

THE ROLE OF COMPLIANCE AND ENFORCEMENT OF EMISSIONS TRADING SCHEMES

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SUMMARY

This paper discusses the use of emissions trading schemes to deliver environmental goals. It specifically deals with the approach to compliance and enforcement and draws on some of the lessons learned from implementing the European Union's Greenhouse Gas Emissions Trading Scheme.¹

1 INTRODUCTION

1.1 Background

Emissions trading offers a flexible, least-cost approach to achieving emission reductions. It is being increasingly used in environmental policy. Under a trading scheme, the choice of which plants make emission reductions would be the outcome of market transactions, rather than a decision of the regulator. Trading provides a price incentive for the full range of emission-reduction options, in the same way as pollution taxes. Unlike taxes, however, it caps the total level of emissions, giving greater certainty to the environmental outcomes. The European Union (EU) has just introduced an emissions trading scheme to limit emissions of carbon dioxide from all Member States. This is Europe's key policy instrument for meeting its target under the Kyoto Protocol. The EU Emissions Trading Scheme is a "cap and trade" scheme, in which the total emissions are limited (or capped) and distributed to each participant who can then trade their quota (or allowances). Cap and trade systems have also been used:

- For SO₂ emissions in the USA;²
- In the UK for greenhouse gas emission controls;³

- In a modified form, for the Renewables Obligation⁴ and biodegradable municipal waste⁵ in the UK.

2 HOW DOES EMISSIONS ALLOWANCE TRADING WORK?

Traditionally, environmental regulation works through establishing limits on emission rates of individual units, plants or companies. This may be to meet some required level of ambient pollution concentration or to limit deposition in the environment.

Emissions allowance trading takes a different approach, and comes in two basic forms:

- Cap and trade, as used in the EU Emissions Trading Scheme and USA sulfur dioxide market; and
- Credit-based systems, such as the nitrogen oxides scheme being proposed in the Netherlands.

National emissions ceilings and plant-level emission permits provide rights to emit up to permitted levels. Under cap and trade, these rights are turned into individual property rights, which can be owned by emitters and bought or sold. The aggregate emissions limit or cap is converted into many individual rights to emit a smaller

amount. Thus, a cap of 100,000 tonnes of emissions of a pollutant might be converted into 100,000 individual allowances to emit a single tonne of that pollutant.

Under a cap and trade system, individual plants must hold allowances to cover all of their emissions. Where there are fewer allowances available than aggregate emissions would be under business as usual, allowances will have a monetary value to plants. A plant would be willing to pay an allowance price below or equal to the costs to the firm of limiting its own emissions. However, because allowances are tradeable, firms have the option of buying them. Depending on the approach to initial allocation, plants that reduce their emissions may free up allowances that they can sell themselves, or reduce overall demand for allowances sold by the regulator.

Plants that have different costs of controlling emissions can be expected to hold different numbers of allowances. Those plants with high costs of control would be expected to purchase allowances and to emit more than plants with low costs of control. Plants with low control costs would reduce emissions and hold fewer allowances.

2.1 Design of Trading Schemes

The basic elements of a cap and trade system are a:

- Binding cap on total emissions for a number of plants;
- Defined unit of trade (e.g. a right to emit 1 tonne of carbon dioxide);
- System for initial allowance distribution;
- Penalty system for non-compliance;
- Compliance period.

A credit-based system does not distribute allowances initially. Rather, they are created when emissions are reduced below a baseline. In the UK greenhouse gas emissions trading scheme, firms that have targets established as a result of a negotiated agreement with the Government can create allowances if they perform better than required. Certified reductions in

emissions are used to generate credits, which are then tradeable. These can be sold to other firms that do not meet their targets. Similarly, the UK's Renewables Obligation Certificate market requires electricity suppliers to hold Renewables Obligation Certificates equal to 10% of their total supplies of electricity.¹ Renewables Obligation Certificates are created when a kWh is generated from defined renewable sources.

For a credit-based approach, plants might be required either to achieve emissions limit values (ELVs) which limit the rate of emissions, or to hold allowances to cover the difference between their actual emissions and what their emissions would be, had they met the ELV. Plants that find it expensive to reduce emissions could continue emitting above their ELVs by buying allowances from other plants that would generate allowances if their emission rate were less than the ELV. This approach gives less certainty of outcome because ELVs only control the emissions rate in mg/Nm³ and not total emissions; if activity levels increase, so would emissions.

3 REGULATION OF TRADING SCHEMES

Once a cap has been set and the allocations made to individual companies it is important that the scheme is regulated effectively. What is meant by effective regulation is an important question. Trading schemes are very different to conventional regulation. Few of the benefits of a trading scheme will be realised if its regulation is delivered through traditional "command and control" approaches. For the market to be effective in delivering the required environmental outcome the regulatory approach must be right. For this reason, it is important that success criteria for the scheme are established early on. Key factors include:

- There must be many buyers and sellers in the market;
- The "commodity" being traded must be well characterised;

- There should be a large number of transactions; and
- The variation in price between individual transactions should be small.

Often, a trading scheme that is simple is also most effective as it is more easily regulated and is more transparent both to participants and the public. However, simplicity is often difficult to achieve because of the influence of other political objectives.

The key elements of a regulatory approach for trading schemes are discussed below.

3.1 Monitoring and Reporting

An effective monitoring system is an essential element of a trading scheme. Good quality monitoring provides both confidence among the wider public about the effectiveness of the policy and confidence among companies that they are being treated fairly.

One of the key features of the EU Emissions Trading Scheme is the approach to emissions monitoring. The European Commission produced guidelines setting the monitoring standards required to be met by operators. Although this was guidance, compliance with it was mandatory. Operators were required to specify how they would comply with these requirements, which had to be approved by the regulator. Once approved, the emissions data reported annually have to be verified before submission to the regulator. A third party must undertake the process of verification. The standard of verification is crucial to ensure that the monitoring is undertaken in accordance with the Commission's guidelines. Inconsistencies in approach and quality between verifiers and countries will lead to distortions in the trading market as 1 tonne of carbon dioxide may not be the same throughout all Member States.

Various initiatives are underway to try to address this. The European Accreditation Co-operation is producing guidelines for bodies responsible for setting standards for the verifiers. Accreditation bodies who are members of the Accreditation Co-oper-

ation must comply with these guidelines. Also, the International Emissions Trading Association is producing a framework for harmonisation of verification. This will comprise a Verification Protocol and a training programme for verifiers operating under the scheme.

The costs associated with administering and complying with a scheme's monitoring requirements is an important consideration. There is a key question as to how these costs should be shared equitably across all operators. In any scheme, there is usually a significant variation in the quantity of emissions from participants. Furthermore, there will also be a large difference in turnover and profitability between participants. There are several approaches to address this, including:

- Overall management costs are apportioned depending on an installation's turnover;
- Costs could be paid depending on a company's emissions; and
- Bands could be used to categorise companies based on their environmental risk – those posing the highest risk pay the most.

3.2 Compliance Assessment and Enforcement

Effective compliance penalties are an essential component of the trading system. The compliance penalty creates the value of the allowance. It therefore needs to be sufficiently high to deter non-compliance and certainly in excess of any expected allowance price.

In the economics literature, non-compliance is viewed as a rational act that weighs the costs and benefits of compliance and non-compliance - a firm will comply if the probability of being caught times the fine is greater than the value of non-compliance.⁶ The implications are that the penalty for non-compliance must be at least as great as the marginal costs of compliance, but must also reflect an additional amount because of the possibility of not being caught. The EU Emissions Trading

Scheme sets a financial penalty of 40 Euros per tonne of carbon dioxide emitted above a company's allocation. This will rise to 100 Euros per tonne for the second phase of the scheme (2008 – 2012). This poses a significant deterrent to operators to over emit. The EU Emissions Trading Scheme also allows a range of enforcement to be taken against operators. For example, other offences include failure to hold a valid permit whilst operating and failure to comply with monitoring and reporting conditions. These offences are subject to enforcement action similar to that used in traditional regulation.

A number of other elements of the compliance system improve its effectiveness, including certainty of the size of the penalty and "automaticity" (i.e. firms know that if they do not comply they will face the penalty).

The penalty to deal with operators who emit more than the number of allowances they hold should involve the following two elements:

- A financial penalty per tonne of excess emissions, set at a value several times the expected allowance price;
- Deductions of allowances from the next year's allocation to make up the difference.

The use of a trading scheme as a regulatory tool will often require a review, and possibly, a change in emphasis, of the amount and nature of regulatory activity. For instance, the focus may change from a "hands on" approach, typified by traditional regulation, to delivery of environmental results. Hence, there could be less time spent addressing how reductions are made and more (and perhaps only) on whether they have been made.

Inspection and enforcement needs a balance to be set between frequent inspection (and hence cost) and significant penalties for non-compliance.

The role of the verification process in assessing compliance is an interesting area of debate in the EU Emissions Trading Scheme.

Use of third-party verifiers to audit

and verify that an operator is compliant with its approved monitoring and reporting plan is an important contribution to compliance assessment. This raises the question of the extent to which further inspections and checks are needed. It is likely that some form of inspection needs to be undertaken by the regulator. This is because the operator contracts the verifier to undertake the verification process – this calls into question the independence of the verification process. However, for the sake of minimising compliance costs, whilst maintaining robust standards, the interaction between the verifiers and the regulators is an important issue that needs to be considered.

3.3 Institutional Arrangements and Market Development

The adoption of trading schemes requires a different range of skills compared with traditional "command and control" regulation. The establishment of a cap and the allocation process often has significant implications on the economic viability of the industry sectors concerned as well as the general economy of a country. For the EU Emissions Trading Scheme, national Governments have usually undertaken this process. Compliance and enforcement has then been the responsibility of different bodies e.g. existing regulatory authorities (as in the UK) or newly created Emissions Authorities (as in the Netherlands).

This is not always the case. For the US sulfur dioxide scheme the U.S. Environmental Protection Agency undertakes the allocation process. However, it is still done centrally. This is in contrast to most traditional regulation where limits and reduction targets for installations are set at site level.

Another important feature that must be considered when deciding roles is the credibility those organisations have with the public and market participants. An authority that is responsible for compliance and enforcement that is viewed as weak will have a detrimental effect on the credibility of the scheme and the development of the market. Funding and resource levels for regulatory bodies must be sufficient to

ensure confidence in the management of the scheme. Any lack of confidence in the scheme by investors and operators will depress the market. A prerequisite for investor confidence in markets that are created by Government policy is that compliance and enforcement approaches are simple, transparent and robust. Also, it is important that the rules of the scheme remain fixed for a reasonable period of time in order to give certainty to investors.

4 CONCLUSIONS

This paper highlights the important role that compliance and enforcement plays in the operation of a successful trading scheme. Monitoring requirements, compliance strategies, financial penalties and the overall management of the scheme have important consequences on the trading market and investor confidence.

Many trading schemes are now being implemented and it is important that the lessons learned from each scheme are captured and shared. This is especially important for schemes that have the potential for international trading e.g. carbon trading. Although Europe has introduced a Europe-wide scheme many other countries are developing their own. For trading to take place between different schemes it is important that they share some common principles. Of paramount importance is the need to be confident that the commodity being traded is equal across all schemes. Having robust compliance and enforce-

ment strategies in-place will go a long way towards achieving this.

5 REFERENCES

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