INSG Insight

INSG SECRETARIAT BRIEFING PAPER February 2009 – No.5

METALS: ENERGY, EMISSIONS AND THE ENVIRONMENT
- Alternatives to Cap and Trade -

This report, the fifth in the series of INSG Insight briefing reports, examines the alternatives to emission trading schemes (ETS) based on the model of cap and trade for carbon dioxide (CO2) emissions. In March 2008, INSG issued an Insight report entitled *Metals: Energy, Emissions and the Environment* which provided an analysis of Emission Trading Schemes and the implications for the metals industry. The objective of this current paper is to provide member countries with additional information on the alternatives to cap and trade for carbon and the potential impact of these alternatives on the metals industry.

There are alternatives to the schemes of tradable emissions permits currently embodied in the Kyoto Protocol. Some economists have suggested that alternative approaches have not had a sufficient hearing among policymakers.

INSG has an ongoing interest in the interrelated topics of energy, metals and the environment, including the relationship between energy usage, emissions trading and recycling. In addition to Insight reports, the secretariat has organized presentations as part of the regular Study Group meetings. In April 2009 the three Study Groups will jointly organize a seminar on Energy/Climate Change.

Introduction

In discussions on measures to reduce pollution and provide for environmental protection, a distinction is often made between two general approaches - that of '*command and control'* and the alternative of '*economic or market-based incentives*'.

Under a command and control approach to carbon emissions, government authorities would enforce regulations as to how much carbon dioxide individual entities could emit and what technologies could be used. This type of approach is considered inflexible and makes the introduction of new technologies difficult. The general consensus among economists is that incentive-based approaches can reduce emissions of CO2 at a lower cost than more restrictive command and control approaches because they provide greater flexibility as to where and how emission reductions are to be made.

In recent years, the most widely discussed proposals for reducing carbon emissions have been those laid out under the Kyoto Accords that use a market-based approach to reaching a solution by modifying economic incentives.

Within the category of market-based approaches, a further distinction can be made between policies that create new markets (such as cap and trade) and policies which use existing markets (such as taxes). In order for a cap and trade system for carbon dioxide to function, new markets have to be established. This is done by first setting a cap and creating a scarce resource (emission rights), and issuing certificates to represent these emission rights. A market place for the trading of certificates is then established. This process entails the establishment of a new legal framework to define the rights and regulations for setting up of a market place to trade the certificates.

A carbon tax on the other hand makes use of the existing market by raising the price of carbon. The objective is to make it more expensive to use fuels that generate carbon dioxide. As the price of such fuels increases, demand will drop and alternatives will become attractive.

Proposals for emissions trading schemes (ETS) have been extensively debated and discussed. Work is currently underway to implement emissions trading in several jurisdictions, including the EU, the US, Australia and New Zealand. However, there exist other approaches to reducing carbon emissions that continue to have support among some economists and other experts.

The Carbon Tax

One alternative to cap and trade schemes that is increasingly mentioned is the carbon tax. In late 2008 several prominent individuals, including the CEO of Exxon Rex Tillerson and activist Ralph Nader, made statements supporting a carbon tax rather than a cap and trade system.

The basic idea of a carbon tax is simple: charge a price for each ton of carbon dioxide released into the atmosphere. To do so, it is necessary to calculate the relative amount of carbon dioxide produced by burning a ton of oil, natural gas or coal and then charge a tax on that amount.

In order to keep the system relatively simple, advocates suggest that the tax be imposed on suppliers of fossil fuels, such as coal producers, petroleum refiners and natural gas producers. The tax could be built on the administrative infrastructure for existing taxes such as excise taxes on coal or petroleum. In this way, the user of the fuel would not face the administrative burden of the tax.

Many recent proposals for a carbon tax have been linked to the idea of a revenue neutral tax, where any increase in government revenue would be offset by other tax cuts or rebates to tax payers. For example, payroll or income taxes could be reduced by an amount equal to the carbon tax. The overall result of this would be to make the use of carbon based fuels less attractive, but not to increase the tax burden on the economy. Politically, it is seen as easier to pass legislation for a revenue-neutral package of a carbon tax that is linked to a reduction in other taxes. A carbon tax that isn't accompanied by a reduction in other taxes could be regarded as politically unacceptable, especially in times of an economic recession.

Advocates of a carbon tax claim that such a tax would cause the market to recognize the price of negative externalities of using petroleum, natural gas and coal, for example environmental costs and national defence costs.

In order to avoid creating distortions to international trade, a carbon tax would need to operate under a global system to achieve an equitable distribution of costs. This would require a global agreement, similar to the Kyoto Accord or the Montreal Protocol governing ozone depleting gases. However, it is entirely possible for individual countries to adopt carbon taxes, without reference to any global objective. In fact, some jurisdictions such as the UK and some Scandinavian countries have had carbon taxes in place since the 1990s. And in early January 2009, the government of Ireland said that it was considering the introduction of a carbon tax. These existing carbon taxes were adopted for purposes other than countering climate change.

Under proposals for a carbon tax, there are no country emissions quotas, no emissions trading, and no base period emissions levels. The tax would be increased over time to bring down the level of carbon emissions.

Details of how an internationally equitable tax would be administered would require detailed analysis to be worked out. However, as William Nordhaus, Professor of Economics at Yale University notes, the issues of sanctions, the location of taxation, international-trade treatment, and transfers to developing countries under an carbon tax are important details that are subject to discussion and refinement. If carbon prices are equalized across participating countries, there will be no need for tariffs or border tax adjustments among participants. While much work on the details would be required, this is familiar terrain because countries have been dealing with problems of tariffs, subsidies, and differential tax treatment for many years. The issues are relatively simple compared to those of a quantity-based regime.

Advantages and Disadvantages of cap and trade and a carbon tax

Some of the arguments that have been cited by economists in favor of a carbon tax rather than a carbon cap-and-trade system include:

- **Predictability** - Carbon taxes will lend predictability to energy prices, while cap and trade systems do little to mitigate the price volatility that historically has discouraged investments in less carbon-intensive electricity generation, carbon-reducing energy efficiency and carbon-replacing renewable energy.
- **Ease of Implementation** - Carbon taxes can be implemented without the creation of new markets for emission certificates and therefore can be in place sooner than complex cap and trade systems. The myriad details of a cap and trade system must be resolved through lengthy negotiations.
- **Simplicity** - Carbon taxes are easily understandable, making them more likely to win the necessary public support than an opaque and difficult to understand cap and trade system.
- **Transparency** - Carbon taxes can be implemented with far less opportunity for manipulation by special interests, while a complex cap and trade system is open to exploitation by special interests and inappropriate incentives that can undermine public confidence and undercut its effectiveness.

- **Potentially Revenue Neutral** - Carbon tax revenues can be more easily returned to the public through tax-shifting or rebates. Cap-and-trade systems are likely to generate a hidden tax as revenues flow to market participants, lawyers and consultants.

Price stability is one of the major advantages of a tax over a cap and trade system. A tax would avoid significant year to year fluctuation of costs. Cap and Trade systems limit the quantity of carbon dioxide emitted each year. This can result in price volatility. If the limit is set too low, the price of permits can be bid up rapidly. Conversely, if permits are too easily available the price can drop drastically. An example of this is the volatility of prices for EU carbon permit during the past few years. In the course of 2008, the price for permits in the EU ETS fluctuated widely with the price for December 2009 permits hitting a high of Euros 30.00 per tonne on 1 July then falling to just under Euros 10.00 per tonne by the end of the year.

In contrast, a carbon tax system fixes the price for carbon dioxide and lets the quantity emitted fluctuate. Proponents of the carbon tax believe that it is more desirable from an economic point of view to have relatively more stable prices of energy. Advocates of renewable energy argue that price stability for energy provides a more favourable framework for the adoption of increased use of wind and solar power. Indeed, the Financial Times newspaper ran an editorial making this argument on 27 January 2009.

One advantage of a carbon tax for mining and metals companies is that the tax would most likely be placed on fossil fuel producers and not on the firms emitting CO2. Since some smelting and metals refining operations release CO2, they would face the requirement to obtain emission certificates under a cap and trade system, while with a carbon tax they would pay indirectly via the increased cost of a carbon tax imposed on fossil fuels.

Disadvantages

Some of the arguments against a carbon tax include the following.

- **A new tax**. It is politically difficult for governments to propose a new tax, especially in the current economic crisis.

- **Compatibility with Kyoto**. The adoption of carbon taxes would represent a departure from the direction taken under the Kyoto Accords which was an effort to set up a consistent global system of cap and trade to reduce carbon dioxide emissions.

- **Need for Global Agreement**. To be equitable and avoid trade distortions, a carbon tax would require that all the major emitting countries adopt a similar tax on carbon emissions. To achieve this, it would probably be necessary to engage in protracted international negotiations.

- **Variable Emissions.** A carbon tax does not fix the annual emissions level of carbon dioxide. The approach taken by the Kyoto Accords is to fix annual emissions levels and then reduce these levels over time in a smoothly

declining curve. A carbon tax would cause emission levels to drop, but in a fluctuating downward trend.

- **Efficiency**. An international trading system allows emissions reductions to take place wherever abatement costs are lowest, regardless of borders. If emissions reductions are cheaper to make in country A than in country B, emissions should be reduced first in the former where costs are lower.

- **Limited Application**. As a carbon tax only applies to carbon based fuels, it would have no impact on the emissions of the other greenhouse gases indentified by the Intergovernmental Panel on Climate Change (IPCC), such as methane, nitrous oxide, sulfur hexafluoride and fluorocarbons.

Another difference between a cap and trade system and a tax is the potential difference in flows of capital**.** An international cap and trade system would likely result in significant flows of capital between countries as those countries reaching their limit on emissions would buy emission rights from countries with a surplus. Under Kyoto, the capital flows would be from the wealthiest developed countries to countries in the former Soviet bloc and to countries in the developing world. Under a carbon tax, the revenue from the tax would generally stay in the country of origin. This would be an advantage to developed countries and a relative disadvantage to the developing countries.

Other Approaches

Besides cap and trade and a carbon tax there are some other approaches that may have a limited role in reducing carbon emissions. Two that are already in use, at least to a minor extent, are:

Moral arguments - This could be summed up as trying to convince users of carbon based fuels to use less "because it is the right thing to do". Examples include electric utilities which offer customers power from wind generated sources at slightly higher prices. Also, some companies elect to use alternative energy for some operations. This approach is used by companies and individuals who wish to demonstrate their support for action. However, the overall impact of the moral approach is limited.

Bans or limitations on uses of carbon based fuels are used in some cases. Some carbon based fuels are banned, for example residential use of coal or wood in fireplaces is restricted by some cities. This is often a local initiative, aimed at air quality, but it has the potential to be expanded to have an impact on the metals industry. For example, the use of charcoal in the making of stainless steel in Brazil attracted the notice of environmental groups who pushed for a ban. Also, Iceland has adopted a de facto ban on carbon based fuels, relying instead on hydro power. This won Iceland a concession at the Kyoto negotiations.

One somewhat theoretical approach is for **Cap and Share**, a proposal by a European NGO that combines elements of cap and trade and a revenue neutral tax. In this plan, global emissions are capped and then brought down year by year. Each year the emissions tonnage would be shared equally amongst the Earth's adult population, each of whom would receive a certificate representing their individual entitlement. The recipients would then sell their certificates through the

banking system to oil, coal and gas producers who would need to acquire the permits to cover the carbon dioxide emissions emitted from all of the fossil fuel they sold.

International Action Related to Cap and Trade and Carbon Taxes

A major international meeting on climate change will be held in Copenhagen from 7 to 18 December 2009. It is anticipated that this meeting will be one of the largest United Nations meetings ever held outside of New York or Geneva.

According to the Executive Director of the International Energy Agency (IEA) Nobuo Tanaka, a realistic outcome of the 2009 Copenhagen meeting will be 'a combination of policy mechanisms – reflecting nations' varied circumstances and current negotiating positions.' These mechanisms include cap and trade, international sectoral approaches, and national policies and measures. While the emphasis will be on cap and trade, carbon taxes could well attract discussion within the context of national policies.

Conclusions

The non-ferrous metals industry will undoubtedly face changes in local, national and international regulations aimed at reducing carbon dioxide emissions. The two approaches most likely to be implemented are a cap and trade system or a carbon tax. Either will raise costs for the metals industry with the impact on costs depending on details such as the level a cap is set at or the rate of tax on carbon.

As policy makers work to create climate change policies for the future and especially for the period after the conclusion of the Kyoto Accord, a range of proposals will likely be considered. These measures are not mutually exclusive. Carbon taxes may be adopted alongside a cap and trade system. But as recommendations are made, it is essential that stakeholders in the metals industry be aware of the different impact that various policies will have on the non-ferrous metals industries.

Both cap and trade and a carbon tax rely on creating higher prices for hydrocarbon fuels and thereby creating incentives to reduce carbon dioxide emissions. But there would be considerable differences in the impact the approaches would have on the metals industries.

Comments or Questions

Please contact Curtis Stewart at the INSG Secretariat. Email: curtis_stewart@ilzsg.org or telephone +351 21 359 2423

INSG
February 2009