Common and co-ordinated policies and measures

Introduction

In the European Union, polices and measures to reduce greenhouse emissions by Member States are complemented by policies and measures developed by the European Union. These apply across Europe and are called common and co-ordinated policies and measures (ccpms). Common and co-ordinated policies and measures were described in detail in the 3rd National Communication of the European Union to the UNFCCC, Nov 2001. In this Annex therefore, only updated information on ccpms is presented. The summary tables include information on all ccpms and are largely drawn from the 3rd National Communication.

European climate change programme (ECCP) — the main frame for policy action

The European Climate Change Programme[1] was established in June 2000 to help identify the most environmentally and cost effective additional measures to meet its target. In October 2001, the Commission published a communication on the implementation of the first phase of the ECCP[2].

The ECCP was set-up as a multi-stakeholder consultative process that focussed on energy, transport, industry, research and agriculture and on the issue of emissions trading within the EU. Seven technical Working Groups were established under the co-ordination of an ECCP Steering Committee. The programme was not carried out in isolation but built on links with going activities at the EU level such as the Joint Expert Group on Transport and Environment[3].

In the communication on the first phase of the ECCP, the Commission presented a concrete set of implementation measures to be addressed in the work programme over the next two years. The measures are grouped in four sections: crosscutting, energy, transport and industry. They represent a cost-effective reduction potential of some 122–178 $MtCO_2$ eq. However, the ECCP also highlighted measures that are promising in the longer term, for which the cost-effectiveness constraint of 20 euro per tonne of CO2 eq needs to be qualified. With pro-active policies in the field of CHP and biofuels, the emissions reduction potential could increase by 100 $MtCO_2$ eq. These numbers should be treated as indicative as it was difficult to provide precise quantification of the effect of some measures. The individual measures from the ECCP are described in the relevant sections below.

Cross-cutting measures from eccp

Proposal for a Directive on Linking Project-based Mechanisms including JI and CDM to EC Emissions trading scheme

The proposed Directive will be complementary to the Framework Directive on Emissions Trading. It will specify the conditions under which 'credits' from project-based mechanisms on

1 http://europa.eu.int/comm/environment/climat/home_en.htm#eccp

2 Communication on the implementation of the first phase of the European Climate Change Programme, COM(2001) 580 final, 23rd Oct 2001

3 The joint expert group involves transport and environment experts from the European Commission as well as Member States experts

greenhouse gas emissions trading can be added to the allowances. The proposal will be fully compatible with the provisions of the relevant UNFCCC decisions. It will also allow those sectors within the Community that are not covered by the emissions trading regime to engage in emission reduction projects. The proposal will be designed in a way that ensures consistency with the Community's Development Policy, so that the overall objective of sustainable development in developing countries and countries with economies in transition is maintained. Allowing the introduction of 'credits' from project-based mechanisms including JI and CDM will help reduce the cost of compliance in the European Community.

Proposal for a Review of the Monitoring Mechanism
Council Decision 93/389/EEC, as amended by 99/296/EC for a Monitoring Mechanism of Community CO_2 and other greenhouse gas emissions requires the Commission to assess progress at Member State and EU level. Requirements under the current decision are insufficient to cover the decisions on reporting under the Kyoto Protocol as agreed at COP6 and 7. The revised decision will need to make provisions for extended reporting requirements under the Kyoto Protocol in order to introduce the Marrakesh accord in the Community. In addition, provisions on the reporting of national policies and measures including projections have shown to be insufficient to provide the necessary data to monitor progress effectively. A review of the current provisions is necessary to increase the reliability. The monitoring activities under the trading scheme are closely related and need co-ordination with the Monitoring Mechanism.

Energy sector

Intelligent Energy for Europe

In April 2002, the Commission proposed a new multiannual programme for actions in the field of energy[4], 'Intelligent Energy for Europe' (2003–2006). It aims at strengthening security of supply, fighting against climate change and stimulating the competitiveness of European industry. 'Intelligent Energy for Europe' implements the strategy outlined in the Green Paper on security of supply[5] and will be the main European instrument for non-technical support activity in the energy field. Financial support will be provided to local, regional and national initiatives in the fields of renewable energy (ALTENER), energy efficiency (SAVE), energy aspects of transport (STEER) and their international promotion (COOPENER). The Commission envisages a budget of 215 million euros (Table 1).

	2003	2004	2005	2006	Total
SAVE	21	18	18	18	75
ALTENER	23	21	21	21	86
STEER	4	11	9	11	35
COOPENER	2	5	7	5	19
Total	**50**	**55***	**55***	**55***	**215**

* An additional budget of 50 million euro could be envisaged in the context of enlargement.

4 http://europa.eu.int/comm/energy/intelligent/index_en.html

5 http://europa.eu.int/comm/energy_transport/en/lpi_lv_en1.html

The objectives of 'Intelligent Energy for Europe' are to

- increase energy efficiency by around 1 % per year;
- increase the use of renewable energy in consumption from 6 % to 12 % by 2010;
- increase to 22.1 % by 2010 the percentage of electricity from renewable sources;
- increase the production of electricity produced from cogeneration by 2010;
- develop the potential of renewable sources of energy; and
- promote Kyoto mechanisms.

For each of the four fields, 6 types of actions are foreseen:

- creation and development of structures and of financial, planning and market instruments;
- promotion of systems and equipment to ease the transition from demonstration to actual marketing of new and efficient technology;
- development of information and education facilities. Promotion and dissemination of know-how;
- monitoring of implementation and impact of legislation; and
- assessment of the impact of the actions and of the programme.

The Commission is preparing a detailed work programme and it is envisaged that some of the programme management tasks will be delegated to an executive agency. After three years, the Commission will have independent experts carry out an external evaluation of the programme.

ECCP Actions

Legislation

Proposal for a Framework Directive for Minimum Efficiency Requirements for End-Use Equipment
Ambitious and cost-effective energy efficiency targets will be implemented through minimum efficiency requirements established with Implementing Directives. The proposal will cover all type of end-use equipment, including standard equipment such as electric motors, and domestic appliances. Only efficiency standards that can be realised with existing off-the shelf cost-effective improvements in design and technology will be proposed. CO_2 savings are expected to gradually increase from the year 2008 onwards.

Proposal for a Directive on Energy Demand Management
Member States will be required to set targets to promote and support energy demand management, especially for smaller energy consumers such as households and SMEs. The Directive will set out a minimum level of investment for energy efficiency and demand management, mainly through business-driven activities. Member States will be required to support the development of a market for energy-efficient technology and demand management services and will be required to report yearly to the Commission.

Proposal for a Directive for the promotion of Combined Heat and Power
The aim of the Directive is to strengthen existing measures to promote CHP in line with the Community target of doubling the share of CHP in EU electricity generation from 9 % in 1994 to 18 % by 2010. It will provide a definition of CHP Quality and CHP Certification to ensure that incentives are provided only to efficient CHP systems. The Directive should also address issues concerning grid access and costs of connection, streamlining of administrative procedures and contain provisions obliging Member States to set national targets in accordance with the EU-wide target.

Non-legislative proposals

Initiatives on energy-efficient public procurement
The objective of this initiative is to promote demand for energy-efficient technology from the public sector. The aim is to provide guidance to public procurement of energy-efficient technology. A handbook on green public procurement is currently being developed that will contain examples on how to draw up green calls for tender in conformity with Community law.

Public Awareness Campaign and Campaign for Take-off
The campaigns aim to disseminate results of pilot actions, spread best practice and generate public awareness on demand management and energy efficiency. The campaign defines the role of stakeholders and facilitates the introduction of the most cost-effective CO_2 reduction technologies. It will be co-ordinated by the Commission and managed by the Member States. Carefully selected campaign targets will be proposed to participants at the national and local level.

Table 1: Summary of the policies and measures in the energy sector

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in CO_2 equivalent)	
						2010[6]	Beyond 2010[7]
Directive on the promotion of Biofuels	Increase environmentally benign use of liquid and gaseous bio-fuels	Mainly CO_2	Economic, regulatory	Adopted by European Commission 7 November 2001	EU/Member States	Included below	35–40 (at a cost of 100 Euros/tonne)
Initiative on the promotion of heat production from RES		Mainly CO_2	Economic, regulatory	Planned 2002	EU/Member States	Included below	
Communication — CHP Policy Action	18 % of EU electricity from CHP by 2010	Mainly CO_2	Economic, regulatory	Directive planned 2002	EU/Member States		1–12 (cost effective) *(53–64)* 65 (overall potential)
CO_2 capture and sequestration[8]	Promotion of further technological efforts	CO_2	Research		EU		*(50)*
Public awareness campaign and 'Campaign for Take-Off'	Dissemination of information on energy efficiency and demand management	Mainly CO_2	Education	Implemented	EU/Member States		

6 Figures in italics are the potential at a cost of more than 20 Euros/tonne CO_2

7 The figures in the column are measures from the ECCP, the timescale is uncertain and some measures may be agreed and implemented before the end of the first commitment period. The potential in italics is at a cost of greater than 20 Euro/tonne CO_2.

8 Identified as a measure for possible further Community action under the second phase of the ECCP

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in CO_2 equivalent)	
						2010[6]	Beyond 2010[7]
Minimum efficiency requirements for end-use equipment	To set minimum efficiency requirements	CO_2	Regulatory	Proposal planned for 2002			
Energy Demand Management Directive	To promote energy efficiency services for smaller consumers	CO_2	Regulatory (Economic in MS)	Proposal planned for 2002	Member States (with support from EU)	40–55[9]	
Directive for promotion of renewable energies in electricity generation	Increase the contribution of renewables to primary energy supply by 2010	Mainly CO_2	Economic, regulatory	Adopted	EU/Member States	126 *(74)*	.
Directive on full liberalisation of electricity and gas markets by 2005	To encourage the development of a liberalised energy market within the EU	Mainly CO_2	Economic, regulatory	Proposal adopted by European Commission March 2001	EU/Member States		88 (includes 63Mt from installation of NGCC rather than clean coal) *(125)*
Encouragement of energy industry reduction of methane	To encourage the continued effort to reduce the emissions of methane from pipeline infrastructure and to promote methane capture from closed mines	CH_4	Voluntary	Planned	EU/Member States	[10]	3

9 Assumes compliance by 2006

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in CO_2 equivalent)	
						2010[6]	Beyond 2010[7]
Programme — ALTENER	Non-technical programme to promote use of RES	mainly CO_2	Research	Implemented 1998–2002 Planned 2003–2006	EU		
Programme — CARNOT	Technological actions to promote the clean and efficient use of solid fuels.	mainly CO_2	Research	Implemented 1998–2002	EU		
Energy-efficient public procurement	To provide guidance to public procurement of energy-efficient technology	CO_2	Education	Planned	EU		

10 This measure was estimated to save 34 $MtCO_2$ by 2000

Residential and tertiary sectors

The ECCP measures discussed in the section on Energy will impact on the Residential and Tertiary sectors. Measures in the table below were reported in the 3rd National Communication.

Table 2: Summary of the policies and measures in the tertiary sector

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status[11]	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in Mt CO_2 equivalent)	
						2010	Beyond 2010[12]
Framework Directive for Minimum Efficiency Requirement of Electrical and Electronic End-use Equipment	To facilitate achievement of energy efficiency targets through minimum efficiency requirements and/or voluntary agreements	CO_2	Regulatory, voluntary	Planned for 2002	EU/Member States		
Revision of the Energy Labelling Directive 92/75/EC	To provide additional and effective information to consumers	CO_2	Educational	Planned for 2003	Member States		10

11 Unless the measure is already implemented, the timescales are indicative and are largely drawn from the ECCP working groups. These actions do not yet have political agreement.

12 The figures in the column are measures from the ECCP, the timescale is uncertain and some measures may be agreed and implemented before the end of the first commitment period.

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status[11]	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in Mt CO_2 equivalent)	
						2010	Beyond 2010[12]
Agreement with lamp manufacturers to increase sales of compact fluorescent lamps (CFLs) by 2005	To promote sales of energy efficient CFLs	CO_2	Voluntary	Adopted	Manufacturers		7
Energy Star Programme and Code of Conduct for Digital TV Services	To reduce energy consumption of information and communication technology	CO_2	Voluntary	Adopted	Manufacturers		13
Adoption of EEE Directive (Environmental impact of Electrical and Electronic Equipment)	To minimise the environmental impact of electrical and electronic equipment	CO_2	Regulatory	Planned 2003 — effective on market 2008			
Audit schemes, best practice initiative and voluntary agreements	To provide harmonised methods, indicators, certification, labelling, networks and support	CO_2	Educational	Implemented	EU		20–35 *(4)*

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status[11]	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in Mt CO_2 equivalent)	
						2010	Beyond 2010[12]
EU Recommendations or Guidelines for Member States supporting action	To increase speed of replacement of inefficient equipment, to introduce accelerated depreciation rules, to introduce low or zero VAT for most efficient equipment, to develop initiatives of research	CO_2	Other		EU		25
Motor challenge programme	To achieve system optimisation in motor driven processes	CO_2	Other	Planned for 2002	EU		30
Directive on Energy performance of buildings	Improve energy performance of new (and partially existing) buildings and	CO_2	Regulatory	Adopted Implemen-tation by Member states by 2004	Member States	35–45[13] *(6)*	
EU Boiler Directive 92/42/EEC	Improve minimum boiler efficiency	CO_2	Regulatory	Implemented	Member States	22[14]	

13 The quantification of the effect of this measure is taken from the ECCP, it represents a technical potential with some consideration of cost. The achievement of this technical potential will be dependent on political agreement on the measure, the extent of overlap with other measures and public acceptability.

14 MURE Database Case Study: Impact of the Introduction of the EU Boiler Directive 92/42/EEC (see www.mure2.com). Scenario B that takes into account future improvements in the building insulation, i.e. a reduced energy demand. The savings by 2000 were estimated as 8 $MtCO_2$

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status[11]	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in Mt CO_2 equivalent)	
						2010	Beyond 2010[12]
Labelling and minimum energy efficiency requirements for household appliances	Improve share of energy efficient electric appliances	CO_2	Regulation	Implemented	Member States	10–15	
Negotiated agreements stand-by losses televisions / video recorders; washing machines	Reduce stand-by losses and increase minimum standards	CO_2	Voluntary	Implemented	Manufacturers	4[15 2)]	
Programme — SAVE I and II	Improving end-use energy efficiency	CO_2	Education	Implemented 1998–2002 Planned 2003–2006	European Commission		

15 The saving is based on the emissions per unit of generation for 2010 from the Shared Analysis Project, 1999, and a saving of 14TWh of electricity.

Transport sector

Communication on an integrated European railway area

Although not aimed directly at reducing greenhouse gas emissions, improvements in the railway system should have the effect of reducing emissions from transport.
Revitalising the railways is one of the key components in the strategy proposed by the Commission in the White Paper on European transport policy[16] to shift the balance between different modes of transport. The White Paper proposed an action programme revolving round three types of measures to revitalise the railways:

- first, a fair system of charging for all modes of transport must be put in place to reflect the full value of the cleanest modes;
- next, development of the trans-European transport network must continue giving strong priority to rail; and
- finally, a legally and technically integrated European railway area must be constructed.

The measures proposed in the Communication come under the third of these lines of action and include:

- proposal for a Directive on railway safety
- proposals to amend the Directives on interoperability
- proposal to establish a European Railway Safety and Interoperability Agency
- proposals to make the railway market more dynamic and improve quality, including voluntary measures reducing noise and emissions.

Railway Marketing Monitoring Scheme
This is one of a series of measures within the domain of the railways. It aims to monitor the effectiveness of policies and measures for railways. Indicators will be defined with a clear relationship with environmental issues, such as indicators on the modal share of rail transport and on the size and age of rolling stock and locomotives.

ECCP Actions
Proposal for shifting balance between modes of transport
A modal shift from road and air to the cleaner modes of transport, railways and waterways has the highest priority for curbing growth of greenhouse gas emissions from the transport sector. The proposals discussed above are part of a package of actions in this area. Other actions include:

- improved inland waterway transport through standardisation of technical requirements, harmonisation of certificates and harmonisation of working conditions.
- promotion of short sea shipping by improving the quality of port services and developing the infrastructure for the creation of sea motorways.
- promotion of intermodality through a new support programme (Marco Polo) for alternative solutions to road transport. A new Community framework for freight integrators and standardisation of transport units and loading techniques.

Proposal for improvements in infrastructure use and charging
A framework directive on the principles and structure of an infrastructure-charging system and a common methodology for setting charging levels and cross financing will be proposed by the Commission. They will also present proposals for uniform taxation for commercial road transport.

16 http://europa.eu.int/comm/energy_transport/en/lb_en.html

Promotion of the use of biofuels for transport

The Commission is examining whether to impose an obligation on Member States to introduce legislation and to take the necessary measures to promote an increased share of biofuels in transport. There is also the possibility that the Commission will allow Member States to apply derogation from excise duty on certain mineral oils containing biofuels and on biofuels.

Table 3: Summary of the policies and measures in the transport sector

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in Mt CO_2 equivalent)	
						2010	beyond 2010[17]
Fiscal measures	To help reduce congestion and promote fair pricing of transport	CO_2	Fiscal	Planned	EU/Member States		17
Environmental Agreement with car industry on reductions of CO_2 emissions from Light Commercial Vehicles	Reduce average CO_2 emissions of light vehicles	CO_2	Voluntary	Planned	EU/ Manu-facturing industry		*(5–10)*
Infrastructure charging	Structure and levels of charging for all modes of transport	Primarily CO_2	Regulatory	Planned	EU/Member States		40–60
Technological improvements in passenger cars and fuels	Environmentally Enhanced Vehicle concepts, improved mobile air conditioning, alternative fuels etc (not in ACEA agreement)	Primarily CO_2	Various		EU/Member States		*(40)*
Modal shift	Shift of transport from road/air to rail/water	CO_2	Regulations , Economic	Planned	EU/ Member States		
Promotion of biofuels	Increase penetration rate of biofuels	Primarily CO_2	fiscal, regulatory	Planned	EU/Member States	35–40	

17 The figures in the column are measures from the ECCP, the timescale is uncertain and some measures may be agreed and implemented before the end of the first commitment period. The figures in italics are the potential at a cost of more than 20 Euros per tonne

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in Mt CO_2 equivalent)	
						2010	beyond 2010[17]
Voluntary agreements with European, Japanese and Korean car manufacturers	Reduce average CO_2 emissions of newly sold cars to 140 g/km until 2008/2009 (25 % reduction compared to levels in the mid-90s)	CO_2	Voluntary	Implemented	EU Com. together with car manufacturers' associations	82[18]	
Air quality legislation, e.g. Auto-Oil I and II	Regulations and Research on pollution, i.e. ozone precursors, indirect effect on fuel consumption	Ozone precursors indirectly CO_2	Regulation, Research	Implemented	EU/Member States		
Air quality legislation, Directive 98/70/EC	Limits sulphur content in road fuels to 50 ppm	CO_2, 03 precursors	Regulation	implemented	EU/Member States		
Car Labelling Directive 1999/94/EC	Indication of CO_2 emissions for car purchasers	CO_2	Education	adopted	EU/Member States + institutes		
Revision of Common Transport Policy	Integration of Sustainable Development	Primarily CO_2	Other	planned	EU/Member States	135[19]	

18 The ACEA/European Commission Monitoring Report estimated savings of 6-7 MtCO2 in 2000. Estimates for 2010 are from the Shared Analysis project

19 An approximate estimate of the emission reductions that could result from the application of the measures foreseen in the White Paper with respect to the emissions expected otherwise in 2010

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in Mt CO_2 equivalent)	
						2010	beyond 2010[17]
Communication 'Air Transport and the Environment'	Encounter growing importance of air transport for climate change	CO_2	Other	adopted	EU/Member States	–	
Communication on Clean Urban Transport		CO_2	Other	planned	EU/Member States	–	
Motor Challenge Programme Initiative[20]							

20 Identified as a measure for possible further Community action under the second phase of the ECCP

Industry sector

ECCP Actions

Promoting Effective Implementation of the Integrated Pollution Prevention and Control (IPPC) Directive

The IPPC Directive[21] takes an integrated approach to pollution prevention and control in large industrial and agricultural installations. It covers a wide range of activities such as plants for the production and processing of metals and mineral products (steel, non-ferrous metals, cement, ceramics, glass etc.), refineries and chemical plants, pulp and paper mills and food processing installations.

The IPPC Directive lays down a certain number of general obligations for operators of installations, including two that are particularly relevant:

- to take preventive measures against significant emissions of nitrous oxide, methane and fluorinated greenhouse gases, in particular through application of the Best Available Techniques (BAT).
- to use energy efficiently.

The ECCP made a clear recommendation to make better use of the existing IPPC Directive. The Directive introduces an obligation to prevent all forms of pollution and to use energy efficiently. The technical reference documents elaborated on EU level, the so-called BREFs, should help bring about greenhouse gas emission reductions and a more efficient use of energy in the sectors concerned. National authorities granting the permits shall ensure that greenhouse gas emissions are prevented or controlled, unless they are subject to the future emissions trading system for greenhouse gases.

The Commission will ask an IPPC technical expert group co-ordinated by the European IPPC Bureau in Seville to prepare a special 'horizontal' BREF focussing on generic energy efficiency techniques. Member States will be encouraged to develop national strategies for dealing with energy efficiency requirements in the context of IPPC permits and to phase in existing IPPC installations well before the deadline of implementation of October 2007, so that operators are given a reasonable time to introduce BAT and energy-efficient techniques.

Proposal for a Framework Directive on Fluorinated Gases

The proposed Directive would be aimed at reducing emissions across all sectors and would be designed to complement action being taken by Member States concerning the containment and monitoring of fluorinated gases. The promotion of the development and use of alternative and not-in-kind technologies will also be taken into further consideration. Key elements of the proposal for a Directive would be:

- a requirement to take all practicable measures to minimise emissions at design, manufacture, installation, operation and disposal of equipment;
- requirement for producers, importers, exporters and certain users to report annually on quantities of fluorinated gases being placed on the market, exported and used; and
- marketing and use restrictions for certain uses of fluorinated gases.

21 OJ L 257, 10.10.1996, p. 26

Table 4: Summary of the policies and measures in the industry sector

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in CO_2 equivalent)	
						2010[22]	Beyond 2010[23]
Industrial Processes Long term agreements with energy intensive industries Comprehensive energy audit and management scheme (E2MAS) Adapting existing IPPC Directive Active energy services for SMEs	Renew old and inefficient production plants for energy intensive industries Energy efficiency in non-core areas of industry and SMEs	Mainly CO_2	Voluntary, regulation	Planned 2001–02 2001–03 2002	EU/Member States		40*(60)*

22 The potential in italics is at a cost of more than 20 Euros per tonne CO_2

23 The figures in the column are measures from the ECCP, the timescale is uncertain and some measures may be agreed and implemented before the end of the first commitment period. The figures in italics are the potential at a cost of more than 20 Euros per tonne

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in CO_2 equivalent)	
						2010[22]	Beyond 2010[23]
Fluorinated gases • Framework directive for improved containment of F-gases • Links to other EU legislation (IPPC, WEEE, End of life vehicles) • Voluntary agreements • Development of alternative fluids and Not in Kind technologies • Sector specific recommendations	Improve monitoring and verification, improve containment and apply marketing and use restrictions	HFC, PFC and SF_6	Voluntary, regulation	Planned for 2002 2001–02 2002 2002	EU and Member States	21 *(20)*	
RRM Secure supply through inclusion of RRM in development of CAP Promote research and fiscal incentives Help commercialisation through EU standards and public procurement policy Include RRM in EU ECO-labelling scheme to boost consumer awareness Develop political strategy with White Paper and benchmarking scheme	To promote the greater use of RRM in the EU	Mainly CO_2	Economic, education, fiscal, research	Planned	EU		

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in CO_2 equivalent)	
						2010[22]	Beyond 2010[23]
Include RRM in emissions trading							
Voluntary agreements Framework guidelines for good practice Framework for VAs at EU-level (possibly a Directive)	Promote VAs as part of an appropriate mix of policy instruments and promote best practice	All	Voluntary	Planned Guidelines 2002 Directive 2003	EU, industry, Member States		
Policy Action — IPPC Directive	Integration of pollution issues into permits for plant operation	All gases	Regulation[1]	Implemented Being implemented by Member States	EU/Member States		
Policy Action- Voluntary agreements	Recovery rates for waste packaging	All gases	Framework	Planned	EU/Member States		
Policy Action — EMAS	Environmental auditing	CH_4	Voluntary agreement	Implemented	EU/Member States		

Agriculture and forestry

The action on implementing IPPC discussed in the industry section could impact on the agriculture sector.

Table 5 Summary of the policies and measures in the agriculture sector

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implem-enting entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in CO equivalent)
						2010
CAP (market policies)	Sustainable agriculture	CH_4, N_2O	Regulation[1]	Implem-ented	EC	28[24]
CAP (rural developmen t policy)	Sustainable agriculture	CH_4, N_2O	Regulation	Implem-ented	Member States	
Forestry strategy	Sustainable forestry	CO_2	Regulation	Implem-ented	EC	
Other forestry measures	Prevention of damage to forests	CO_2	Regulation	Implem-ented	EC	

24 Nitrous oxide and methane projections from sectoral objectives study. Based on 1999 emissions from agriculture, savings from CAP are estimated at 20 $MtCO_2$

Waste management

Table 6: Summary of the policies and measures in the waste sector

Name of the policy	Objective and /or activity affected	GHG affected	Type of instrument	Status	Implementing entity or entities	Estimate of mitigation impact, by gas (for a particular year, not cumulative, in CO_2 equivalent)
						2010
Landfill Directive	Amount of waste to landfills; recovery of landfill gas	CH_4	Regulation[1]	To be implemented by Member States 2000/1	Member States	34 Mt
Directive on Waste Packaging	Recovery rates for waste packaging	CH_4 CO_2	Regulation[1]	Implemented / revision planned	Member States	
Directive on End-of-Life Vehicles	Acceptance of used vehicles and recovery by their producers	CH_4 CO_2 ODSs	Regulation[1]	Implemented	Member States	
Directive on Waste Electrical and Electronic Equipment (WEEE)	Recovery of WEEE	CH_4 CO_2 ODSs	Regulation[1]	Planned	Member States	
Revision of Sewage Sludge Directive	Re-direct the use of sewage sludge	CH_4	Regulation[1]	Planned	Member States	

[1] Implementation by Member States can involve other instrument types as well

Research

The principal instrument used to further research in Europe is the European Union's framework programme for research. Under the 5th Framework Programme, the majority of climate change activity is being undertaken within the Energy, Environment and Sustainable Development (EESD) Programme (2125 million Euro)[25]. Socio-economic projects in energy and the environment[26] include:

- development of a very long term energy and environment model;

25 Further information on this programme can be found at http://www.cordis.lu/eesd/

26 Socio-Economic Projects in Energy and Environment, EUR 19886, 2001

- systems analysis for progress and innovation in energy technologies;
- analysis of greenhouse gas emission control strategies;
- assessment of external costs for energy technologies;
- European network for energy economics research;
- analysis of the interaction between different policy instruments; and
- analysis of greenhouse gas mitigation for dairy production.