The Main Greenhouse Gases

Source: United Nations Environment Programme

The main greenhouse gases

Greenhouse gases	Chemical formula	Pre-industrial concentration	Concentration in 1994	Atmospheric lifetime (years)***	Anthropogenic sources	Global warming potential (GWP) *
Carbon-dioxide	CO_2	278 000 ppbv	358 000 ppbv	Variable	Fossil fuel combustion Land use conversion Cement production	1
Methane	CH_4	700 ppbv	1721 ppbv	12,2 +/- 3	Fossil fuels Rice paddies Waste dumps Livestock	21 **
Nitrous oxide	N_2O	275 ppbv	311 ppbv	120	Fertilizer industrial processes combustion	310
CFC-12	CCl_2F_2	0	0,503 ppbv	102	Liquid coolants. Foams	6200-7100 ****
HCFC-22	$CHClF_2$	0	0,105 ppbv	12,1	Liquid coolants	1300-1400 ****
Perfluoromethane	CF_4	0	0,070 ppbv	50 000	Production of aluminium	6 500
Sulphur hexa-fluoride	SF_6	0	0,032 ppbv	3 200	Dielectric fluid	23 900

Note : pptv= 1 part per trillion by volume; ppbv= 1 part per billion by volume, ppmv= 1 part per million by volume

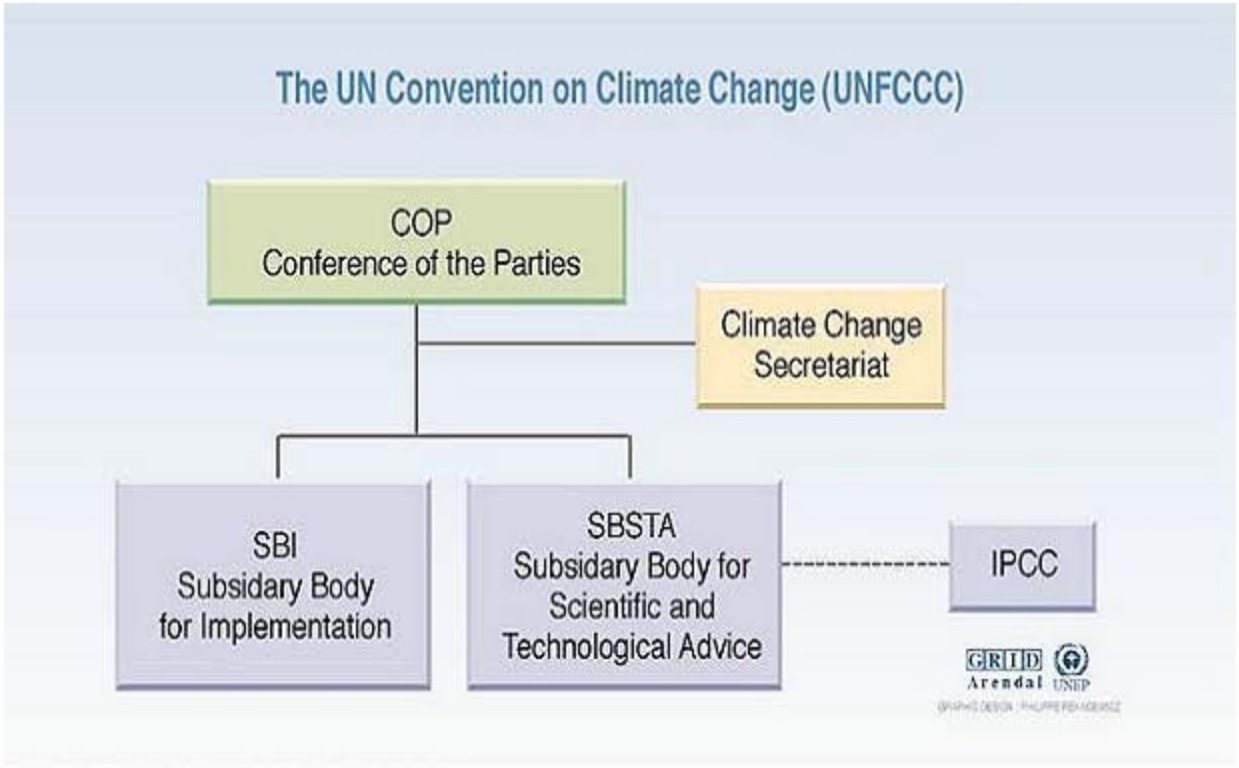
* GWP for 100 year time horizon. ** Includes indirect effects of tropospherico zone production and stratospheric water vapour production. *** On page 15 of the IPCC SAR. No single lifetime for CO_2 can be defined because of the different rates of uptake by different sink processes.**** Net global warming potential (i.e., including the indirect effect due to ozone depletion).

GRID Arendal UNEP

Source: IPCC radiative forcing report ; Climate change 1995. The science of climate change, contribution of working groupe 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO; Cambridge press university, 1996.

"People say we are a northern country and a temperature 2-3 degrees warmer would not be scary, maybe it would be good," he said. "You would have to spend less money of fur coats and other warm clothes. "Agriculture specialists say our farm production is increasing and will go on increasing. Thank God."
(Russian President Vladimir Putin, September 2003)

The United Nations Framework Convention on Climate Convention is the foundation of global efforts to combat global warming. Opened for signature in 1992 at the Rio Earth Summit, its ultimate objective is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic human-induced interference with the climate system. The Convention's supreme body is the Conference of the Parties (COP), which comprises the 180 states that have ratified or acceded to the agreement. In addition, the Subsidiary Body for Scientific and Technological Advice (SBSTA) provides the COP with timely information and advice on scientific and technological matters relating to the Convention. The Subsidiary Body for Implementation (SBI) helps with the assessment and review of the Convention's implementation.



Source: United Nations framework convention on climate change (UNFCCC).

Kyoto Protocol

Negotiated in 1997; 121 countries have ratified

Industrialized nations required to reduce emissions of six greenhouse gases

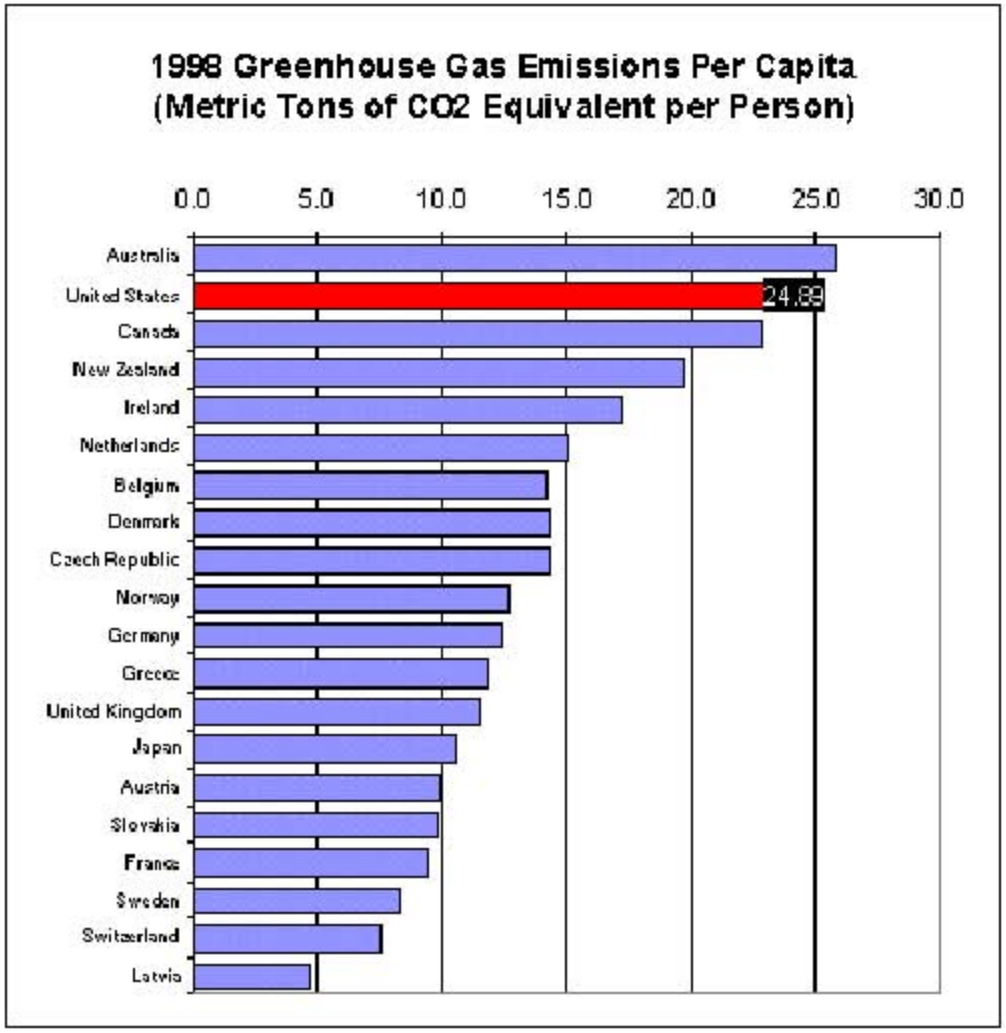
Emission reductions calculated relative to 1990 baseline and achieved between 2008 and 2012 (average over these five years)

Example commitments:

European Union	*8 percent*
United States	*7 percent*
Japan and Canada	*6 percent*
Russia and Ukraine	*0 percent*

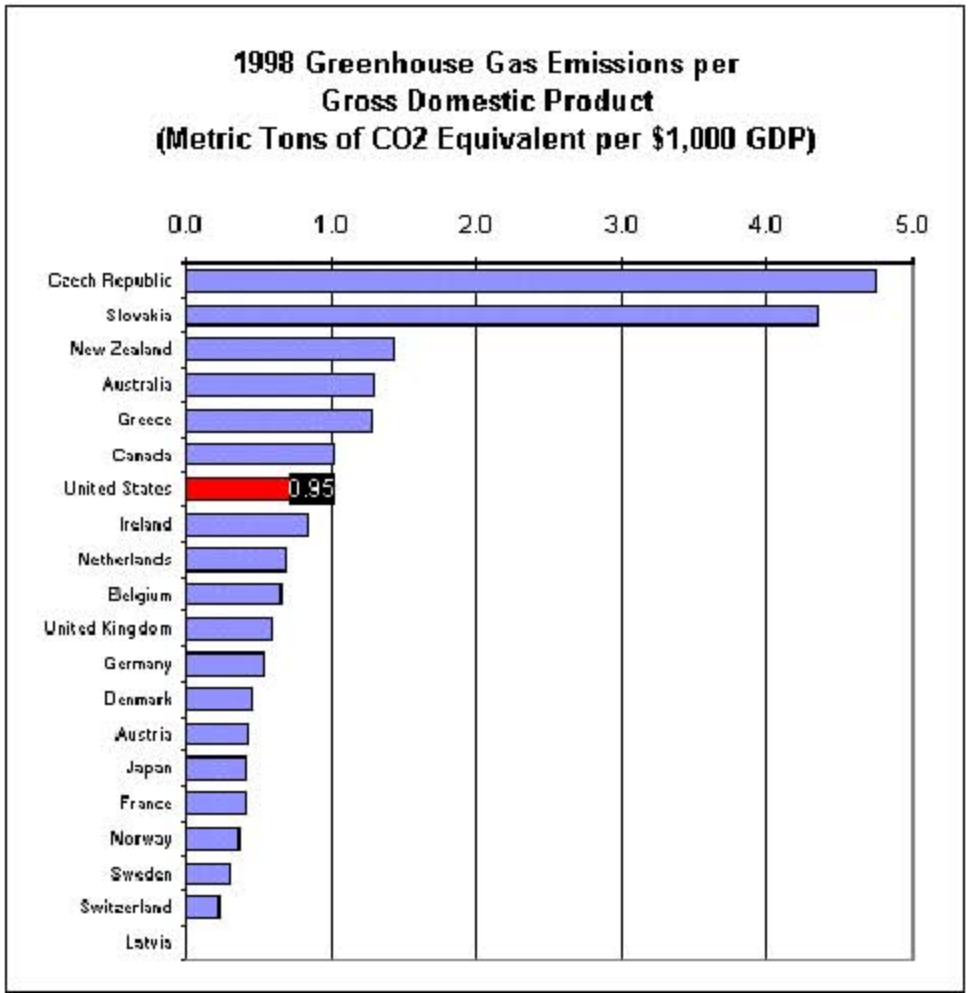
1998 Greenhouse Gas Emissions Per Capita (Metric Tons of CO2 Equivalent per Person)

Source: US EPA



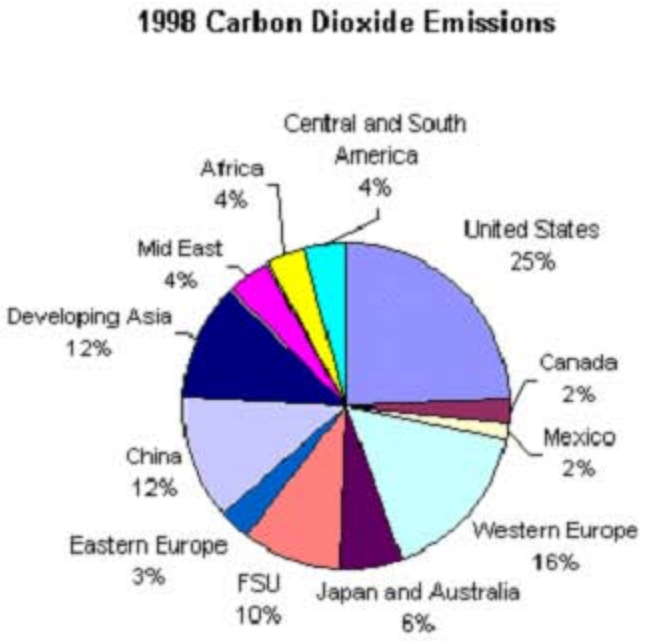
1998 Greenhouse Gas Emissions per Gross Domestic Product (Metric Tons of CO2 Equivalent per $1,000 GDP)

Source: US EPA



1998 CO2 Emissions by World Region

Source: US EPA



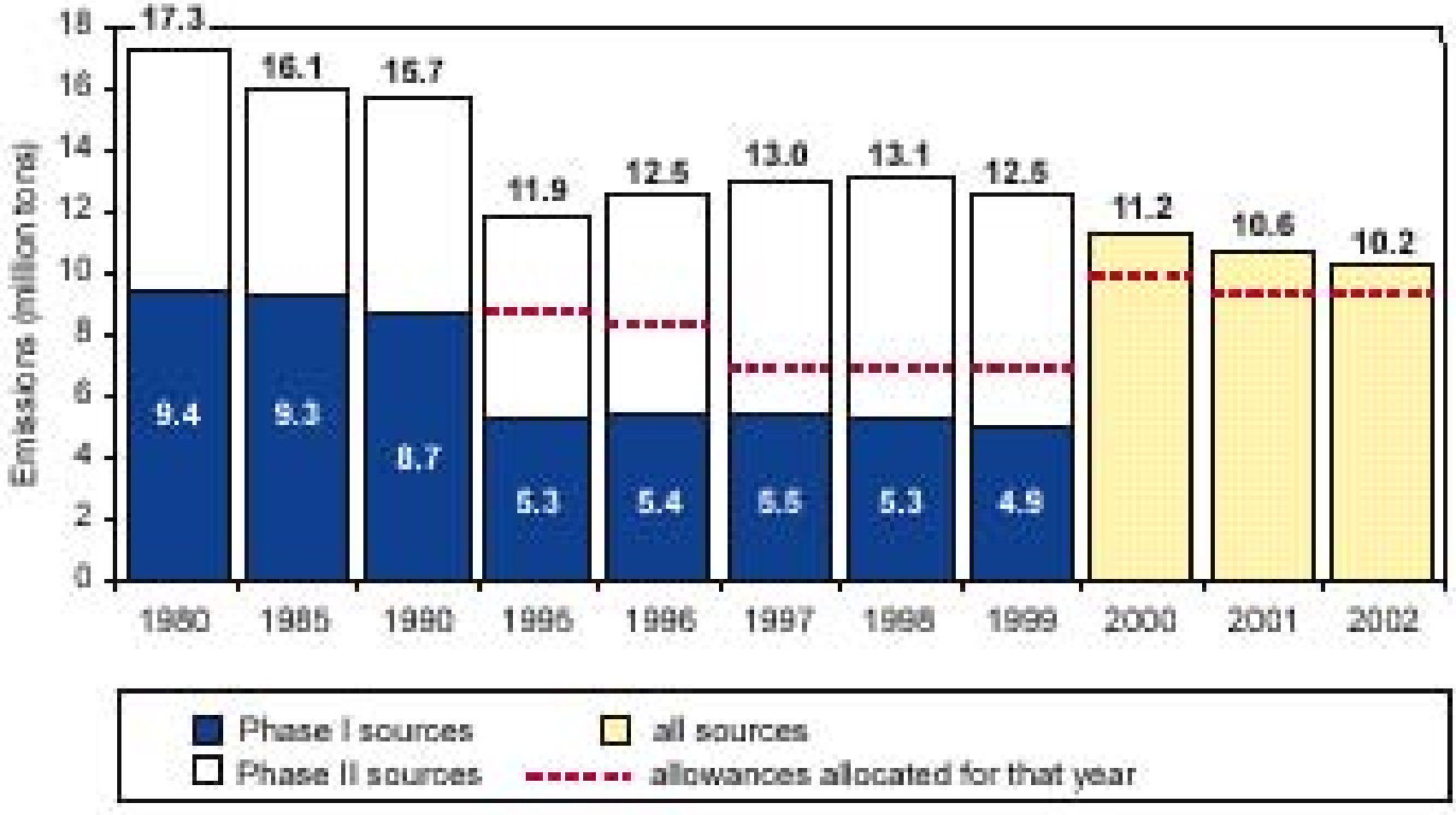
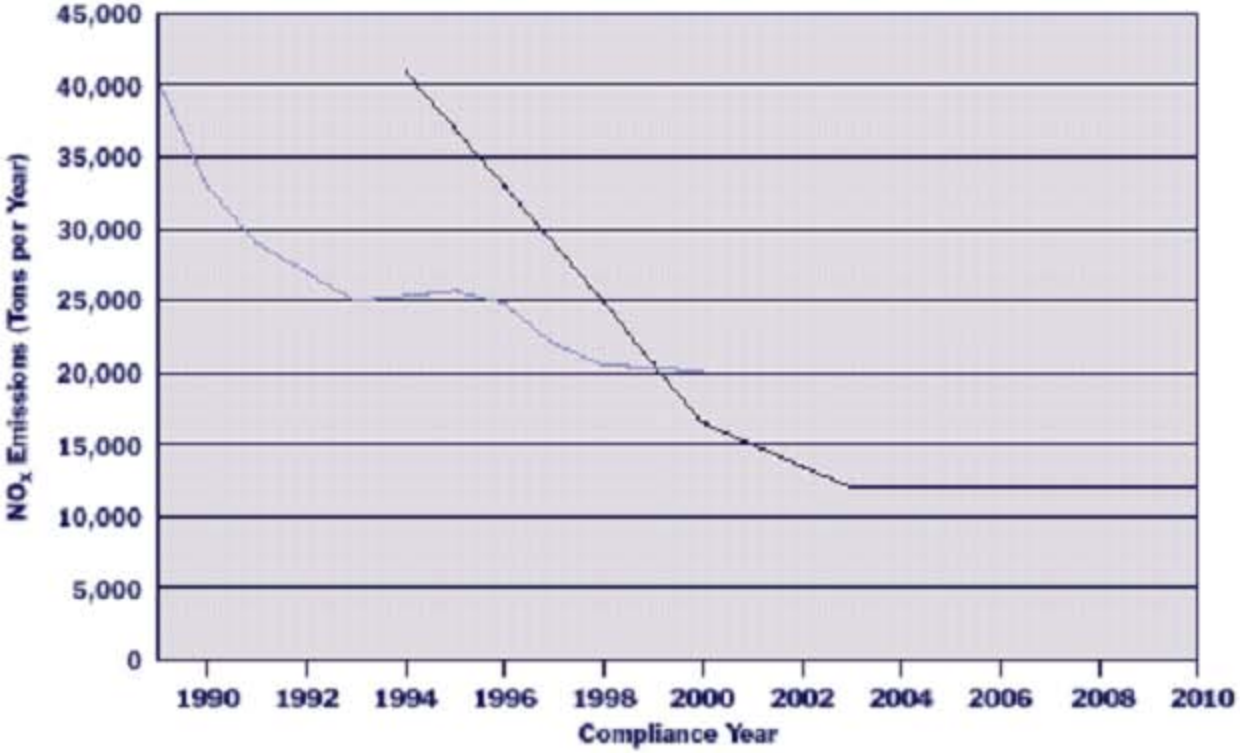


Figure 1. SO_2 Emissions from Acid Rain Sources, 1980 through 2002.
Source: EPA

Nitrogen oxides emissions and number of allowances (RTCs) at facilities covered under the RECLAIM program

Source: Pew Center on Global Climate Change

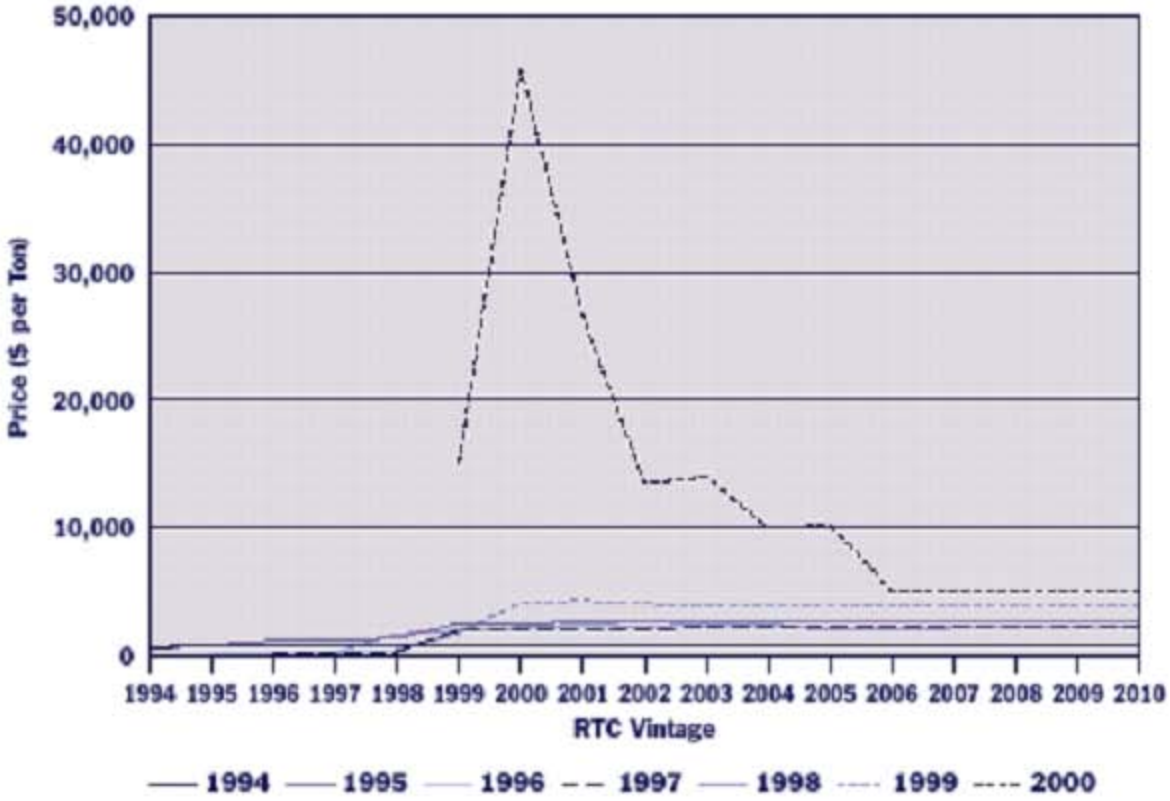


Sulfur dioxide allowance price index

Source: US EPA

Nitrogen oxides allowance prices in Los Angeles RECLAIM program

Source: Pew Center on Global Climate Change



"The United States believes that this particular protocol is not in its interests, nor do we believe that it really addresses the problem of global climate change."
(National Security Advisor Condoleeza Rice, Spring 2001)

In a video address at the launch of Britain's first large-scale offshore wind farm, North Hoyle, UK Prime Minister Tony Blair called climate change 'one of the greatest challenges facing the world in the 21st century'. While the Kyoto agreement was a great start, we all need to do much more, he added, saying that the UK Government is 'committed to doing our part to bring this message home to the fellow world leaders and to other countries around the world..

Mr Blair went on to say that action at home was essential, which 'is why we have pledged to reduce carbon emissions by 60% over the period to the year 2050', and why the UK Government has set targets for renewable energy is 'an area where we have not to date been at the forefront of best practice'.

(March 2004)