



CLIMATE PRINCIPLES FOR ENERGY INTENSIVE TRADE EXPOSED INDUSTRIES “Manufacturers Drive the Circular Economy”

As the U.S. addresses climate change, there is no sector of the U.S. economy that is more able to contribute to middle class job creation than the manufacturing sector. It is for this reason that collaboration between government and manufacturing is essential to deliver exciting job growth and investment. To do so requires a healthy understanding of how EITE industries differ than other sectors of the economy and to explain why some policies will create jobs and others will result in industrial GHG leakage. EITE industries consume roughly 80 percent of all of the energy within the manufacturing sector.

Because these industries compete with fierce global competitors that are often subsidized by foreign governments, and are energy-intensive, driving down energy consumption is top of mind to being able to compete and stay in business. These industries desire to implement cost-effective energy reductions because it increases their competitiveness.

Below are fourteen (14) guidepost climate principles that explain how we are different and why we desire to reduce energy use and our limitations in doing so.

- 1. GHG policies must be cost-effective, promote long-term investments, competitiveness, job growth, and recognize the need for transition:** In order to achieve the dual goals of promoting growth of manufacturing jobs and addressing climate objectives, it is vital that climate policies create an environment which promotes long-term investment in a wide-variety of technologies and utilizes approaches that will be needed to decarbonize the U.S. manufacturing sector. Doing so will be essential to maintaining and promoting continued investment and competitiveness in the face of substantial foreign government activity supporting energy transformations overseas. *It is important that GHG policies directed toward the manufacturing sector recognize the substantial GHG reductions already undertaken and the limitations to further near-term decarbonization.*
- 2. EITE industries are price takers:** This means that all GHG compliance costs placed upon the power, fossil fuel, and transportation sectors will be passed on to us, directly impacting manufacturing competitiveness.
- 3. Protect U.S. manufacturing competitiveness and avoid industrial GHG leakage:** If GHG policies increases energy and feedstock costs for U.S. manufacturers, relative to overseas competitors, America’s competitiveness is negatively impacted along with valuable jobs and to the detriment of the Administration’s goals. The Administration must avoid industrial GHG leakage which shifts jobs and GHG emissions offshore. To preserve and increase manufacturing jobs, U.S. GHG policies must seek to prevent unequal cost burdens on U.S. manufacturers relative to costs incurred by competitors overseas.

- 4. Incentives, not mandates, are a better policy for EITE industries. Environmental and electricity regulatory market reforms are needed:** Removal of energy efficiency regulatory barriers and electric market reforms will accelerate GHG reductions. GHG mandates that impose costs on U.S. manufacturing will encourage shifting investments, jobs, and GHG emissions offshore. Incentives, on the other hand, encourage innovation and accelerate GHG reductions in a cost-effective manner.
- 5. Manufacturing process technology does not exist which would allow the EITE industries to decarbonize:** Technologies used by the manufacturing sector are very diverse, capital intensive, and designed to operate for many decades. Investments are being made, but it will take decades to develop and deploy new less carbon-intensive process technology that is cost-effective. It is for this reason that there are serious near-term impediments to decarbonization of the manufacturing sector.
- 6. Recognize that increased production of U.S. manufactured products can reduce global GHG emissions:** Due to the substantial steps already taken to lower emissions, U.S. manufacturing carbon intensity is lower than many countries with which we compete. For example, while U.S. manufacturers have been making progress, the carbon intensity of China's manufacturing sector is 350 percent higher than U.S. manufacturing.¹ As a result, reshoring and producing more products here and importing less, will have the positive impact of decreasing global emissions even while it could moderately increase total U.S. manufacturing emissions. As a policy matter, we encourage you to account for and measure imported GHG emissions. In 2017, CO₂ embedded in imported products was equivalent to about 8 percent of U.S. GHG emissions. This amount does not include GHG emissions from ship ocean transportation.
- 7. Manufacturing growth means that GHG emissions may moderately increase:** We are a growth sector in physical output and jobs. Our physical output growth contrasts to other sectors. From 2010 to 2019, U.S. electricity consumption increased by 2 percent and vehicle miles traveled by 10 percent, while manufacturing GDP increased by 31 percent. Our job is to increase the volume of products needed to serve economic growth of the U.S. This growth can accelerate by working collaboratively with industry to decrease GHG emission intensity and by displacing products that are imported and which have high embodied GHG emissions. This statement is consistent with the "Buy American" executive order.
- 8. EITE products are the source of raw materials to GHG reduction technologies and products:** Light weighting vehicles requires aluminum and plastics. Wind turbines requires steel, plastics, and cement. Solar installations require glass, steel, and cement. Home roof, wall, and door insulation requires glass, plastics, and/or paper. Double pained windows use glass. Batteries use metals and plastics. Electric transmission lines require steel and cement. Nitrogen fertilizers increases crop yields and prevents deforestation. With technology improvements and lower costs, some EITE companies could produce hydrogen to enable clean power in the industrial, transportation, and electricity sectors. All use chemicals.
- 9. EITE industries are dependent upon the market for the supply of less carbon-intensive energy, feedstocks, and electricity:** Our core business is manufacturing, not energy production. We are primarily dependent upon suppliers to provide less carbon-intensive energy. With the exception of the limited availability of renewable electricity, there are no short-term or economical supplies of less carbon-intensive fuels and feedstock available to support our decarbonization.

¹ CO₂ Emissions from Fuel Combustion 2018, International Energy Agency (IEA)

- 10. Industrial process equipment is designed to use natural gas, not electricity:** The industrial sector consumes about 28 percent of U.S. natural gas. Natural gas is used as a fuel and feedstock. As a fuel, there are hundreds of thousands of individual pieces of equipment and process technologies that are designed to use only natural gas, not electricity. Replacing equipment would be cost prohibitive and significantly increase operating costs. In most cases, the technology does not exist to switch from natural gas to electricity. Most importantly, the cost of a Btu of electricity versus a Btu of natural gas makes electricity cost prohibitive. For these reasons, the industrial sector cannot currently transition away from natural gas to electricity in a cost-effective manner.
- 11. Fuel switching from coal to natural gas is no longer an option:** EIA's 2014 Manufacturing Energy Consumption Survey (MECS) stated that less than 10 percent of coal used by the manufacturing sector could be fuel switched to natural gas. Since 2014, if manufacturing companies had access to pipeline natural gas, it was switched, almost without an exception.
- 12. Hydrogen, as a less carbon intensive alternative, injected into natural gas pipelines, is problematic:** Hydrogen is a less carbon intensive fuel for potential injection into natural gas pipelines. Hydrogen mixed in natural gas will damage manufacturing turbines, compressors, and other equipment. Plus, the cost of hydrogen is cost prohibitive at today's prices. Hydrogen also substantially increases NO_x emissions, which would conflict with air permits and could limit production of products. Nevertheless, several IECA companies are working with the DOE's hydrogen R&D programs.
- 13. Carbon capture and sequestration (CCS) technology R&D and infrastructure requires additional government support to realize its potential contribution for EITE industries:** At large, manufacturers desire to do one thing, produce products and not incur the costs, financial and regulatory risks associated with CCS. There are exceptions. There are IECA companies working with the DOE on carbon capture projects. However, CCS remains cost prohibitive for many industries and geographies. Scaling up CCS such that it becomes economical and accessible requires additional financial incentives, regulatory streamlining, and infrastructure development. There is the potential for CO₂ to be used in products. Cement would be a leading candidate, but the technology is not cost effective or scalable today.
- 14. Federal climate policy should preempt conflicting and/or inefficient state policies:** Climate policy is most appropriately enacted at the federal level to ensure consistency, a level domestic playing field, and reduced compliance costs.

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