Specialty Steel Industry of North America

Undue Impact of Climate Legislation on Specialty Steel Production: Requested Legislative Amendments

Executive Summary

The U.S. specialty steel and superalloy industry is a significantly energy- and trade-intensive sector that produces high value and technologically advanced products that are critical components in a variety of strategically and economically important industry sectors. Pending climate legislation (*i.e.,* the "Waxman-Markey bill" (H.R. 2454) and the "Kerry-Boxer draft" (S. 1733)) does not provide adequate compensation (in the form of allowances or otherwise) to ease the transition to a carbon-constrained economy and threatens serious disruption and job loss within this vital industry sector. The Specialty Steel Industry of North America (SSINA) fears that cap-and-trade legislation similar to that currently under consideration could possibly result in the loss of almost one-third of specialty steel and superalloy productive capacity in the United States and the highly paid and skilled jobs associated with that production. In fact, the legislation increases the risk of "carbon leakage" by driving production to less efficient producers in countries that lack comparable greenhouse gas regulations, and thereby undermines the goal of reducing global carbon emissions.

While SSINA does not favor climate legislation, if legislation similar to the Waxman-Markey bill and Kerry-Boxer draft is to move forward the industry seeks certain modifications to minimize costs, potential job losses, and the risk of carbon leakage. At minimum, the legislation should be amended to address the undue impact of the allowance allocation procedure on specialty steel and superalloy producers. Currently, the legislation directs the U.S. EPA to allocate allowances to two basic subsectors of the "steel" industry: "integrated" carbon steel producers and "electric arc furnace" (EAF) steel producers (each of which are under NAICS Code 331111). The problem with this approach is that EAF steel production covers two fundamentally different types of facilities and products: EAF carbon steel producers and EAF specialty steel and alloy producers. Due to a variety of factors (*e.g.,* higher melting temperatures, longer melting times, different alloy chemistry, finishing requirements, *etc*.), specialty steel production is significantly more energy-intensive than carbon steel production. As a result, specialty steel EAF producers would be penalized in comparison with EAF carbon steel producers in the allocation of allowances based on the "sector average" carbon dioxide emissions and/or energy efficiency per ton of steel produced.

Accordingly, SSINA requests an amendment to Section 764(d) (of both the Waxman-Markey bill and the Kerry-Boxer draft) to establish a third steel subsector for EAF specialty production.

SSINA also requests Congress to include R&D funding for steel-related energy efficiency and associated research. Such investments will assist in moderating the impact of climate legislation and transitioning to a carbon-limited economy.

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The Specialty Steel Industry of North America (SSINA)[1]

The specialty steel industry in the United States produces high technology, high value stainless steel and specialty alloy products[2] that are vital components in energy production, national defense, aerospace, automotive, electrical, food processing, medical, and numerous other essential applications. Specialty steels also are critical in the development of more energy efficient technologies, such as gas turbines. While U.S. specialty steel producers are highly efficient and globally competitive, as an energy- and trade-intensive industry the sector is deeply concerned about the economic and potential job loss impacts that could result from pending climate change legislation. In fact, the unintended consequence of such legislation could be to increase the risk of "carbon leakage" by encouraging a shift in specialty steel manufacturing away from relatively efficient U.S. producers towards producers in other nations with less efficient (and less regulated) manufacturing practices, resulting in a net increase in global carbon emissions. Given the many unanswered questions about the magnitude of economic and social consequences of greenhouse gas (GHG) regulation, SSINA urges Congress not to support legislative efforts that, in their current form, fail to provide energy- and trade-intensive industries with adequate compensation to ease the transition to a carbon-constrained economy and, hence, increase the risk and probability of "carbon leakage."

Based on the study recently released by the National Association of Manufacturers and the American Council for Capital Formation (the "NAM-ACCF study"), it is estimated that the specialty steel industry could expect job losses totaling between 6 and 9 percent of the total workforce by 2020 and between 23 and 29 percent by 2030, if climate

[1] The Specialty Steel Industry of North America (SSINA) is a Washington, D.C.-based trade association representing virtually all continental specialty metals producers. SSINA members operate approximately 50 steelmaking facilities in the United States, including about a dozen mills that operate EAFs to melt scrap metal and alloying agents to create new steel products, as well as numerous other rolling mills and finishing facilities. SSINA member companies employ approximately 7,600 workers across the United States. SSINA member companies include: ATI Allegheny Ludlum (headquartered in Pittsburgh, PA) and ATI Allvac (Monroe, NC) (both Allegheny Technologies companies); Carpenter Technology Corporation (Reading, PA) and Talley Metals Technology, Inc. (Hartsville, SC) (a Carpenter company); Crucible Specialty Metals (Syracuse, NY); Electralloy (Oil City, PA); ThyssenKrupp VDM USA, Inc. (Florham Park, NJ); North American Stainless (Ghent, KY); Outokumpu Stainless, Inc. (Schaumburg, IL);; Latrobe Specialty Steel Company (Latrobe, PA); Universal Stainless and Alloy Products (Bridgeville, PA); Haynes International Inc. (Kokomo, IN); and Valbruna Slater Stainless Inc. (Fort Wayne, IN).

[2] Specialty steel consists of high chrome- and nickel-based alloys, which, due to their unique physical and chemical properties, are utilized where strength and heat or corrosion resistance are critical application attributes.

legislation similar to the Waxman-Markey bill (H.R. 2454) passed by the U.S. House of Representatives earlier this year is adopted.[3] These are good, high paying, highly skilled jobs that are unlikely to return to the United States if production is transferred to other countries.

While SSINA does not support adoption of a cap-and-trade GHG regulatory system, if such legislation were to go forward, at minimum, certain provisions should be modified from those found in the Waxman-Markey bill and the Kerry-Boxer draft (S. 1733) to help offset the costs of such legislation and minimize job losses. In particular, amended legislation should:

(1) Address the undue impact of the allowance allocation procedure on specialty steel and high alloy producers; and

(2) Include R&D funding for energy efficiency and associated research.

Each of these issues is discussed in detail below.

The Allowance Allocation Provision for the Steel Industry Should Be Amended to Account Properly for Specialty Steel

As an energy- and trade-intensive industry, the specialty steel sector would be eligible to receive "allowances" by allocation under Section 764 of H.R. 2454 and S. 1733 ("Distribution of Emission Allowance Rebates"). This is because NAICS code 331111 ("Iron and Steel Mills") qualifies as an "eligible" industry sector under the energy- and trade-intensity criteria of the bill (Section 763 of H.R. 2454 and S. 1733 ("Eligible Industrial Sectors")). A complication arises, however, due to the fact that NAICS code 331111 covers all types of steel production, including:

(i) Carbon steel produced at "integrated" operations that make steel from iron ore and other feedstocks;

(ii) Carbon steel produced in electric arc furnaces (EAFs) primarily from recycled scrap metal; and

(iii) Specialty steel produced in EAFs from recycled metals and other alloying elements.

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[3] "Analysis of The Waxman-Markey Bill 'The American Clean Energy and Security Act of 2009' (H.R. 2454) Using The National Energy Modeling System (NWMS/ACCF-NAM 2)" at Table 1. According to the NAM-ACCF study, the provisions of the Waxman-Markey bill could result in a decline in the value of U.S. primary metals output of between 6 and 9 percent by 2020 and between 23 and 29 percent by 2030. While a decline of this magnitude no doubt would cause the closure of a number of specialty steel mills and possibly lead to the dissolution of a number of producers, it is assumed that the declines in output estimated in the NAM-ACCF study would have proportional impacts on the employment of production and related workers in the specialty steel industry. Given that current employment of production and related workers within the U.S. specialty steel industry totals approximately 7,600, it is estimated that enactment of the provisions of Waxman-Markey ultimately could result in job losses of between 456 and 684 workers by 2020 and between 1,748 and 2,204 workers by 2030.

To address the broad scope of the "steel" NAICS code sector when it comes to allowance allocation, the legislation includes a provision (Section 764(d)) specifying that "integrated" and "EAF" steelmaking operations should be considered as separate subsectors. Generally, allowances are allocated using a formula based on a facility's total production (*e.g.,* tons of steel produced) and the sector-average GHG emissions (for addressing costs associated with "direct" GHG emissions) and electricity consumption (for addressing "indirect" emissions and costs passed through by utilities) for producing a unit of output. Accordingly, under Section 764(d) of H.R. 2454 and S. 1733, in calculating a facility's allowance allocation, integrated steel mills are allocated allowances in comparison to their performance relative to other integrated mills. The same is true for EAF steel operations.

Unfortunately, the Waxman-Markey and Kerry-Boxer allowance allocation provision for steel does not account for the third basic steel industry subsector: specialty steel produced in EAFs. Hence, specialty steel producers would be compared to EAF carbon steel producers – an apples-to-oranges comparison. This is inequitable because the production of stainless and other specialty steel in EAFs requires more energy per ton of steel produced (due to higher melting temperatures, longer melting times, different alloy chemistry, finishing requirements, *etc*.). As a result, specialty steel EAF producers would be penalized in comparison with EAF carbon steel producers in the allocation of allowances. To remedy this inequitable situation, SSINA proposes to amend the provision at Section 764(d) of the Waxman-Markey bill and the Kerry-Boxer draft to establish a third steel subsector for EAF specialty production. The provision would read as follows (with additions underlined and deletions indicated with strikethroughs):

> *(d) IRON AND STEEL SECTOR.— For purposes of this section, the Administrator shall consider as in different industrial sectors—*
>
> *(1) entities using integrated iron and steelmaking technologies (including coke ovens, blast furnaces, and other iron-making technologies); ~~and~~*
>
> *(2) entities using electric arc furnace technologies to produce carbon steel; and*
>
> *(3) entities using electric arc furnace technologies to produce stainless and other specialty steels and alloys.*

The above amendment is necessary as carbon and specialty steels are two very different products, with significantly different energy consumption (and CO_2 emission) profiles.[4] The carbon and specialty segments of the EAF steel industry differ in a number of important respects, including:

[4] In recognition of these and other differences between carbon and specialty steel production, the U.S. EPA historically has established separate regulatory provisions for the two EAF steel subsectors, such as with water and air regulatory standards. *See, e.g., Clean Water Act Effluent Limitations Guidelines for the Iron and Steel Industry*, 40 C.F.R. Part 420; *National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities*, 40 C.F.R. Part 60 Subpart YYYYY.

(1) Product Differences: The type of steel produced is dramatically different, with specialty steel, as described above, used in various and generally high end applications. In comparison, carbon steel is typically utilized in structural applications, such as building materials or vehicle frames and bodies. Over 400 grades of specialty steel are produced, compared to only a few dozen or so grades of carbon steel.

(2) Costs of Production: Production costs and prices differ by at least an order of magnitude (on a per pound basis), with specialty steels costing significantly more to produce and purchase.

(3) Tonnage: Production tonnage reflects the difference in markets served by both segments of the industry. The carbon steel sector produces approximately 60 million tons per year, serving primarily the construction, automotive and transportation infrastructure sectors. In contrast, while specialty steel production is about 2.5 million tons per year (or approximately two percent of the total "steel" market), as noted above, the industry serves specialized, high technology economic sectors such as aerospace, national defense, and, notably, clean energy production and generation.

(4) Capacity: Carbon and specialty steel EAFs also differ significantly in terms of capacity. While there are dozens of carbon steel EAF facilities, only about 10 EAF facilities produce specialty steel in the United States. The capacity of carbon steel EAFs typically ranges from approximately 50 tons to upwards of 250 tons per heat cycle, with an average of roughly 110 tons. In contrast, many of the specialty steel EAFs operating in the United States are much smaller, in the 15-40 ton capacity range.

(5) Small Businesses: Unlike the carbon steel industry, almost one-third of the specialty steel EAF facilities qualify as small businesses. For example, Electralloy, Universal Stainless, and Haynes International all have less than 1,000 employees corporate-wide.

(6) Production Time: "Heat" time – the time needed to produce one batch of steel – differs significantly between carbon and specialty steel EAFs. For carbon EAFs, heat time is generally 45-60 minutes. For specialty operations, however, heat time usually is at least two hours, reflecting the needs of a multi-staged melting and refining process. While carbon steel is both melted and refined in the EAF (a single vessel operation), stainless steel is melted in the EAF, then refined in the argon oxygen decarburization vessel (AOD), and further fine tuned in the ladle furnace (a three vessel operation). This longer heat time translates into significantly greater natural gas and electricity consumption per ton of steel produced.

These differences in product and production process translate into a higher per ton energy consumption for specialty steel compared to EAF carbon steel production. Carbon emission and energy consumption data for the steel industry for 2008 show that EAF carbon steel production results in the generation of approximately 0.19 tons of direct CO_2 emissions per ton of steel produced, whereas the sector average for EAF specialty steel is 0.45 tons per ton of steel produced. Electricity consumption shows a similar pattern, with EAF carbon steel producers using approximately 644 kilowatt hours (KwH) of electricity for each ton of steel produced (or 0.45 tons of CO_2 per ton of steel produced), while EAF specialty steel producers use 1,563 KwH per steel ton produced (which translates to 1.094 tons of CO_2 per ton of steel produced).

Consequently, if these two sectors are grouped together and allowances are allocated based on the combined production "efficiency" for the sector as a whole, the comparatively more energy-intensive specialty steel mills will receive a much lower share of allowances. Accordingly, the amendment detailed above is needed to ensure that specialty steel mills are granted an equitable allocation of allowances to help offset the additional costs associated with the transition to a carbon-limited economy.

R&D Funding for Steel-Related Energy Efficiency Research

To assist further in moderating the impact of climate legislation, reducing the risk of "carbon leakage," and transitioning to a carbon-limited economy, we urge you to support funding to promote investments in more energy efficient technology, including steel-related investments. The Waxman-Markey bill has numerous provisions related to the funding of energy efficient technologies, including:

- Sections 184-191: Clean Energy Investment Fund

  A new Clean Energy Investment Fund would be administered by a new Clean Energy Deployment Administration. This "green bank" would provide loan guarantees, insurance, letters of credit, *etc.* to clean energy projects. The projects will be supported based on the degree to which they advance the energy technology deployment goals in Section 185. EAF efficiency improvements would meet goals outlined at Sections 185(a)(6) and (8), "the recovery, use, and prevention of waste energy" and "domestic production of commodities and materials (such as steel, chemicals, polymers, and cement) using clean energy technologies so that the United States will be a world leader in environmentally sustainable production of the commodities and materials."

- Section 247: Clean Energy and Efficiency Manufacturing Partnerships

  This section would amend the Hollings Manufacturing Partnership Program at the Department of Commerce to help manufacturers reduce energy intensity and GHG emissions and increase the use of innovative manufacturing technologies. Federal matching funds would be available for expenditures that qualify.

We request that steel-related projects qualify for funding under these programs. As one of the most trade- and energy-intensive industry sectors, and among the most critical for a variety of national defense and advanced technological economic sectors, R&D funding for steel, including specialty steel, is necessary and appropriate.

Further, the Department of Energy (DOE) "Steel Industry of the Future" program would be strengthened by additional funding. Under the program, the DOE Industrial Technologies Program (ITP) awards cost-shared funding through a competitive solicitation process for R&D projects that boost steel industry energy efficiency and productivity. Projects are carried out by collaborative partnerships among steel companies, suppliers, national labs, universities, and others.

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SSINA appreciates your consideration of the issues raised in this paper and would be happy to provide any clarifications or further information that you may need. If you have any questions or would like to discuss our concerns further, please do not hesitate to contact our counsel:

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