



MANUFACTURING AGENDA

A National Blueprint for Clean Technology Manufacturing
Leadership and Industrial Transformation



CONTENTS

Executive Summary	2
Overarching Objectives	4
MANUFACTURING AGENDA	6
PILLAR 1: Invest at Scale in a New Generation of American Manufacturing	6
PILLAR 2: Innovate to Transform Industry	11
PILLAR 3: Responsibly Mine, Reclaim, and Recycle Critical Materials	14
PILLAR 4: Use Public Investment Wisely to Build a Strong, Clean, Fair Manufacturing Economy Across America	16
PILLAR 5: Change the Rules to Build a Clean Economy that Works for All	20
Glossary of Key Concepts and Terms	23
Endnotes	iii

EXECUTIVE SUMMARY

Introduction

The U.S. can once again lead the world in manufacturing the technologies and products of the future. As an integral part of an aggressive strategy to address the climate emergency head on—and in line with achieving net zero emissions economy-wide by 2050—we have the opportunity to modernize and transform our industrial base to make it the cleanest and most advanced in the world, while spurring the creation of a new generation of good, safe jobs manufacturing clean technology. This industrial transformation can bring dynamic industries back to communities that have been left behind by deindustrialization and under-investment, and provide a starting point for broadly shared growth and prosperity.

Last year, the BlueGreen Alliance—alongside our labor and environmental partners—released *Solidarity for Climate Action*, an ambitious, concrete platform to address the crises of climate change and economic and racial inequality simultaneously.¹

Transforming America’s manufacturing sector is an opportunity to do so—creating and sustaining good, union jobs and rebuilding the middle class, while also reducing pollution and protecting our air and water.

The economic stakes are enormous. Manufacturing directly employs about one in 11 American workers, and contributes \$2 trillion a year to the gross domestic product (GDP). Including the industry’s purchases of goods and materials, however, manufacturing accounts for one-third of U.S. economic output or more, and its impact on the nation’s innovation and competitiveness is even larger.² Manufacturing accounts for more than two-thirds of private sector research and development (R&D), while the sector’s domestic strength plays a



central role in the balance of U.S. imports and exports—and the jobs that go with them. Manufacturing also has the proven ability to provide pathways into the middle class for millions of workers and families, and to support millions of high-skill, high-wage jobs. It has not always delivered on that promise, however, and today those opportunities are increasingly unavailable for too many American workers.

Meanwhile, global investments in clean energy, transportation, and infrastructure technologies are forecast to reach into the tens of trillions of dollars over the next three decades, posing both a powerful opportunity for job creation and economic growth, and a serious risk that, without action to lead as technology changes, American workers and companies could be left behind.³ We cannot rebuild prosperity if we fall behind the rest of the world in building the technologies of the future, or if working people and the communities they live in fail to see the gains from innovation and a cleaner economy.

The industrial sector represents a large and growing share of emissions with far less progress made to date in greenhouse gas (GHG) emissions reduction than in many other sectors. Industrial sector emissions now account for nearly a one-fourth of GHG emissions in the United States, and have nearly tripled worldwide since 1990.⁴ At the same time, these industries are essential to produce the materials and components necessary for clean technology and infrastructure—and to modern life.

Working people are often offered a false choice: you can't have good jobs and a clean environment. The manufacturing agenda presented here rejects this notion and shows clearly that American manufacturing can be the cleanest and most innovative in the world, and that we can create and sustain high-quality jobs building America's future. Establishing robust, high-road, domestic production of clean technology can capture the economic benefits of the clean economy in the United States. Meanwhile transforming energy intensive industry to produce essential materials with far lower emissions can ensure that deploying clean technology doesn't drive jobs or pollution overseas. Done right, industrial transformation can help roll back economic inequality and reverse the slide in wages, benefits and workers' rights that has undermined workers and their communities for decades.

A National Agenda

The BlueGreen Alliance's manufacturing agenda proposes a set of national actions to achieve global leadership across clean technology manufacturing; cut emissions from the production of essential materials; upgrade and modernize the entirety of the U.S. industrial base within three decades; and undertake a new generation of industrial development that rebuilds good American jobs and is clean, safe, and fair for workers and communities alike.

This agenda lays out a plan across five pillars of action, and it is guided by an overarching strategic focus on strengthening good jobs, equity, and reinvestment in manufacturing, communities, and workers.

PILLAR 1: INVEST AT SCALE IN A NEW GENERATION OF AMERICAN MANUFACTURING

- Establish and capitalize an industrial bank and/or revolving loan fund;
- Make an increased, sustained and coordinated investment in three priority areas:
 - ▶ Building robust clean technology supply chains in America;
 - ▶ Transforming energy-intensive industry; and
 - ▶ Responsible mining, recycling and reclamation;
- Expand our existing loan, grant and tax programs to rapidly retool and convert American factories to build the technologies of the future, and to fill critical gaps in the manufacturing supply chain; and
- Transform energy-intensive industry to utilize advanced clean processes and technology nationwide within three decades.

PILLAR 2: INNOVATE TO TRANSFORM INDUSTRY

- Greatly increase U.S. funding for R&D to levels competitive with leading nations;
 - ▶ Establish a new U.S. Department of Energy (DOE) Office of Industrial Transformation, and execute a program of technology development, demonstration, and deployment in energy-intensive industry commensurate with achieving net zero emissions by 2050;
 - ▶ Coordinate, fund and execute a program to speed the development of economically critical clean technologies and supplier networks in the United States;
 - ▶ Establish a permanent jobs, labor, and energy workforce program in the Office of the Secretary of Energy;
 - ▶ Increase public benefit from publicly funded research and innovation; and
 - ▶ Ensure U.S. clean economy manufacturing objectives are elevated as a primary focus of a new National Institute of Manufacturing.

PILLAR 3: RESPONSIBLY MINE, RECYCLE, AND RECLAIM THE CRITICAL MATERIALS NECESSARY FOR A SECURE, CLEAN ECONOMY

- Develop a comprehensive national critical minerals strategy guided by a commitment to environmentally, economically, and socially responsible mining of minerals necessary to anchor clean technology manufacturing in the United States;
- Incentivize and enhance use of responsibly produced critical minerals and metals in line with that strategy;
- Jumpstart responsible domestic critical materials recycling projects and circular economy promotion; and
- Spur reclamation, remediation, and repurposing of industrial sites and spur economic development in hard-hit communities.

PILLAR 4: USE PUBLIC INVESTMENT WISELY TO SUPPORT A STRONG, CLEAN, FAIR MANUFACTURING ECONOMY ACROSS AMERICA

- Utilize direct federal procurement to spur demand for clean, fair, safe, and domestically manufactured clean technology, while upgrading our public infrastructure and services;
- Improve and extend Buy America/n, and ensure its effective application to manufactured goods, clean technologies, and materials;
- Utilize soundly crafted Buy Clean procurement policies that incentivize and reward clean, low-carbon production of energy intensive materials;
- Utilize “Fair and Responsible” procurement approaches to enhance labor standards, workers’ rights, career pathways, equity, and community benefits;
- Ensure all major public spending on clean technology deployment—such as tax incentives, loan, grants, and bonds—support high labor standards and domestic manufacturing throughout the supply chain; and
- Develop and enact the globally leading energy, emissions, and pollution standards necessary to drive demand for clean technology production in the United States.

PILLAR 5: CHANGE THE RULES TO BUILD A CLEAN ECONOMY THAT WORKS FOR ALL AMERICANS

- Raise labor standards across the private sector and actively discourage exploitative business models in the production and deployment of clean technology;
- Ensure fair trade rules and enforcement, and enact appropriate border adjustments;
- Realign corporate tax and finance rules and incentives to encourage investment in domestic plants and workers and to discourage outsourcing and offshoring; and
- Enact proactive measures to prevent unnecessary job loss in changing industries and ensure holistic reinvestment in communities where job loss or disinvestment is underway.

Now is the time for action to transform America’s industrial sector. Bold and proactive policies and investments can position the U.S. manufacturing sector to lead in clean technology manufacturing and low-carbon materials production for generations to come. We have an economically and environmentally critical opportunity to demonstrate that working people and policymakers can come together to:

- Act urgently, comprehensively, and at scale;
- Lead and capture new clean technology markets at home;
- Invest fairly and equitably to rebuild the industries of today and the communities that need it most; and
- Ensure good, fair, and safe jobs in old and new industries alike.

If we do so, we can break the cycle of working people bearing the costs of technological and economic change, and ensure there are far fewer instances in the future where we find ourselves mitigating the human and economic costs of industries that have already been lost.

Both our economic and climate needs are urgent. With the right action in our manufacturing sector, we can both grow and sustain good jobs and build a healthy environment. We do not have to choose between good jobs and a clean environment; we can and must have both.



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OVERARCHING OBJECTIVES

This agenda is focused on bold, proactive investment to position U.S. manufacturing to lead in clean technology manufacturing and low carbon materials production, while deeply cutting emissions. At the same time, it aims to build a new generation of good jobs in America, enhance equity and pathways into manufacturing careers, and support safer, healthier and more prosperous communities.

To achieve those goals, we emphasize the following crosscutting objectives across the policies and actions we lay out in this agenda.

Strengthen domestic clean technology and materials manufacturing and supply chains;

- Apply and extend Buy America/n and comparable domestic content requirements or incentives to all major public spending and policy aimed at clean energy or technology deployment or manufacturing;
- Emphasize economically critical and emerging clean technologies and materials to fill gaps in the domestic supply chain; and
- Encourage retooling and conversion of existing or at risk facilities.

Create family-sustaining jobs across the clean economy and across the manufacturing supply chain:

- Require or incentivize high labor standards and/or responsible labor practices including:
 - ▶ Union neutrality (employer neutrality on organizing and collective action);
 - ▶ Sound wages and benefits, strong safety and health programs;
 - ▶ Equity, community benefits, training and career paths; and
 - ▶ Avoidance of misclassification, excess use of contracted or temporary employees;
- Encourage supply chain reporting, disclosure, and incentivize assembler/supplier commitments and accountability; and
- Require Davis Bacon prevailing wage and project labor agreements (PLAs) for all clean energy or manufacturing project construction.

Reduce pollution and make our communities and workplaces safer and more resilient:

- Ensure investments and policies are in line with the scale of change needed to meet global climate targets and to ensure environmental justice;
- Buy Clean and prioritize the use of the most efficient, resilient, and cleanest material and products with the lowest carbon footprints; and
- Safeguard the health and safety of workers and communities by minimizing or replacing the use of toxic chemicals, products, and materials and by implementing advanced process safety rules at facilities.

Maximize benefits to workers and communities that need it most:

Target investments in hard-hit communities with a focus on deindustrialized, impacted, or underinvested communities;

- Utilize hiring and procurement policies that benefit low-income communities, people of color, and women; and
- Require or incentivize community benefit/community workforce agreements that increase economic opportunities for communities and local workers—especially for people of color and low-income communities.

Invest in training and jobs together; increase and improve pathways into family-supporting manufacturing and technical careers:

- Spur increased public and private sector investment in work-based training and retraining throughout and across careers;
 - ▶ Encourage a pipeline starting in high school of education and vocational apprenticeships that result in nationally and sectorally recognized and accredited qualifications;
 - ▶ Ensure sound, negotiated, and ongoing technical and on the job training and retraining in line with defined career paths in the manufacturing sector; and that results in industry recognized certification and ensures workers are paid for the skills they have or acquire;

- ▶ Utilize registered apprenticeships, and pre-apprenticeships;
- ▶ Further develop occupational standards and high-road training that incorporates career paths; and
- ▶ Mandate investment in retraining existing workers where technology changes.
- Increase and improve job access and ensure equitable pathways into family-sustaining manufacturing careers;
 - ▶ Require and incentivize the use of community workforce agreements, targeted hire requirements, and similar measures focused on increasing employment of disadvantaged and underrepresented workers and communities in manufacturing; and
 - ▶ Invest in pre-apprenticeship and apprenticeship—and integrate with community-based “wrap around” services to maximize retention of disadvantaged and underrepresented workers as they enter manufacturing careers.



MANUFACTURING AGENDA

With this agenda, the BlueGreen Alliance and our partners put forward a bold program of action to transform the U.S. manufacturing and industrial sectors at the scale and speed our economic and climate challenges demand. By taking the lead in manufacturing the clean technologyⁱ needed to dramatically reduce the emissions driving climate change, and by upgrading, retooling and cutting emissions across critical industry, we can also rebuild American competitiveness in the global economy, reinvest in hard hit communities, and secure and create good-paying local jobs across America.

The pillars that follow provide a roadmap for getting this job done.

PILLAR 1: INVEST AT SCALE IN A NEW GENERATION OF AMERICAN MANUFACTURING

Need: Worldwide, nations and regions are rushing to capture the economic gains from rapidly growing demand for clean technology. More than 40 countries have enacted carbon prices or targets, and they are simultaneously making long-term technology plans, building strong domestic markets, and taking coordinated policy action to lead in the production of clean energy and transportation technology, advanced clean materials, and infrastructure.^{5,6}



Photo by: Sam VarnHagen, courtesy of Ford Motor Company

ⁱ We provide a glossary of key terms in footnotes throughout this document, and in Appendix 1.

Clean Technology, Components, and Materials or Clean Energy Goods: Making the United States a leader in manufacturing and producing the essential goods needed for an increasingly clean, healthy, and low-carbon economy—both across sectors and throughout the supply chain—is a pivotal part of the *Solidarity for Climate Action* platform. This includes major manufactured goods—like clean vehicles and offshore wind turbines—and, notably, their components (for example batteries and cells) and materials (for example high strength lightweight steel, and carbon fiber). It specifically includes technology for cleaner energy, transportation, and infrastructure, as well as manufacturing goods for industrial and agricultural emissions reduction, industrial, building, and water efficiency, and other carbon reducing technologies that may be identified.

Even as the U.S. joins other nations in rapidly deploying clean technology, our ability to manufacture these technologies is not keeping pace, or we are dependent on other nations for critical subcomponents or technology. As these technologies become more and more widespread, failure to build them here increasingly threatens future jobs and the economy. Equally critical is a robust network of suppliers building the components, materials, and technologies that go into them. Not only do these companies account for the bulk of manufacturing jobs, but robust domestic supply chains are critical for sustaining innovation and technological leadership, and for economic security in the case of any type of disruption or crisis.

Other nations are also going first in modernizing heavy industry. They are demonstrating cutting edge, low-carbon processes for producing energy-intensive basic materials and fuels that will be essential to future global competitiveness and emissions reduction.⁷ If the U.S. hopes to compete and to lead, we need to invest in transforming our manufacturing and industrial sectors at the same or greater scale and pace.

To meet this challenge, we have to use all the tools in the toolbox. We need to take coordinated action to make up for decades of disinvestment, offshoring, and outsourcing that weakened American manufacturing, and reinvest in today's industrial plants and communities. We need to reverse the unsafe and inequitable practices that all too often left workers and communities bearing the costs—but not the benefits—of industrial development, and ensure that jobs building clean technology are as good—or better—than the jobs of today. We need to scale up manufacturing and industrial support overall; boost startup and backup funding to help companies continue to invest for the long term, even when times are tough or uncertain; and the patient, consistent or low-cost financing necessary to make investment in comparatively large, risky, innovative, or first-in-class projects possible in America—not just in other nations.

We must make a significant national investment now to jumpstart domestic clean technology manufacturing, secure critical supply chains in the U.S., transform energy-intensive manufacturing in line with achieving net-zero emissions economy-wide by mid-century, and ensure a new generation of clean and safe industrial development in America.

We need to:

- 1. Establish and capitalize a major new industrial transformation bank and/or revolving loan fund to support key domestic clean technology manufacturing priorities and large-scale industrial transformation and emissions reduction. This entity would provide low interest loans, grants or other financing (whether directly or through state or regional entities), both to large industrial projects, and small-and-medium-sized manufacturers.**
- 2. Make an increased, sustained, and coordinated investment in three critical areas:**
 - ▶ **Domestic clean technology supply chains. Convert, retool, or establish clean technology manufacturing facilities in the United States,** sufficient to recapture leadership in critical clean energy, transportation, infrastructure, efficiency, and climate resilience technology and advanced materials production with an emphasis on:
 - Establishing domestic production of economically critical components and technologies,ⁱⁱ and building robust domestic supply chains for key clean economy products and technologies; and
 - Support for manufacturing conversion to bring manufacturing of cutting-edge clean technologies into domestic plants—particularly those potentially at risk in the technology transition.

ii **Economically Critical Technologies and Materials:** Refers to those technologies—particularly component technologies—that are essential to major climate solutions or larger clean technologies. This particularly extends to those materials that the United States does not yet have significant or sufficiently advanced capacity.

- ▶ **Industrial Transformation. Modernize and cut emissions from domestic energy-intensive manufacturing;**ⁱⁱⁱ including implementing innovative and efficient processes across heavy industry and materials production, and supporting investment in:
 - Large-scale deployment of industrial energy efficiency;
 - Boosting industrial process emissions reduction, such as through switching to low and no-emission sources for high temperature process heat; and
 - First-in-class deployment, and ultimately broader retooling to adopt advanced carbon reduction, low-carbon feedstocks, carbon capture, and carbon utilization technology.
 - ▶ **Responsible mining;**^{iv} **Establish environmentally, economically and socially responsible production, recycling, and reclamation of minerals and materials critical to the clean economy,** including:
 - Economically, environmentally, and socially responsible production of critical minerals^v in line with an agreed critical minerals strategy;
 - Development and deployment of responsible recycling projects for critical minerals and materials deployment of designed-for recyclability production processes, and circular economy manufacturing partnerships; and
 - Reclamation, and remediation projects that spur economic development in hard-hit communities, fully engage stakeholders, address long-standing economic and environmental harms, position communities to thrive in a net-zero emissions economy, and are resilient to the impacts of climate change.
- 3. Invest in, expand, and refocus existing DOE energy and manufacturing loan programs to establish and strengthen domestic clean technology manufacturing and supply chains, and to deploy first-in-class, innovative, and large-scale industrial efficiency and emissions reduction projects. Key opportunities include:**
- ▶ **Expanding and updating the Advanced Technology Vehicle Manufacturing (ATVM) Loan Program** to, at a minimum, cover medium- and heavy-duty clean vehicles and component manufacture, and manufacture of related electric charging/hydrogen fueling equipment, and to prioritize economically critical technologies;
 - ▶ **Extending the ATVM program beyond the transportation sector—or creating a broader manufacturing, retooling or conversion loan program**—that could provide loans to a wide range of advanced clean energy technology manufacturing, as well as the *manufacture* of advanced industrial efficiency and emissions reduction and storage technology; and
 - ▶ **Increase funding for and/or extend the scope of existing DOE Title 17 Innovative Energy Loan Guarantee—and Tribal Loan Guarantee**—Programs to support first-in-class and subsequent deployment of innovative technologies that modernize energy-intensive manufacturing and reduce industrial emissions, including to deploy:
 - Industrial Carbon Capture and Sequestration (CCS) onsite CO₂ utilization, direct air capture, and carbon sequestering materials production;

iii **Energy Intensive Industry:** While virtually all manufacturing utilizes energy and can benefit from efficiency gains, certain industries utilize more energy and produce more carbon emissions because their processes require very substantial heat inputs and/or involve chemical transformations that themselves emit carbon pollution. As a result, these industries will also require more complex and extensive strategies to cut emissions. Examples of these industries include: steel, aluminum and other metals, chemicals, cement, glass, paper, and refining.

iv **Responsible mining:** This speaks to areas of focus when mining that include corporate/or business accountability, will leave a positive project legacy, and take seriously the social and environmental obligation to the local community and region. Each of these areas have specific considerations including ensuring an active community/stakeholder process; respect for human rights, transparency, prior consent, workers' rights, health and safety, and fair labor practices; and appropriate management of wastewater, air quality, GHG emissions, and ecosystem protection.

v **Critical minerals:** Refers to raw (or minimally processed) materials that are critical to clean energy technologies and may either be rare or inaccessible domestically. This includes certain minerals, metals, and other compounds (for example rare earths, lithium, etc.). In this document we are referring to those with specific implications for carbon reduction and the clean economy. Additionally, there are critical minerals and materials—as well as certain “strategic technologies”—that are already stockpiled for national and economic security reasons.

- Cutting edge low-carbon fuels and feedstocks for high heat industrial processes, and other retooling to deploy low and zero-emissions industrial process heat (for example hydrogen and electrolysis);
- Full-scale deployment of innovative responsible critical materials reclamation and recycling processes; and
- Innovative circular economy^{vi} technologies, processes, and materials production partnerships.

4. Fund and prioritize manufacturing conversion grants to secure and transition existing facilities to manufacture emerging clean technology, and to establish and grow domestic clean technology supply chains.

- ▶ **Fund Section 132 Manufacturing Conversion/ Industrial Retooling Grants**, emphasizing priority investments in plants recently closed or at risk of closure, or in deindustrialized or under-invested communities. This includes retaining and enhancing mechanisms encouraging collaboration with local and state investments, workforce development measures, and related economic development tools;
- ▶ **Fund Section 1603 grants in lieu of tax credits for clean technology manufacturing or industrial retooling or conversion grants**. For clean vehicle and components manufacturing, this includes prioritizing internal combustion engine-to-electric vehicle technology conversion in existing plants and for plant conversion to produce other clean energy technology;
- ▶ **Enhance grant programs for small- and medium-sized manufacturers** to deploy industrial efficiency and emissions reduction technology and processes; and
- ▶ Authorize **private activity bonds** for clean technology manufacturing/manufacturing retooling, and industrial emissions reduction projects, with appropriate labor safeguards.



5. Enhance tax credits/grants in lieu of credits available to promote domestic clean technology manufacturing and supply chains, including:

- ▶ Renewing and enhancing funding for the **48C Manufacturing Tax Credit Program**, which provides an investment tax credit to reequip, expand, or establish domestic clean energy, transportation, and grid technology manufacturing facilities. This should include:
 - Making refundable/grants in lieu of credits;
 - Updating the technologies eligible for the credit to specifically mention, including:
 - Battery cells;
 - Industrial carbon capture, utilization, and/or sequestration;
 - Direct air capture; and
 - Combined heat and power (CHP) and waste heat to power (WHP) systems.
 - Adapt the **45M Technology Production Tax Credit** to fund domestic production (or manufacturer purchase) of strategic clean energy/vehicle component technologies, including batteries, solar cells, and wind components.

vi **Circular economy** refers to a range of technologies and approaches that include materials recirculation, product materials efficiency, materials substitution, and circular business models, that aim to go beyond recycling to designing products and systems to keep resources in a closed cycle and eliminate waste and pollution. These approaches can be integrated with other industrial innovation to provide enhanced efficiency and emissions reduction benefits, as well as to cut costs, preserve scarce and possibly expensive resources, and reduce unnecessary pollution.



Photo courtesy of Ford Motor Company

6. Enhance tax credits available to spur industrial emissions reduction, including:

- ▶ Extending the commence-construction date of the 45Q tax credit for industrial CCS and CO₂ reuse at industrial facilities to compensate for delays in IRS guidance, and make further enhancements to support direct air capture;
- ▶ Establish a new technology-neutral investment tax credit to support deployment of advanced industrial efficiency and emissions reduction technologies or processes, including industrial process heat and feedstock innovation, circular economy implementation, and other retooling or process changes that achieve significant emissions reduction from energy-intensive manufacturing, materials, and fuels production; and
- ▶ Ensure credits or subsidies generated through the renewable fuel standard (or similar renewable energy standards) support innovative and emissions reducing fuel and feedstock technologies that contribute to a circular economy.

7. Spur far broader adoption of established efficiency technologies, CHP and WHP systems through tax incentives and grants in conjunction with enhanced technical and deployment assistance, including:

- ▶ Ramping up technical assistance and funding to greatly enhance deployment of CHP, WHP, smart manufacturing, and other existing and near-term energy and materials efficiency technologies and processes:
 - Scale up the technical assistance programs carried out under DOE's Advanced Manufacturing Office (AMO) with an emphasis on assisting energy-intensive manufacturers, to deploy commercialized technologies and energy management systems, saving manufacturers money and reducing emissions;
 - Fund a new energy savings initiative within AMO, working closely with industry, and offering voluntary technical assistance to the highest energy-consuming facilities in the United States; and
 - AMO should collaborate with the National Institute of Standards and Technology Manufacturing Extension Partnership (NIST-MEP) to boost and coordinate technical assistance to small and medium-sized manufacturers focused on efficiency, emission reduction, and sustainable manufacturing, and coordinating and utilizing existing resources such as industrial assessment centers.
 - Enhance matching grant funds for deployment of industrial efficiency projects and near term emissions reduction;
 - Fund AMO to provide matching funds for deployment of projects at major energy users identified through the voluntary technical assistance program.
- ▶ Increase the section 48 investment tax credit for CHP and clarify that WHP is also eligible for this credit; and
- ▶ Fund competitive state grants to expand industrial efficiency loans to manufacturers to cover the upfront costs of energy-efficient retrofits, paid back through energy bill savings.

PILLAR 2: INNOVATE TO TRANSFORM INDUSTRY

Need: In the global race to lead in the next generation of clean technology, the U.S. is under-investing in innovation—from basic research through translation of innovation into domestic production of innovative technology. Other advanced economies spend more on R&D as a percentage of GDP and do a better job of translating publicly supported science and research into concrete economic gains.⁸ As a result, we are at risk of failing to competitively develop essential clean technology supply chains.

At the same time, as clean technology has advanced greater focus is needed on sectors that are harder to decarbonize—such as energy-intensive manufacturing, which is critical to meeting climate goals, as well as to creating and maintaining jobs, and strengthening the U.S. economy. We have a powerful opportunity to focus DOE efforts on making a major step forward in developing, demonstrating, and commercializing the innovative technologies and approaches necessary to deeply cut emissions in the industrial sector while securing domestic manufacturing and jobs.

We know that investing in R&D works. U.S. government investments in innovation—from basic research at our national labs to targeted and applied R&D—have launched technological transformations that led the world and underpinned prosperity and growth.⁹ Unfortunately, in recent years “invented here” has too often meant built somewhere else, when patents or technology developed with taxpayer money have ended up being turned into products and jobs abroad, and gains from technological innovation intended for public purposes have flowed to just a few. In the technological transformation necessary today to meet the climate challenge, we have an opportunity to recapture innovation leadership, turn it into manufacturing, jobs, and products made in America, put innovation to work for the public benefit, and lead a more equitable global technology transformation.

We need to:

- 1. Greatly increase U.S. funding for research, development, and demonstration (RD&D)—as well as for deployment, as discussed in Pillar 1—to levels commensurate with competitor nations and to meet ambitious clean technology leadership and industrial transformation objectives.**
 - ▶ Fund and focus RD&D to ensure U.S. innovation is translated into robust domestic manufacturing and supply chains. Enhance demonstration and technical assistance; sustain successful clean energy and technology programs—from basic research, to commercialization partnerships, to manufacturing and deployment support—and put an enhanced focus on emerging low-and-zero-carbon technologies and processes, and on labor and community-friendly innovation.
- 2. Establish a new DOE Office of Industrial Transformation charged with leading and coordinating DOE’s efforts on industrial innovation and competitiveness consistent with the goal of achieving net-zero greenhouse gas emissions economy-wide by 2050. This includes:**
 - ▶ Appointing an Assistant Secretary who reports directly to the Under Secretary of Energy to lead the office;
 - ▶ Establish DOE’s Advanced Manufacturing Office (AMO) as the cornerstone of this new Office; broaden its mandate to include GHG reduction; and task it to expand and coordinate industrial energy efficiency, advanced manufacturing, and industrial emissions reduction strategies, working with EERE and others; and
 - ▶ Establish a new advisory council at the Department of Energy tasked to:
 - Further develop and pursue roadmaps for deep emissions reduction and economic and technological competitiveness in the domestic industrial sector; and



Photo courtesy of ArcelorMittal

- Identify, develop, and coordinate the R&D, commercialization, technical and deployment assistance and funding programs necessary to develop and deploy transformative industrial technologies at a scale commensurate to meet roadmap goals.

3. Execute a robust industrial transformation program, including technology development, demonstration, and deployment, in the following priority areas:

- ▶ Boost fuel, feedstock, and infrastructure innovation, and identify and support opportunities to develop, and enable far more aggressive first-in-class deployment of no- and low-carbon technologies; and
 - Spur rapid near-term low and medium heat efficiency improvement and emissions reduction through coordinated technical support and increased funding for a variety of tax, utility, and other incentives;
 - Fund AMO to lead a coordinated industrial carbon capture, utilization, and storage (CCUS), carbon dioxide removal and direct air capture (DAC) effort within DOE, and to engage other agencies on carbon capture and removal technologies, carbon-utilizing materials production, and associated infrastructure; and
 - Fund dedicated RD&D focused on industrial CCUS, including DAC, coordinated by AMO in collaboration with the Office of Fossil Energy.
- ▶ Enhance and coordinate DOE efforts to spur development, demonstration and deployment of circular economy processes and materials

redesign, in coordination with efforts to ensure secure and responsible supply and management of critical minerals, including:

- Ensure circular economy is included in AMO's new industrial innovation tasking as well as early R&D around necessary carbon intensity definitions and measurements;
- Develop a multi-agency circular economy roadmap, and facilitate cross programmatic system-level planning and analytical assessment, working with DOE's Office of Energy Policy and Systems Analysis (EPSA);
- Boost R&D and establish new industrial technology prizes, for example carbon capturing materials connected to industrial process innovation; and
- Ensure circular economy technologies and processes are fully incorporated into all appropriate industrial innovation and emissions reductions efforts.

4. Coordinate, fund, and execute a program to develop robust and comprehensive supply chains for critical clean technologies in the United States within ten years, including:

- ▶ Revive DOE's Clean Energy Manufacturing Initiative (CEMI) to coordinate a program to develop robust and comprehensive supply chains for critical clean technologies in the United States, in coordination across DOE and with Commerce, NIST-MEP, DOL, and other agencies; and

- ▶ Task CEMI to work with a reorganized DOE Energy Jobs Strategy Council and the agencies above to review and refocus DOE efforts to support this goal:
 - Review DOE's strong clean energy and transportation RD&D portfolio, and enhance focus on areas of particular competitive threat or opportunity, and where significant gaps or weaknesses in domestic supply chains exist;
 - Review U.S. commercialization partnerships relative to global models that promote the growth of supplier networks to respond to technological shifts (such as the European battery alliance), and propose improved mechanisms to engage suppliers in critical clean technology development, commercialization, and deployment partnerships at DOE;
 - Develop and execute a strategy to broaden domestic supplier and related stakeholder engagement, speed development of and transition to critical clean technology supply chains in the United States, while securing or growing jobs and job quality; and
 - Collaborate with the DOE's Loan Programs Office (LPO) to prioritize complementary or enabling loan or grant investments, as well as with AMO to ensure RD&D efforts in areas like energy storage and hydrogen production and infrastructure are coordinated across the agency to jointly support strengthening clean technology manufacturing supply chains and achieving large scale industrial innovation and emissions reduction.

5. Establish a permanent jobs, labor, and energy workforce program modeled on the Energy Jobs Strategy Council in the office of the Secretary of Energy, working in collaboration with DOL and DOT, and with the Office of Economic Impact, Diversity, and Employment, that specifically targets the labor and workforce needs in a transition to a clean energy, technology, and net-zero GHG economy, including:

- ▶ Convene and enhance the engagement of labor unions and—with the Office of Economic Impact, Diversity, and Employment—impacted communities, in shaping the objectives and outcomes of America's energy and related technology innovation;

- ▶ Identify key energy and energy technology related workforce threats and opportunities, and bring agencies and stakeholders together to shape the future of work in the clean economy;
- ▶ Track relevant jobs data and workforce demographics, outcomes, and changes, and integrate labor and employment metrics into policy design and review; and
- ▶ Identify and promote innovative labor and community-friendly advanced energy technology and business models.

6. Enhance public benefit from publicly funded research and innovation, including:

- ▶ Enforce rules on domestic manufacturing of technologies and utilization of intellectual property (eg. patents) developed with taxpayer funded R&D, especially if technology is not commercialized domestically, or to otherwise ensure public benefit;
- ▶ Ensure basic research is kept open source; and explore ways to improve utilization of intellectual property to facilitate broader deployment of newly developed technology across domestic supplier networks; and
- ▶ Establish new clean technology, materials and process innovation prizes that simultaneously achieve leading job quality, community benefit, or state-of-the-art health and safety outcomes.

7. Ensure domestic clean economy manufacturing objectives are elevated as a primary focus of a proposed National Institute of Manufacturing. In the event that all U.S. efforts related to manufacturing across government agencies are coordinated through a new National Institute of Manufacturing, a primary objective of the Institute should be positioning U.S. manufacturing and workers to lead in the global transition to a clean and net-zero carbon economy.

PILLAR 3: RESPONSIBLY MINE, RECLAIM, AND RECYCLE CRITICAL MATERIALS

Need: Numerous metals and minerals are essential components in the transition to a low-carbon and clean energy future. Rapidly growing deployment of clean technology means rapidly increasing demand for a variety of mined materials, such as copper, lithium, and nickel, as well as comparatively rare minerals, metals, and rare earths such as cobalt and neodymium.¹⁰ For example, the American Solar Energy Society estimates that by 2025, worldwide demand for lithium will increase to over five times 2019 levels as the market for electric vehicles and energy storage grows.¹¹ The United States currently lacks a secure domestic supply of many of these materials.¹²

Instead, a number of these critical minerals are produced primarily by countries that are not our allies and sometimes under shockingly poor environmental and labor conditions.¹³ If this status quo continues, it not only threatens our values, but creates enormous supply chain risk for U.S. manufacturers, endangering their ability to meet the growing demand for clean technologies.

Today, the United States lacks strategies for responsibly mining these materials at home, for developing secure and sustainable supply chains for their incorporation into the clean energy economy, and for leading through example—in cooperation with other nations that seek to mine and develop these resources in safe, environmentally responsible, and socially inclusive ways.

A new national commitment to environmentally, economically, and socially responsible mining, reclamation, and recycling of these minerals and materials has the potential to create jobs in America, generate a cleaner and more secure energy future, and elevate the United States as a global leader in the industry. We can act now to enhance recycling, reclamation, and increasingly circular process and product design. We can forge a national agreement for a better plan to produce necessary minerals and materials in ways that uphold our obligations to

workers, communities, and the environment.

We need to:

1. Develop a comprehensive national critical minerals strategy guided by a commitment to environmentally, economically, and socially responsible production, reclamation, and recycling domestically and worldwide by:

- ▶ Establishing a commission tasked to develop a national strategy, and specifically to assess the potential to establish or reestablish highly responsible production of critical minerals in the United States. Such a strategy should:
 - Identify R&D for recycling and replacements for critical minerals, as well as chemistry, fundamental material science, and applied R&D for processing and manufacturing of critical minerals;
 - Design this R&D strategy in coordination with existing efforts by the Critical Materials Institute (CMI), the DOE Office of Science, the National Oceanic and Atmospheric Administration (NOAA) Office of Ocean Exploration and Research, the National Institute of Standards and Technology (NIST), Department of Defense, Environmental Protection Agency, and the Nation's National Laboratories, and other offices or agencies as appropriate, to establish responsible new mining opportunities and discover substitution materials; and
 - Develop a federal program within CMI that supports the private sector in the demonstration, evaluation, testing, and certification of substitution or alternative materials that target critical minerals in high demand to supply the needs of a low carbon economy.
- ▶ To achieve responsible critical materials production to meet projected demand, the following actions are recommended:

- Develop a roadmap that identifies key R&D needs and coordinates on-going activities for source diversification, more efficient use, recycling, and substitution for critical minerals;
- Complete technical and economic feasibility studies of the production of critical minerals and related manufactured materials from secondary and unconventional sources— including coal based resources, mine tailings, smelter slag, waste streams, end of life products, and seawater deposits;
- Establish new public-private partnerships (for example consortia based in National Laboratories and universities) and leverage existing public-private partnerships to more efficiently address the underlying scientific and early-stage applied research; and
- Ensure dedicated funding and programmatic infrastructure for hard rock mining reclamation.

2. Incentivize and enhance use of responsibly produced critical minerals and metals, including:

- ▶ Utilizing trade, procurement, and other measures to enhance domestic and international supply chain accountability;
- ▶ Set and raise minimum environmental and labor standards for critical minerals mining;
- ▶ Develop and adopt a certification process in conjunction with a third-party validator, such as the Initiative for Responsible Mining Assurance (IRMA), that addresses supply chain accountability as well as corporate, environmental, and social responsibility; and
- ▶ Ensure U.S. strategic energy, materials, and technology stockpiles are domestically or responsibly sourced.

3. Jump-start domestic projects to recycle key strategic materials and reduce reliance on these materials in clean technology production in conjunction with deployment of innovative circular economy processes and products, including:



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- ▶ Investment to spur full-scale domestic projects to responsibly reuse and recycle strategic minerals and materials as one of several key priorities for an industrial bank, or revolving loan fund, as discussed above;
- ▶ Provide and enhance funding through existing grant, loan, tax, and other clean energy investment incentives for deployment of responsible recycling, and expand or create a new clean technology tax credit for responsible critical materials recycling/reclamation; and
- ▶ Create a critical materials recycling insurance or investment guarantee program to ensure recycling and circular economy businesses and networks can be sustained across large global swings in commodity prices.

4. Fund reclamation and remediation projects that spur economic development in hard-hit communities, fully engage stakeholders, address long-standing economic and environmental harms, and position communities to thrive in a net-zero emissions economy, with a focus on:

- ▶ Hard rock mining reclamation;
- ▶ Brownfield redevelopment; and
- ▶ Manufacturing conversion or industrial process transformation.

PILLAR 4: USE PUBLIC INVESTMENT WISELY TO BUILD A STRONG, CLEAN, FAIR MANUFACTURING ECONOMY ACROSS AMERICA

Need: Public investments and policies play a critical role in creating demand and a robust market for clean and advanced technology in America, in spurring domestic manufacturing of that technology, and in setting a high standard for the jobs and community benefits our public investments support. Indeed, these high—and manufacturing focused—standards are critical for taxpayers and the public to see the full value of their investments.

Even aside from a major new infrastructure investment, federal government purchasing, together with related state and local spending, represents hundreds of billions of dollars spent annually on roads, transit equipment, government buildings, and other major investments.¹⁴ Meanwhile in the clean technology sector, major tax credits drive technology deployment and production in key sectors. These taxpayer investments can either support the development and growth of domestic clean technology manufacturing and good safe jobs across the economy in key emerging industries or—if there are not standards attached to ensure domestic, clean products—undermine them. In too many cases, clean technology jobs are lower paid and less secure, and reliance on offshore and non-transparent supply chains has decreased public and economic benefits from clean energy and infrastructure deployment.

Updating and enhancing long-standing Buy America/n and other procurement standards—and ensuring labor and domestic content standards apply to all major public investments in clean technology deployment—can play a critical role not only in



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strengthening domestic manufacturing and jobs in emerging technology, but in building public support and momentum for the clean economy.

Smart procurement policies also play an important role in spurring near-term demand for clean technologies and low-carbon products, and sustaining strategic investments in U.S. manufacturing even when economic times are tough or in the face of other market uncertainty.

But at a time when countries worldwide are rushing to capture the economic benefits of a rapidly changing, increasingly low-carbon global economy, no discussion of creating demand for clean technology manufacturing would be complete without discussion of energy and emissions policies. Strong U.S. energy and emissions standards are critical to providing the certainty and price signals needed for companies to make long-term investments in clean technology manufacturing and industrial emissions reduction here, and without them we risk—and indeed are seeing—those investments flowing overseas.

Encouraging domestic demand for clean technology and low-carbon materials is critical, but it is not sufficient to ensure we lead the world in clean manufacturing. Just as in public purchasing, environmental standards must be coupled with manufacturing, labor, and community benefit policies if we are to see the full public gains from these measures. In addition, how the standards themselves are structured and implemented can have significant impacts on whether they facilitate or limit the manufacturing and jobs benefits of emissions reductions.

In coming years, we are likely to see debate and development of many major market-driving climate and energy related standards and policies. Ensuring that working people are at the table to shape these policies will be critical to seeing the manufacturing, jobs, and community gains we stand to benefit from together.

We need to:

1. Utilize direct federal—and state and municipal—procurement to spur demand for clean, fair, safe, and domestically manufactured clean technology, such as:

- ▶ Boost government “lead-by-example” purchases of, for example, clean fleets and deployment of net zero building technology, in conjunction with domestic content requirements;
- ▶ Use Government Services Administration (GSA) and Department of Defense (DOD) purchasing to spur demand for cutting edge, domestically manufactured clean technology (see also GSA standards below), for example: enhancing government fleets and buildings with vehicle-to-grid or other, innovative community resilience, and disaster response technology;
- ▶ Spur innovative domestic energy and grid technology adoption by federal-and-municipal-owned energy systems, such as the Tennessee Valley Authority and the Power Marketing Administrations, and ensure these systems in turn facilitate industrial efficiency and emissions reduction within their jurisdictions;
- ▶ Ensure training, workforce retention, and anti-privatization measures where clean technology results in changes to operations or maintenance of equipment;

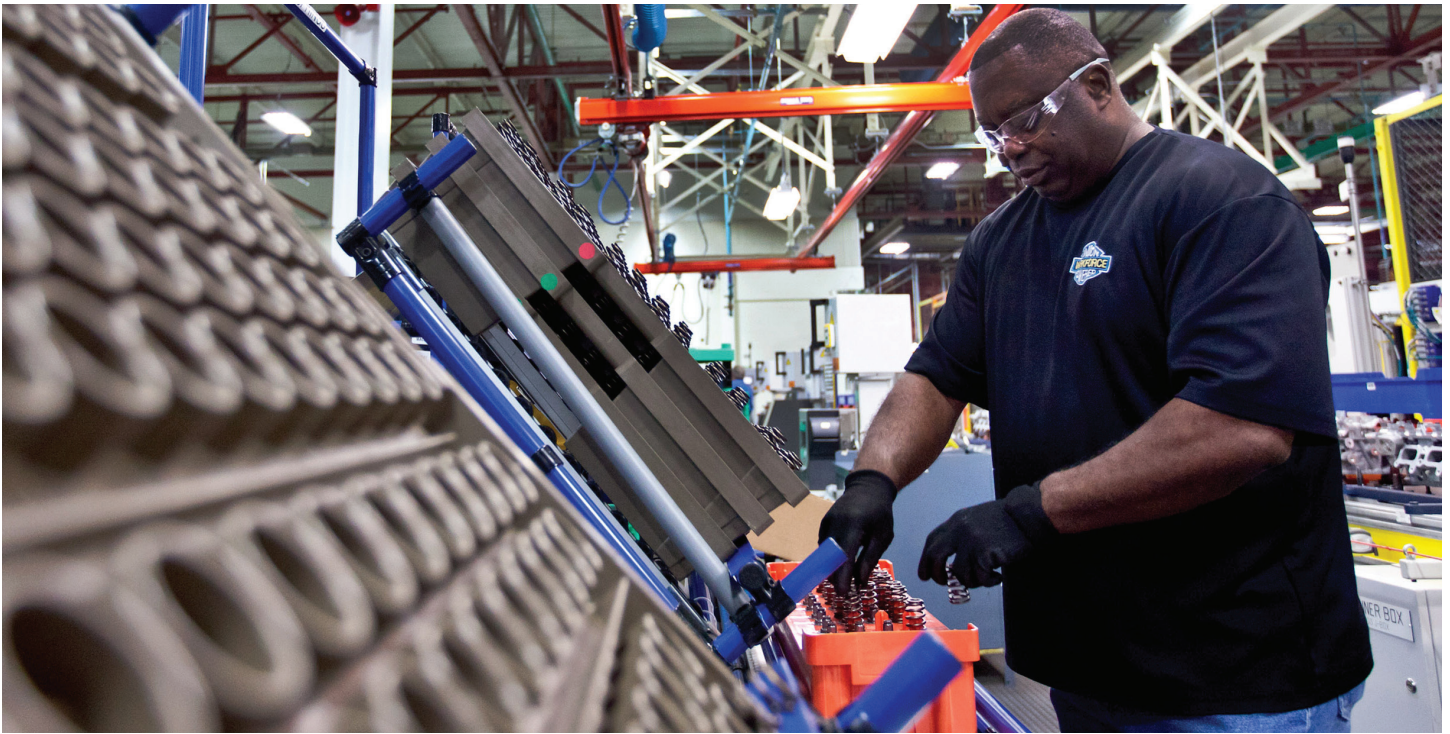
- ▶ Incentivize the use of restricted and permissible substances lists and alternative assessments to select safer materials that can also be incentivized and/or required; and
- ▶ Update federal vendor requirements to create “preferred” vendor lists that includes companies with high labor standards, neutrality, clean processes, and low emissions.

2. Review U.S. strategic energy, materials, and technology stockpiles and, if necessary, reform them to ensure they support the need for rapid clean energy technology deployment and domestic manufacturing development, and industrial emissions reduction.

- ▶ In conjunction with the development of a critical minerals strategy, ensure other clean energy-critical stockpiles are domestically and/or responsibly sourced; and
- ▶ Implement a strategy to enhance domestic production to fill manufacturing or supply chain gaps.

3. Improve and extend Buy America/n and ensure its effective application to manufactured goods, clean technologies, and materials, including:

- ▶ Extending Buy America/n applicability—including melted and poured provisions—to more infrastructure sectors and materials;
- ▶ Tighten and clarify rules on manufactured goods and subcomponents—especially for emerging clean technologies and materials—to support development of critical components in the United States;
- ▶ Improve transparency and waiver rules; and
- ▶ Where waivers are approved, improve mechanisms to regularly review, and to require and phase in domestic supply over time.



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4. Utilize soundly crafted Buy Clean procurement policies to incentivize and reward clean, low-carbon production of energy intensive materials. Such policy should:

- ▶ Promote spending taxpayer dollars on infrastructure supplies and materials that are manufactured in a cleaner, more efficient, and climate friendly manner—rewarding companies that are doing things the right way; and
- ▶ Put a brake on leakage or offshoring of emissions and jobs across the supply chain.

5. Utilize “Fair and Responsible” procurement approaches to enhance labor standards, workers’ rights, career pathways, equity, and community benefits—and ensure their applicability to manufacturing and manufacturing supply chain, including:

- ▶ Develop and codify domestic ‘qualified’ or ‘preferred’ entity^{vii} certification for domestic manufacturers and suppliers who demonstrate positive compliance with strong labor and equity standards and workers’ rights;
- ▶ Utilize domestic ‘qualified’ or ‘preferred’ domestic entity certification or similar to raise labor standards for GSA procurement;
- ▶ Supplement Buy America/n requirements with procurement requirements that require or incentivize high labor standards, union neutrality, career pathways, equity, and community benefits agreements for public procurement of major manufactured materials and equipment; and
- ▶ Supplement Buy Clean with procurement requirements that require or incentivize neutrality at domestic assemblers and major suppliers and require supply chain disclosure.

vii *Qualified Entities and Qualified Manufacturers:* Under a “Fair and Responsible” approach, this refers to companies, employers, or manufacturers with demonstrated high labor standards and responsible labor practices. This includes employers who are neutral on organizing and collective action, provide family-supporting wages and benefits, have strong occupational safety and health programs, and have in place sound community benefit/community workforce agreements.

6. Ensure all major public spending on clean technology deployment—such as tax incentives, loans, grants, and bonds—also support high labor standards and domestic manufacturing throughout the supply chain.

- ▶ Incentivize and/or require significant domestic content in clean technology **products and projects** receiving tax, grant, or loan funds, and for private activity bonds. For example:
 - Where tax credits or other financing mechanisms are used as an alternative to public funding of infrastructure equipment, ensure domestic content requirements remain equivalent to Buy American requirements that would have applied.
- ▶ Incentivize and/or require “Fair and Responsible” or qualified entity labor standard certification for domestic manufacturers and major suppliers of clean technology products receiving tax, grant, or loan funds;
- ▶ Ensure high labor standards, anti-privatization, and workforce retention and training requirements for operation and maintenance of clean technology products—for example vehicles and equipment deployed through these incentives;
- ▶ Ensure Davis-Bacon, Project Labor Agreements, local hire, apprenticeship requirements continue to apply to manufacturing retooling and other facility investment incentives, as well as to clean energy project incentives; and
- ▶ Incentivize manufacturing facility investments that include commitments to high labor standards, health and safety, and community benefits in manufacturing facility operations.

7. Develop and enact the globally leading energy, emissions, and pollution standards necessary to drive demand for clean technology production in the United States. Strong domestic energy and emissions standards and a proactive manufacturing agenda go hand in hand to support and sustain manufacturing and manufacturing jobs in the United States. We must:



- ▶ Develop and enact the strong energy and emissions standards necessary to drive demand for clean technology production in the United States, and to provide the certainty companies need to make long-term clean technology manufacturing investments here. Key standards with significant potential to enhance manufacturing growth and competitiveness include:
 - Vehicle fuel economy and GHG standards and electric vehicle and charging deployment targets;
 - Clean energy and efficiency standards;
 - Updated building codes; and
 - Potential sectoral or economy-wide GHG reduction targets.
- ▶ Work together to ensure any such policies are designed and structured to support and enhance domestic manufacturing, and to secure and grow good jobs across America; and
- ▶ Make the long overdue investment in modernizing America’s infrastructure, which is also critical to boosting manufacturing and good jobs, as BGA discusses in our separate infrastructure agenda, *Investing in America’s Infrastructure to Create High-Quality Jobs and Protect the Environment*.¹⁵

PILLAR 5: CHANGE THE RULES TO BUILD A CLEAN ECONOMY THAT WORKS FOR ALL

Need: Even during times when overall employment numbers have been relatively high, the U.S. has had a serious shortage of *good-paying* jobs across the economy. There is persistent high unemployment in communities left behind by deindustrialization and long-standing underinvestment, and too many workers have to work more than one job just to make ends meet. Attacks on unions and workers' ability to have a voice at work has meant stagnant wages at almost all skill levels, and these trends are aggravated by the boom in outsourcing and temporary work.¹⁶

Compared to other advanced nations, American workers are routinely left far more vulnerable to technological and economic shifts. U.S. public and private sectors are underinvesting in training and retraining workers throughout their careers, and the U.S. lacks a competitive social safety net and public service infrastructure which leaves working people and communities to shoulder all the costs—and to see too few of the benefits—of technological and industrial change.¹⁷ To effectively transform American manufacturing we must also proactively address the legacy of discrimination that has disproportionately exposed communities of color, low-income workers, and others to toxic pollution, low wages, dangerous living conditions, and other harms in the course of industrial development.

At the same time, our trade, tax, and financial rules have been rewritten to benefit corporate and financial interests, and to undermine workers' power and their efforts worldwide to raise environmental and labor standards—further aggravating inequality.

These choices matter to manufacturing and workers in the sector. The same corporate tax and financial rules that harm workers, also punish companies seeking to make long-term investments in factories and training. They reward offshoring, and encourage siphoning value out of companies at the expense of workers and productive assets, thus driving an overall shift in investment away from making or building things in America.

The effects of this “trickle down” economic theory are apparent. They can be seen in stagnant wages, runaway economic inequality, booming CEO pay and benefits, and in the dwindling investment in workers and communities around the country.¹⁸ Recent corporate tax cuts have added insult to injury and they have further shown the failure of this approach. They have not delivered promised gains for workers—with rare exceptions where workers have organized to demand them.¹⁹ Instead, they are again transferring value to shareholders and away from working people and hampering our ability as a nation to invest in the infrastructure of all kinds we need to underpin a prosperous economy.

We need a comprehensive approach that restores the rights of workers to organize for a voice at work, reorients corporate incentives to support investment in good jobs and making things in America, and ensures proactive and ongoing investments in workers and communities as technology changes. We need to directly address and repair disproportionate economic and environmental harms, and spur job creation and economic recovery where those are needed most.

We need to:

- 1. Raise labor standards across the private sector and actively discourage exploitative business models and practices in the production or deployment of clean technology.**
 - ▶ Enact policies that strengthen workers' rights and ability to organize, for example the Protecting the Right to Organize or “PRO Act;” and
 - ▶ Discourage misclassification, particularly in emerging clean technology sectors, and ensure and incentivize strong labor standards in clean technology manufacturing and deployment (as discussed in Priority 4).



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2. Ensure trade rules and enforcement that increasingly improve worker and environmental standards throughout the manufacturing supply chain and stem offshoring and the leakage of jobs—and pollution—overseas.

- ▶ Ensure trade agreements include strong, fair, and enforceable labor and environmental standards, and eliminate provisions that undermine them, including:
 - Ensuring trade deals are negotiated with public transparency and equitable participation from stakeholders, and include strong labor, climate, and environmental standards with independent and binding enforcement;
 - Exclude any form of investor-state dispute settlement or other means for corporations to challenge established protections for workers and the environment;
- Improve application and enforcement of existing trade rules and remedies—particularly for energy-intensive materials and clean energy technologies—to prevent dumping and other predatory practices in foreign markets, and support countries’ abilities to develop local clean energy industries to serve domestic demand; and
- Require that any expedited trade agreements require high labor and environmental standards for manufactured goods.
- ▶ Ensure appropriate border adjustments are enacted, particularly in the case of any mandated emissions reduction in energy-intensive, trade-exposed industries, along with other mechanisms for supply chain accountability. This could include, for example:
 - Requiring a border adjustment mechanism or climate duty on imports of goods whose embodied greenhouse gas content (the emissions associated with producing that category of good in the country of production) exceeds a stipulated threshold protective of U.S. industry standards.

3. Realign corporate tax and finance rules and incentives to encourage investment in domestic plants and workers, and to discourage outsourcing and offshoring—particularly in critical clean energy, technology, and materials sectors, including measures to:

- ▶ Repeal and/or amend portions of the 2017 corporate tax cuts and tax reform to require—rather than promise—benefits for workers and manufacturing, for example:
 - Closing loopholes, such as the deduction for global low-taxed income, that encourage companies to invest and shift profits abroad and use the revenue to support incentives for domestically produced clean technology or infrastructure; and
 - Fund business tax credit for increased investment in contractually mandated worker training and registered apprenticeships.
- ▶ Prohibit large scale share buy backs and share repurchases that have pulled billions in potential investment capital out of major manufacturing and firms; and
- ▶ Amend the Securities Exchange Act to require significant employee-elected representation on the boards of directors of publicly traded corporations.

4. Enact proactive measures to prevent unnecessary job loss in changing industries and ensure holistic reinvestment in communities where job loss or disinvestment is underway or has already occurred, including measures to:

- ▶ Continue to strengthen layoff aversion and avoidance measures in the Workforce Innovation and Opportunity Act and make sure that federal reauthorization of the Act fully incorporates labor stakeholders, ensures timely delivery of services to workers to improve work-based skills, and increases federal funding for adult education;
- ▶ Strengthen WARN requirements to increase advanced notice, community engagement, enforcement, and tracking;
- ▶ Amend UI to allow for job sharing, and encourage and incentivize additional layoff avoidance strategies;

- ▶ Couple clean technology or manufacturing deployment incentives with job retention and job quality backstops and requirements for retraining;
- ▶ Work towards a competitive social safety net that better supports all workers in a rapidly changing economy, and immediately enact measures that:
 - Secure industry pensions and healthcare funds in impacted industries; and
 - Boost wage and retraining support, and secure local public services and jobs wherever major industrial disruption occurs.
- ▶ Make targeted and equitable reinvestment in impacted communities a priority for any green or industrial bank, and for manufacturing loans, grants, and bonds (as discussed in Section 1), and coordinate with federal state and local economic development tools and initiatives to provide holistic support to communities and workers; and
- ▶ Prioritize reclamation, remediation and industrial transformation projects that directly address legacies of economic and environmental injustice; fully engage community and worker stakeholders; deploy innovative clean and safe manufacturing approaches, and demonstrate clean, fair, modern, and equitable manufacturing and economic development.



APPENDIX: GLOSSARY OF KEY CONCEPTS AND TERMS

Clean Technology, Components, and Materials or Clean Energy Goods: Making the United States a leader in manufacturing and producing the essential goods needed for an increasingly clean, healthy, and low-carbon economy—both across sectors and throughout the supply chain—is a pivotal part of the *Solidarity for Climate Action* platform. This includes major manufactured goods—like clean vehicles and offshore wind turbines—and, notably, their components (for example batteries and cells) and materials (for example high strength lightweight steel, carbon fiber). It specifically includes technology for cleaner energy, transportation, and infrastructure, as well as manufacturing goods for industrial and agricultural emissions reduction, industrial, building, and water efficiency, and other carbon reducing technologies that may be identified.

Economically Critical Technologies and Materials: Refers to those technologies—particularly component technologies—that are essential to major climate solutions or larger clean technologies. This particularly extends to those materials that the United States does not yet have significant or sufficiently advanced capacity.

Critical Minerals: Refers to raw or minimally processed materials critical to clean energy technologies and may either be rare or inaccessible domestically. This includes certain minerals, metals, and other compounds (for example rare earths, lithium, etc.). In this document we are referring to those with specific implications for carbon reduction and the clean economy. Additionally, there are critical minerals and materials—as well as certain “strategic technologies”—that are already stockpiled for national and economic security reasons.

Energy Intensive Industry: While virtually all manufacturing utilizes energy and can benefit from efficiency gains, certain industries utilize more energy and produce more carbon emissions because their processes require very substantial heat inputs and/or involve chemical transformations that themselves emit carbon pollution. As a result, these industries will also require more complex and extensive strategies to cut emissions. Examples of these industries include: steel, aluminum and other metals, chemicals, cement, glass, paper, and refining.

Responsible Mining: This speaks to areas of focus when mining that include corporate/or business accountability, will leave a positive project legacy, and take seriously the social and environmental obligation to the local community and region. Each of these areas have specific considerations including ensuring an active community/stakeholder process; respect for human rights, transparency, prior consent, workers’ rights, health and safety, and fair labor practices; and appropriate management of wastewater, air quality, GHG emissions, and ecosystem protection.

Circular Economy refers to a range of technologies and approaches, such as materials recirculation, product materials efficiency, materials substitution, and circular business models, that aim to go beyond recycling to designing products and systems to keep resources in a closed cycle and eliminate waste and pollution. These approaches can be integrated with other industrial innovation to provide enhanced efficiency and emission reduction benefits, as well as to cut costs, preserve scarce and possibly expensive resources, and reduce unnecessary pollution.

GLOSSARY (CONTINUED)

Impacted Workers and Communities: A central tenet of this agenda is rebuilding American manufacturing to support an equitable transition to a low-carbon economy. Doing so with clean operations, high labor standards, and sound community engagement can be an engine of good-paying, union job creation and economic growth and recovery in the communities that need it most. These include:

- ▶ **Deindustrialized Communities:** Communities that have seen or are currently seeing loss of manufacturing, or loss of traditional industries;
- ▶ **Disinvested and Underinvested Communities:** Communities—particularly communities of color, immigrant, as well as poor or rural communities—that have faced historical and current disinvestment and underinvestment as a result of racial or eco-discrimination, and have not seen equitable benefits from clean technology investment or growth; and
- ▶ **Frontline Communities:** Communities facing the direct, local, environmental impacts of past, current, or proposed energy or industrial facilities, and that have historically borne the brunt of environmental harms of energy and industrial development.

Qualified Entities and Qualified Manufacturers: Under a “Fair and Responsible” approach, this refers to companies, employers, or manufacturers with demonstrated high labor standards and responsible labor practices. This includes employers who are neutral on organizing and collective action, provide family-supporting wages and benefits, have strong occupational safety and health programs, and have in place sound community benefit/community workforce agreements.

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