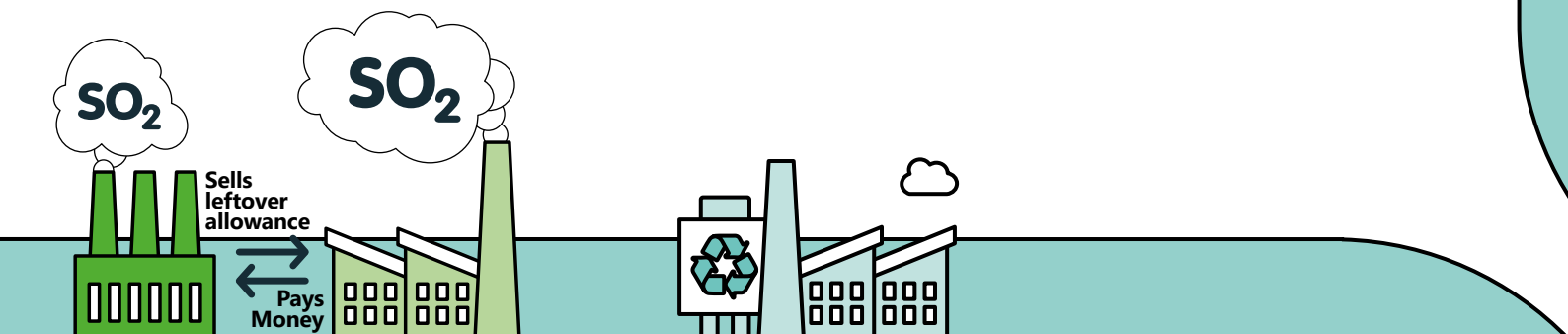


US SO₂ Emissions Trading Policy Case Studies



During the 1990s, the US established the world first emission trading system (ETS) to reduce Sulphur Dioxide (SO₂) emissions.



Policy Type: Emissions Trading System

Key features

Allowances were allocated for free and the scheme allowed banking (saving emission reductions for future use or sale). Both of which played an important role in the political and stakeholder acceptance of the programme.



Point of Regulation

Point of emission. Obligation placed directly on large plants emitting SO₂.

Sectors Covered¹

Power.

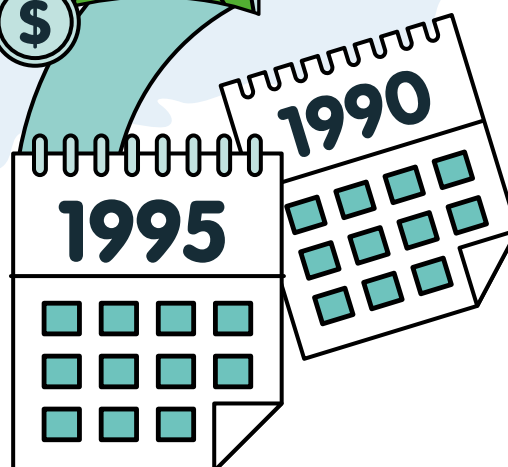
Sectors Not Covered

Agriculture, Forestry, Waste, Buildings, Transport.

Emissions Covered

75%
of the SO₂ emissions in 1990

Carbon Price PENALTY
us\$3,042
/tCO₂e in 2005
(~£1,673)²



Key Dates

The programme was established in 1990, however the first phase of implementation began in 1995.

¹ Only SO₂ emissions covered.

² Exchange rate in 2005 US\$1: £0.55. Source: <https://www.oanda.com/>, accessed 06/07/2018.

Introduction

US Title IV of the Clean Air Act Amendments (CAAA) established an emission trading scheme (ETS) to reduce SO₂ emissions to improve human health and the environment. The scheme, called the Acid Rain Programme (ARP), set a national cap on SO₂ emissions from power plants.

The programme was implemented in two phases. During Phase I from 1995-1999, the 263 plants responsible for the largest quantity of SO₂ emissions were subject to an interim emissions cap. In Phase II, from 2000 and continuing indefinitely, the programme was expanded to include virtually all fossil-fuel electricity generating facilities.

Stakeholder concerns had an important influence on the system. The rules were approved two years prior to the start of Phase I which gave the industry time to adjust. Also, the design of the cap (level and trajectory) appeared to have been more politically driven than evidence based, seeking to appease industry.

Following the successful implementation of the scheme in the first decade, attempts were made to revise the cap in 2005. However, this design revision was not approved by congress, which reduced the effectiveness of the scheme.



Key Findings

Policy Design and Price Signals

- The experience of designing ARP shows the importance of providing some degree of policy certainty to the regulated entities to facilitate planning and limit price volatility in early years.
- The ARP was enshrined in legislation, and its statutory nature meant it was predictable and transparent, helping to reduce the risk of legal challenges. However, any changes to the programme required Congressional approval, which could prove difficult as demonstrated by the failed attempt to change the cap in 2005.
- In response to this, a new parallel emission trading scheme was created (Cross-State Air Pollution Rule). However, this led to a price collapse in the original market since the banked allowances could not be used for future compliance.

Complementary Policies

- An important design feature of the ARP was that the 1990 CAAA largely avoided imposing additional regulations on SO₂ emissions, whether through specific pollution control technology requirements or performance standards for individual plants.

- The lack of supplementary regulation was considered important in order to maximise the cost effectiveness of the cap and trade scheme, this is because schemes are only able to achieve its full potential when obligated entities can freely choose their best response strategy.

Effectiveness of the Policy

- In the first decade of operation, the ARP cap-and-trade scheme cut emissions by more than half compared to the baseline.
- Studies show that cost savings compared to command and control instruments (i.e. non-market regulatory standards) were achieved, although there are large variations in the estimates provided. Ex ante studies estimate cost savings of \$250 million to \$360 million for Phase I, and savings of \$784 million to \$2 billion for Phase II. This is compared to an estimated total cost of implementation of between \$1.1 billion to \$1.7 billion (based in part on actual figures for the first few years of the programme).



Definitions

Emissions Trading System

A cap on emissions is set and obligated parties are required to hold a permit for each tonne of emissions they emit. The cap determines the number of allowances available in the system, which can be traded between parties.

Point of Regulation

The point in a chain of emission producing activities at which a regulator places the obligation to comply with emission reduction policy. The point is defined relative to the point of emission, either up or downstream from this.

Regulatory Standard

A regulatory obligation to achieve a particular outcome (e.g. emissions produced per unit of activity, proportion of low carbon fuel supplied) which is placed on an entity.