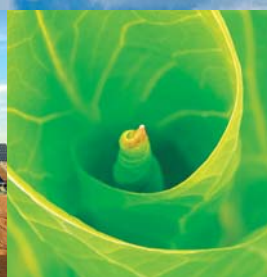
EU action against **climate change**





EU emissions trading — an open scheme promoting global innovation

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Contents

ROAD
CLOSED

Trading emissions to cut costs and **reduce emissions worldwide**




The European Union is committed to global efforts to reduce the greenhouse gas emissions from human activities that threaten to cause serious disruption to the world's climate. Building on the innovative mechanisms set up under the Kyoto Protocol to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) — joint implementation, the clean development mechanism and international emissions trading — the EU has developed the largest company-level scheme for trading in emissions of carbon dioxide (CO_2), making it the world leader in this emerging market. The emissions trading scheme started in the 25 EU Member States on 1 January 2005.

A key aspect of the EU scheme is that it allows companies to use credits from Kyoto's project-based mechanisms, joint implementation (JI) and the clean development mechanism (CDM), to help them comply with their obligations under the scheme. This means the system not only provides a cost-effective means for EU-based industries to cut their emissions but also creates additional incentives for businesses to invest

in emission-reduction projects elsewhere, for example in Russia and developing countries. In turn this spurs the transfer of advanced, environmentally sound technologies to other industrialised countries and developing nations, giving tangible support to their efforts to achieve sustainable development.

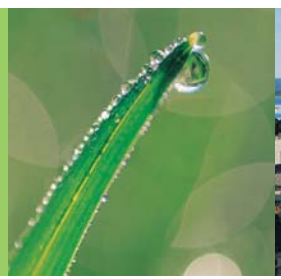
The EU system is open to cooperation with compatible schemes in other countries that have ratified the protocol. This has the potential to enlarge the market for trading.

Focused initially on big industrial emitters which produce almost half of the EU's CO_2 emissions, the scheme gives European and foreign-owned businesses based in the EU a 'first-mover' advantage through the invaluable early experience they are gaining.

- Due to mandatory monitoring and reporting of emissions, companies are establishing CO_2 budgets and carbon management systems for the first time.
- Because CO_2 has a price, companies are engaging the ingenuity of their engineers to identify cost-effective ways to reduce their emissions, both through improving current production processes and investing in new technologies.
- A whole range of new businesses has emerged in Europe as a result of the EU carbon market: carbon traders, carbon finance specialists, carbon management specialists, carbon auditors and verifiers. New financial products such as carbon funds have entered the market.

Creating the emissions trading scheme and linking it to JI and the CDM has been identified by the European climate change programme as a particularly cost-effective way to reduce greenhouse gas emissions. This programme, a European Commission initiative launched in 2000, has brought together all relevant stakeholders to develop policies and measures to help the EU meet its Kyoto target.






The 15 Member States that made up the EU until its enlargement to 25 countries on 1 May 2004 are committed to reducing their combined emissions of greenhouse gases by 8 % from 1990 levels by the end of the Kyoto Protocol's first commitment period 2008–12. This overall target has been translated into differentiated emission reduction or limitation targets for each Member State under a 'burden sharing' agreement ([1]). The 10 new Member States are not covered by the EU target but have their own reduction target of 6 % or 8 % under the protocol, except for Cyprus and Malta which have no targets. But all Member States are full participants in the EU trading scheme.

By combining the emissions trading scheme with the CDM and JI, the EU is underlining its commitment to realising the advantages that the Kyoto mechanisms offer as a supplement to significant domestic action by industrialised countries to reduce their emissions.

([1]) Council Decision 2002/358/EC of 25 April 2002 concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder.

The **EU emissions trading scheme**

The EU emissions trading scheme (ETS) is based on a recognition that creating a price for carbon through the establishment of a liquid market for emission reductions offers the most cost-effective way for EU Member States to meet their Kyoto obligations and move towards the low-carbon economy of the future.

The scheme should allow the EU to achieve its Kyoto target at a cost of between EUR 2.9 billion and EUR 3.7 billion annually. This is less than 0.1 % of the EU's GDP. Without the scheme, compliance costs could reach up to EUR 6.8 billion a year.

The ETS has been established through binding legislation ([2]) proposed by the European Commission and approved by the EU Member States and the European Parliament. The scheme is based on six fundamental principles.

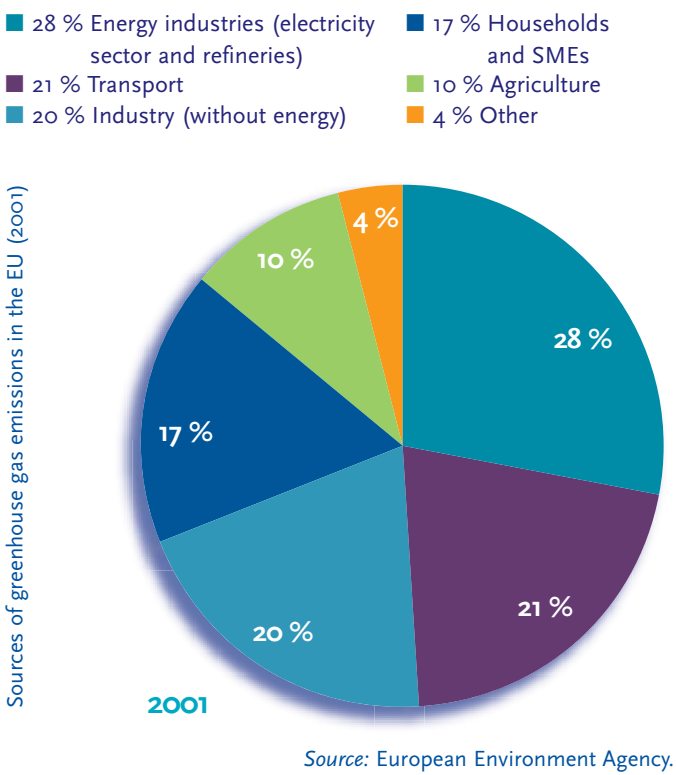
- ➔ It is a 'cap-and-trade' system.
- ➔ Its initial focus is on CO_2 from big industrial emitters.
- ➔ Implementation is taking place in phases, with periodic reviews and opportunities for expansion to other gases and sectors.
- ➔ Allocation plans for emission allowances are decided periodically.
- ➔ It includes a strong compliance framework.
- ➔ The market is EU-wide but taps emission reduction opportunities in the rest of the world through the use of the CDM and JI, and provides for links with compatible schemes in third countries.

([2]) Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

What the scheme covers

While emissions trading has the potential to involve many sectors of the economy and all the greenhouse gases controlled by the Kyoto Protocol (CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride), the scope of the ETS is intentionally limited during its initial phase while experience of emissions trading is built up.

Consequently, during the first trading period from 2005 to 2007, the ETS covers only CO_2 emissions from large emitters in the power and heat generation industry and in selected energy-intensive industrial sectors: combustion plants, oil refineries, coke ovens, iron and steel plants and factories making cement, glass, lime, bricks, ceramics, pulp and paper. A size threshold based on production capacity or output determines which plants in these sectors are included in the scheme.



Source: European Environment Agency.

Even with this limited scope, close to 11 500 installations in the 25 Member States are covered, accounting for around 45 % of the EU's total CO_2 emissions or about 30 % of its overall greenhouse gas emissions.

Towards the end of 2005, the European Commission also started work on including emissions from aviation in the ETS.

By mid-2006, the Commission is due to present a report reviewing the functioning of the scheme. The review will allow fine-tuning it in the light of the experience gained and to consider whether it should be extended to additional sectors and more greenhouse gases.

How does emissions trading benefit companies and the environment?

Companies A and B both emit 100 000 tonnes of CO_2 per year. In their national allocation plans their governments give each of them emission allowances for 95 000 tonnes, leaving them to find ways to cover the shortfall of 5 000 allowances. This gives them a choice between reducing their emissions by 5 000 tonnes, purchasing 5 000 allowances in the market or taking a position somewhere in between. Before deciding which option to pursue they compare the costs of each.

In the market, the price of an allowance at that moment is EUR 10 per tonne of CO_2. Company A calculates that cutting its emissions will cost it EUR 5 per tonne, so it decides to do this because it is cheaper than buying the necessary allowances. Company A even decides to take the opportunity to reduce its emissions not by 5 000 tonnes but by 10 000.

Company B is in a different situation. Its reduction costs are EUR 15 per tonne, i.e. higher than the market price, so it decides to buy allowances instead of reducing emissions.

Company A spends EUR 50 000 on cutting its emissions by 10 000 tonnes at a cost of EUR 5 per tonne, but then receives EUR 50 000 from selling the 5 000 allowances it no longer needs at the market price of EUR 10 each. This means it fully offsets its emission reduction costs by selling allowances, whereas without the emissions trading scheme it would have had a net cost of EUR 25 000 to bear (assuming that it cut emissions by only the 5 000 tonnes necessary).

Company B spends EUR 50 000 on buying 5 000 allowances at a price of EUR 10 each. In the absence of the flexibility provided by the ETS, it would have had to cut its emissions by 5 000 tonnes at a cost of EUR 75 000.

Emissions trading thus brings a total cost-saving of EUR 50 000 for the companies in this example. Since Company A chooses to cut its emissions (because this is the cheaper option in its case), the allowances that Company B buys represent a real emissions reduction even if Company B did not reduce its own emissions.

Emission allowances

At the heart of the ETS is the common trading 'currency' of emission allowances. One allowance represents the right to emit one tonne of CO_2. Member States have drawn up national allocation plans for 2005–07 which give each installation in the scheme a certain number of allowances




free of charge, thus allowing it to emit the corresponding amount of CO_2 without any cost. Decisions on the allocations are made public.

The limit or 'cap' on the number of allowances allocated creates the scarcity needed for a trading market to emerge. Companies that keep their emissions below the level of their allowances are able to sell their excess allowances at a price determined by supply and demand at that time. Those facing difficulty in remaining within their emissions limit have a choice between taking measures to reduce their emissions, such as investing in more efficient technology or using a less carbon-intensive energy source, buying the extra allowances they need at the market rate, or a combination of the two, whichever is cheapest. This ensures that emissions are reduced in the most cost-effective way.

Most allowances are allocated to installations free of charge — at least 95 % during the initial phase and at least 90 % in the second phase from 2008 to 2012. Though only plants covered by the scheme are given allowances, anyone else — individuals, institutions, non-governmental organisations or whoever — is free to buy and sell in the market in the same way as companies.

Emissions trading in the EU

Trading period 2005–07

(Indicative data based on the national allocation plans approved by the European Commission)

EU Member State	Allocated CO_2 allowances (million tonnes)	Share in EU allowances (%)	Installations covered (1)	Kyoto target (%)
Belgium	188.8	2.9	363	– 7.5 (2)
Czech Republic	292.8	4.4	435	– 8
Denmark	100.5	1.5	378	– 21 (2)
Germany	1 497.0	22.8	1 849	– 21 (2)
Estonia	56.85	0.9	43	– 8
Greece	223.2	3.4	141	+ 25
Spain	523.3	8.0	819	+ 15
France	469.5	7.1	1 172	0 (2)
Ireland	67.0	1.0	143	+ 13 (2)
Italy	697.5	10.6	1 240	– 6.5
Cyprus	16.98	0.3	13	—
Latvia	13.7	0.2	95	– 8
Lithuania	36.8	0.6	93	– 8
Luxembourg	10.07	0.2	19	– 28 (2)
Hungary	93.8	1.4	261	– 6
Malta	8.83	0.1	2	—
Netherlands	285.9	4.3	333	– 6 (2)
Austria	99.0	1.5	205	– 13 (2)
Poland	717.3	10.9	1 166	– 6
Portugal	114.5	1.7	239	+ 27 (2)
Slovenia	26.3	0.4	98	– 8
Slovakia	91.5	1.4	209	– 8
Finland	136.5	2.1	535	0 (2)
Sweden	68.7	1.1	499	+ 4 (2)
United Kingdom	736.0	11.2	1 078	– 12.5 (2)
Total	**6 572.4**	**100.0**	**11 428**	

(1) Please note that the figures do not take account of any opt-ins and opt-outs of installations in accordance with Articles 24 and 27 of the emissions trading directive.

(2) Under the Kyoto Protocol, the EU-15 (until 30 April 2004 the EU had 15 Member States) has to reduce its greenhouse gas emissions by 8 % below 1990 levels during 2008–12. This target is shared among the 15 Member States, marked with (2), under a legally binding burden-sharing agreement (Council Decision 2002/358/EC of 25 April 2002). The 10 Member States that joined the EU on 1 May 2004 have individual targets under the Kyoto Protocol with the exception of Cyprus and Malta, which have no targets.

National allocation plans

Member States' national allocation plans (NAPs) have to be based on objective and transparent criteria, including a set of common rules that are laid down in the legislative framework establishing the ETS. The most important of these rules are listed below.



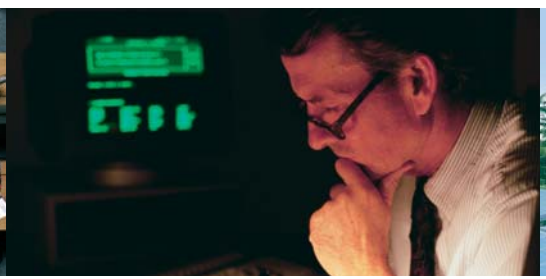
- An allocation plan has to reflect a Member State's Kyoto target as well as its actual and projected progress towards meeting it. The total quantity of allowances allocated is key in this regard. Allocating too many allowances would mean that greater efforts to cut emissions would have to be taken in economic sectors not covered by the scheme, in potentially less cost-effective ways than trading.
- Allocations to installations must take account of their potential for reducing emissions from each of their activities, and must not be higher than the installations are likely to need.
- Where Member States intend to use JI and CDM credits to help them reach their national emission target — thereby giving their companies more scope to emit — these plans must be substantiated, for example through budgetary provisions.

The European Commission has issued specific guidance on how these rules are to be applied by Member States ([3]). The Commission assesses NAPs on the basis of these rules, as well as EU rules on State aid and competition, and has the power to require changes or even to reject a plan altogether. Once it approves a plan, the total quantity of allowances cannot be changed; nor can the number of allowances per installation following the final allocation by the Member State.

([3]) Commission Communication COM(2003) 830 of 7 January 2004 on guidance to assist Member States in the implementation of the criteria listed in Annex III to Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

Ensuring compliance

Appropriately for a market-based instrument that makes it possible to put a price on carbon, the ETS incorporates a robust framework of measures to ensure compliance that also gives a central role to economic incentives.



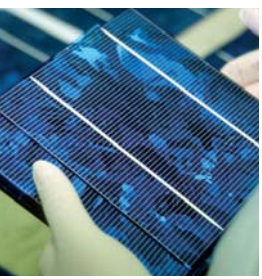
After each calendar year, installations must surrender a number of allowances equivalent to their verified CO_2 emissions in that year. These allowances are then cancelled so they cannot be used again. Those installations with allowances left over can sell them or save them for next year (within one trading period).

Those that have not produced enough allowances to cover their emissions will have to pay a dissuasive fine for each excess tonne emitted. In the initial phase the penalty is EUR 40 per tonne, but from 2008 it will rise to EUR 100. Operators also have to obtain allowances to make up the shortfall in the following year, and they will be 'named and shamed' by having their names published.

Member States have also had to lay down dissuasive penalties for any infringements of the ETS rules at national level.

Monitoring and reporting emissions

Each installation in the ETS must have a permit from its competent authority for its emissions of all six greenhouse gases controlled by the Kyoto Protocol. A condition for granting the permit is that the operator is capable of monitoring and reporting the plant's emissions. A permit is different from the allowances: the permit sets out the emissions monitoring and reporting requirements for an installation, whereas allowances are the scheme's tradable unit.



Installations must report their CO_2 emissions after each calendar year. The European Commission has issued a set of monitoring and reporting guidelines ([4]) to be followed. Installations' reports have to be checked by an independent verifier on the basis of criteria set out in the ETS legislation, and are made public. Operators whose emission reports for the previous year are not verified as satisfactory will not be allowed to sell allowances until a revised report is approved by a verifier.

Transaction registries

Allowances are not printed but held in accounts in electronic registries set up by Member States. The European Commission has set out specific legislation for a standardised and secured system of registries based on UN data exchange standards to track the issue, holding, transfer and cancellation of allowances. Provisions on the tracking and use of credits from JI and CDM projects in the EU scheme are also included. The registries system is similar to a banking system which keeps track of the ownership of money in accounts but does not look into the deals that lead to money changing hands.

The system of registries is overseen by a central administrator at EU level who, through an independent transaction log, checks each

([4]) Commission Decision 2004/156/EC of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council.

transaction for any irregularities. Any irregularities detected prevent a transaction from being completed until they have been remedied. The EU registries system is being integrated with the international registries system used under the Kyoto Protocol.

Trading in practice

The legal framework of the ETS does not lay down how and where trading in allowances should take place. Companies and other participants in the market trade directly with each other or buy and sell via a broker, exchange or any other type of market intermediary that has sprung up to take advantage of this significant new market.

The price of allowances is determined by supply and demand as in any other market. Trading on a forward basis began as early as 2003. It has significantly increased since the emissions trading scheme officially kicked off in January 2005, with spot trading gaining ground as Member States set up their national registries and issued allowances into the accounts of the companies covered by the scheme.

Traded volumes have been increasing accordingly. During the first six months of 2005, the market saw transactions of more than 90 million EU allowances (65.6 million brokered, 10.2 million traded on exchanges, and an estimated 15 million traded bilaterally). This corresponds to an estimated financial volume of EUR 1.37 billion ([5]).

([5]) *Source:* Point Carbon.

With this, the ETS has established itself as the engine of the global carbon market, which is emerging as a powerful tool to combat climate change. The scheme is generating important knowledge for the successful design and operation of carbon trading schemes elsewhere and international emissions trading to start in 2008 under the Kyoto Protocol, and it has given strong impetus to CDM and JI projects. In the EU, businesses are learning to operate in a carbon-constrained environment and to develop the best strategies to reduce their greenhouse gas emissions cost-effectively.

Traded volumes EUA per month

Price of EU allowance (EUA)

Benefits for partners **outside the EU**

Creating stable demand for credits from JI and the CDM



Joint implementation and the clean development mechanism enable developed countries that have binding emission reduction or limitation targets under the Kyoto Protocol to undertake emission-saving investments in third countries and credit these savings towards their own emission target.

The CDM covers projects in countries without an emission target under the protocol, i.e. developing nations. Reductions since 2000 are potentially eligible to receive credits called 'certified emission reductions', or CERs. JI applies to projects in countries that have agreed to an emission target — other industrialised countries and countries with economies in transition — and will yield credits known as 'emission reduction units', or ERUs, once the first Kyoto commitment period starts in 2008.

The EU scheme is the first in the world that recognises most of these credits as equivalent to emission allowances (1 EUA = 1 CER = 1 ERU) and allows them to be traded under the scheme ([6]). Credits from nuclear facilities and land use, land-use change and forestry activities are not accepted.

([6]) Directive 2004/101/EC of the European Parliament and of the Council of 27 October 2004 amending Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance within the Community, in respect of the Kyoto Protocol's project mechanisms.




CDM and JI projects from the Netherlands

The Netherlands has already signed many contracts to buy emission credits from CDM and JI projects, thereby helping to finance the transfer of environmentally sound technology to the host countries. The CDM and JI projects include the following.

- The construction of two electricity generating plants in Rajasthan, India, that use locally abundant mustard crop residue, cotton stalk and rice husk — renewable energy sources — for fuel. Net CO_2 emissions are zero since the amount of carbon emitted by burning the biomass is equal to the amount of carbon absorbed as it grows. The electricity produced by the plants, with a combined capacity of 14.8 MW, will replace power generated from more heavily polluting lignite and coal. The first plant began commercial operation in August 2003 and the second is due to do so in March 2006. This CDM project, providing additional income and employment in a relatively poor region, will yield 637 737 credits (CERs) over the period 2004–13.
- A CDM project to install a wind park with 22 turbines generating a total of 25.8 MW of electricity at Huitengxite in the Inner-Mongolia Autonomous Region of China. The construction of the wind turbines began in January 2004. The project will yield an estimated 513 914 credits (CERs) over the period 2004–13 by producing 'clean' electricity that would otherwise have been generated by a fossil fuel-based plant emitting CO_2. The revenues will help to make wind power more economically viable and thus to expand in a country whose energy supply is dominated by huge coal reserves.
- The construction of the Te Apiti Wind Farm near Palmerston North in New Zealand with a capacity of approximately 91 MW and virtually zero carbon emissions. Construction of the new wind farm started in May 2004. The expected annual output of the wind farm is estimated at approximately 325 GWh. The business as usual situation would be the replacement of natural gas with coal, due to the shortage of gas in the near future. This JI project is likely to delay for some time the building of new coal plants. Emission reductions are estimated to equal 530 000 tonnes of CO_2 equivalent per year in the period 2008–12, yielding 530 000 ERUs annually.

Source: www.carboncredits.nl

Thus, the launch of the ETS three years before the start of the protocol's first commitment period has given certainty to investors in the rapidly emerging market for JI and CDM projects. This has encouraged more investment in such projects and consequently promotes the transfer of environmentally sound technologies that help the host countries meet their sustainable development goals.

For EU companies covered by the scheme, the recognition of JI and CDM credits has increased the range of options available for meeting their emission targets, improved the liquidity of the market and potentially lowered the price of allowances, thus further reducing their compliance costs.

Companies are not the only ones looking for emission reduction credits through JI and CDM. Member States intend to use such credits themselves to help meet their emission target under the protocol. In their national allocation plans, they have indicated that they intend to procure 500–600 million tonnes of CO_2 credits for the period 2008–12. Since the majority of JI and CDM projects tend to generate emission reductions averaging between 500 000 and 1 million tonnes of CO_2, EU countries' demand for emission credits can only be satisfied through a great number of such projects. As 2008 draws nearer, EU Member States are actively seeking JI and CDM projects and a number of project contracts have already been signed (see box).

With this strong demand for emission credits building up rapidly, major European banks and other financial institutions both in the private and public sector have become active in providing finance for prospective emission reduction projects.

But the use of the Kyoto mechanisms within the EU will be only supplemental to domestic action to limit or reduce emissions, as agreed by UNFCCC parties at Marrakesh in 2001.

Linking the EU ETS with trading schemes in partner countries

The ETS is open to linking with compatible greenhouse gas emission trading schemes in other countries that have ratified the Kyoto Protocol. It is foreseen that each side would agree to recognise allowances issued by the other, thereby expanding the market for trading.



The EU is discussing Norway's participation in the ETS and preliminary discussions on cooperation have taken place with a number of other countries. The EU is also encouraged by moves to create an emissions trading scheme for CO_2 among initially nine north-eastern US states.

Shaping the future debate by sharing experience with partners

During the design of this innovative scheme, EU officials have exchanged information with many experts about existing trading schemes for other pollutants, particularly in the USA. Now that the EU scheme has started, systematic 'learning by doing' will be crucial for its successful further development. Independent monitoring and evaluation is accompanying its implementation. These processes will yield invaluable information which the EU will want to share with all interested parties and stakeholders.

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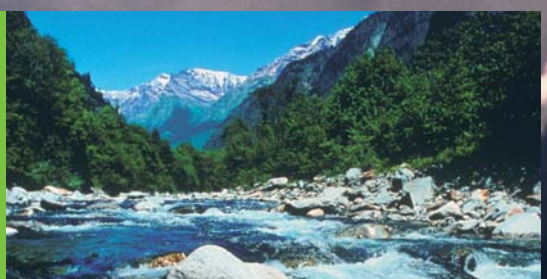

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