2010	2016	2020
	703 toe	703 toe	703 toe
Measures towards attainment	Grant scheme		
Comments	50% of the non-ETS emissions of Cyprus are from transport, therefore considerable effort is needed by the sector to reduced the overall non-ETS emissions		
Source of information	Energy Service		

2.2.4. B4. Promotion of replacement of vehicles (withdrawal of old vehicles)

Since 2008, there are in place withdrawal of old vehicle schemes by the Ministry of Communications and Public Works. So far 24,752 vehicles have been withdrawal from the start of the scheme. One of the conditions that had to be met during the latest scheme (end of 2010) was that the owner of the vehicle withdrawn had to buy a new vehicle with CO_2 emissions lower or equal to 165 g/km.

Table 2.18. Description of the measure "B4. Promotion of replacement of vehicles (withdrawal of old vehicles)"

Measure	**B4. Promotion of replacement of vehicles (withdrawal of old vehicles)**
Competent authority	Ministry of Communications and Public Works
Other involved authorities	Department of Environment
Type	Voluntary
National legislation	
Relevant European legislation	

Measurable Target			
	2010	2015	2020
Measures towards attainment	Grant scheme		
Comments	50% of the non-ETS emissions of Cyprus are from transport, therefore considerable effort is needed by the sector to reduced the overall non-ETS emissions		
Source of information	Department of Road Transport		

2.3. Policy C. Waste

With the Landfill Directive being the main guiding force, in combination to the improvement of the infrastructure of the country, Cyprus has been developing during the recent years the revised strategy for solid waste management. The management of the municipal solid waste is under the competence of the Ministry of Interior.

2.3.1. C1. Methane recovery from existing and new waste management sites

All the solid waste management sites in Cyprus are currently under replacement or improvement. Currently in Cyprus, there are:

(a) Two landfills are in operation (Pafos landfill and Koshi landfill for Larnaca and Ammochostos districts)

(b) Two landfills are in the design phase (Nicosia and Limassol landfills) and are expected to be in operation by 2014.

Biogas collection systems are in the design of all landfills.

Table 2.19. Description of the measure "C1. Methane recovery from existing and new waste management sites"

Measure	**C1. Methane recovery from existing and new waste management sites**
Competent authority	Ministry of Interior
Other involved authorities	Department of Environment
Type	Legal
National legislation	Law No. 215(I)/2002 on solid and hazardous waste and amendments No. 162(I)/2005, 17(I)/2006, 63(I)/2009 Decree No. Κ.Δ.Π. 160/2003 and Κ.Δ.Π. 161/2003 on application for waste management permit Regulations No. Κ.Δ.Π. 562/2003 on landfills Law No. 85(I)/2005 on council of disposal or recovery sites of household sites Decree No. Κ.Δ.Π. 282/2007 establishing criteria and procedures for the acceptance of waste at landfills
Relevant European legislation	Council Directive 1999/31/EC of 26 April 1999 on the

	landfill of waste Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives Council Directive 75/442/EEC of 15 July 1975 on waste Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to article 16 of and Annex II to Directive 1999/31/EC Commission Decision 2000/532/EC of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste		
Measurable Target	Biogas collection		
	2010	2015	2020
	10%	10%	70%
Measures towards attainment			
Comments			
Source of information	Ministry of Interior		

2.3.2. C2. Management of uncontrolled disposal sites

In addition to methane collection, the new waste management sites will allow the discontinuation of operation of the uncontrolled disposal sites that are currently operating.

Table 2.20. Description of the measure "C2. Management of uncontrolled disposal sites"

Measure	**C2. Management of uncontrolled disposal sites**
Competent authority	Ministry of Interior
Other involved authorities	Department of Environment
Type	
National legislation	Law No. 215(I)/2002 on solid and hazardous waste and amendments No. 162(I)/2005, 17(I)/2006, 63(I)/2009 Decree No. Κ.Δ.Π. 160/2003 and Κ.Δ.Π. 161/2003 on application for waste management permit Regulations No. Κ.Δ.Π. 562/2003 on landfills Law No. 85(I)/2005 on council of disposal or recovery sites

	of household sites Decree No. Κ.Δ.Π. 282/2007 establishing criteria and procedures for the acceptance of waste at landfills		
Relevant European legislation	Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives Council Directive 75/442/EEC of 15 July 1975 on waste Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to article 16 of and Annex II to Directive 1999/31/EC Commission Decision 2000/532/EC of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste		
Measurable Target	Biogas collection		
	2010	2015	2020
	5%	20%	60%
Measures towards attainment			
Comments			
Source of information	Ministry of Interior		

2.3.3. C3. Promotion of anaerobic digestion for the treatment of sewage sludge

Table 2.21. Description of the measure "C3. Promotion of anaerobic digestion for the treatment of sewage sludge"

Measure	**C3. Promotion of anaerobic digestion for the treatment of sewage sludge**
Competent authority	Department of Environment
Other involved authorities	Ministry of Labour Inspection
Type	Voluntary
National legislation	(a) The Control of Water Pollution (Waste Water Disposal) Regulations 2003, Κ.Δ.Π. 772/2003; (b) The Control of Water Pollution (Sensitive Areas for

	urban waste water discharges) Κ.Δ.Π. 111/2004		
Relevant European legislation	Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment		
Measurable Target			
	2010	2015	2020
Measures towards attainment	Implementation of legislation		
Comments	Even though anaerobic digestion is not clearly stated in the European or national legislation, the technology is preferred by the wastewater treatment plants to comply with the terms stated on the wastewater disposal permits.		
Source of information	Department of Environment		

2.4. Policy D. Agriculture

2.4.1. D1. Promotion of anaerobic digestion for livestock breeding waste treatment

Table 2.22. Description of the measure "D1. Promotion of anaerobic digestion for livestock breeding waste treatment"

Measure	**D1. Promotion of anaerobic digestion for livestock breeding waste treatment**		
Competent authority	Department of Labour Inspection		
Other involved authorities	Department of Environment		
Type	Legal		
National legislation	Law no. 56(I)/2003 on Integrated Pollution Prevention Control		
Relevant European legislation	Directive 2008/1/EC of the European Parliament and of the Council of 15 January 2008 concerning integrated pollution prevention and control (Codified version)		
Measurable Target			
	2010	2015	2020
Measures towards attainment	Implementation of legislation		
Comments			
Source of information	Department of Environment		

2.5. Other measures

2.5.1. Emissions Trading System

The European Union Emissions Trading System (EU ETS) covers 13 installations in Cyprus, responsible for around 58% of the Cyprus' emissions[4]. The EU ETS covers electricity generation (three installations) and the main energy-intensive industries of the country, cement

production (two installations) and ceramics production (eight installations). Phase II of the system started on 1 January 2008 and will run until 31 December 2012.

The scope of Phase III, which begins in 2013, has been expanded to include new sectors and gases and also a broader definition of a combustion installation. The EU wide cap will decline each year to 2020 and beyond at a rate of 1.74% of the average annual level of the Phase II cap. This equates to an overall 21% reduction by 2020 compared to the 2005 verified emissions baseline under the EU ETS.

In Phase II all installations received their allowances for free. In Phase III, auctioning will be the default mechanism for allocation. Even though there is option for free allocation under certain conditions, it has not been decided whether Cyprus will implement that option.

2.5.2. Local authorities initiatives

In 2008 a new NGO was established in Cyprus, the "Cyprus Energy Agency", funded by the European Commission (75%) and the Union of Cyprus Communities (25%). The purpose of the "Cyprus Energy Agency" is to promote renewable energy sources and innovative technologies, energy efficiency and viable transport. The establishment of the particular NGO has created a new dynamic in the initiatives of local authorities. With the coordination of the organisation, Cypriot communities participate in programs for the reduction of emissions.

Particular attention at the moment is paid to the energy efficiency in municipalities and communities. Already, eleven municipalities and three communities have developed their own Energy Action Plans for the period 2010 to 2020. The measures included are implemented locally and are additional to the measures promoted and implemented by the competent authorities at national level.

The programs in which the municipalities and communities participate are the Covenant of Mayors and the European Islands Network on Energy and Environment (ISLE-PACT). Table 2.23 summarises the local authorities involved in the above programs and the CO_2 reductions target for 2020. Table 2.24 summarises the measures implemented for the achievement of the target. The main measures implemented are six: Energy savings in public buildings, Installation of RES systems in public buildings, Informational / educational campaigns, Energy savings in transport, Energy savings in road lighting and Development of green areas. The total reduction in CO_2 emissions has been estimated at 124 Gg CO_2 by 2020.

These measures have been taken into consideration in the "With Additional Measures" scenario.

Table 2.23. Local authorities involved in the ISLE-PACT and the Covenant of Mayors

Local authority	Covenant of Mayors	ISLE-PACT	Energy Action Plan	Estimated reductions in t CO_2 emissions in 2020
Strovolos	✓	✓	Implemented	27,658

Ayios Athanasios	✓	✓	Implemented	5,728
Paralimni	✓	✓	Under development	6,000
Latsia	✓	✓	Implemented	6,138
Aglantzia		✓	Under development	9,600
Dali		✓	Under development	4,760
Polis Chrysochou		✓	Under development	2,520
Aradippou		✓	Under development	9,600
Larnaca	✓	✓	Under development	27,700
Lakatamia		✓	Under development	14,250
Geri		✓	Under development	4,951
Ergates		✓	Under development	1,405
Lefkara	✓		Under development	3,000
Psimolofou*		✓	Under development	1,000
TOTAL				124,310

* expressed interest but has not yet signed

Table 2.24. Measures included in the energy action plans for local authorities with the respective reduction in CO_2 emissions

	Reduction in t CO_2 emissions/ year by 2020						
	1. Energy savings in public buildings	2. Installation of RES systems in public buildings	3. Informational / educational campaigns	4. Energy savings in transport	5. Energy savings in road lighting	6. Development of green areas	TOTAL
Strovolos	169	403	19,531	4,688	2,777	90	27,658
Ayios Athanasios	22	211	4,773	411	221	90	5,728
Paralimni	40	300	4,900	400	250	110	6,000
Latsia	73	211	4,966	577	221	90	6,138
Aglantzia	100	250	8,000	800	250	200	9,600
Dali	20	200	4,000	300	150	90	4,760
Polis Chrysochou	20	200	2,000	200	50	50	2,520
Aradippou	100	250	8,000	800	250	200	9,600
Larnaca	150	400	20,000	4,500	2,500	150	27,700
Lakatamia	150	300	12,000	1,200	400	200	14,250
Geri	50	211	4,000	450	150	90	4,951
Ergates	15	150	1,000	200	20	20	1,405
Lefkara	20	250	2,400	230	50	50	3,000
Psimolofou	10	150	600	140	20	20	1,000
TOTAL	939	3,486	96,230	14,896	7,309	1,450	124,310

Further measures have also been designed at local level, with the initiative on municipalities and communities. An example is the municipality of Aglantzia that has designed the following measures and is in the stage of implementation:

(a) Established an Inter-municipal Bicycle Company for bicycle hiring in central Nicosia - in collaboration with other municipalities of central Nicosia
(b) "Car pooling" service: service providing transport of people from other cities to Nicosia – in collaboration with the University of Cyprus
(c) Improvement of pedestrian routes in the municipality (approximately 5000 metres)

(d) Improvement of cycling routes in the municipality (approximately 2500 metres)
(e) Improvement and expansion of green areas in the municipality

2.5.3. Other EU obligations related to climate change

Table 2.25 summarises other EU obligations and their status of implementation in Cyprus.

Table 2.25. Other EU obligations related to climate change

Obligation	Implementation
Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020	Preparation of legislation: Decision 406/2009/EC is the first time that Cyprus has taken up emission reduction targets and the necessary legislative framework has to be prepared for the reductions to be achieved
Regulation (EC) No 443/2009 of the European Parliament and of the Council of 23 April 2009 setting emission performance standards for new passenger cars as part of the Community's integrated approach to reduce CO_2 emissions from light-duty vehicles	Enforced: first report under the regulation submitted
Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008 amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community	Legislation proposal has been approved by the Council of Ministers and submitted to the Parliament
Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community	Legislation proposal has been approved by the Council of Ministers and submitted to the Parliament
Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006	Preparation of legislation
Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC	Implemented
Regulation (EC) 1005/2009 on substances that deplete the ozone layer	Regulation is harmonised in Cyprus with Law 16(I)/2011
Commission Regulation (EC) No 842/2006 of the European	Regulation is harmonised in

Obligation	Implementation
Parliament and of the Council of 17 May 2006 on certain fluorinated greenhouse gases and related implementing regulations	Cyprus with Law 23(I)/2011 (implementing regulations harmonised with regulations 133/2010, 132/2010, 134/2010, 135/2010

3. Article 3(2)(b) National Projections

3.1. Baseline Scenario (Business as Usual) projections

The baseline projections (Figure 3.1) are based on two projections:

(a) The latest energy projections of the country that were published in June 2010 by the Cyprus Energy Regulatory Authority (CERA)[1]. The particular report gives projections on total electricity demand, final energy consumption for heating and cooling, final energy consumption for transport, final energy consumption for other uses and the total gross energy consumption for 2010 to 2020.

(b) The contribution of the sectors of agriculture and industry to the GDP of the country for 2010 to 2020, as used by CERA[2] in the energy projections.

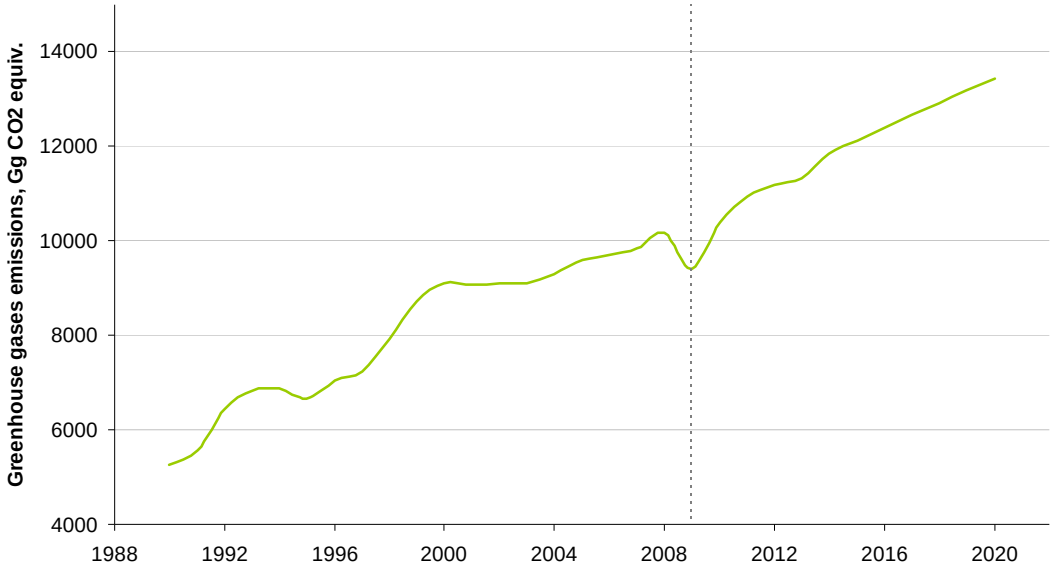

Figure 3.1. Projections for the Baseline scenario

The parameters used and steps implemented for the estimation of the total greenhouse gases emissions of the country for 2010 to 2020 were as follows:

Energy

(a) For the emissions from electricity production, the projections of the Electricity Authority of Cyprus (EAC) for CO_2 emissions were used. The EAC has included natural gas in its planning and this is reflected in the projections of emissions. Due to the delays of the import of natural gas, it was preferred not to include the import of natural gas as baseline scenario. Thus the emissions from 2014 to 2020 have been replaced with our estimations. We used the total electricity demand provided by the CERA[1] with the average emission

factor for 2010-2013 (0.8 t CO_2/MWh) from the information provided by the EAC and estimated the CO_2 without the import of natural gas.

(b) The emissions from the other sectors of energy (heating and cooling, transport and other uses) were estimated according to the projected energy consumption provided by the Cyprus Energy Regulatory Authority[1]. The emission factor used for CO_2 for heating and cooling, and transport, was 74.1 t CO_2/TJ according to combustion of diesel in the IPCC 2006 Guidelines[3], for other energy consumption was 77.7 t CO_2/TJ according to the average emissions factor for other energy consumption in the National Inventory of 2011[4].

(c) The emissions for CH_4 and N_2O from energy were estimated using the default emission factor from combustion of diesel in the IPCC 2006 Guidelines[3], i.e. 3 kg CH_4/ TJ and 0.6 kg N_2O/ TJ respectively.

Other sectors

(a) The annual change of emissions from Industrial activities and Agriculture is according to the annual change of contribution to the GDP as used by CERA[2] in the energy projections.

(b) The annual change of emissions from Solvent and Other Product Use, and Waste between 2010 and 2020 was assumed proportional to the annual change for Gross final energy consumption of the country for the same period.

(c) CO_2, CH_4 and N_2O emissions were estimated using the contribution of each gas to each sector in the National Inventory of 2011[4].

The total greenhouse gases emissions for the period 1990 to 2020 for the business as usual scenario, are presented in Figure 3.1. The data for 1990 to 2009 is according to the National Inventory Report 2011[4]. Total annual projected emissions for 2010-2020 are presented in **Table 3.1**. Projected emissions in 2020, show an increase of 155% compared to the emissions of 1990 and 43% compared to 2009.

Table 3.1. Total GHG emissions for Baseline scenario

Year	1990	2005	2009	2010	2015	2020
Total (Gg CO_2 eq.)	5273	9590	9401	10381	12126	13442
	NIR 2011[4]			Projections 2011		

3.1.1. Emissions per sector

Table 3.2 presents the assumptions and explanations described in section 3.1 for each for the sectors, on which the baseline projections are based. Summarising, industrial activities are assumed to have an annual reduction of 0.05%, agriculture annual reduction of 0.02%, solvent and waste follow the same trend as the energy demand according to CERA[1] and energy projections are based on the energy demand projections of CERA[1].

Table 3.2. Assumptions and information used for Baseline Projections for total GHG emissions per sector

	Energy	Industrial Processes	Solvent and Other Product Use	Agriculture	Waste
	Gross final energy consumption, TJ[1]	*Annual change*			
2010	80428	-0.05%	-16.62%	-0.02%	-16.62%
2015	90016	-0.05%	2.58%	-0.02%	2.58%
2020	99646	-0.05%	1.80%	-0.02%	1.80%

The emissions per sector as estimated for the Baseline scenario for 2010 to 2020 are presented in Table 3.3, in comparison to the inventory data of 1990, 1995, 2000, 2005 and 2009. Figure 3.2 presents the contribution of each sector to the total, while Figure 3.3 the change in the emissions per sector compared to 1990.

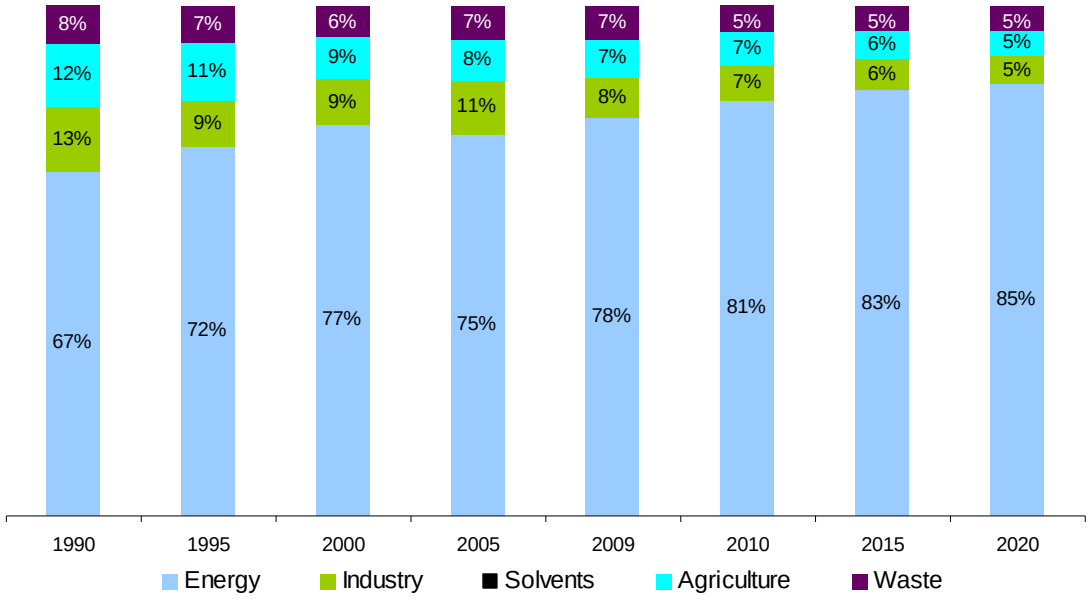

Figure 3.2. Projections for contribution of the sector to the total emissions according to the Baseline scenario for 1990, 1995, 2000, 2005, 2009, 2010, 2015 and 2020

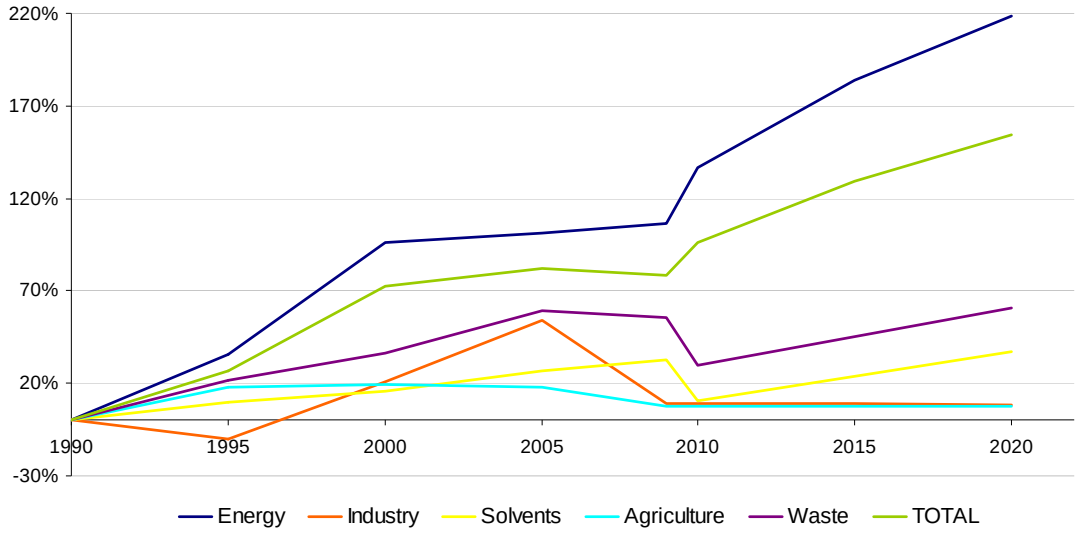

Figure 3.3. Change in emissions per sector according to the Baseline scenario compared to 1990

Table 3.3. Baseline Projections for total GHG emissions per sector (Gg CO_2 equiv.)

	Energy	Industry	Solvents	Agriculture	Waste	TOTAL
1990	3558	667	2.29	649	397	5273
1995	4820	599	2.51	763	482	6666
2000	6987	806	2.65	775	542	9112
2005	7161	1026	2.91	767	633	9590
2009	7354	727	3.05	699	617	9401
2010	8437	727	2.5	699	514	10381
2015	10124	725	2.8	698	576	12126
2020	11380	724	3.1	698	638	13442

3.1.2. Emissions per gas

Energy

The emissions per gas for energy were estimated using the energy projections[1] per sector, and the emission factors shown in Table 3.4. All the emission factors, with the exception of CO_2 from electricity production are according to the IPCC 2006 Guidelines[3]. The emissions per gas, per energy sector are presented in Table 3.5.

Table 3.4. Emission factors used for estimation of emissions per gas for energy

	CO_2	CH_4	N_2O
Electricity	2014-2020 0.8 t/MWh*	3 kg/TJ	0.6 kg/TJ
Heating & cooling	74.1 t/TJ	3 kg/TJ	0.6 kg/TJ
Transport	74.1 t/TJ	3 kg/TJ	0.6 kg/TJ
Other consumption	77.7 t/TJ	3 kg/TJ	0.6 kg/TJ

* for the years 2010 to 2013, the CO_2 emissions are reported as estimated by the EAC[1]

Table 3.5. Emissions per gas per energy sector (in Gg and Gg CO_2 equiv.) for 2010, 2015 and 2020

Electricity production							
	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	TOTAL
	Gg			Gg CO_2 eq.			Gg CO_2 eq
2010	3868	0.0581	0.0116	3868	1.22	3.60	3873
2015	5096	0.0688	0.0138	5096	1.44	4.27	5102
2020	5892	0.0796	0.0159	5892	1.67	4.93	5899

Heating & Cooling							
	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	TOTAL
	Gg			Gg CO_2 eq.			Gg CO_2 eq
2010	1731	0.0701	0.0140	1731	1.47	4.35	1737
2015	1883	0.0762	0.0152	1883	1.60	4.73	1889
2020	2020	0.0818	0.0164	2020	1.72	5.07	2026

Other Energy consumption							
	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	TOTAL
	Gg			Gg CO_2 eq.			Gg CO_2 eq
2010	535	0.0206	0.0041	535	0.43	1.28	536
2015	743	0.0287	0.0057	743	0.60	1.78	745
2020	942	0.0364	0.0073	942	0.76	2.26	946

Transport							
	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	TOTAL
	Gg			Gg CO_2 eq.			Gg CO_2 eq
2010	2283	0.0924	0.0185	2283	1.94	5.73	2291
2015	2380	0.0963	0.0193	2380	2.02	5.97	2388
2020	2501	0.1012	0.0202	2501	2.13	6.28	2509

TOTAL ENERGY							
	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	TOTAL
	Gg			Gg CO_2 eq.			Gg CO_2 eq
2010	8417	0.24	0.05	8417	5.07	14.96	8437
2015	10101	0.27	0.05	10101	5.67	16.74	10124
2020	11355	0.30	0.06	11355	6.28	18.53	11380

Industry, Solvent use, Agriculture and Waste

CO_2, CH_4 and N_2O emissions were estimated using the contribution of each gas to each sector in the National Inventory of 2011[4] (Table 3.6). According to the percent contribution of each gas to the total (Table 3.7) the emissions per gas for 2010, 2015 and 2020 were estimated. Table 3.8 shows the estimated emissions per gas for all sectors for 1990 to 2020.

Table 3.6. Emissions per gas per energy sector (in Gg) according to the NIR 2011[4]

	CO_2, Gg	CH_4, Gg	N_2O, Gg	HFCs (actual), Gg CO_2 eq.	PFCs (actual), Gg CO_2 eq.	SF_6 (actual), Gg CO_2 eq.
Industry	720.2	NA	NA	7.10	NA	NA
Solvent	3.05		NE			
Agriculture		19.20	0.95			
Waste	NE	29.40	NA			

Table 3.7. Percent contribution of each gas to the total of the sector according to the NIR 2011[4]

	CO_2	CH_4	N_2O	HFCs (actual)
Industry	99%	NA	NA	1%
Solvent	100%		NE	
Agriculture		58%	42%	
Waste	NE	100%	NA	

Table 3.8. Emissions per gas per sector in Gg CO_2 eq. for 1990-2020

Gg CO_2 eq.	**1990**	**1995**	**2000**	**2005**	**2009**	**2010**	**2015**	**2020**
Energy	**3558**	**4820**	**6987**	**7161**	**7354**	**8437**	**10124**	**11380**
CO_2	3521	4771	6919	7084	7265	8417	10101	11355
CH_4	8.72	10.65	13.31	13.77	17.20	5.07	5.67	6.28
N_2O	28.39	37.76	54.09	63.72	71.95	14.96	16.74	18.53
HFCs*	0	0	0	0	0	0	0	0
Industry	**667**	**599**	**806**	**1026**	**727**	**727.0**	**725.3**	**723.7**
CO_2	667	599	805	890	720	720	718	717
CH_4	0	0	0	0	0	0	0	0
N_2O	0	0	0	0	0	0	0	0
HFCs*			0.42	136	7	7	7	7
Solvent	**2.29**	**2.51**	**2.65**	**2.91**	**3.05**	**2.5**	**2.8**	**3.1**
CO_2	2.29	2.51	2.65	2.91	3.05	2.54	2.84	3.15
CH_4	0	0	0	0	0	0	0	0
N_2O	0	0	0	0	0	0	0	0
HFCs*	0	0	0	0	0	0	0	0
Agriculture	**649**	**763**	**775**	**767**	**699**	**699.1**	**698.5**	**697.8**
CO_2	0	0	0	0	0	0	0	0
CH_4	342	414	413	423	403	403	403	402
N_2O	306	349	362	345	296	296	296	295
HFCs*	0	0	0	0	0	0	0	0
Waste		**482**	**542**	**633**	**617**	**514.8**	**576.1**	**637.8**
CO_2	0	0	0	0	0	0	0	0
CH_4	397	482	542	633	617	515	576	638
N_2O	0	0	0	0	0	0	0	0
HFCs*	0	0	0	0	0	0	0	0
Total, Gg CO_2 eq.	**5273**	**6666**	**9112**	**9590**	**9401**	**10381**	**12126**	**13442**

* actual

Even though a projection has been made for the HFC emissions, there is a very large uncertainty in the result, due to the very large variability in the annual emissions for the gas.

Total per gas

According to the information and estimations presented above, the total emissions per gas are as shown in Table 3.9, for the years 1990, 1995, 2000, 2005, 2009, 2010, 2015 and 2020.

Table 3.9. Emissions per gas 1990, 1995, 2000, 2005, 2009, 2010, 2015 and 2020 in Gg CO_2 equiv.

	CO_2	CH_4	N_2O	HFCs	Total
1990	3907	748	339	0.00	4995
1995	5070	907	391	0.00	6368
2000	7418	969	424	0.42	8811
2005	7628	1070	410	136.1	9243
2009	7637	1038	369	7.10	9052
2010	9140	923	311	7.10	10381
2015	10822	985	312	7.08	12126
2020	12074	1046	314	7.07	13442

3.1.3. EU ETS and non-EU ETS

Figure 3.4 and Table 3.10 presents the baseline scenario for ETS and non-ETS emissions.

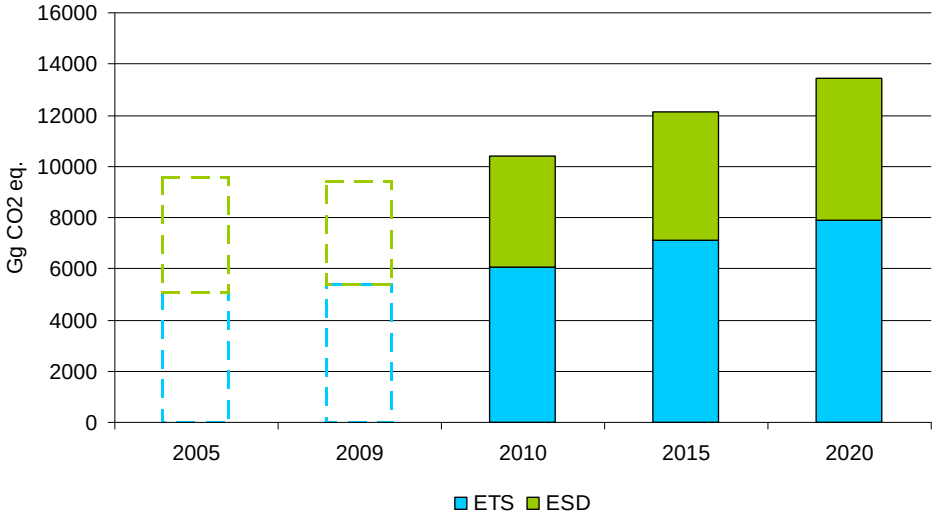

Figure 3.4. ETS and non-ETS emissions according to the baseline scenario

To estimate the ETS and non-ETS emissions the following assumptions and parameters have been taken into account:

(a) The emissions for ETS for 2005-2009 are according to the verified reports submitted to the competent authority annually.

(b) The contribution of the emissions from the ETS for 2010-2020 assumed to have the same contribution to the total as 2009 (57%).

(c) The non-ETS emissions are the remaining emissions when ETS emissions are subtracted from the total emissions.

Table 3.10. ETS and non-ETS emissions according to the baseline scenario

	ETS (Gg CO_2 e)	non-ETS (Gg CO_2 e)	Total, excl. LULUCF (Gg CO_2 e)
2005	5,082	4,508	9,590
2009	5,363	4,038	9,401
2010	6,048	4,333	10,381
2015	7,113	5,013	12,126
2020	7,906	5,536	13,442

3.2. *"With Existing Measures"* scenario

The "*With Existing Measures*" scenario includes implementation of policies and measures as shown in Table 3.11. The reduction in the GHG that can be achieved if the presented policies and measures are fully implemented is from 4% in 2010 to 31% in 2020. The impact of the reductions to the total emissions is shown in Figure 3.5.

Table 3.11. Reductions with policies and measures included in the "*With Existing Measures*" scenario

Policies and Measures	***"With Existing Measures"***		
	2010	**2015**	**2020**
A. Energy			
1. Natural Gas	from 2016		
2. Renewable Energy Sources			
2.1. Electricity	1.3%	8.4%	16%
2.2. Heating/ cooling*	16.2%	20%	23.5%
2.3. Transport	15700 toe	22700 toe	38400 toe
3. Energy Efficiency and Savings			
3.1. Savings from energy efficiency in residential buildings	15428 toe	105598 toe	199025 toe
3.2. Savings from energy efficiency in tertiary buildings	2000 toe	14897 toe	28519 toe
3.3. Savings from efficient bulbs	13868 toe	20404 toe	11215 toe
3.4. Savings from housing insulation	9952 toe	9952 toe	9952 toe
3.5. Savings in existing companies	12784 toe	11700 toe	6000 toe
4. Improvement of distribution systems	736 toe	733 toe	738 toe
5. Promotion of waste to energy in industry	6568 toe	9360 toe	12370 toe
B. Transport			
1. Promotion of public transport	3680 toe	7330 toe	11070 toe
2. Promotion of alternative technologies			
2.1. Hybrid vehicles	357 toe	357 toe	357 toe
2.2. Electric vehicles	19 toe	19 toe	19 toe
3. Promotion of low emission vehicles	703 toe	703 toe	703 toe
4. Promotion of replacement of vehicles (withdrawal of old vehicles)	3680 toe	7330 toe	11070 toe
C. Waste			
1. Methane recovery from existing and new waste management sites	10% reduction	10% reduction	70% reduction
2. Management of uncontrolled disposal sites	5%	20%	60%
3. Promotion of anaerobic digestion for treatment of sewage sludge	Annual reduction in emissions of 0.5%		
D. Agriculture			
1. Promotion of anaerobic digestion for treatment of livestock breeding waste	2010-2015 annual 1% reduction		2015-2020 annual 0.5% reduction

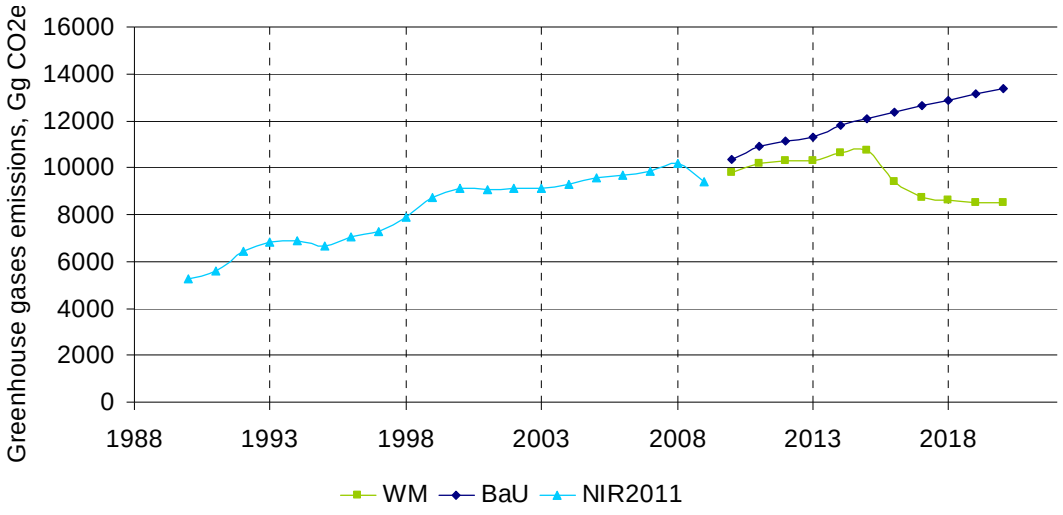

Figure 3.5. Impact of "*With Existing Measures*" scenario (WM) on baseline projections (BaU)

The GHG emissions if the WM scenario is fully implemented are shown in Table 3.12 for 2010, 2015 and 2020 compared to 1990, 2000, 2005 and 2009. All the measures and their reduction in emissions are presented in Table 3.13.

Table 3.12. "*With Existing Measures*" projections (WM) deviation from baseline (BaU) scenario until 2020

	1990	2000	2005	2009	2010	2015	2020
BaU, Gg CO_2 e	5,273	9,112	9,590	9,401	10,381	12,126	13,442
WM, Gg CO_2 e					9,811	10,804	8,558
% reduction from WM compared to BaU					-5%	-11%	-36%
WM change compared to 1990					86%	105%	62%

Table 3.13. Annual reduction in GHG emissions per measure of the "*With Existing Measures*" scenario, Gg CO_2 equiv.

Gg CO_2 eq	2010	2010	2010	2010	2015	2015	2015	2015	2020	2020	2020	2020
	CO_2	CH_4	N_2O	TOTAL	CO_2	CH_4	N_2O	TOTAL	CO_2	CH_4	N_2O	TOTAL
A. Energy	**490.4**	**0.6**	**1.8**	**492.8**	**1069**	**1.1**	**3.5**	**1074**	**1668**	**1.8**	**5.5**	**1675**
A1-NG	0	0	0	0	0	0	0	0	2474	0.000926	0.001367	2474
A2a-RES ele	19.5	0.016	0.047	19.6	150	0.12	0.36	150	329	0.27	0.79	330
A2b-RES heat	221	0.188	0.554	221	284	0.24	0.71	285	345	0.29	0.87	346
A2c-RES trans	47.1	0.199	0.723	48.1	68.1	0.29	1.05	69.5	115	0.49	1.77	118
A3a-Eff Houses	50.2	0.041	0.120	50.4	344	0.28	0.82	345	648	0.52	1.55	650
A3b-Eff tertiary	6.5	0.005	0.016	6.5	48.5	0.04	0.12	48.6	92.8	0.08	0.22	93.1
A3c-Eff bulbs	45.1	0.037	0.108	45.3	66.4	0.05	0.16	66.6	36.5	0.03	0.09	36.6
A3d-Eff insul	32.4	0.026	0.078	32.5	32.4	0.03	0.08	32.5	32.4	0.03	0.08	32.5
A3e-Eff compan	41.6	0.034	0.100	41.7	38.1	0.03	0.09	38.2	19.5	0.02	0.05	19.6
A4-distribution	2.4	0.002	0.006	2.4	2.5	0.00	0.01	2.5	2.6	0.00	0.01	2.6
A5-WTE vasiliko	24.9	0.017	0.051	25.0	35.5	0.02	0.07	35.6	47.0	0.03	0.10	47.1
B. Transport	**25**	**0**	**0**	**26**	**141**	**1**	**2**	**144**	**269**	**1**	**4**	**275**
B1-public transp	11.0	0.047	0.170	11.3	69.1	0.29	1.06	70.4	133	0.56	2.0	136
B2a-hybrid	1.1	0.005	0.0028	1.1	1.07	0.005	0.003	1.08	1.07	0.0045	0.0028	1.08
B2b-electric	0.057	0.005	0.0001	0.062	0.057	0.005	0.0001	0.06	0.06	0.0045	0.0001	0.0617
B3-low emm.veh	2.1	0.005	0.032	2.1	2.11	0.005	0.032	2.15	2.11	0.0045	0.03	2.1
B4-replacement	11.0	0.047	0.170	11.3	69.1	0.29	1.06	70.4	133	0.5632	2.0	136
C. Waste		**51**		**44**		**104**		**63**		**463**		**407**
C1-CH4 recovery		40.1		40.1		44.9		44.9		347.7		348
C2-uncontrolled		3.8		3.8		16.9		16.9		56.2		56.2
C3-AD sludge		7.0		0.1911		41.9		1.2831		59.3		2.6
D. Agriculture		**4.0**	**3.0**	**7.0**		**24.0**	**17.9**	**41.9**		**34.0**	**25.3**	**59.3**
D1-AD promotion		4.0	3.0	7.0		24.0	17.9	41.9		34.0	25.3	59.3
Total reductions	**515.7**	**55.5**	**5.15**	**569.6**	**1210**	**129.4**	**23.5**	**1323**	**4411**	**500.1**	**34.9**	**4889**

3.2.1. Sensitivity analysis

The change in total of "*With Exisitng Measures*" scenario at 1% change of each measure is presented in Table 3.14 for 2010, 2015 and 2020. Figure 3.6 presents the impact of the measures schematically.

Table 3.14. Change in total of "*With Existing Measures*" scenario at 1% change of each measure

	2010	**2015**	**2020**
A. Energy			
1. Natural Gas	0.00%	0.00%	0.51%
2.1. RES-Electricity	0.03%	0.11%	0.07%
2.2. RES-Heating/ cooling	0.39%	0.22%	0.07%
2.3. RES-Transport	0.08%	0.05%	0.02%
3.1. Savings from energy efficiency in residential buildings	0.088%	0.26%	0.133%
3.2. Savings from energy efficiency in tertiary buildings	0.0115%	0.037%	0.0191%
3.3. Savings from efficient bulbs	0.08%	0.05%	0.01%
3.4. Savings from housing insulation	0.057%	0.025%	0.0067%
3.5. Savings in existing companies	0.073%	0.029%	0.0040%
4. Improvement of production and distribution systems	0.00%	0.00%	0.00%
5. Promotion of waste to energy in industry	0.04%	0.03%	0.01%
B. Transport	0.02%	0.05%	0.03%
1. Promotion of public transport	0.0019%	0.0008%	0.0002%
2.1. Hybrid vehicles	0.0001%	0.0000%	0.0000%
2.2. Electric vehicles	0.0038%	0.0016%	0.0004%
3. Promotion of low emission vehicles	0.02%	0.05%	0.03%
4. Promotion of replacement of vehicles (withdrawal of old vehicles)	0.07%	0.03%	0.07%
C. Waste	0.01%	0.01%	0.01%
1. Methane recovery from existing and new waste management sites	0.0003%	0.0010%	0.0005%
2. Management of uncontrolled disposal sites	0.01%	0.03%	0.01%
3. Promotion of anaerobic digestion for treatment of sewage sludge	0.00%	0.00%	0.51%
D. Agriculture	0.03%	0.11%	0.07%
1. Promotion of anaerobic digestion for treatment of livestock breeding waste	0.39%	0.22%	0.07%

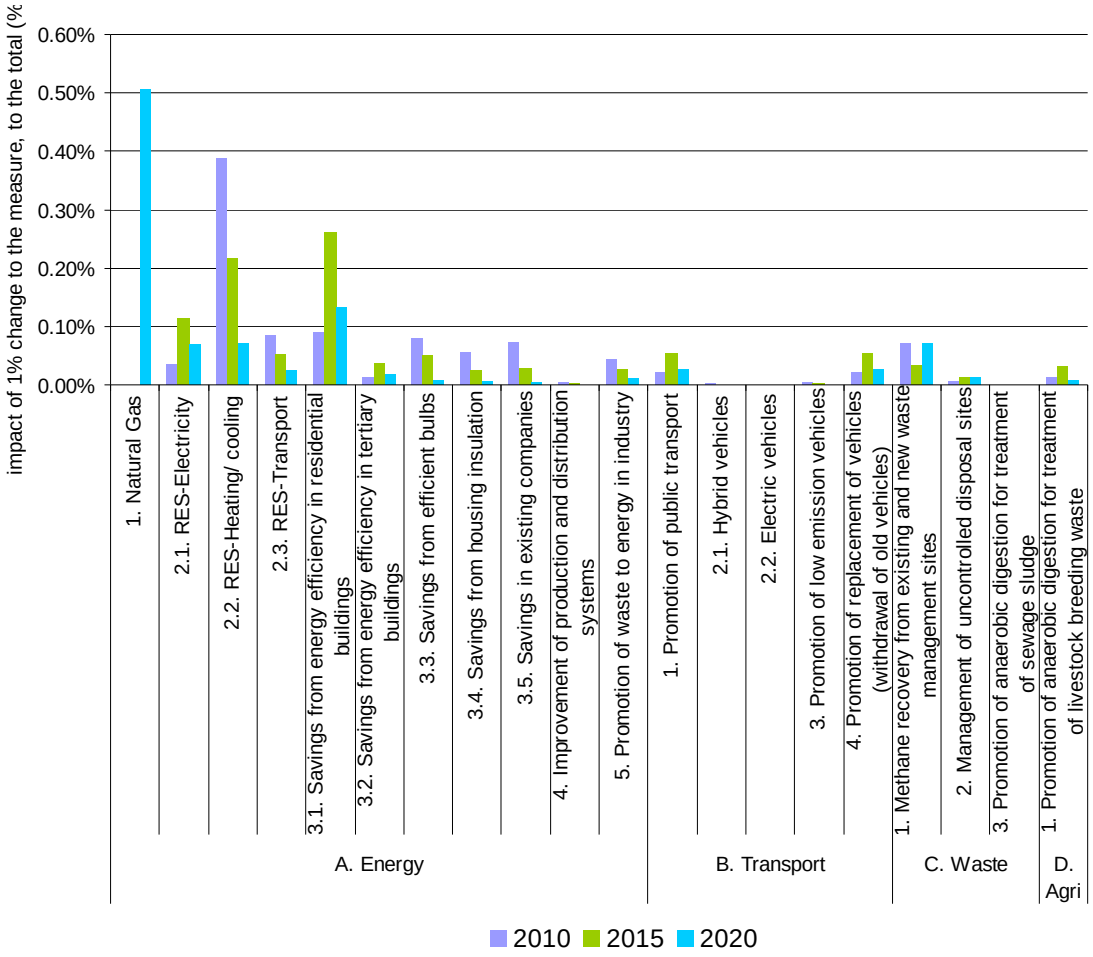

Figure 3.6. Change in total emissions of "*With Existing Measures*" scenario at 1% change of each measure

3.2.2. EU ETS and non-EU ETS

ETS and non-ETS emissions for the "*With Existing Measures*" scenario are presented in Table 3.15 and Figures 3.7, 3.8 and 3.9.

Table 3.15. ETS and non-ETS emissions according to the "*With Existing Measures*" scenario

	ETS (Gg CO_2 e)	non-ETS (Gg CO_2 e)	Total, excl. LULUCF (Gg CO_2 e)
2005	5,082	4,508	9,590
2009	5,259	4,445	9,704
2010	5,820	3,991	9,811
2015	6,403	4,401	10,804
2020	4,243	4,309	8,553

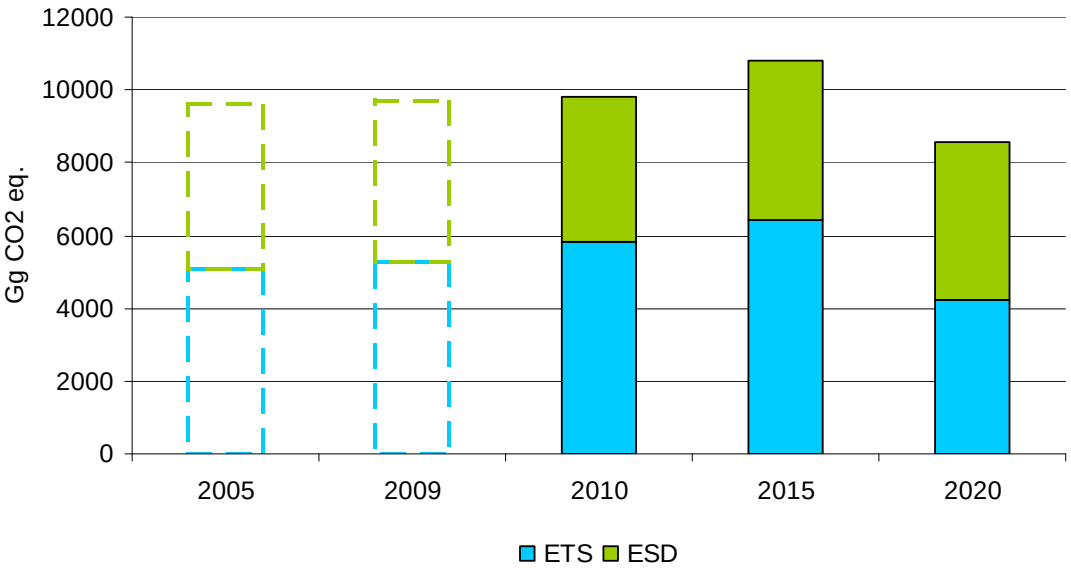

Figure 3.7. ETS and non-ETS emissions according to the "*With Existing Measures*" scenario

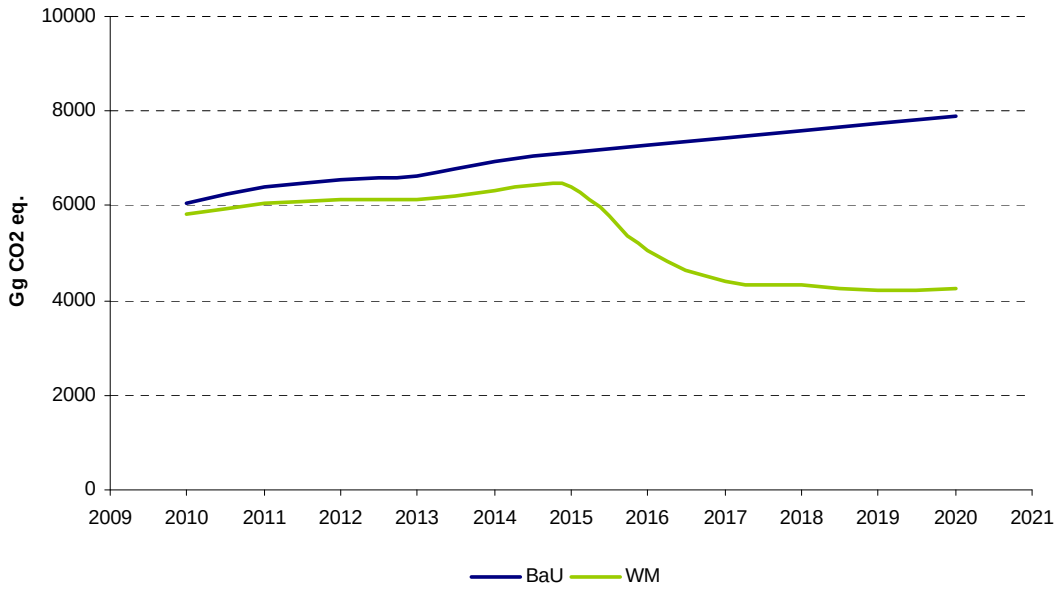

Figure 3.8. ETS emissions according to the "*With Existing Measures*" scenario, compared to the ETS emissions according to the "Business as Usual" scenario

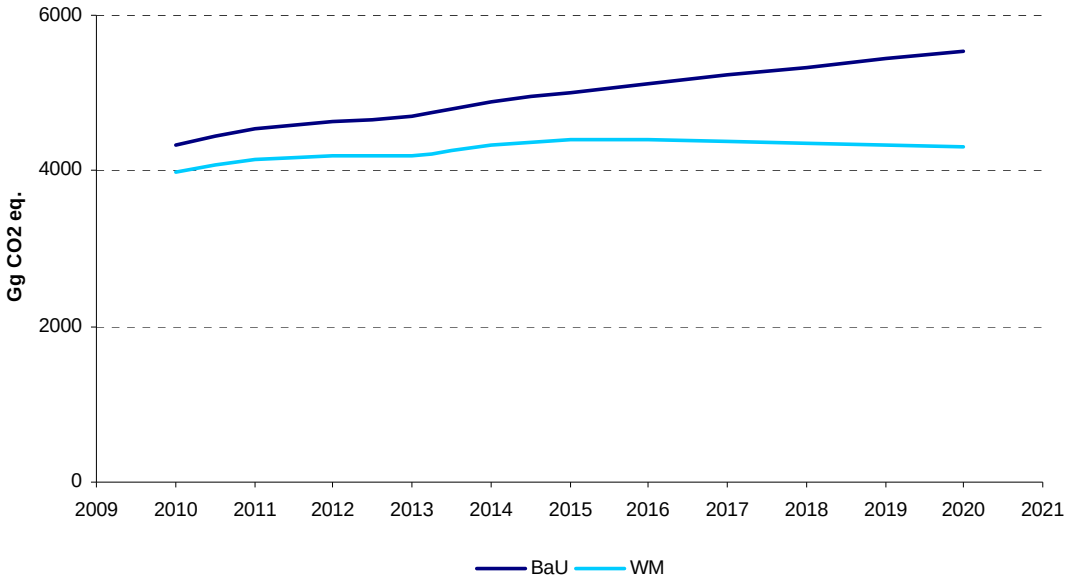

Figure 3.9. Non-ETS emissions according to the "*With Existing Measures*" scenario, compared to the non-ETS emissions according to the "Business as Usual" scenario

3.3. "*With Additional Measures*" scenario

The "*With Additional Measures*" scenario includes implementation of policies and measures as shown in Table 3.16. The reduction in the GHG that can be achieved if the presented policies and measures are fully implemented is from 6% in 2010 to 51% in 2020 compared to the "*business as usual*" scenario. The impact of the reductions to the total emissions is shown in Figure 3.10.

Table 3.16. Reductions with policies and measures included in the "*With Additional Measures*" scenario

Policies and Measures	***With Additional Measures***		
	2010	**2015**	**2020**
A. Energy			
1. Natural Gas	from 2014		
2. Renewable Energy Sources 2.1. Electricity	1.30%	8.40%	16%
2.2. Heating/ cooling*	16.20%	20%	23.50%
2.3. Transport	15700 toe	22700 toe	38400 toe
3. Energy Efficiency and Savings			
3.1. Savings from energy efficiency in residential buildings	15428 toe	115453 toe	220214 toe
3.2. Savings from energy efficiency in tertiary buildings	2000 toe	46023 toe	1033226 toe
3.3. Savings from efficient bulbs	13868 toe	20404 toe	11215 toe
3.4. Savings from housing insulation	9952 toe	17213 toe	24089 toe
3.5. Savings in existing companies	12784 toe	20331 toe	21524 toe
4. Improvement of distribution	463 toe	548 toe	633 toe

systems			
5. Promotion of waste to energy in industry	6568 toe	9500 toe	12500 toe
B. Transport			
	Annual reduction in emissions of 1%		
1. Promotion of public transport	7360 toe	46020 toe	88660 toe
2. Promotion of alternative technologies			
2.1. Hybrid vehicles	357 toe	357 toe	357 toe
2.2. Electric vehicles	19 toe	19 toe	19 toe
3. Promotion of low emission vehicles	703 toe	703 toe	703 toe
4. Promotion of replacement of vehicles (withdrawal of old vehicles)	7360 toe	46020 toe	88660 toe
5. Savings from additional energy efficiency measures in transport		215718 toe	328402 toe
C. Waste			
1. Methane recovery from existing and new waste management sites	10% reduction	10% reduction	80% reduction
2. Management of uncontrolled disposal sites	5%	30%	70%
3. Promotion of anaerobic digestion for treatment of sewage sludge	Annual reduction in emissions of 1%		
D. Agriculture			
1. Promotion of anaerobic digestion for treatment of livestock breeding waste	2010-2015 annual 2% reduction	2015-2020 annual 1% reduction	

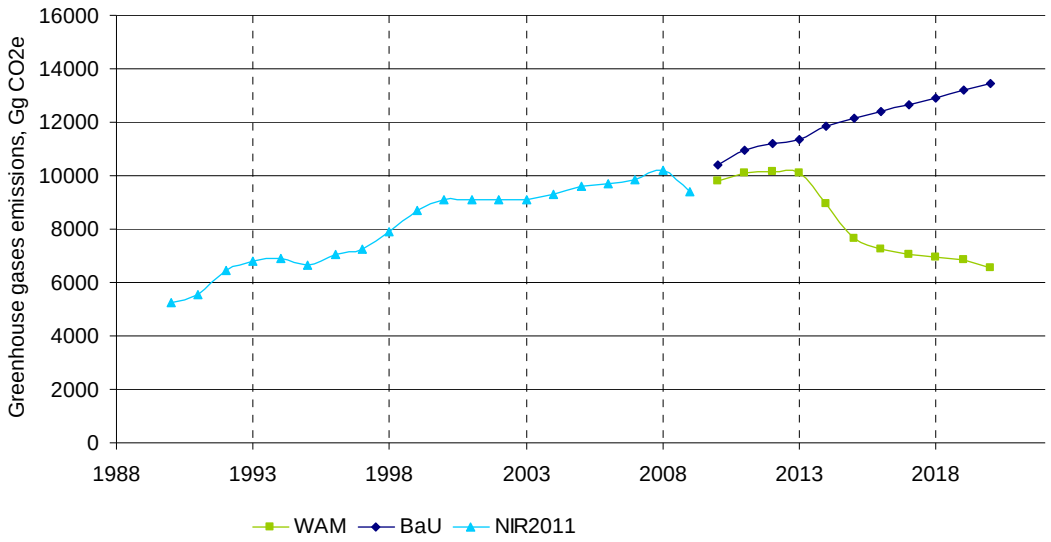

Figure 3.10. Impact of "*With Additional Measures*" (WAM) scenario on baseline projections (BaU)

All the measures and their reduction in emissions are presented in Table 3.17. The GHG emissions if the WM scenario is fully implemented are shown in Table 3.18 for 2010, 2015 and 2020 compared to 1990, 2000, 2005 and 2009.

Table 3.17. Annual reduction in GHG emissions per measure of the *With Additional Measures* scenario, Gg CO_2 equiv.

Gg CO_2 eq	2010				2015				2020			
	CO_2	CH_4	N_2O	TOTAL	CO_2	CH_4	N_2O	TOTAL	CO_2	CH_4	N_2O	TOTAL
A. Energy	**489.50**	**0.41**	**1.20**	**491.10**	**3380.51**	**1.03**	**3.04**	**3384.58**	**4767.87**	**1.70**	**5.02**	**4774.59**
A1-NG	0.00	0.00	0.00	0.00	2126.58	0.00	0.00	2126.58	2691.77	0.00	0.00	**2691.77**
A2a-RES ele	19.53	0.02	0.05	19.59	149.70	0.12	0.36	150.18	328.69	0.27	0.79	**329.74**
A2b-RES heat	220.56	0.19	0.55	221.30	284.15	0.24	0.71	285.11	345.08	0.29	0.87	**346.24**
A2c-RES trans	47.13	0.04	0.12	47.29	68.14	0.06	0.18	68.38	115.27	0.10	0.30	**115.67**
A3a-Eff Houses	50.21	0.04	0.12	50.37	375.73	0.30	0.90	376.93	716.66	0.58	1.71	**718.95**
A3b-Eff tertiary	6.51	0.01	0.02	6.53	149.78	0.12	0.36	150.25	335.93	0.27	0.80	**337.01**
A3c-Eff bulbs	45.13	0.04	0.11	45.28	66.40	0.05	0.16	66.61	36.50	0.03	0.09	**36.61**
A3d-Eff insul	32.39	0.03	0.08	32.49	56.02	0.05	0.13	56.20	78.39	0.06	0.19	**78.64**
A3e-Eff compan	41.60	0.03	0.10	41.74	66.16	0.05	0.16	66.37	70.05	0.06	0.17	**70.27**
A4-distribution	1.51	0.00	0.00	1.51	1.78	0.00	0.00	1.79	2.06	0.00	0.00	**2.07**
A5-WTE vasiliko	24.94	0.02	0.05	25.01	36.08	0.03	0.07	36.17	47.47	0.03	0.10	**47.60**
B. Transport	**47.43**	**0.04**	**0.12**	**47.59**	**927.11**	**0.81**	**2.41**	**930.33**	**1521.38**	**1.34**	**3.95**	**1526.66**
B1-public transp	22.09	0.02	0.06	22.17	138.15	0.12	0.36	138.63	266.15	0.23	0.69	**267.08**
B2a-hybrid	1.07	0.00	0.00	1.08	1.07	0.00	0.00	1.08	1.07	0.00	0.00	**1.08**
B2b-electric	0.06	0.00	0.00	0.06	0.06	0.00	0.00	0.06	0.06	0.00	0.00	**0.06**
B3-low emm.veh	2.11	0.00	0.01	2.12	2.11	0.00	0.01	2.12	2.11	0.00	0.01	**2.12**
B4-replacement	22.09	0.02	0.06	22.17	138.15	0.12	0.36	138.63	266.15	0.23	0.69	**267.08**
B5-additional	0.00	0.00	0.00	0.00	647.57	0.57	1.68	649.82	985.84	0.87	2.56	**989.26**
C. Waste	**0.00**	**44.26**	**0.00**	**44.26**	**0.00**	**72.83**	**0.00**	**72.83**	**0.00**	**468.18**	**0.00**	**468.18**
C1-CH4 recovery	0.00	40.09	0.00	40.09	0.00	44.87	0.00	44.87	0.00	397.38	0.00	**397.38**
C2-uncontrolled	0.00	3.78	0.00	3.78	0.00	25.39	0.00	25.39	0.00	65.59	0.00	**65.59**
C3-AD sludge	0.00	0.38	0.00	0.38	0.00	2.57	0.00	2.57	0.00	5.21	0.00	**5.21**
D. Agriculture	**0.00**	**8.02**	**5.96**	**13.98**	**0.00**	**48.08**	**35.74**	**83.82**	**0.00**	**68.05**	**50.58**	**118.63**
D1-AD promotion	0.00	8.02	5.96	13.98	0.00	48.08	35.74	83.82	0.00	68.05	50.58	**118.63**
Total reductions	**536.93**	**52.72**	**7.28**	**596.93**	**4307.62**	**122.76**	**41.18**	**4471.56**	**6289.25**	**539.26**	**59.54**	**6888.05**

Table 3.18. *With Additional Measures* projections (WAM) deviation from baseline scenario (BaU) until 2020

	1990	2000	2005	2009	2010	2015	2020
BaU, Gg CO_2 e	5273	9112	9590	9401	10,381	12,126	13,442
WAM, Gg CO_2 e					9,784	7,655	6,554
Difference from BaU					5.7%	36%	50.8%
WAM change from 1990					86%	46%	25%

3.3.1. Sensitivity analysis

The change in total of "*With Additional Measures*" scenario at 1% change of each measure is presented in Table 3.19 for 2010, 2015 and 2020. Figure 3.11 presents the impact of the measures schematically.

Table 3.19. Change in total of "*With Additional Measures*" scenario at 1% change of each measure

	2010	**2015**	**2020**
A. Energy			
1. Natural Gas	0.00%	0.48%	0.39%
2.1. RES-Electricity	0.03%	0.03%	0.05%
2.2. RES-Heating/ cooling	0.37%	0.06%	0.05%
2.3. RES-Transport	0.08%	0.02%	0.02%
3.1. Savings from energy efficiency in residential buildings	0.08%	0.08%	0.10%
3.2. Savings from energy efficiency in tertiary buildings	0.01%	0.03%	0.05%
3.3. Savings from efficient bulbs	0.08%	0.01%	0.01%
3.4. Savings from housing insulation	0.05%	0.013%	0.011%
3.5. Savings in existing companies	0.070%	0.015%	0.010%
4. Improvement of production and distribution systems	0.00%	0.0004%	0.0003%
5. Promotion of waste to energy in industry	0.04%	0.008%	0.007%
B. Transport			
1. Promotion of public transport	0.04%	0.03%	0.04%
2.1. Hybrid vehicles	0.0018%	0.00024%	0.00016%
2.2. Electric vehicles	0.0001%	0.0000%	0.0000%
3. Promotion of low emission vehicles	0.0035%	0.0005%	0.0003%
4. Promotion of replacement of vehicles (withdrawal of old vehicles)	0.04%	0.03%	0.04%
5. Savings from additional energy efficiency measures in transport	0.00%	0.15%	0.14%
C. Waste			
1. Methane recovery from existing and new waste management sites	0.07%	0.01%	0.06%
2. Management of uncontrolled disposal sites	0.01%	0.01%	0.01%
3. Promotion of anaerobic digestion for treatment of sewage sludge	0.001%	0.001%	0.001%
D. Agriculture			
1. Promotion of anaerobic digestion for treatment of livestock breeding waste	0.02%	0.02%	0.02%

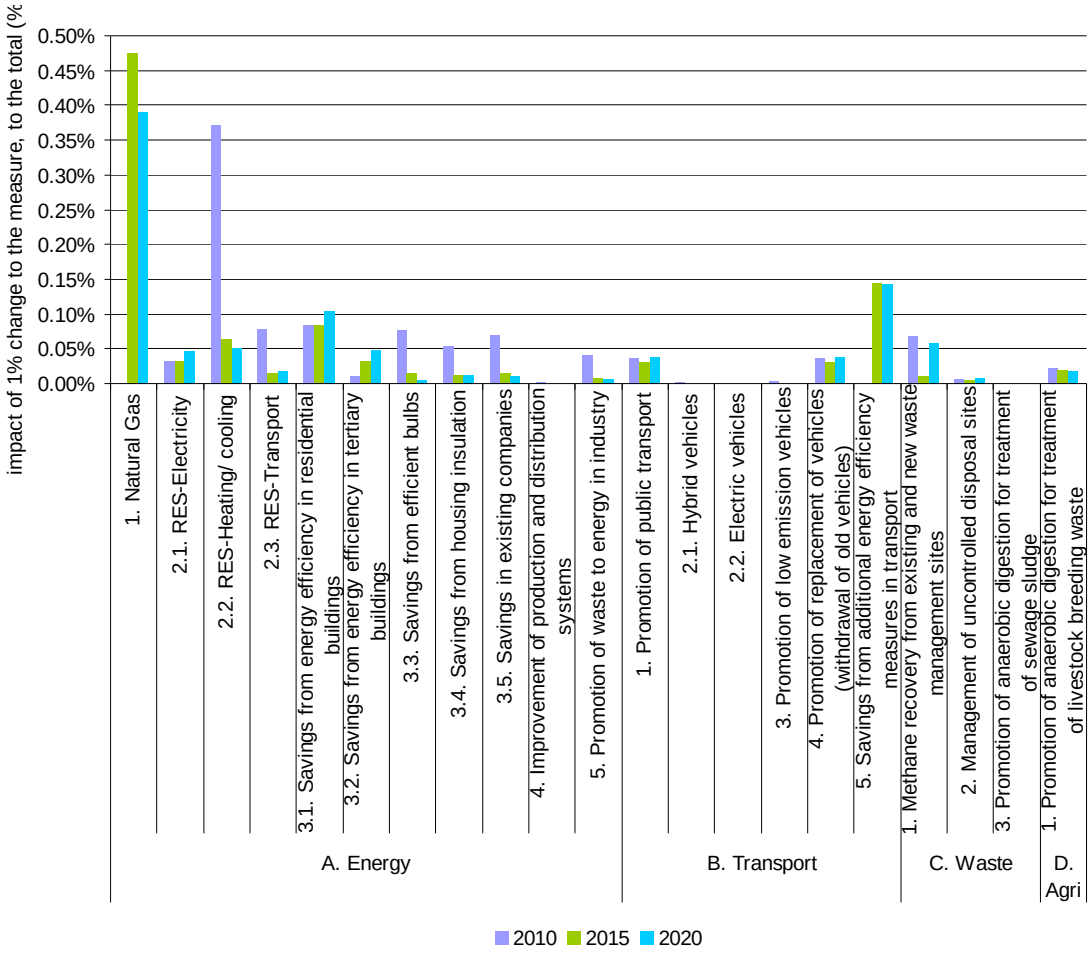

Figure 3.11. Change in total of "*With Additional Measures*" scenario at 1% change of each measure

3.3.2. EU ETS and non-EU ETS

ETS and non-ETS emissions for the "*With Additional Measures*" scenario are presented in Table 3.20 and Figures 3.12, 3.13 and 3.14.

Table 3.20. ETS and non-ETS emissions according to the "*With Additional Measures*" scenario

	ETS (Gg CO_2 e)	non-ETS (Gg CO_2 e)	Total, excl. LULUCF (Gg CO_2 e)
2005	5,082	4,508	9,590
2009	5,259	4,445	9,401
2010	5,821	3,963	9,784
2015	4,100	3,555	7,655
2020	3,636	2,918	6,554

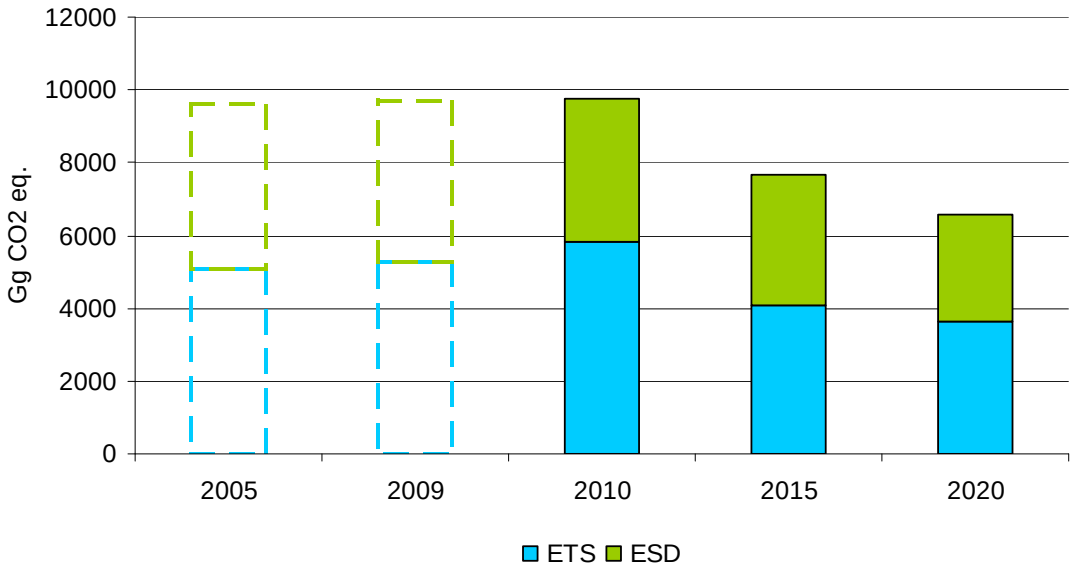

Figure 3.12. ETS and non-ETS emissions according to the "*With Additional Measures*" scenario

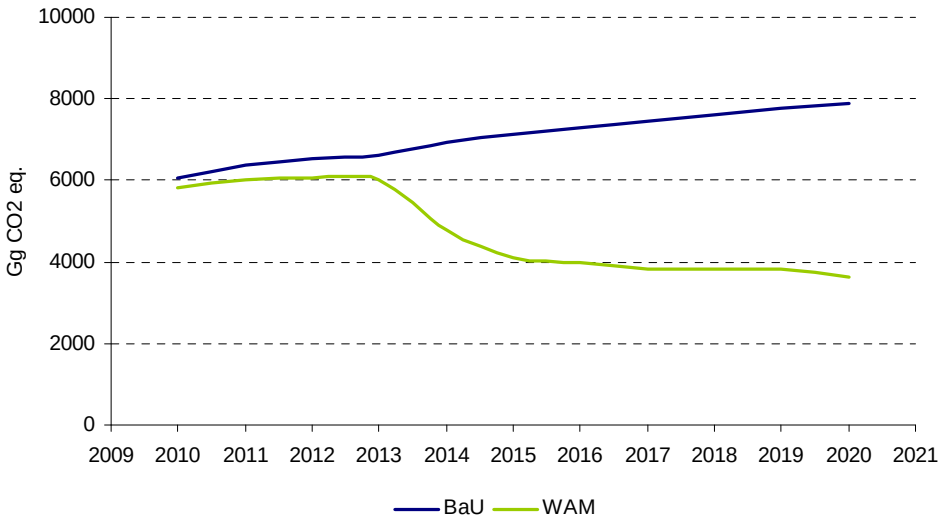

Figure 3.13. ETS emissions according to the "*With Additional Measures*" scenario, compared to the ETS emissions according to the "*Business as Usual*" scenario

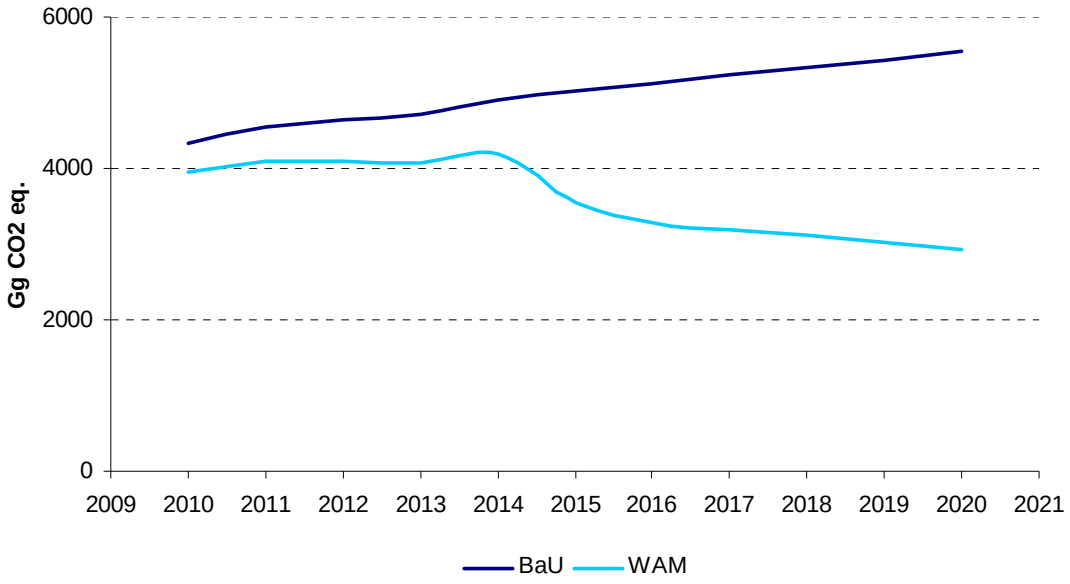

Figure 3.14. Non-ETS emissions according to the "*With Additional Measures*" scenario, compared to the non-ETS emissions according to the "*Business as Usual*" scenario

3.4. "*With Existing Measures*" and "*With Additional Measures*" scenarios

Table 3.21 and Figure 3.15 present the comparison of the two scenarios to the baseline scenario.

Table 3.21. "*With Existing Measures*" and "*With Additional Measures*" scenarios compared to baseline scenario

	BaU	WM	WAM
1990	5,273		
2000	9,112		
2005	9,590		
2010	10,381	9,811	9,784
2015	12,126	10,804	7,655
2020	13,442	8,553	6,554
2020 compared to 1990	155%	62%	24%
Compared to BaU (2020)		-36%	-51%

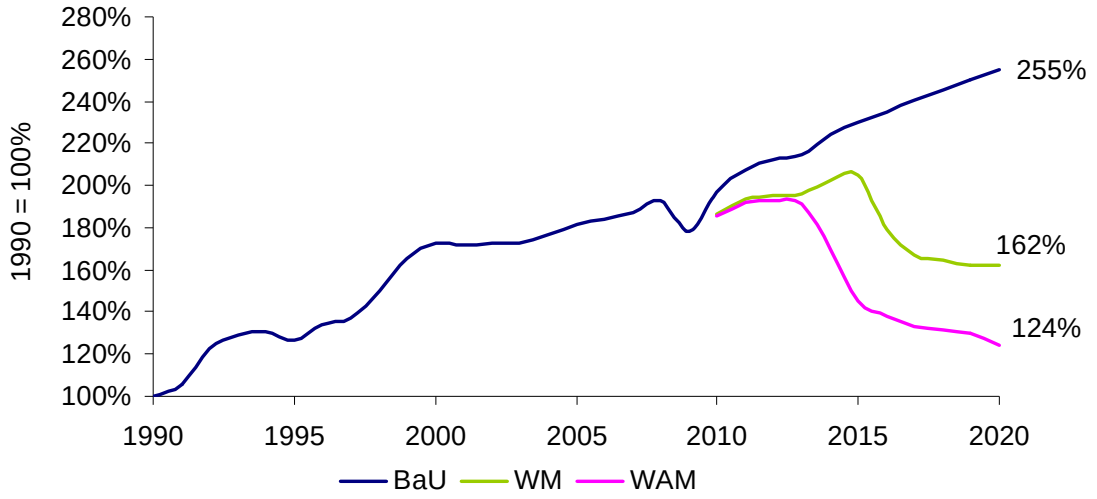

Figure 3.15. "*With Existing Measures*" (WM) and "*With Addition Measures*" (WAM) scenarios compared to baseline scenario (BaU), 1990 = 100%

3.5. 2005/166/EC 9(c): Indicators for projections (Annex III)

Indicators for projections for which data is available, have been submitted only the excel template.

3.6. 2005/166/EC 10(2): Parameters for projections (Annex IV)

Parameters for projections which have been used for projections, have been submitted only the excel template.

4. International Commitments

4.1. Article 3(2)(c) Community legislation and policies

Please refer to Chapter 2 for details.

4.1.1. Legal and institutional steps for implementation of commitments

Please refer to Chapter 2 for details.

4.2. Kyoto Protocol

The European Union is an Annex I signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and an Annex B signatory to its Kyoto Protocol (KP). The KP sets quantified targets for reducing greenhouse gas emissions for those signatories that are included in its Annex B. Cyprus ratified the UNFCCC as a non-Annex I party on 15th October 1997, and on the same basis, subsequently ratified the Kyoto Protocol on 16th July 1999; i.e. *Cyprus has no emissions limitation commitments.*

The competent authority for the implementation of commitments made through the Kyoto Protocol is the Department of Environment of the Ministry of Agriculture, Natural Resources and Environment.

4.2.1. Participation of legal entities

The European Union, representing the 15 pre-May 2004 Member States, is an Annex I signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and an Annex B signatory to its Kyoto Protocol. The Kyoto Protocol (KP) sets quantified targets for reducing greenhouse gas emissions for those signatories that are included in its Annex B. Cyprus ratified the UNFCCC as a non-Annex I party on 15th October 1997, and on the same basis, subsequently ratified the Kyoto Protocol on 16th July 1999.

Although Cyprus does not have any individual reduction limitation commitments, the EU target of reduction of 5% for the non-ETS sectors in comparison to 2005 and -21% for ETS installations by 2020 has been allocated to the country with the EU climate and energy package.

Another issue that is unique to Cyprus is the isolation of the energy market. At present Cyprus is not connected to any other country in energy terms, through gas or oil pipelines or through interconnection between the electricity grids. It follows that Cyprus relies almost exclusively on imported oil, and small quantities of coal and other fuels that are used in the cement industry. The small size of the country also makes it difficult for them to benefit from economies of scale in the energy sector.

4.3. Questionnaire on the use of the Kyoto Protocol mechanisms in meeting the 2008-2012 targets (Decision 2005/166/EC, Annex V)

1. *Does your Member State intend to use joint implementation (JI), the clean development mechanism (CDM) and international emissions trading (IET) under the Kyoto Protocol (the Kyoto mechanisms) to meet its quantified emission limitation or reduction commitment pursuant to Article 2 of Decision 2002/358/EC and the Kyoto Protocol? If so, what progress has been made with the implementing provisions (operational programmes, institutional decisions) and any related domestic legislation?*

   Not applicable; Cyprus is a non - Annex I party to the UNFCCC.

2. *Has your Member State established and notified to the UNFCCC a designated national authority for clean development mechanism projects and a designated focal point for joint implementation projects? If so, please provide details.*

   Cyprus has designated the Department of Environment as competent authority for clean development mechanism projects. Responsible person is Dr. Theodoulos Mesimeris (tmesimeris@environment.moa.gov.cy, tel: +357 22 408948).

3. *Which of the three Kyoto mechanisms is your Member State using or does it plan to use?*

   Not applicable; Cyprus is a non - Annex I party to the UNFCCC.

4. *What quantitative contributions to the fulfilment of the quantified emission limitation or reduction commitment pursuant to Article 2 of Decision 2002/358/EC and the Kyoto Protocol does your Member State expect from the Kyoto mechanisms during the first quantified emission limitation and reduction commitment period, from 2008 to 2012 (please use Table 1)?*

   Not applicable.

5. *Specify the budget in euro for the total use of the Kyoto mechanisms and, where possible, per mechanism and initiative, programme or fund, including the time over which the budget will be spent.*

   Not applicable.

6. *With which countries has your Member State closed bilateral or multilateral agreements, or agreed memorandums of understanding or contracts for the implementation of project based activities?*

   Not applicable.

7. *For each planned, ongoing and completed clean development mechanism and joint implementation project activity in which your Member State participates, provide the following information (Table 4.1.)*

Cyprus is a non-Annex I country and therefore can host CDM projects. Table 6.1 presents the projects for which project design documents have been approved by the competent authority. The projects fall within the categories of energy and agriculture. It should be noted that:

- host country is replaced in the table by Annex I country involved;
- category is for all projects CDM
- first/ second track approval is not included – no JI projects

It should be noted that all information are according to the project design documents submitted to the national competent authority.

Table 4.2 presents the annual estimation of emission reductions (tCO_2 eq./year) according to the PDD submitted to the Cyprus DNA.

Table 4.1. CDM projects for which PDDs have been approved by the Competent Authority to be hosted in Cyprus

CDM PROJECT	(a) Project Title	Annex I country involved	(c) Financing	(d) Project type	(e) Status	(f) Lifetime	(h) Projected total emissions reduction that accrue until the end of the first commitment	(i) Amount of ERUs or CERS generated	(j) Credits accrued until the end of 2009	Registration to UNFCCC	Reductions as stated by the project participants (CO2 equivalent per annum)	UNFCCC reference number
1	Anaerobic digestion at Armenis Farm Ltd	The Netherlands	Private	Agriculture	Under construction (construction phase)	PDD submitted: 29/01/08 Letter of approval: 02/05/08 Start of operation: 01/05/08 Project termination: 2018 Crediting period: from 01/07/08 Date of issue: NA	73,166	2008: 7,71 2009: 15,552 2010: 16,280 2011: 16,768 2012: 17,095 2013: 17,315 2014: 17,462 2015: 17,560 2016: 17,626 2017: 17,670 2018: 11,277 Total: 172,076	None	12/06/2009	10767	2334
2	Wind Park at Orites Archimandritas		Private	Energy and power	Under construction (construction)	PDD submitted: Letter of approval: 08/01/08 Start of operation: 01/01/10 Project termination: 2019 Crediting period: from 01/01/10 Date of issue: NA	702,444	234,148/ year 10 year total: 2,341,480	None			
3	Kambi Wind Farm Project	The Netherlands	Private	Energy and power	Under construction (start up)	PDD submitted: 19/11/08 Letter of approval: 21/11/08 Start of operation: 01/01/10 Project termination: 2019 Crediting period: from 01/01/10 Date of issue: NA	38,100	12,700/ year 10 year total: 12,7001	None			
4	30 MW TSP Aeolian Dynamics Wind Power Project	The Netherlands	Private	Energy and power	Under construction (start up)	PDD submitted: 22/01/09 Letter of approval: 26/01/09 Start of operation: 01/01/11 Project termination: 2020 Crediting period: from 01/01/11 Date of issue: NA	119,706	59,853/ year 10 year total: 343,660	None			
5	Orounda Biogas plant in Cyprus	United Kingdom	Private	Agriculture	Under construction (start up)	PDD submitted: 06/04/09 Letter of approval: 03/07/09 Start of operation: 01/04/09 Project termination: 2020 Crediting period: from 01/11/10 Date of issue: NA	68,732	34,366/ year 10 year total: 343,660	None			

6	Animalia		Private	Agriculture	In operation	PDD submitted: Letter of approval: 21/04/2008 Start of operation: 07/2008 Project termination: 31/12/2018 Crediting period: from 1/1/2009 Date of issue: NA	48,363	12,242/ year 10 year total: 122,416	None	25/02/2009	12242	2331
7	Andreou & costi		Private	Agriculture	In operation	PDD submitted: Letter of approval: 30/10/2008 Start of operation: 07/2008 Project termination: 31/12/2018 Crediting period: from 1/1/2009 Date of issue: NA	69,896	17,474/ year 10 year total: 174,741	None	31/03/2009	17474	2329
8	Rokas Renewables		Private	Energy and power	Under construction (start up)	PDD submitted: 28/06/09 Letter of approval: 03/07/09 Start of operation: 01/08/2011 Project termination:31/7/2021 Crediting period: from 01/08/2011 Date of issue: NA	71,106	50,007/ year 10 year total: 500,069	None			
9	Rokas Renewables		Private	Energy and power	Under construction (start up)	PDD submitted: 28/06/09 Letter of approval: 03/07/09 Start of operation: 01/02/2011 Project termination: 31/01/2021 Crediting period: from 01/02/2011 Date of issue: NA	46,659	24,364/ year 10 year total: 243,639	None			
10	A. Kailas& Sons Ltd, Cyprus					PDD submitted: 14/12/2010 Letter of approval: Start of operation: Project termination: Crediting period: from Date of issue:						
11	S.P. Lagos Farm Ltd., Cyprus					PDD submitted: 14/12/2010 Letter of approval: Start of operation: Project termination: Crediting period: from Date of issue:						
12	Christakis N. Neophytou Biogas Ltd., Cyprus					PDD submitted: 14/12/2010 Letter of approval: Start of operation: Project termination: Crediting period: from Date of issue:						

13	Ketonis, Mari					PDD submitted: 28/09/2006 Letter of approval: Start of operation: 05/2007 Project termination: 04/2014 Crediting period: from 05/2007 Date of issue: NA	84,965	16,993/ year 8 year total: 118,948	None	21/12/2006	16993	0602
14	Ketonis, Alexigros					PDD submitted: 28/09/2006 Letter of approval: Start of operation: 05/2008 Project termination: 04/2015 Crediting period: from 05/2008 Date of issue: NA	259,275	55,559/ year 8 year total: 388,910	None	28/12/2006	55559	0601
15	Afxentiou					PDD submitted: 28/09/2006 Letter of approval: Start of operation: 01/12/2007 Project termination: 1/12/2014 Crediting period: from 01/12/2007 Date of issue: NA	107,206	22,436/ year 7 year total: 157,050	None			

Table 4.2. Annual estimation of emission reductions (tCO_2 eq./year) according to the PDD submitted to the Cyprus DNA, to be hosted by Cyprus

Annual estimation of emission reductions (tCO2 eq./year) according to the PDD submitted to the Cyprus DNA																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
	Anaerobic digestion at Armenis Farm Ltd	Wind Park at Orites Archimandritas	Kambi Wind Farm Project	30 MW TSP Aeolian Dynamics Wind Power Project	Orounda Biogas plant in Cyprus	Animalia	Andreou & costi	Rokas Renewables	Rokas Renewables	A. Kailas& Sons Ltd, Cyprus	S. & P. Lagos Farm LTD	Christakis N. Neophytou Biogas Ltd., Cyprus	Mari Wind Farm Project	Alexigros Wind Farm Project	Afxentiou	
	Methane recovery in agricultural and agro industrial activities	Renewable electricity generation in grid connected applications (wind)	Grid connected renewable electricity generation (wind)	Renewable electricity generation in grid connected applications (wind)	Methane recovery in agricultural and agro industrial activities	Methane recovery in agricultural and agro industrial activities	Methane recovery in agricultural and agro industrial activities	Renewable electricity generation in grid connected applications (wind)	Renewable electricity generation in grid connected applications (wind)	Methane recovery in agricultural and agro industrial activities	Methane recovery in agricultural and agro industrial activities	Methane recovery in agricultural and agro industrial activities	Small scale, Grid connected renewable electricity generation (wind)	Large scale, Grid connected renewable electricity generation (wind)	Methane recovery in agricultural and agro industrial activities	
2007*															17,002	17,002
2008*	7,471														18,404	25,875
2009*	1,552					11,337	17,474								22,640	53,003
2010	16,280	234,148			34,366	12,342	17,474								23,840	338,450
2011	16,768	234,148	12,984	59,853	34,366	12,342	17,474	21,099	22,295	6,951	10,422	10,310			24,639	483,651
2012	17,095	234,148	12,984	59,853	34,366	12,342	17,474	50,007	24,364	6,951	10,422	10,310	8,500	55,559	25,170	579,545
2013	17,315	234,148	12,984	59,853	34,366	12,342	17,474	50,007	24,364	6,951	10,422	10,310	8,500	55,559	25,355	579,950
2014	17,462	234,148	12,984	59,853	34,366	12,342	17,474	50,007	24,364	6,951	10,422	10,310	8,500	55,559		554,742
2015	17,560	234,148	12,984	59,853	34,366	12,342	17,474	50,007	24,364	6,951	10,422	10,310	8,500	55,559		554,840
2016	17,626	234,148	12,984	59,853	34,366	12,342	17,474	50,007	24,364	6,951	10,422	10,310	8,500	55,559		554,906
2017	17,670	234,148	12,984	59,853	34,366	12,342	17,474	50,007	24,364	6,951	10,422	10,310	8,500	55,559		554,950
2018	11,277	234,148	12,984	59,853	34,366	12,342	17,474	50,007	24,364	6,951	10,422	10,310	8,500	55,559		548,557
2019		234,148	12,984	59,853	34,366			50,007	24,364	6,951	10,422	10,310	8,500	55,559		507,464
2020			12,984	59,853				50,007	24,364	6,951	10,422	10,310	8,500	55,559		238,950
2021								28,908	2,069				8,500	55,559		95,036
Total	158,076	2,341,480	129,840	598,530	343,660	122,415	174,740	500,070	243,640	69,510	104,220	103,100	85,000	555,590	157,050	5,686,921

* project postponed; not yet issued

5. Information required for 2011 submission

Following the information provided by the European Commission on additional information and recommendations for the 2011 submission, be informed of the following:

Key issues as regards submissions in 2011

(a) *High quality data is essential*: we have tried to collect the most qualitative data sets of information in Cyprus, and check continuously with other stakeholders that the information and assumptions are in line with reality.

(b) *It is recommended to include in the WM scenario PaMs in line with the list attached*: all EU legislation implemented, adopted and enforced in Cyprus has been taken into account in the policies and measures described. Specific reference to the legislation is made in the affected policies and measures.

(c) *It is recommended that projections include the split into EU ETS and non-ETS, taking into account the extended scope of the EU ETS and following the recommendations included in the list of the PaMs*. Projections include the split into EU ETS and non-ETS. Please refer to sections 3.1.3 for baseline scenario, 3.2.2 for "*With Existing Measures*" scenario, 3.3.2 for additional measures scenario and 3.4.1 for all three scenarios.

(d) *It is recommended to use of the attached template*: The template has been used for the data that is available.

- *Please use the 2008 or 2009 value in the 2010/2011 inventory submission as the reference year*: 2009 according to the NIR 2011 has been used as a reference year in the template.
- *Please report 2010 not 2008-2012 average*: 2010 is reported in all projections.
- *Please report the split of the ETS and non-ETS emissions in the sheet provided in the template:* where data is available, emissions have been reported in the template.

(e) *Carbon price*: the carbon price was not used for the projections directly. It was however used in the model for energy projections of the Cyprus Energy Regulatory Authority[1] (Table 5.1). The data is not according to PRIMES.

Table 5.1. CO_2 price projections[1]

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
€/tCO_2	14.70	15.10	15.80	17.00	17.90	19.08	20.27	21.45	22.63	23.82	25.00

(f) *International energy import price*: the international energy import price was not used for the projections directly. It was however used in the model for energy projections of CERA. The data is not according to PRIMES.

(g) *GDP and population growth*: the GDP and population growth was not used for the projections directly. It was however used in the model for energy projections.

(h) *Questionnaire on Kyoto mechanisms and carbon sinks*: not available

(i) *Projections horizon*: data is not available to extent projections to 2030.

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