



CLIMATE POLICY PRIORITIES FOR ENERGY-INTENSIVE-TRADE-EXPOSED INDUSTRIES FOR THE BIDEN ADMINISTRATION AND THE U.S. CONGRESS

On behalf of the member companies of the Industrial Energy Consumers of America (IECA) we offer our support to the Biden Administration and the U.S. Congress in addressing cost-effective policies to reduce greenhouse gas (GHG) emissions in the energy-intensive trade-exposed (EITE) manufacturing sector. Our member companies have extensive experience working on climate policy solutions in California, Washington, the Regional Greenhouse Gas Initiative (RGGI) states, Canada, and the European Union. We offer our learned experiences as you move forward.

The U.S. industrial sector is a significant climate and middle-class jobs success story. According to the U.S. Energy Information Administration (EIA) from 1990 to 2019, the industrial sector reduced energy intensity by 54 percent, while increasing gross output by 359 percent. Absolute GHG emissions were reduced by 16 percent, more than any sector of the U.S. economy. There are 13 million manufacturing workers, accounting for 8 percent of the entire workforce, which pays families sustaining wages and benefits that average over \$88,000 per year. U.S. manufacturing has one of the lowest carbon dioxide (CO₂)/value added intensity of any nation, about one-third of China's manufacturing sector.¹ That is why growing U.S. manufacturing output and displacing foreign production, reduces global GHG emissions.

Manufacturing is the engine for U.S. economic growth. Taken alone, manufacturing in the U.S. would be the seventh-largest economy in the world. For every \$1.00 spent in manufacturing, another \$2.74 is added to the U.S. economy. That is the highest multiplier effect of any economic sector. Manufacturers are also the country's biggest innovators, accounting for 61 percent of all private sector R&D investment. Moreover, EITE industries produce all of the raw materials needed for clean energy technologies.

In January 2020, Chairman Frank Pallone of the House Energy and Commerce Committee released the "Clean Future Act," which summarized the Committee's findings from hearings held in 2019. The information below is from Title V the Industrial Sector, and accurately describes the challenges of decarbonizing the manufacturing sector.²

"The U.S. industrial sector – one of the most technically and economically challenging sectors to decarbonize. In some cases, GHG emissions are unavoidable byproducts of industrial processes. In others, low-carbon alternatives are either prohibitively expensive or underdeveloped. Several industrial subsectors also compete in highly competitive global markets, and manufacturers may choose to relocate production overseas rather than invest in emissions mitigation technologies.

¹ Source: CO₂ Emissions from Fuel Combustion 2018, International Energy Agency (IEA) The World Bank, <http://data.worldbank.org/indicator/NV.IND.MANF.CD>

² "E&C Leaders Release Draft Clean Future Act Legislative Text to Achieve a 100 Percent Clean Economy," January 28, 2020, <https://energycommerce.house.gov/newsroom/press-releases/ec-leaders-release-draft-clean-future-act-legislative-text-to-achieve-a-100>

These energy-intensive and trade-exposed (EITE) industries consequently face steep barriers to deep decarbonization. The Committee believes that industrial decarbonization will require both industry- and process-specific solutions, as well as cross-cutting measures. It is imperative that Congress and the Executive Branch put in place policy measures across all committee and agency jurisdictions to preserve the global competitiveness of EITE industries and manufacturers in the United States.”

Chairman Pallone provides a clear picture of the challenges with decarbonizing EITE industries. These are very diverse industrial sectors and there is no silver bullet or one-size-fits all solution. Thoughtful, science-based, and cost-effective climate policies can support and boost U.S. economic growth, jobs, innovation and competitiveness, while achieving robust environmental goals. By contrast, poorly crafted climate policies can lead to unintended consequences, such as industrial GHG leakage, arbitrary winners and losers, diminished U.S. competitiveness, and the loss of well-paying American jobs.

We desire win-win policies. Win-win policies are actions that can potentially reduce or avoid GHG emissions and also increase U.S. competitiveness, investments, and jobs while ensuring reliability. We have identified seven areas to potentially reduce/avoid GHG emissions in manufacturing, all of which have either cost or regulatory barriers that are site specific, which include: Produce or buy renewable electricity quantities to a level that does not jeopardize reliability; Reuse/recycle manufacturing process waste heat for steam and/or electricity production; Increase manufacturing process energy efficiency, demand response and building efficiency; Increase recycling of energy intensive products; Increase use of alternative fuels such as hydrogen; Substitute existing fossil fuels with alternative low-carbon byproduct materials that would otherwise go into landfills; Utilize carbon capture, utilization and storage (CCUS).

The attached list of win-win EITE climate policies that with removal of regulatory barriers and improved economics, could potentially benefit all manufacturing companies and help the U.S. to achieve its goals. Our policies would reduce U.S. and international GHG emissions, increase industrial competitiveness, investments, and jobs. We also encourage you to review our [fourteen guidepost climate principles](#) that explain how we are different and why we desire to reduce energy use and our limitations in doing so. We welcome the opportunity to assemble company representatives from each of the EITE sectors to discuss these proposed suggested policies.

Sincerely,

Paul N. Cicio

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President and CEO

The Industrial Energy Consumers of America is a nonpartisan association of leading manufacturing companies with \$1.1 trillion in annual sales, over 4,200 facilities nationwide, and with more than 1.8 million employees. It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of industries including: chemicals, plastics, steel, iron ore, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, building products, automotive, independent oil refining, and cement.

EITE CLIMATE POLICY PRIORITIES

Win-win policies are actions that can potentially reduce or avoid GHG emissions and increase U.S. innovation, competitiveness, investments, and jobs while ensuring reliability. Manufacturing companies are self-motivated to improve energy efficiency to reduce costs and increase competitiveness. There are seven areas to potentially reduce/avoid GHG emissions in manufacturing, all of which have either cost or regulatory barriers that are site specific, which include:

- Produce or buy renewable electricity quantities to a level that does not jeopardize reliability
- Reuse/recycle manufacturing process waste heat for steam and/or electricity production
- Increase manufacturing process energy efficiency, demand response and building efficiency
- Increase recycling of energy intensive products
- Increase use of alternative fuels such as hydrogen
- Substitute existing fossil fuels with alternative low-carbon byproduct materials that would otherwise go into landfills
- Utilize carbon capture, utilization and storage (CCUS)

Purchase of Renewable Energy and Self-Generation of Power

Manufacturing companies consume about 25 percent of U.S. electricity. A new electricity market paradigm is needed that provides cost-effective opportunities for manufacturers to buy and/or self-generate larger quantities of less carbon intensive power for both captive use and for sale into electric market. It should be clarified that the entity who invests in any GHG avoidance or reduction activity should receive all the financial and other benefits of those carbon reductions or avoidance. However, market reforms are necessary and PURPA protections need to be retained, particularly in the regulated markets.

There are significant benefits to the manufacturing sector's purchase of renewable energy and/or self-generation. The manufacturing sector has millions of acres of land inside their facilities fence lines in which to build renewable energy generation that is not encumbered by eminent domain. Self-generation offsets electricity purchases from the grid, reduces grid transmission congestion and transmission costs, decreases GHG electric transmission line losses, reduces GHGs and criteria pollutants and can be sold to the grid to reduce peak electricity prices. Also, self-generation capacity is not the target of cyber-attacks. *Therefore, any incentives afforded to the electric market should be afforded the manufacturing sector.*

- **Increase purchases or self-generate renewable energy:** Electric markets are dramatically different across the U.S. and access to renewable energy can be very difficult and sometimes impossible. Manufacturers would like to increase the purchase of renewable energy at competitive rates in order to reduce their GHG emissions and potentially reduce electricity costs. Manufacturers are also building inside their fence lines when it is economical to do so.
- **Increase self-generation of CHP:** Increased industrial combined heat and power (CHP) generation compliments increased grid-related renewable energy capacity because manufacturing facilities operate 24/7, which provides a reliable power supply. CHP systems can achieve fuel efficiency of up to 75 percent as compared to natural gas-fired power generation maximum of 42 percent, thereby reducing GHG emissions.

Self-generation offsets manufacturing's electricity purchases from the grid. Besides the attributes mentioned above, manufacturing CHP facilities provide the grid with valuable spinning reserve capacities which helps to maintain grid reliability. Market reforms are needed to compensate manufacturing for the spinning reserve services.

According to the DOE, manufacturing CHP capacity has been relatively flat for more than a decade due to a number of factors that differ from state or region because of regulatory or economic barriers.

According to the DOE's CHP database, in 2017, there were 1,165 industrial CHP installations accounting for over 64 GW of capacity or 4 percent of U.S. electric generation.³ There is an additional technical CHP/WHP capacity potential of 68 GW located across the U.S. at 43,571 locations.⁴ However, *technical* potential does not mean that it is *economic* potential. The manufacturing potential is spread across several important industries, which include: chemicals, refining, food, paper, metals, wood textiles, plastics, glass, and beverages.

- **Increase self-generation of inside the fence waste heat to power (WHP):** Waste heat to power (WHP) electricity is emissions free power and should be designated equal to wind and solar for credits or offsets. When manufacturing companies sell WHP emission-free electricity to the local utility, and when the utility reports its fuel mix, it classifies WHP power as 'other' or simply purchased power. We have examples of WHP electricity selling for an average price of 1.7 cents per kwh in 2020.
- **Increase self-generation of waste to energy (WTE):** Waste to energy (WTE) electricity avoids significant CO₂ emissions and should receive associated benefits afforded to wind and solar for credits or offsets. CO₂ emissions avoided are dependent upon the hydrocarbon feedstock but can avoid up to 90 percent of CO₂ emissions as compared to shale natural gas fired power. Waste feedstock like plastics or tires that are going to landfills have a Btu content about equal to gasoline.

Energy Efficiency

Manufacturing companies are self-motivated to improve energy efficiency to reduce energy costs and increase competitiveness. However, policy changes are needed to remove barriers that will accelerate energy efficiency projects, investments, and jobs.

- **Increase energy efficiency of manufacturing processes:** Modify New Source Review (NSR) specifically for the manufacturing sector to accelerate energy efficiency projects and remain within air permit limits. This is the single fastest and economic way to increase energy efficiency. That said, for EITE industries, low hanging fruit projects have already been completed.
- **Establish a national program to cost-effectively increase recycling of energy-intensive products:** Wind blades and solar panels should be recycled, along with conventional materials

³ U.S. DOE Combined Heat and Power Installation Database, <https://doe.icfwebservices.com/chpdb/>

⁴ Combined Heat and Power (CHP) Technical Potential in the United States, DOE, March, 2016: <https://www.energy.gov/eere/amo/downloads/new-release-us-doe-analysis-combined-heat-and-power-chp-technical-potential>

such as steel, aluminum, glass, paper, plastic, tires. Recycling is consistent with the circular economy model and reduces/avoids GHG emissions.

- **Increase utilization and improve demand response in electric markets:** Support a national demand response policy that provides consistent and sufficient compensation in electric markets.
- **Support energy efficiency improvements in existing and new buildings:** The existing housing sector has seen little energy intensity reduction improvements. We encourage policies, including new business models and market incentives, that promote energy use reduction in the existing housing sector. For example, insulating existing buildings is typically the lowest cost GHG reduction option. We also support stronger codes and standards for new buildings.

Alternative Fuels

- **Support incentives to promote production and consumption of decarbonized hydrogen and related products:** IECA supports U.S. efforts to increase cost-effective production and distribution of low-carbon hydrogen and related energy sectors, such as low-carbon ammonia. Hydrogen can help decarbonize the U.S. economy across the U.S. power grid, transportation, and other hard to decarbonize sectors. Implementation of increased utilization of hydrogen may require significant infrastructure investment. Utilizing current natural gas transportation to move hydrogen by injecting it into the natural gas stream is problematic because it can damage our equipment and can disrupt manufacturing production processes under certain circumstances.
- **Increase air permit flexibility to use alternative energy fuels/feedstocks:** Expanding the diversity of hydrocarbon containing materials for use as a fuel, versus going to a landfill, is consistent with the circular economy.

Electric Infrastructure

- **Fully implement FERC Order 1000 to increase competition when building electric transmission lines and reduce costs to consumers:** Electric transmission costs are the highest and most rapidly increasing energy costs for manufacturers.
- **Reduce costs and increase availability of energy storage:** Increased availability of low-cost energy storage is essential to increased national renewable energy capacity. IECA supports DOE and industry R&D efforts to drive down costs. Federal policy needs to consider manufacturing's onsite use of storage. Unlike other electricity consumer sectors, the manufacturing sector is sophisticated and has the technical capabilities to play a role in supporting reliability and resiliency of the national electricity grid. We also urge you to promote innovation in energy storage and not just pick, e.g., lithium-ion batteries as the presumptive winner. For example, emerging forms of thermal energy storage are based on energy efficiency. Such systems can store thermal energy from renewable sources, especially solar, while also reducing energy use and avoiding GHG emissions.

EITE Process Technology R&D

- **Increase federal R&D investment and develop market-incentives for private sector R&D and deployment of cost-effective industrial process technologies:** DOE R&D dollars directed to EITE -related process technology is the smallest of any expenditure. Additional R&D is essential. Technology does not today exist to decarbonize EITE industries in a cost-effective manner. This is a substantial challenge because the manufacturing sector is very diverse. It will take decades to develop and implement new technologies. Government incentives from tax to grant support for private sector activity to pilot and deploy new technologies will accelerate needed activity.
- **Increase R&D and CCUS projects for EITE manufacturers:** Expand R&D, tax incentives, and other government support to boost CCUS projects for emissions from EITE manufacturers, particularly those with volumes of fixed process emissions and unlock avenues for manufacturers to utilize captured CO₂ in their processes.

Establish DOE/EPA Office of GHG Lifecycle Analysis

Consistent with the circular economy model, science, economics, and technology, establish an Office of Life Cycle Analysis to identify and prioritize GHG least-cost reduction options. The U.S. should lead the world in GHG lifecycle analysis. The office would be responsible for calculating and publishing the GHG lifecycle and economics analysis of technology and policy options per ton of CO₂, and estimate the volume of CO₂ tons that can be reduced or avoided. Lifecycle analysis should be used to inform federal and private sector technology investment decision making.

Storage batteries used for grid renewable energy is a prime example where no GHG lifecycle analysis has been done. The U.S. needs these batteries to build out the grid and assure reliability but they are very expensive and the cost will be passed onto us, consumers. The metals used are primarily coming from Africa, shipped to China, smelted in China, used to produce the battery in China and then shipped to the U.S. That is a lot of GHG emissions and jobs created elsewhere, not in the U.S. We would be interested in knowing how battery GHG emissions compare to using shale natural gas to produce electricity, because those jobs are in the U.S.

Account for and Measure Imported GHG Emissions

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. 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. Doing so is consistent with the “Buy American” Executive Order. 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.

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