

Testimony for U.S. House of Representatives Committee on Energy and Commerce
Subcommittee on Environment and Climate Change
Hearing on the CLEAN Future Act:
Industrial Climate Policies to Create Jobs and Support Working Families

18 March 2021

Rebecca Dell, PhD
Program Director, Industry
ClimateWorks Foundation

Thank you, Mr. Chairman and Ranking Member, for the invitation to testify on the Climate Leadership and Environmental Action for our Nation's Future Act.

My name is Rebecca Dell. I lead the industry program for the ClimateWorks Foundation, a non-profit organization focused on ending the climate crisis. Our team includes experts in climate science, public policy, strategic philanthropy, and social and economic development who lead global philanthropic programs to accelerate climate solutions to achieve an equitable, climate-safe future. I was previously a policy expert at the U.S. Department of Energy and I have a PhD in climate science from MIT. I'm very pleased to speak about rebuilding our infrastructure, investing in American manufacturing, and addressing the climate crisis.

We all know that we need major national infrastructure investment. Climate change will only increase the need for infrastructure, from wind turbines to flood control systems. Buy Clean is a family of policies that use these investments to transform construction and heavy industry. In this testimony, I'll discuss why:

- (1) Buy Clean is important because it targets the most important sectors.
- (2) Buy Clean is powerful because it uses government leverage to support innovative and competitive manufacturing.
- (3) Buy Clean should be structured to achieve specific policy goals.
- (4) Complementary policies on innovation and governance will help Buy Clean to be as successful as possible.

(1) Buy Clean is important because it targets the most important sectors.

The CLEAN Future act sets a national target of 50% reduction of greenhouse gas emissions by 2030 and 100% reduction by 2050. Direct emissions from industrial facilities in the United States are about a fifth of total emissions. If we include the indirect emissions from generating electricity consumed by industrial facilities, that number rises to about a quarter. If we also include the imported industrial emissions generated in other countries while manufacturing products that were consumed in the United States, that portion rises to a third of national emissions.¹ We cannot achieve our climate goals without dramatically reducing GHG emissions from industry.

¹ <https://www.climateworks.org/report/build-clean-industrial-policy-for-climate-and-justice/>. See p7 of report.

Industrial emissions are heavily concentrated in a small number of commodity processing industries, especially petrochemicals (largely fertilizer and plastics), refining, steel manufacturing, cement making, pulp and paper, and aluminum. Globally, this short list of industries is responsible for more than 20% of all GHG emissions.² These industries are also leading sources of some of the most damaging types of local air and water pollution.

At the same time, the government is the largest consumer of their products. In the United States, nearly half of all cement and a fifth of steel is purchased with tax dollars.³ We should use government purchasing to create demand for low-GHG versions of the most climate-damaging products. All levels of government have used green purchasing initiatives for many types of products. Buy-clean standards focus on building materials. Building materials are purchased in the largest quantities and in large share by the government, so this product category is the one in which the government has the greatest leverage.

The environmental stakes are not small. Without smart buy-clean standards, the infrastructure bill passed through the House of Representatives in June 2020 (H.R.2) could create an additional 200 million tons of CO₂ emissions.⁴ For comparison, in the decade before 2019, the United States managed to decrease annual emissions by only some 220 million tons.⁵ As Congress considers a major infrastructure reinvestment as part of the economic recovery from Covid-19, it is more urgent than ever to ensure that we rebuild and modernize our infrastructure in a way that does not contribute to the climate crisis.

(2) Buy Clean is powerful because it uses government leverage to support innovative and competitive manufacturing.

Countries and companies around the globe have realized that climate-safe manufacturing and construction practices are essential for their long-term competitiveness. The United States is significantly behind many other large economies in this respect.⁶ Buy Clean is not a burden on American manufacturing, but an opportunity for American firms to profit by investing in their long-term competitiveness and environmental performance. Businesses cannot make investments in lower-carbon production—including building or upgrading facilities, hiring and training workers, and developing new products—unless they are *confident that markets will exist for those products*. Many lower-carbon materials are currently more expensive, especially as we are learning how to best produce, use, and dispose of them. No one will take the risk and expense of retrofitting a cement kiln with CCS unless they know they can get a premium price for the cement it produces. Commitments through public procurement systems are one of the most powerful ways to provide that confidence.

² Crippa, M., G. Oreggioni, D. Guizzardi, M. Muntean, E. Schaaf, E. Lo Vullo, E. Solazzo, F. Monforti-Ferrario, J. G. J. Olivier, and E. Vignati. 2019. Fossil CO₂ and GHG Emissions of All World Countries—2019 report. Technical Report EUR 29849 EN; JRC117610, Publications Office of the European Union, Luxembourg.

³ Portland Cement Association. 2017. U.S. Cement Industry Annual Yearbook. Technical report.

American Iron and Steel Institute. 2019. Profile 2019-2020. Technical report. <https://www.steel.org/wp-content/uploads/2020/12/2020-AISI-Profile-Book.pdf>

⁴ <https://www.nytimes.com/2021/03/04/opinion/climate-change-infrastructure.html>

⁵ <https://cfpub.epa.gov/ghgdata/inventoryexplorer/#allsectors/allgas/gas/all>

⁶ For example, the five largest steel companies in the world (Baowu, ArcelorMittal, Nippon, Hebei, and POSCO) have all pledged to reduce their CO₂ emissions to zero by 2050, but no American steel companies have.

By focusing on market creation, we *eliminate the competitiveness concerns* that many previously discussed policies raise. We are not putting any requirements on American businesses that offshore businesses could avoid, as might happen with a carbon price or direct regulation of the emissions of domestic facilities. All producers regardless of location should access the markets for low-carbon products and processes on equal terms, so there's no risk of undercutting by non-compliant competitors. Additionally, domestic producers would have the same advantages they have always had, including Buy American and Buy America requirements, lower transportation cost, greater understanding of the markets, and easier compliance with domestic requirements. In many industries, like steel, U.S. producers are already considerably cleaner than the global average.

Finally, the best part of Buy Clean is that it is *affordable*. Cement is the material responsible for the largest share of GHG emissions in public construction, and it only accounts for about 1% of the cost of public construction.⁷ Many near-term interventions that reduce cement GHG emissions are low- or even no-cost, like increasing the use of clinker substitutes. However, because cement is such a small portion of the total cost, even emissions reductions that are generally considered prohibitively expensive would hardly affect the cost of an infrastructure project. For example, electrifying a cement kiln would cost about \$50 per ton of cement, at typical electricity prices. That would eliminate half of the carbon dioxide emissions and add less than 1% to the cost of a typical project. Retrofitting an existing kiln to capture and store the carbon dioxide emissions could add as little as \$60 per ton of cement and eliminate nearly all carbon dioxide emissions, again at a cost of less than 1% of the total project cost.

Buy Clean policies address critical sectors with high GHG and local pollution emissions, allow firms to make investments that both improve the environment and their long-term competitiveness, supports innovation, and does not significantly increase the cost public construction.

(3) Buy Clean should be structured to achieve specific policy goals.

In order to be most effective, Buy Clean policies should be designed and enacted so that they:

- Maintain as much flexibility as is possible about the methods and technologies used to reduce emissions, to allow innovation and competition to determine the best outcomes.
- Protect American firms and workers from unfair competition.
- Reward companies that are using current best practices.
- Create additional incentives for firms that take risks on new methods or technologies that are even better than current best practices.
- Support investing in workforce training and high-quality jobs.
- Apply to all federally funded construction, including projects that are administered by state, local, and tribal governments, while minimizing the additional administrative burdens created on other levels of government.
- Utilize the expertise of the federal government in environmental protection, energy technologies, procurement, and construction.

⁷ <https://www.climateworks.org/blog/whats-at-stake-with-buy-clean/>

- Ensure that all requirements and incentives are robust and properly enforced.
- Creates opportunities for private construction projects to benefit from information compiled and lessons learned in implementing Buy Clean.

Most of these needs are pretty straight-forward and are well addressed in the current draft legislation. Three merit additional discussion: the incentives for innovation and current best practice, and the need for enforcement.

We need Buy Clean to both encourage the uptake of current best practices and to help us get on a pathway toward the climate goals that the CLEAN Futures Act sets for 2030 and 2050. The fact is that current best practice would likely reduce GHG emissions from the building materials industries by 20-30%, significantly short of the 2030 goal of 50% reductions, and not near the 2050 goal of 100% reduction.⁸ That means we need innovation and the commercialization of new practices and technologies. The most important way to incentivize that commercialization is with a guaranteed market for very low emissions building materials. The Climate Star program could potentially provide this, but the Energy Star program on which it is modeled has historically been much more effective at promoting current best practices and incremental improvements than at creating opportunities for genuinely innovative technologies. Another option would be to set two intensity standards for covered building materials: one standard applies to all materials purchased and requires at least current good practice, and the second standard applies only to a small portion of projects or materials (say 10%) and requires dramatic improvements in performance (say 50% reduction in GHG intensity from current good practice). This structure is analogous to the Renewable Portfolio Standard policies used by many states to begin the deployment of wind and solar power. Like an RPS, it would provide guaranteed, bankable lead markets that could justify significant private-sector risk and investment in at-the-time relatively high-cost technologies. Like wind and solar, those lead markets will be essential to bring new technologies to scale, like alternative concrete formulations or cement chemistries, cement made with carbon capture and storage, CO₂-sequestering artificial aggregates, and hydrogen- or electrolysis-based steel. Other policy structures can serve similar functions, for example tradable performance standards, bid discounts, or prizes. The important thing is to structure Buy Clean to incentivize both current best practice and the commercialization of new technologies that will benefit both our environment and our manufacturing sector in the decades to come.

Effective enforcement is essential. Existing procurement requirements like Buy America and Buy American have not been as effective as they should because they do not appropriate mechanisms for enforcement. For example, the Buy America Act has no ongoing enforcement—if a contractor illegally uses foreign-sourced building materials, the only recourse would be a lawsuit, typically brought by a domestic supplier whose products were not used.⁹ Buy Clean should include funding for an enforcement and audit staff who would not just maintain the quality of the EPD database (as currently specified), but also undertake enforcement activities designed to ensure that federally funded construction projects are actually using the material specified with the environmental attributes claimed.

⁸ <https://www.nytimes.com/2021/03/04/opinion/climate-change-infrastructure.html>

⁹ <https://www.climateworks.org/report/build-clean-industrial-policy-for-climate-and-justice/>. See p21 of report.

(4) Complementary policies on innovation and governance will help Buy Clean to be as successful as possible.

In order for Buy Clean to be as successful as possible, it should be complemented by investments in innovation and the commercialization of strategic new technologies in the industrial sector. We need a dramatic increase in the scale, focus, and ambition of innovation activities in the industrial sector, and in particular we need to create new mechanisms for commercializing large-scale industrial processes with dramatically improved environmental performance. Currently, we spend no more than \$850 million per year on manufacturing and industrial innovation, mostly through DOE's Advanced Manufacturing Office and through relevant programs at NIST.¹⁰ The inadequacy of this sum is clear from two comparisons:

- Manufacturing and construction generate more employment and almost as much GDP as the healthcare sector. The healthcare sector is supported by the research and development activities of the National Institutes of Health, with an annual budget of \$42 billion, or 5,000% of what we spend on the industrial sector.¹¹
- Even though Germany has one-quarter our population and one-fifth our GDP, the German government spends five times more on its Fraunhofer Institutes than we spend on our analogous Manufacturing USA institutes.¹²

We should increase industrial innovation expenditures to at least \$5 billion per year by expanding existing programs and creating new programs specifically designed to fund the essential final stage of the innovation process: demonstration at scale. There are many important ideas for reducing industrial emissions that have languished in laboratories for decades; other countries are starting to deploy them, and we should too. With these increased investments, we should also create new mechanisms for workers, environmental justice advocates, and other stakeholders to be involved in setting research agendas and ensuring that these additional dollars are spent to improve worker safety and community health and provide local benefits in addition to reducing GHG emissions.

Finally, this entire agenda needs high level leadership within the executive branch. Currently, the highest-ranking person in the federal government whose job it is to advance the future of American manufacturing has the rank of acting office director. In order for both the innovation investments and the technical underpinnings of the Buy Clean program to be a success, Congress should create an additional assistant secretary of energy responsible for manufacturing and industry. Without this position, federal manufacturing policy will continue to lack long-term leadership and the ability to convene the full capacities of the federal government to revitalize our manufacturing sector and achieve our climate goals.

Thank you very much for your time, and I look forward to answering your questions.

¹⁰ <https://www.climateworks.org/report/build-clean-industrial-policy-for-climate-and-justice/>. See p15 of report.

¹¹ Manufacturing and construction together employ about 20% more people than healthcare and generate about three-quarters of the GDP that healthcare generates. See <https://fred.stlouisfed.org/graph/?g=vcsD>.

¹² See the Fraunhofer budget here: <https://www.fraunhofer.de/en/about-fraunhofer/profile-structure/facts-and-figures/finances.html>.