

Emissions trading

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*The columns and clouds of smoke, which are belched forth from the sooty throats of the city's industrial enterprises, made London in a few moments like the picture of Troy sacked by the Greeks. Its inhabitants breathe nothing but an impure and thick mist accompanied by a fuliginous and filthy vapour, forcing ladies to clean their complexions with ground almonds and causing the disruption of church services by the constant coughing and spitting of the congregation.*¹

Ever since Evelyn wrote his *Fumifugium*: or the inconveniency of the aer and smoke of London in 1661, the sooty throats of industries around the world have relentlessly devoured fossil fuels and forests, amplifying the greenhouse effect and triggering global warming: 1998 was the warmest year on record around the globe, followed closely by 2007, 2005, 2002, 2003 and 2004.

This ongoing but sudden climate change is putting the world's coastal areas and nearby population centres at risk from rising sea levels caused by melting glaciers and ice caps, and may potentially change existing climatic patterns resulting in more frequent droughts and occurrences of extreme weather such as hurricanes and monsoons.

Derivatives could save the planet! And International Swaps and Derivatives Association, Inc (ISDA) documentation may be at the forefront. This chapter covers the ISDA documentation platform for emissions trading. The complex nature of the underlying asset and its political ramifications make it essential for the practitioner to understand the rationale for emissions trading, together with the regulatory environment. This chapter covers these areas in detail too.

Nation states have belatedly woken up to the potential dangers of global warming and have begun channelling their energies into the United Nations Framework Convention on Climate Change and the Kyoto Protocol (with the notable exception of the United States, which signed but never ratified the protocol), in a concerted effort to reduce overall greenhouse gas emissions. Among the resulting initiatives are projects to provide economic incentives for nation states and private firms to reduce their greenhouse gas emissions through trading the right to emit them into the atmosphere on an international emissions trading market. The key emissions trading schemes introduce a 'cap and trade' method whereby a central

1 J Evelyn, *Fumifugium: or the inconveniency of the aer and smoke of London dissipated*, at p5-16 (London, 1661).

authority issues emissions permits to polluting companies subject to a cap. The polluting companies that are issued with these permits must have a sufficient number of permits to cover their emissions, failing which they must purchase emissions permits from others that pollute less or have otherwise obtained these permits. While maintaining an overall cap, which is lowered over time, this method provides an economic incentive to those that pollute less and imposes an economic burden on those that pollute more: fertile grounds for a derivatives market.

The emissions trading derivatives market consists of financial instruments such as swaps, options and forwards which derive their value from an underlying asset: the permits giving the right to emit a defined quantity of a greenhouse gas.

Understanding emissions trading requires a greater knowledge of the underlying asset and its regulatory framework than any other derivative. Different rules apply to different countries and greenhouse gases during different periods, all of which are driven by a regulatory infrastructure, including the framework convention, the Kyoto Protocol and the regulatory and legislative actions of its signatories.

Without knowledge of both what global warming involves and the legislative background to emissions trading, a practitioner will not fully understand how emissions trading and its documentation platform function, both now and in the future. With this in mind, this chapter covers issues including:

- the ultimate underlying asset - the greenhouse gas and its relation to climate change;
- a summary of the chain of events from the 1992 Rio Earth Summit, which produced the United Nations Framework Convention on Climate Change, to the resulting 1997 Kyoto Protocol, its entry into effect in 2005 and its development thereafter;
- the Clean Development Mechanism (CDM) and Joint Implementation² (JI) 'flexible' project mechanisms for meeting emissions targets, as well as international emissions trading and the interaction between the three mechanisms;
- the mechanics of emissions trading;
- the EU Emissions Trading Scheme (ETS) and a brief look at the developments in the United States for a possible federal emissions trading scheme; and
- the documentation of over-the-counter (OTC) transactions, provided by ISDA for both Europe and the United States.

1. Greenhouse gases and climate change

There is now a consensus among the scientific community that global warming (an increase in the overall temperature of the earth's atmosphere and oceans) is occurring³ as, over time, the earth fails to release the sun's energy at the same rate that it absorbs it. This increase in the greenhouse effect has been caused by human activities such as

2 Although the term 'joint implementation' was not specifically used in the protocol, it has become the market standard term for this flexible mechanism.

3 Joke Waller-Hunter, executive secretary, United Nations Framework Convention on Climate Change, Bonn, May 2005, foreword to "Caring for Climate, A Guide to the Climate Change Convention and the Kyoto Protocol".

fossil fuel use and deforestation pushing up atmospheric levels of greenhouse gases, such as carbon dioxide, nitrogen dioxide and methane. Global warming may increase the earth's overall temperature by as much as between 2.4 and 6.4 degrees⁴ over the next century. The extent of the world's governments' desire to slow or halt this increase will drive the pace of the emissions trading market in future years.

How does the greenhouse effect work?^{5,6}

- Solar energy passes through the earth's atmosphere.
- Some of it is absorbed by greenhouse gases in the atmosphere; some is reflected by the earth's atmosphere and surface; and the rest is absorbed by, and warms, the earth's surface.
- Through absorption by the earth's surface, the solar energy is converted into heat, causing the earth to emit long-wave infrared radiation back towards space.
- Greenhouse gases, which are the atmosphere's gaseous constituents (eg, carbon dioxide, methane and water vapour) that absorb and re-emit infrared radiation, send some of this infrared radiation back to the earth's surface and atmosphere.
- The earth's surface gains more heat and the infrared radiation is once again emitted.
- Some of the infrared radiation passes through the atmosphere and goes into space.
- The more greenhouse gases that are in the atmosphere, the more the earth's temperature will increase.

2. **The Earth Summit and the United Nations Framework Convention on Climate Change**

In 1992 the United Nations Conference on Environment and Development in Rio de Janeiro addressed the increasing evidence of global warming. This conference, which became known as the Earth Summit, agreed a new treaty: the United Nations Framework Convention on Climate Change, which entered into force in 1994. The convention acknowledged that human activities were increasing atmospheric concentrations of greenhouse gases, which in turn were exacerbating the greenhouse effect, and that this "will result on average in an additional warming of the earth's surface and atmosphere and may adversely affect natural ecosystems and humankind".

The convention recognised the vulnerability of certain types of geographical area to climate change, encouraged climate change scientific research and technology

4 Intergovernmental Panel on Climate Change, Fourth Assessment Report 2007.

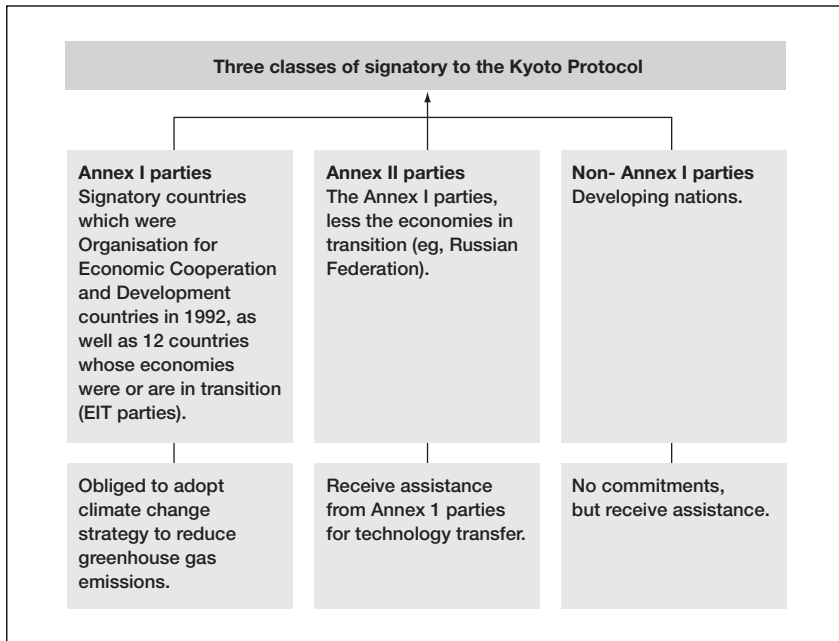
5 "Caring for Climate: A Guide to the Climate Change Convention and the Kyoto Protocol", United Nations Framework Convention on Climate Change.

6 "Understanding Climate Change: A Beginner's Guide to the UN Framework Convention on its Kyoto Protocol"; "Caring for Climate, A Guide to the Climate Change Convention and the Kyoto Protocol"; Okangan University in Canada, Department of Geography; US Environmental Protection Agency, Washington; "Climate Change 1995, The Science of Climate Change", contribution of working group 1 to the second assessment report of the Intergovernmental Panel on Climate Change, United Nations Environment Programme and World Meteorological Organisation (Cambridge University Press, 1996). GRID-Arendall.

sharing, and agreed an ultimate objective to stabilise greenhouse gas concentrations in the atmosphere at a level which would prevent adverse effects to the climate system, through national policies. Its parties also agreed to record and report their greenhouse gas emissions.

The convention was a framework treaty without enforcement provisions. It committed its parties to meet annually at the Conference of the Parties, which monitors progress and discusses tackling climate change.

The convention was joined almost universally and signatories included all EU member states, the United States, Australia, Canada, China and India. The convention divided its signatory countries into three separate groups: Annex I parties, Annex II parties and the rest, which have become known as non-Annex I parties.



Annex I parties are those signatory countries which were Organisation for Economic Cooperation and Development countries in 1992, as well as 12 countries whose economies were or are in transition (EIT parties). EIT parties include the Russian Federation, Belarus, Bulgaria, Croatia, Hungary and Ukraine. Annex II parties are the Annex I parties, excluding the EIT parties. The non-Annex I parties are for the most part the developing nations.

Each of the convention's three groups was given different obligations. Each Annex I party was obliged to adopt a climate change strategy to reduce its greenhouse gas emissions to 1990 (or in the case of the EIT parties, a later base year) levels by 2000. This target was achieved.

The Annex I parties had to give financial assistance to the non-Annex I parties to assist them in reducing their greenhouse gas emissions and adapting to climate

change. They also had to encourage environmentally friendly technology transfer to EIT and non-Annex I parties. The non-Annex I parties were given no additional specific commitments.

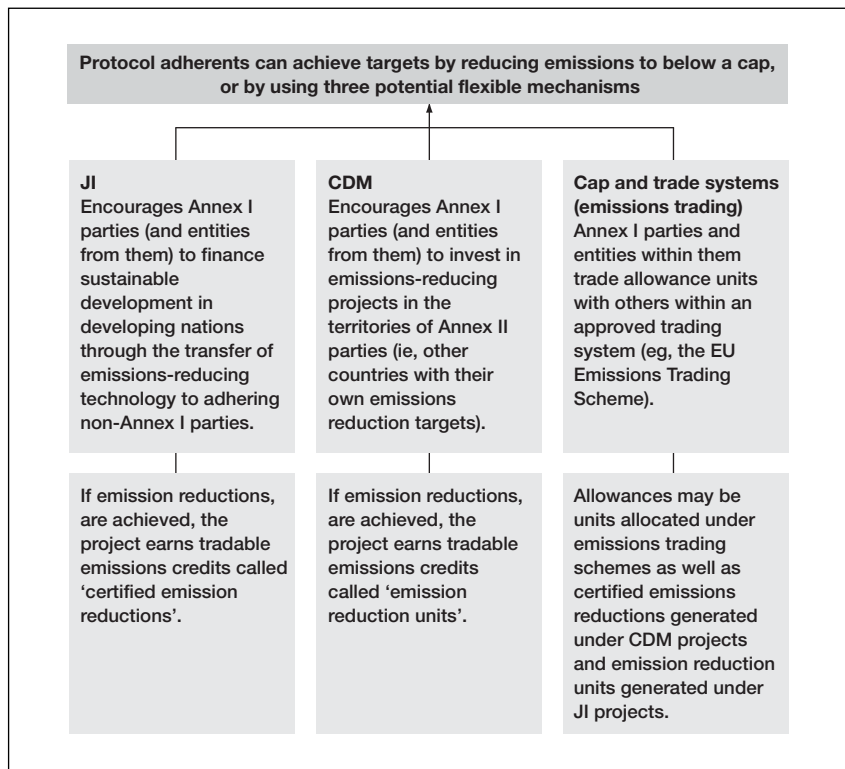
3. Kyoto Protocol

3.1 Ratification and general content

At the third conference, which took place in Kyoto in 1997, the Kyoto Protocol was adopted. This protocol was then refined in the fourth, fifth and sixth conferences and the Marrakesh Accords in 2001.

The protocol focuses on six greenhouse gases:

- carbon dioxide;
- nitrogen oxide;
- methane;
- hydrofluorocarbons;
- perfluorocarbons; and
- sulphur hexafluoride.



Carbon dioxide, methane and nitrogen oxide account for almost 75% of greenhouse gas emissions, with carbon dioxide alone accounting for 50%.