American Iron and Steel Institute

Greenhouse Gas-Sector Crediting Mechanism: A Real Threat of Institutionalizing Trade Distortions in Steel[i]

The Steel Sector, Greenhouse Gas Emissions, Addressing Global Warming

Steel is an essential material in our everyday existence, underpinning transportation, shelter, water and food supply, national security, and the generation of energy. No other material offers the same unique combination of strength, formability, and versatility. Consequently, as nations around the world seek to increase their standard of living and lift populations out of poverty, it is inevitable that the demand for steel will increase.

The International Energy Agency projects that global steel demand will increase by 86% to 123% between 2006 and 2050. The implications of growing demand are important as it is estimated that an average of 1.9 tons of CO_2 is emitted per ton of steel produced. According to the International Energy Agency (IEA), the global steel industry currently contributes 4% to 5% of total greenhouse gas (GHG) emissions. Further, we know that steel production's energy and GHG emissions intensity vary considerably between regions and often between developed and developing countries.

Manufacturers from all economic sectors face their own challenges to reduce GHG emissions. Steel offers a range of solutions that includes the choice of application for steel, the choice of steel over another material, and the choice to use new and advanced high-strength steels. In fact, the use of steel in many products today already makes energy savings possible throughout the complete life cycle of the product. Steel also serves as the primary component in technologies that help lower total GHG emissions. In addition, new generations of steel continue to be developed that are even lighter, stronger, and more ductile. These advanced high-strength steels make it possible for manufacturers and builders in a broad range of sectors to implement lightweight designs that effectively reduce total CO_2 emissions without compromising needed performance characteristics. Furthermore, steel offers the ability to be endlessly recycled without the loss of strength, durability, or its other distinctive properties.

The primary steel production methods, accounting for about three-quarters of total steel, reduce iron ores to hot metal in a first step and then refining it to steel. The main production routes for primary steel are blast furnace/ basic oxygen furnace (about 66% of total), direct reduction/ electric arc furnace route (6% of total), and open hearth furnace (3% of total). Steel is also produced by recycling scrap steel, often in combination with a form of iron, in an electric arc furnace (EAF). This method accounts for about twenty-five percent of total, global steel production. According to the International Energy Agency, the need for steel production from ore – the most energy intensive and CO_2 emitting route – will continue to increase from around 840 Mt in 2006 to 1,440 Mt in 2050, even with significant recycling efforts.

During 2001-2008, global steelmaking capacity grew at a compound annual growth rate of 7.9 percent, reaching 1.713 mmt by the end of 2008. Most of this expansion came from the emerging economies, where steel demand was growing particularly fast. Brazil, Russia, India, and China (BRIC) accounted for 89% of world steel capacity expansion during the period, of which China claimed the lion's share. The four largest producing countries (China, Japan, the United States, and Russia) account for 57% of total world steel production.

"Common but Differentiated" – An Accepted Principle with Many Meanings

The 1992 Kyoto Protocol first recognized the principle of "common but differentiated responsibilities" when signatory nations agreed that developed, industrialized countries (Annex 1) would assume greater responsibility for reducing greenhouse gas emissions in the near term. Such differentiation at the nation-to-nation level was understandable. It would have been unrealistic at that time to have expected countries like India and China to take the same measures as the United States and Germany to reduce GHG emissions.

Today, the situation is decidedly different. Action to reduce emissions in OECD countries alone, which represent only 33% of current global industrial CO_2 emissions, will not be sufficient to make the reductions deemed necessary by most climate scientists. Industrial production will continue to grow most strongly in non-OECD countries so that by 2050, in the absence of any further action, they will account for 80% of global industrial CO_2 emissions.

While it is true that every steel company and every steel-producing country is at a different point of maturity and development, the steel products manufactured and traded around the world are highly interchangeable. Today, 40% of the world's steel is traded internationally and over 50% of total production is in developing countries. As a result, the role of developing countries in global steel production is significantly different than it was in 1992. The principle of "common but differentiated responsibilities" may still apply at the national level, but there is no justification for concessionary rules within highly competitive, global industries like steel.

Implementation of national climate change policies aimed at reducing GHG emissions from industries like steel will introduce new costs on certain steelmakers, while others operating in countries that have not adopted comparable [if any] national climate change policies will experience little or no change in climate-related policy costs. In developed and developing countries, the production cost profile that undergirds today's competitive playing field could be substantially altered by national GHG emissions reduction policies, thus distorting trade and creating winners and losers -- likely at the expense of the environment if differences in national climate policies result in a shift in production to unregulated or lesser regulated jurisdictions. Until environmental practices and carbon costs converge, it may be necessary for some countries to adopt carbon cost adjustment mechanisms, not as trade discriminators, but rather as regulatory cost burden equalizers.

Background on Sectoral Approaches in the Steel Industry

The idea of sectoral approaches to reduce global CO_2 emissions, often using energy intensity as a proxy, arose almost simultaneously in the worldsteel association and in the Asia Pacific Partnership's Steel Task Force. Both operated under two principles: (1) in order to obtain the largest possible reductions in the steel industry, the steel industry in developing countries had to be engaged because the opportunities for improvement were greatest there, given the advances already made in steel industries in the developed world; and (2) by establishing an average energy intensity by region or country using a common methodology, opportunities for improvement by application of available technologies, best practices or both would be clearly evident.

Progress continues in both the worldsteel and APP approaches as data collection activities are in progress including a careful third party assessment to ensure data consistency and validity [APP]. It is important to note that sectoral approaches developed by the steel industry were always envisioned as voluntary "energy or CO_2 reducing" mechanisms and never as "playing field-leveling mechanisms". If fact, if improperly implemented, sectoral approaches can become decidedly "playing-field tilting", with negative competitive and environmental results.

Technology Adoption in the Steel Industry

Steelmaking equipment and technologies are available around the world. The most recent plants, regardless of their location, can make use of state-of-the-art processes. Several other facts influence global competition in the steel industry*, e.g.,* steel companies worldwide, when not suffering economy-induced recession, are generally healthy and profitable businesses capable of capital investment, regardless of whether they are sited in developed or developing countries and, as already noted, steel demand is expected to grow significantly.

These three facts—that steelmaking technology is available worldwide; that virtually all participants in the global marketplace can afford to invest; and that the demand outlook is strong—argues for climate policies which encourage technology investment while facilitating growth to meet demand.

In developed countries, steel's energy intensity and fierce global competition have driven inefficient producers from the marketplace. History, such as the reduction in energy intensity of the steel sector in the USA [33% from 1990-2007], clearly shows the lowest emitting production path must be sought to naturally survive in the steel sector. This is because energy is such a large component of steelmaking cost and technology adoption to lower energy use always lowers CO_2 emissions. *In summary, climate policy for steelmakers in developed countries must recognize and incorporate the strong incentive to lower emissions already presented by global competition.*

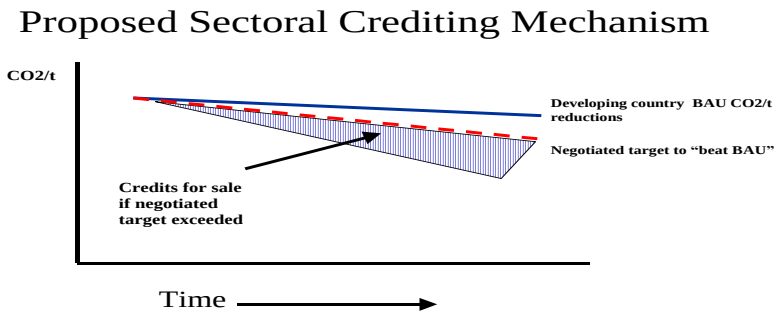
Therefore, any international agreement that will take public funds from one steel-producing country [or group of countries] and use those funds to purchase lower-energy-using technologies for steel companies in another country is harming the competitive position of the steel companies in the countries providing the funding [as already noted, lower energy use means lower cost]. This type of technology funding mechanism *may* be harmless in sectors that do not compete internationally [e.g., power sector], but it otherwise poses a serious threat.

With this background in mind, consider the concept of Sectoral Crediting.

Sectoral Crediting

Sectoral crediting is a proposed mechanism to obtain greater developing country participation in an international climate agreement of the type being debated and drafted under the auspices of the UNFCCC. In simple terms, it works generally as depicted below:

Figure 1: Illustration of Sectoral Crediting Mechanism



Within a sector in a developing country, an intensity target below "business as usual" is negotiated and the dashed red line in the graph above depicts this.
Outperforming the target [shaded region] generates credits for sale internationally.

In a sector such as steel, where developing countries have growing industries, but also have antiquated facilities that need replacing, Sectoral Crediting amounts to developed countries financing all or part of that replacement. Antiquated capacity is shuttered, moving the country's steel industry energy intensity below the "better than BAU" target, which generates credits for sale, which generates cash to finance the new plants to take their place. Such a mechanism is clearly competitiveness-altering.

The simplest international policy may be to exclude sectors that produce globally-traded goods from technology financing mechanisms. At a minimum, it is our strong recommendation that sector experts from industry be part of the teams evaluating technology financing mechanisms. These sector experts should come from industries in countries that would provide financing.

Summary

A basic understanding among negotiators within the UNFCCC process today is that national climate policies will be different around the world for the foreseeable future. These varied climate policies will impose different compliance costs in each domestic economy. When coupled with the negotiation of financing mechanisms to facilitate tech transfer from developed to developing countries, the potential for altering the competitiveness of industries that compete internationally is significant. Therefore policymakers must take care in developing climate measures that do no harm in the global marketplace.

Two points should inform this consideration:

1. "Common but differentiated" obligations at a national level can cause competitiveness problems at a sectoral level for globally traded goods. This is why some countries are considering climate policy adjustment mechanisms to equalize the cost burden and offset any competitiveness impacts created by common but differentiated climate policies.

2. International financing mechanisms such as Sectoral Crediting [SCM] and Nationally Appropriate Mitigation Actions [NAMAs] should be thoroughly vetted by experts in appropriate sectors, to ensure their implementation does not alter the playing field for globally traded goods. Such evaluation should consider the possibility that some financing measures are not appropriate in sectors producing globally traded goods.

Policymakers should also recognize the incentives to improve energy use and CO_2 emissions provided solely by competing in a global marketplace. Global competition is one of the root causes of the energy savings experienced by the steel industry in the USA [33% reduction in energy intensity from 1990-2007] and other steel-producing countries. Allowing the global marketplace to work for the small subset of energy intensive and trade intensive industries [like steel] may prove to be the best policy.

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